AN EXPLORATION OF FOUR TO SEVEN YEAR OLDS' PERCEPTIONS OF THEIR OWN BEHAVIOUR

WITH COMPARISONS TO PEERS, CLASS TEACHERS AND TEACHING ASSISTANTS

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A thesis submitted in the partial fulfilment of the requirement of the University of Greenwich for the Degree of Doctor of Philosophy

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DECLARATION

"I certify that this work has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others."

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ABSTRACT

Children aged four to seven years, experience social and cognitive changes and may exhibit a variety of aggressive (Monks, Smith, & Swettenham, 2003), prosocial (Sebanc, 2003) and solitary behaviours (Coplan & Ooi, 2014), which are related to positive and negative outcomes. Research in this area has tended to adopt methods using reports from peers and adults, and hypothetical scenarios presented to children.

This thesis is original in showing that young children can also offer unique insights into their own behaviour by providing self-reports and explanations. These insights vary across different forms of behaviour and over the course of a school year. This research also employed an original method. Stick figure animations were developed to collect behaviour reports from children on a three-point scale. Furthermore, a cohort sequential design with 273 participants was used to assess how children's reported perceptions changed longitudinally over three time points, and cross-sectionally across two year groups.

Reports of children's behaviour were also collected from peers, Class Teachers, and Teaching Assistants. Children's self-reports of solitary and prosocial behaviour tended to be higher than other reporters'. Self-reports of aggressive behaviour tended to be lower than other reporters. Agreement between self-reports and reports from others mostly increased over time.

Children's self-reports were categorised into one of five clusters at each time point: prosocial / social, solitary, low behavioural levels, excluders, and antisocial / solitary. There were no consistent patterns in cluster and age group, time point, or sex.

Children's behaviour explanations were mostly focused on causes, rather than consequences, Agency was mostly external. Outcome focus was more varied across forms of behaviour. Explanations became more consequential over time and there was some variation in explanations by children's self-reported ratings.

Findings are discussed in relation to literature and research, developmental theories, implications for future research, and work in schools.

GLOSSARY

Age group: Two age groups participated in the research. One group started at age four to five years at time 1 (Reception year at school) and were age five to six years at time 2 and time 3 (Year 1 at school). This was the younger age group. Another group started at age five to six years at time 1 (Year 1 at school) and were age six to seven years at time 2 and time 3 (Year 2 at school).

Agency: For the purposes of this thesis, this refers to the coding of children's explanations and whether children perceive causes for their behaviour as internal, external or mixed.

Aggression: For the purposes of this thesis, the term 'aggression' has been used to refer to behaviours where children inflict physical or psychological harm towards another child.

Class Teachers: Throughout this thesis, this role refers to the main Class Teacher of each child, a qualified teacher, responsible for their class.

Difference score: This refers to the difference between a child's self-reports of their behaviour and other reporter's reports of their behaviour.

Difference type: The type of difference between a child's self-reported rating and each of the other reporters and whether this is 'no difference- reported' where there is agreement in the frequency with which they display behaviour form; 'no difference – non-reported' where there is agreement that they do not show the behaviour form; 'higher self-reports' where a child self-reports higher frequencies of the behaviour form than the other reporters and 'lower self-reports' where a child self-reports lower frequencies of the behaviour form than the other reporters.

Early Childhood: For the purposes of this thesis, 'early childhood' refers to the age range four to seven years.

Explanation focus: For the purposes of this thesis, this refers to focus of a child's behaviour explanation and whether this is 'causal' and based on an underlying cause related to the action itself, or child themselves, or 'consequential' which refers to a

potential outcome of behaving in this way, whether it be positive or negative, or the avoidance of this outcome.

External: Used within the context of agency and outcome focus, this has been used where a child identifies other people or other things, external to themselves in each of these roles (opposite to internal).

ICC: Intraclass Correlation statistical technique.

Internal: Used within the context of agency and outcome focus, this has been used where a child identifies themselves in each of these roles (opposite to external).

Middle childhood: For the purposes of this thesis, 'middle childhood' refers to the age range eight to 12 years.

Older age group: This refers to the older age group within the study who were age five to six years at time 1 and six to seven years at time 2 and time 3.

Outcome focus: For the purposes of this thesis, this refers to the outcome focus within a child's explanation. This may be an outcome focus in a causal reason or within a potential outcome. It refers to the person or thing that has or will be affected within their reasoning and has been coded as 'internal', 'external' or 'mixed'.

Peers: For the purposes of this research in this thesis, 'peers' refers to other children in the same class as a child participant (at time 1) or who used to be in their class (at time 2 and time 3).

Prosocial: For the purpose of this thesis, the term 'prosocial' has been used to refer to behaviours where others are benefitted as a result of a child's behaviour

Reception year: In the UK this is the first school year entered by the majority of children. At all schools in this research, children joined Reception in September. Children are aged four to five years in this school year.

Reporters: This refers to the person providing behavioural reports about each child participant. For the research in this thesis, this may refers to Class Teachers, Teaching Assistants or peers.

Solitary: For the purposes of this thesis, the term 'solitary' has been used to refer to behaviours where children who spend time alone.

Teaching Assistants: This role is either termed 'Teaching Assistant', 'Learning Support Assistant' or 'TA' or 'LSA'. This refers to an individual who supports the Class Teacher with teaching in the class, or works one to one with children who have additional needs. They are not qualified teachers.

Time point 1: This research time point took place between April 2012 and July 2012 and refers to the last term of the school year.

Time point 2: This research time point took place between September 2012 and December 2012 and refers to the first term of the next school year.

Time point 3: This research time point took place between April 2013 and July 2013 and refers to the last term of the school year.

Year 1: This is the school year following Reception, where children are aged five to six years.

Year 2: This is the school year following Year 1, where children are aged six to seven years.

Younger age group: This refers to the younger age group within the study who were age four to five years at time 1 and five to six years at time 2 and time 3.

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1 INTRODUCTION

1.1 Overview

In this introductory chapter, a broad background and context of the thesis is presented. This includes a review of both policy and research, which highlight the importance of young children's behaviours and how research in psychology can address this. The justification for the current research is presented, and the structure and content of the thesis are outlined.

1.2 Background and context

There is a great deal of interest in children and young people's behaviour, both nationally and internationally, across academia, government and the media (Maras, 2012). This high level of interest is related to the many impacts that children and young people's behaviour has on their academic, social and psychological functioning. In particular, their behaviours at school can affect numerous people including the individual themselves, other students, and teaching staff (Maras, 2012). Ofsted, the Office for Standards in Education, Children's Services and Skills in the United Kingdom, recently announced that 'poor' behaviour at school can result in children losing an hour of learning each day (Ofsted, 2014). National policies, guidance and research conducted by the Department for Education (2014a, 2012), mainly focuses on reducing 'disruptive', or 'poor' behaviour and increasing 'good' behaviour. It is a national requirement that all schools in the UK have a behaviour policy (Department for Education, 2014a, 2012), and policies and interventions often take place at a whole-school level (e.g. anti-bullying – Reid, Monsen, & Rivers, 2003).

However, this approach makes assumptions about the homogeneity of children's behaviours in schools, and somewhat limits the focus in schools, to 'disruptive' behaviours. Researchers in psychology have demonstrated a need to focus on behaviour more widely, not only focusing on these types of behaviour. This includes a range of peer-related behaviours, such as aggressive, prosocial and solitary behaviour (e.g. Hawley, 2003; Ladd & Burgess, 1999), which have been related to positive and

negative adjustments / outcomes across several ages (Karevold, Ystrom, Coplan, Sanson, & Mathiesen, 2012; White & Kistner, 2011). As such, the current focus in schools neglects several peer-related behaviours, which may also have important associations with children's individual outcomes.

In addition, the schooling arrangements in the United Kingdom (UK) result in unique transitions for young children. Based on the benefits of learning through play (e.g. Duffy, 2006) the Early Years Foundation Stage (EYFS) was implemented in the UK for children from birth up to age five years. This is more play-based, less formal and less teacher-directed than their later years at school (Fisher, 2009). As children transition from their Reception year (age four to five years) into Key Stage 1 (Year 1 – five to six years; Year 2 - six to seven years), there is greater emphasis on teacher-led learning, (Fisher, 2009). These can be difficult transitions for some children, both into their Reception year and into these later year groups (Fisher, 2009; Saunders et al., 2005). These important milestones and school transitions may mean that there are important changes in children's behaviours during this time (four to seven years).

Despite the popular focus on children and young people's behaviours, there is scope for a greater focus when studying psychological explanations for these (e.g. Maras, 2012) across a wider range of behaviours, particularly amongst young children who are experiencing school-related transitions. In addition, whilst psychology has influenced some policies, there is scope for closer integration of policies and psychological research (Norwich, 2012).

1.3 Psychology and young children's solitary, prosocial and aggressive behaviour

Whilst school policies may focus on reducing 'disruptive' behaviour and increasing 'good' behaviour, researchers in psychology have shown a variation of prevalence levels and associated outcomes for different forms of these behaviours (e.g. Monks, Smith, & Swettenham, 2003). Furthermore, researchers have demonstrated the importance of studying a wider range of behaviour categories, including aggression (Monks et al., 2003), solitary behaviour (Coplan, Ooi, Rose-Krasnor, & Nocita, 2014)

and prosocial behaviour (Gasser & Malti, 2012); and behaviour across more than one of these categories (e.g. Ladd & Profilet, 1996).

In order to study young children's behaviour, adult-reports (e.g. Ladd & Profilet, 1996), peer-reports (e.g. Gasser, & Malti, 2012), and observations (e.g. Coplan & Ooi, 2014) are often used. Whilst these can contribute important information about young children's behaviour, there are several associated biases and limitations (e.g. Spangler & Gazelle, 2009). In addition, these approaches focus on how others interpret children's behaviour rather than asking children themselves. Children's own reports of their behaviour are important because they may contribute to psychological explanations for their behaviour. In addition, related studies looking at children's rejection have found associations between children's self-reports and specific outcomes (Sandstrom, Cillessen, & Eisenhower, 2003), showing that children's own perceptions are important. A small number of researchers have made use of innovative techniques to speak directly with children as young as four years old to collect self-reports of peer-victimisation, such as the use of static cartoons, making it possible to see how children report their own behaviours (Ladd & Kochenderfer-Ladd, 2002; Monks et al., 2003). These researchers showed that young children's self-reports contributed a unique insight that was useful for understanding their peer-victimisation. However, there are very few studies that have utilised young children's self-reports and there is scope to extend this exploration of children's self-reports to a wider number of categories and forms of behaviour, including prosocial, solitary and aggressive behaviours.

In addition, psychologists (e.g. Bem, 1972; Dodge, 1986) have shown that the way individuals interpret social cues and actions, can play a large role in the way they choose to behave. This may be important in providing explanations for children's behaviour. However, when offering psychological explanations for the occurrence of different behaviours, researchers have focused on ascertaining the different functions and reasons for these (e.g. Little, Henrich, & Jones, 2003; Rubin, Hymel, & Mills, 1989), without asking children themselves. These have mostly been based on researcher observations (e.g. Coplan & Ooi, 2014), or discussions with peers using vignettes and hypothetical stories (Malti, Gasser, & Gutzwiller-Helfenfinger, 2010; Malti, Gummerum, Keller, & Buchman, 2009; Malti, & Keller, 2009). However, the reasons for engaging in specific acts or behaviour are an internal process and therefore it is

important to ask children about their own reasons for these, rather than relying on inferences from adults and peers. The importance of this is shown in research looking at social information processing in children's behaviour by presenting children with hypothetical scenarios and asking them questions about their thoughts and feelings if they were in these scenarios (e.g. Dodge, 1986). However, this approach does not consider children's explanations for their real life behaviour and, as such; there is scope to speak directly with children about their different behaviours (i.e. solitary, prosocial, aggressive).

Not only can children's self-reported perceptions of their behaviour provide unique and important insights, they may also be particularly important in young children, because of the several milestones they experience. As well as the key role of peer-relationships during this period of four to seven years (Coplan & Arbeau, 2009), many theorists (e.g. Piaget, 1951) propose that there are several developmental specific stages during this time. As children turn five years old, several changes occur. They experience several cognitive changes, including increasing self-awareness and self-recognition (Rochat, 2003). Furthermore, between ages four and seven, there is an increasing ability to see and feel things from others' perspectives as children's Theory of Mind (Hadwin & Perner, 1991) and empathy (Hoffman, 2000) develop and continues to increase as they become older. Furthermore, theorists (e.g. Kohlberg & Kramer, 1969; Piaget, 1999) have proposed that there are important changes in children's moral reasoning from age five years upwards. Researchers have found that these cognitive abilities are closely linked to children's behaviour (e.g. Strayer & Roberts, 2004), and therefore children's increasing perspective taking and moral reasoning skills may also be related to children's reported perceptions of their own behaviour.

In addition to increasing cognitive abilities, research has suggested that children's behaviours may change over time (e.g. Eisenberg et al., 2007) and that associated outcomes exacerbate with age (Rubin & Coplan, 2004). To understand how children's reported perceptions of their behaviour may change as they become older (and experience social and cognitive changes), it is necessary to study children's self-reports across different ages and over time. In order to gain a wider perspective of the changes and transitions experienced by children, longitudinal designs are employed either in conjunction with (e.g. Eivers, Brendgen, Vitaro, & Borge, 2012) or separately from

cross-sectional methods (e.g. Eisenberg et al., 1999). Longitudinal research is generally underused in the study of children's behaviour (Boulton, 1999) because of methodological challenges with this type of design. However, there are numerous benefits of gaining a within-individual analysis of change (Duncan & Duncan, 2012) and relying on cross-sectional comparisons means that studies are tied to one time point. Researchers (e.g. Pellegrini & Long, 2000) have highlighted the importance of the school year, suggesting that behaviours vary at different time points over the academic year. It would not be possible to consider change in behaviour and reports over the course of the school year, by cross-sectional analysis alone. A longitudinal study of children's self-reported perceptions of their own behaviour could contribute new knowledge to the study of children's behaviour, by focusing on how young children understand their own behaviour, and how this may change over time and over the course of the school year.

Despite the many ways in which young children's behaviours are studied in psychology, the author of this thesis is not aware of any research which has attempted to further understand the psychological reasons for behaviours through collecting young children's reported perceptions of their own behaviours, across several behaviour categories, and over the course of a school year.

1.4 Aims of thesis and research questions

The aim of this thesis was to address the issues discussed above and provide new insights into psychological explanations for young children's behaviour through considering four to seven year olds' reported self-perceptions of these. The aim was to develop an understanding of how these compare to reports from others, and previous research which has used alternative methods. In addition, an aim of the research in this thesis was to consider how children's reported self-perceptions may change as they become older, and over the course of a school year.

These aims were addressed through five main research questions, which are presented below. Each research question was compared across three time points and two age groups (one year apart).

1. How prevalent are four to seven year olds' solitary, prosocial and aggressive behaviours compared to previous research, according to self-, peer-, Class Teacher- and Teaching Assistant-reports?

2. How different are four to seven year olds' self-reported prevalence ratings of solitary, prosocial and aggressive behaviours, to those provided by peer-, Class Teacher- and Teaching Assistant-reports?

3. What types of explanations do four to seven year olds' provide for exhibiting and / or not exhibiting solitary, prosocial and aggressive behaviours?

4. How do four to seven year olds' self-reported ratings relate to each other, across the three categories of solitary, prosocial and aggressive behaviours?

5. How do children's explanations for exhibiting or not exhibiting behaviours relate to each other, across the three categories of solitary, prosocial and aggressive behaviours?

1.5 Originality of this thesis

The research in this thesis makes an original contribution to the study of young children's behaviour by focusing on children's self-reports and explanations of behaviour across three categories: solitary (being alone); prosocial (acting in a way that benefits others) and aggressive behaviour (inflicting physical or psychological harm on someone else). The originality of this thesis also relates to the methods used. Stick figure animations depicting different behaviours were developed as prompts to speak with children about their own behaviour. Furthermore, use of a cohort-sequential design enabled the detection of changes in children's perceptions both longitudinally and cross-sectionally. Children's reported perceptions were found to provide unique insights which differ from other reporters' to varying degrees, for different forms of behaviour and change over time. As such, the research in this thesis offers a more dimensional understanding of young children's behaviour than previous research.

1.6 Outline of thesis

This section contains an outline of the chapters in this thesis.

In Chapter 2, an argument is developed for the focus of this thesis, demonstrating the importance of children's self-reports and explanations in the study of young children's behaviour. Furthermore, definitions, forms, prevalence and associated outcomes of the three areas of behaviour considered in this thesis are presented: solitary behaviour; prosocial behaviour; and aggressive behaviour. Developmental theories are also discussed and related to the current study.

In Chapter 3, the methodology for a cohort sequential design (using both cross-sectional and longitudinal comparisons) is presented. In addition, the background context of the participating schools and details of both adult and child participants are provided. This chapter also includes an explanation of how pilot research informed the study and the treatment of data in the results sections of the thesis.

In Chapters 4, Chapter 5, and Chapter 6, there is a focus on each behaviour category (solitary, prosocial, aggressive). Within each chapter, there is an overview of literature based on Chapter 2, and a presentation of research questions specific to each behaviour category. Findings are presented relating to three areas of analysis. Firstly, ratings of children's behaviours by self-, Class Teacher-, Teaching Assistant- and peer-reports are considered. Secondly, analysis is conducted which focuses on the differences between ratings from self- and each of the other reporters. Thirdly, analysis of children's explanations for exhibiting and not exhibiting different behaviour forms is presented in two ways. There is a focus on explanations for both exhibiting and not exhibiting behaviours together and whether there are patterns relating to the discussion of each behaviour form. Explanations are then analysed by how far children reported exhibiting each form of behaviour. Discussion of findings are also presented and related to the research questions.

In Chapter 7, there is a focus on results from analysis of children's self-reports and explanations across all three categories of behaviour. An overview of relevant literature and research is provided based on Chapter 2, and specific research presented. This

chapter contains analysis of patterns and trajectories of children's self-reports and explanations across all three behaviour categories. There is also a discussion of findings in relation to the specific research questions.

Chapter 8 contains a general discussion of the main findings from this thesis, in line with the main research questions of the present research. Findings are integrated from across chapters, and there is discussion of implications for literature, theory and practice. Strengths, limitations and future research directions of the current study are also discussed.

2 LITERATURE AND THEORETICAL OVERVIEW

2.1 Introduction to chapter

The previous chapter contained a broad overview of the background to the research presented in this thesis. The current chapter builds on this, with a detailed review of the importance of exploring the nature and use of children's self-reports and explanations for solitary, prosocial and aggressive behaviours. This chapter begins by presenting the associated outcomes and impacts of children's peer-behaviours in order to demonstrate the importance of this area of study. Following this, there is a review of biases in the use of reports from different informants to assess children's behaviour and the benefits of considering children's self-reports. The usefulness of collecting children's explanations is shown through a consideration of attribution theories, along with Dodge's (1986) application of the Social Information Processing Model to children's social competence. Furthermore, the current research is underpinned by several developmental theories, including: Piaget's Theory of Cognitive Development (1951) with a particular focus on egocentrism; the concepts of Theory of Mind and empathy; and Theories of Moral Development, with a focus on Piaget (1999), Kohlberg and Kramer (1996) and Nucci and Turiel's domain theories (2002; 2008). These developmental theories are presented to illustrate the cognitive changes experienced by young children and the application of these theories to the current study. The chapter ends by providing an overview of the present study, and information on the selection of behaviours and consideration of children's explanations.

2.2 The importance of studying young children's behaviour

The research in this thesis is focused on a range of peer-related behaviours exhibited by young children. This section contains a review of why the study of children's behaviour is important, considering both the social and practical changes experienced by young children, and the association between children's behaviour and individual outcomes.

Young children encounter social changes in their experiences with peers, which may in turn impact upon their behaviour. Dunn (1993) demonstrated that peer interactions

during a child's third year of life and following years prior to formal schooling, change in frequency and quality. The amount of attention and time children pay to their peers increases rapidly and this continues into their early years at school (Bagwell & Schmidt, 2011). It is therefore important to consider children's behaviour and social interactions during this period.

These social changes are closely linked to practical changes experienced by children. In the United Kingdom (UK), children commence school at four or five years of age. Prior to this, many children have experienced other childcare or education settings including nursery classes / schools, child-minders, and playgroups (Speight, Smith, Coshall, & Lloyd, 2010). Currently, in the UK, children are entitled to 15 free hours per week of childcare from age three years, which can be used flexibly across providers and days. Uptake of this free provision is high (77% of three year olds) and across a range of providers. However, despite this high uptake, 79% of three year olds receive less than the allocated 15 hour per week of childcare (Speight et al., 2010), meaning that when children start formal schooling, most experience longer and more days than they are used to. There are also many differences between the experiences children encounter with these providers and their experiences at school. Across the range of provision three year olds can access, provision provided by nursery schools / classes[1] is the most similar type to the first year of formal schooling for four to five year olds (Reception class) (nidirect, 2014). However, just under half of three year olds access nursery schools / classes, meaning that most children experience several social and practical changes when starting school. Furthermore, with class sizes of approximately 30 children (Department for Education, 2011) there are higher child to adult ratios than they have previously experienced. Entering formal schooling is, for some children, the first time that they are part of a stable peer group and may be the first context outside of the home environment where children's difficulties in peer-social interactions can be detected (Vlachou, Andreou, Botsolglou, & Didaskalou, 2011) and where their peer groups become increasingly important (Erikson, 1959). Children's interactions at school may continue to change after their Reception year. In the UK, over the first three years of schooling, children experience a move from mostly learning through play (Department

[1] Nursery schools / classes are non-compulsory education settings offered to children in the year before they immediately enter Reception. They are staffed by teachers and assistants.

of Education, 2013a, 2014c) to more structured learning (Department of Education, 2014b). Therefore, in the space of three to four years, children experience numerous practical changes in their everyday setting and peer-interactions. This highlights the importance of considering children's behaviour across ages four to seven years, when children undergo several changes including starting school and encountering an increasingly learning-based environment.

Furthermore, school is an important setting for children, where they interact with numerous other children. When children enter school, they are exposed to a variety of other children, who may have different personalities and backgrounds to themselves. Parker, Rubin, Erath, Wojslawowicz and Buskirk (1995) explained that this can lead to differences in power and popularity, and the development of playmates, friends and friendship groups. Whilst peer interactions increase, friendships are still relatively unstable in these early years (lasting approximately two weeks for four to five year olds - Sanderson & Siegel, 1995) but become increasingly stable with age (Bagwell & Schmidt, 2011). These changes in peer interactions and friendship indicate that there may be important changes in children's behaviours, as they move through these years. As such, it is important to focus on the study of children's behaviours in school settings as this is the main venue where children encounter peers.

The study of children's behaviour in settings with their peers is particularly important in the UK, where young people report poorer peer-relations and experiences than those in other industrialised nations (UNICEF, 2007; 2013). UNICEF (2007) found that the UK was at the bottom of a league of 21 industrialised nations in terms of child reports of 'family and peer-relationships' and 'behaviours and risks'. In addition, the UNICEF study also found that children in the UK were low in reporting their peers as helpful and enjoying school and above average in reports of school bullying. In the 2013 UNICEF report, there was some improvement, with adolescents in the UK ranked 19th out of 29, in terms of the percentage of children who reported finding their classmates thoughtful and helpful (63.3%). The percentage of adolescents bullied in the last couple of months remained above average (but had dropped slightly since 2001 / 2002). These behaviours are associated with several outcomes for children and these statistics demonstrate that reported behaviours with potentially negative outcomes are comparatively higher amongst young people and adolescents in the UK compared to other countries. It is

possible that this is also the case amongst younger children. Research has demonstrated stability in these potentially harmful behaviours (e.g. Schneider, Richer, Younger, & Freeman, 2000; Vaillancourt, Brendgen, Boivin, & Tremblay, 2003) and it is therefore possible that these behaviours develop when children are younger. This suggests that further exploration of behaviour amongst younger children may make it possible to reduce these behaviours before outcomes exacerbate.

Children's behaviour has been found to be important for their subsequent social, academic and cognitive outcomes and experiences, both concurrently (at the same time as their behaviour) and later in life. For instance, behavioural problems have been found to contribute to the widening gap between children from different background, in primary school achievement (Goodman, Gregg & Crawford, 2010), and may act as an important prerequisite for school readiness and academic success (Haras, 2011). Specifically, research into children's behaviour has shown that there are three main areas where children's chosen behaviours may lead to positive or negative outcomes. These include solitary, prosocial and aggressive behaviour. The prevalence of these behaviours and associated impacts are presented below, in order to further demonstrate the importance of studying behaviour in young children.

2.2.1 Solitary, prosocial and aggressive behaviours

The review in the previous section demonstrated that the study of children's behaviour is important. The literature presented in this section shows that this is particularly the case for solitary, prosocial and aggressive behaviours. Definitions of each area of behaviour are provided below in order to enable a clear presentation of why these behaviours are important to study in young children. The prevalence and associated impacts of children behaving in a solitary, prosocial or aggressive way are then presented as further justification for the study of young children's behaviour, particularly in these areas.

2.2.1.1 Definitions and nomenclature

The first area of focus in this thesis is solitary behaviour in young children. The term 'solitary' encompasses a range of behaviours where children stay on their own, despite the presence of peers (Arbeau & Coplan, 2007). Many terms are used to describe solitary behaviour, some of which have similar descriptions. Most research in this area has developed distinctions based on observed or assumed reasons / functions for children's solitary behaviour. 'Active isolation' describes the process where the source of solitude is external to the child, who is isolated by peers and spends time alone as a consequence (Rubin et al., 1989). This has also been referred to as peer rejection (Spangler & Gazelle, 2009). In contrast, 'social withdrawal' refers to an internal motivation for solitude, where a child chooses to spend time alone. There may be different reasons for this. The child may prefer solitary activities and so be 'unsociable' (Asendorpf, 1993) or show 'social disinterest' (Coplan, Prakash, O'Neil, & Armer, 2004). Alternatively, a child may want to interact with others, but shows 'shyness' (Coplan et al., 2004) or 'anxious-solitude' (Gazelle & Ladd, 2003) meaning their desire for social interaction is compromised by social fear and wariness. Research has mostly concentrated on shyness and rejection, with less focus on unsociability. In addition, Coplan et al. (2013) recently developed Asendorpf's (1993) notion of 'avoidance' to describe a group of children who actively seek out solitary situations. Whilst 'avoidance' as a form of solitary behaviour, has been less researched than other acts of solitary behaviour, Coplan et al. (2013) have shown that children see avoidance as a distinct form of solitary behaviour where children want to stay alone. Recent attempts have also been made to focus on forms of solitary behaviour such as Coplan and Ooi's (2014) distinctions of solitary behaviour in play. 'Social wariness' refers to on-looking and reticence; 'solitary active play' refers to situations where children engage in either solitary functional (repetitive sensorimotor actions such as banging blocks together or skipping) or solitary dramatic play (playing make-believe), in the presence of peers; and 'solitary passive play' is used to describe children in constructive or exploratory play, away from their peers.

The research in this thesis also considers prosocial behaviour. This refers to "voluntary behaviour intended to benefit another" (Eisenberg, Fabes, & Spinrad, 1998, p.646) and typically includes a range of behaviours such as sharing, cooperating, helping and

comforting towards peers, regardless of motives (Kakavoulis, 1998). Sharing can be defined as giving up one's own resources to benefit another (Tisak & Ford, 1986); cooperating refers to working positively with others to meet a mutual goal (Staub, 1978); comforting can be defined as taking action to improve the overall mood of another person (Jackson & Tisak, 2001) and helping has been defined as responding to others who have incurred negative consequences which have been produced unintentionally (Tisak & Ford, 1986). Some researchers have also considered the importance of relational inclusion as a prosocial behaviour, where a child invites another child to join a group or game (Greener, 2000; Warden, Christie, Kerr and Low, 1996).

Aggressive behaviour is also examined in this thesis. Aggression can be defined as "any behaviour directed towards the goal of harming or injuring another living being," (Baron & Richardson, 2004, p.37). Early research on aggression referred to direct physical or verbal attacks. This distinction was broadened to also include indirect aggression, which includes involvement of a third party; relational aggression, which has the aim of damaging someone's peer relationships; and social aggression, which has the aim of damage to self-esteem or social status (Smith, 2004). Whilst there is ongoing disagreement amongst researchers about the different terms used to define aggressive behaviour, many of these terms refer to the same forms of aggression. Archer and Coyne (2005) compared the use of the terms 'indirect aggression', 'relational aggression', and 'social aggression', and concluded that these were essentially the same forms of aggressive behaviour as all three are intended to cause harm through the means of using others, spreading rumours, gossiping, excluding others from groups, or ignoring them. Researchers have also developed definitions of aggressive behaviour based on the underlying reasons for the aggressive act. Reactive aggression refers to an act which takes place in response to provocation or perceived provocation and proactive aggression refers to the initiation of an aggressive act because of the desire to achieve a goal (Dodge & Coie, 1987).

Furthermore, there has been growing attention given to different roles taken within children's peer victimisation. Key distinctions made by Salmivalli, Lagerspetz, Björkqvist, Österman and Kaukiainen (1996), in research with 12 to 13 year olds, found that aggressive children can either be 'ringleaders' (who encourage aggression and lead

the behaviour), 'followers' (who join in with the behaviour once it has already started) or 'reinforcers' (who encourage and reinforce the aggressive behaviour). Salmivalli et al. also identified 'outsiders' (who choose not to participate in the aggressive act) and 'defenders' (who explicitly stand up to the aggressors on behalf of the victim). Different roles in aggression and peer victimisation also extend to younger children. Belacchi and Farina (2010) found four macro roles made up of hostile, prosocial, victim and outsider in children aged three to six years. This suggests that even amongst a younger group, children play different roles in aggressive acts. Some of the terms used in the consideration of aggression in this thesis make reference to those used in relation to the study of bullying. However, it should be noted that bullying is different to general aggression as it is repeated and there is an imbalance of power between the victim and bully (Monks & Coyne, 2011). Therefore whilst findings and concepts related to bullying have informed this review, the focus of this thesis is on the display of aggression rather than bullying.

Throughout this thesis, the terminology used is consistent with that used by the authors in question, although alternative terms and descriptions are provided for ease of understanding.

2.2.1.2 Prevalence and impacts of solitary, prosocial and aggressive behaviours

Research has found that solitary, prosocial and aggressive behaviours are exhibited by young children and that there are associated outcomes with each of these that can impact upon children academically, cognitively and socially. These are discussed in this section and emphasise the importance of studying these behaviours in young children.

Research has shown that young children display solitary behaviour in both pre-school and nursery school. Rubin, Burgess, Coplan, and Menzer (2002) found that approximately 15% of children show wariness and distress when in novel situations. In the UK, up to five children aged four to five years in every new Reception class (the first year of primary school, which children enter either in the term or year in which they reach five years old, depending on local policy) may start school with this fear of social interaction. Harrist, Zaia, Bates, Dodge, and Pettit, (1997) found that just over a

quarter of kindergarten children (aged five to six years) were classified as socially withdrawn in a free-play environment. Coplan and Ooi (2014) have also explored the frequency of solitary behaviour in different play environments. Social wariness (on-looking and reticence) accounted for 20% of free-play time amongst unfamiliar peers. Solitary passive play was found to occur between 20% and 45% of the time during indoor free time. The least common type was solitary active play (solitary play in the presence of peers) which was found to occur only 2-3% of the time during indoor play with peers. Whilst the type of solitary behaviour differs, these findings illustrate that solitary behaviour can be observed in young children. Researchers have shown that there are several outcomes associated with the display of solitary behaviour in young children, which demonstrates the importance of this area of study.

A small body of research has shown positive culture specific impacts of remaining solitary in China, such as higher acceptance and leadership (Chen, Rubin, & Li, 1995), although later research has found this not to be the case (Liu et al., 2014). In addition, researchers have suggested that unsociability (a reason for being alone) has relatively benign outcomes as researchers have mostly found non-significant associations between children's unsociability and maladjustment (Coplan et al., 2004). However, broadly speaking, solitary behaviour tends to be associated with negative outcomes for children. Social interaction with peers provides a context for children to develop socially, emotionally, cognitively and improves their educational performance (Rubin, Bukowski, & Parker, 2007). Therefore, children who engage in fewer positive peer interactions may miss out on the numerous benefits of social interaction. Children who display solitary behaviour from an early age (pre-school and kindergarten – age three years) have been found to experience substantive difficulties, including poorer language skills, less speech and poorer academic performance, which may be a result of engaging in less conversation with peers (Rubin, Coplan, & Bowker, 2009). Furthermore, solitary children have been found to experience higher levels of anxiety and difficulties in school adjustment, higher peer rejection and are at increased risk of engaging in anti-social behaviour as adults (Rubin & Coplan, 2004). Coplan and Armer (2007) also suggest that there are links between avoidance and depression. Children's solitary behaviour has also been linked to poor peer-relations among older children. Lease, Kennedy, and Axelrod (2002) found a positive correlation between unpopularity of nine to 11 year olds and peer-reports of solitary behaviour and social withdrawal. Burgess,

Wojslawowicz, Rubin, Rose-Krasnor, and Booth-LaForce (2006) reported that 10 to 11 year old children rated as withdrawn were just as likely to have mutual stable best friends as non-withdrawn children, but that these friendships were rated less positively in terms of fun, help and guidance.

Whilst some research has shown that sex differences do not occur in the frequency of solitary behaviour (Coplan & Rubin, 2001; Sadker & Sadker, 1994), others have shown that there may be sex differences in outcomes of solitary behaviour (Coplan, Gavinski-Molina, Lagace-Seguin, & Wichman, 2001). Coplan et al. (2001) found a closer link between maladjustment and solitary-passive play in boys (playing alone in the presence of peers), and solitary-active play in girls (constructive and exploratory play away from the peer group). Similarly, Nelson, Rubin, and Fox (2005), found there were sex differences in the relationship between different forms of solitary behaviour and children's outcomes. In boys, most forms of solitary behaviour were linked to negative perceptions from children regarding peer acceptance, perceived physical and cognitive competence. However, this was not the case for solitary passive play which was associated with later positive self-perceptions. In contrast, for girls, there was little difference in subtypes of solitary behaviour with both leading to negative perceptions of peer acceptance, meaning that outcomes for children varied by form of solitary behaviour for males and females. Despite these sex differences, solitary behaviour is generally associated with negative outcomes for children, and this link appears to become stronger with age (Rubin & Coplan, 2004). This further emphasises the need to develop an increased understanding of these forms of behaviour amongst younger children.

The study of children's prosocial behaviour has received much less recent attention than the study of behaviours with negative outcomes. Measures of behaviour tend to either completely neglect prosocial behavour, or the number of prosocial items included on measures is noticably lower than that of aggression, or 'problem behaviours' (e.g. Goodman, 1997). In addition, few studies allow predictions of the relative frequencies of children's prosocial behaviours (Barrett & Yarrow, 1977), particularly amongst children aged four to seven years. Researchers have shown that the roots of prosocial behaviour develop when children are aged under five years and that helping and comforting behaviours can be seen in children as young as 12 months old (Kakavoulis,

1998). Eisenberg-Berg and Hand (1979) found that children aged four to five years engaged in sharing, helping or comforting behaviours every 10 to 12 minutes. The display of prosocial behaviour may also vary by sex, with females receiving higher ratings of prosocial behaviour than males (Malti et al., 2009a). These studies illustrate that prosocial behaviour is evident in young children.

Peer-directed prosocial behaviour has been associated with several positive outcomes including success and satisfaction (Rodd, 1989), academic ability (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo 2000), high constructive social skills, attentional regulation, and having lower levels of negative emotions (Eisenberg et al., 1996). Children rated as prosocial were also less likely to be rated as unpopular by their peers and more likely to receive friendship support in response to prosocial behaviour than aggressive behaviour (Lease et al., 2002). Therefore, prosocial children are less likely to experience negative outcomes which are associated with poor peer-relationships. Furthermore, researchers have shown that prosocial behaviour can be a protective factor for children from the potentially harmful effects of aggression (Sebanc, 2003) and peer rejection (Bierman, Smoot, & Aumiller, 1993). The positive correlates and protective effects of engaging in peer-directed prosocial behaviours highlight the benefits of studying this in young children, as earlier intervention increasing these behaviours may be beneficial for children.

In addition to solitary and prosocial behaviours; aggression and peer-victimisation have also been reported in young children. Researchers have shown that aggressive behaviour can be shown by children as young as four years old and is likely to also occur in even younger children (Crick et al., 1997; Monks et al., 2003). Wolke, Woods, Stanford, and Schulz (2001) reported that 24% of six to eight year olds in England experienced victimisation each week, meaning this was reported by a quarter of children as happening regularly. It is also possible that aggressive behaviours vary by sex. Early research found that direct aggression (physical or verbal aggression) was more common of boys, whereas indirect aggression (social / relational aggression) was more common amongst females (Crick, at al., 1997). More recently, whilst direct aggression does seem to be more typical of males, researchers have found no significant sex differences in the prominence of indirect aggression in young children (Card, Stucky, Sawalani, & Little, 2008; Hayward & Fletcher, 2003; Lansford et al., 2012). However, Smith (2004)

comments that there are small sex differences in relational (indirect / social) aggression, but that these are larger among children younger than seven years, with females displaying higher levels of relational aggression.

The display of aggressive behaviour toward peers has been linked to negative outcomes. Lochman and Wayland (1994) showed that aggression by pre-adolescent boys was predictive of their later involvement in drugs, alcohol and delinquent activity. Research has also demonstrated indirect links between aggression and outcomes through peer-relationships as a mediator. For instance, the display of aggression has been negatively related to nine to 13 year olds' peer acceptance and positively related to rejection (White & Kistner, 2011). In addition, Carlson, Lahey and Neeper (1984) found that seven to 11 year old children rated as rejected by their peers were described as more aggressive and disruptive than neglected and accepted children. It is possible that rejection may lead to further behavioural problems both in early childhood (Dodge et al., 2003) and middle childhood (Bierman, 2004) and research has shown several negative outcomes associated with rejection including lower grade point averages amongst nine to 14 year olds (Bellmore, 2011); higher depressive symptoms during grade transition for eight to 11 year olds (Panak & Garber, 1992); and higher friendship conflict amongst three to five year olds (Sebanc, 2003). The relationship between aggressive behaviour, peer difficulties, and outcomes may be a complex one, with several different possible interactions (Bellmore, 2011). For instance, Prinstein and LaGreca (2004) found that the outcomes of nine to 12 year old girls' aggressive behaviours were moderated by peer acceptance / rejection. Girls who were aggressive and rejected were more likely to engage in substance use and sexual risk behaviour when they were 15 to 18 years old. These outcomes were more negative than behaving aggressively without rejection. It is also possible that children's outcomes vary by the reasons for their aggressive behaviour. For instance, reactive aggression has been related to more externalising behaviour problems, peer rejection, delinquency, and negative perceptions of leadership and cooperation skills (Price & Dodge, 1989; White, Jarrett, & Ollendick, 2013) than proactive aggression (Hughes, 2008). The negative outcomes of peer difficulties and complex relationship between these and aggressive behaviour further strengthen the importance of studying aggressive behaviour amongst young children in order to understand why it occurs, and reduce negative outcomes for children.

The review in this section has shown the importance of studying solitary, prosocial and aggressive behaviours. Researchers have also looked at children's profiles of behaviours, rather than considering categories of behaviour in isolation, and found that these profiles may be associated with different outcomes. Hawley, Little and Pasupathi (2002) showed that some individuals are bistrategic and engage in both prosocial and coercive behaviours in order to be admired and liked by their peer group. Roseth et al. (2011) explored these strategies in pre-school children over time and found that more coercion was used at the start of a school year, whereas prosocial behaviour increased over the school year. It is possible that this relationship between aggressive and prosocial behaviour differs by form of aggressive behaviour. Card et al. (2008) found in their meta-analytic review, that physical and verbal aggression were related to lower levels of prosocial behaviour whereas relational aggression was related to higher levels of prosocial behaviour, particularly in younger children. It is possible that engaging in more than one of these categories of behaviours (solitary, prosocial and aggressive) may affect individual outcomes. Bierman, Smoot, and Aumiller (1993) showed that prosocial tendencies could protect an aggressive child from peer rejection. Similarly, prosocial behaviour was also shown to protect from later involvement in criminal activity (Pulkkinen & Tremblay, 1992).

Ladd and Burgess (1999) also showed another profile of behaviour in young children. They found an overlap in some children between the display of aggressive and withdrawn (solitary) behaviour, and that this in turn led to an increased number of negative outcomes. Children aged between five and eight years who were both aggressive and withdrawn experienced the greatest difficulties in that they were lonely, friendless, disliked, victimised and experienced difficulties in their relationships with their teachers. In contrast, whilst children who were withdrawn or aggressive experienced some problems, it was not to the degree as the aggressive / withdrawn group. Similarly, Ledingham and Schwartzman (1984) showed links between being both aggressive and withdrawn and higher rates of academic difficulties. Research has also demonstrated a link between withdrawn and prosocial behaviour. Coplan et al. (2014) found that young children (average age five and a half years) who expressed a higher preference for solitary play in presented situations, were also less likely to be reported as displaying prosocial behaviour towards their peers. This pattern is also

evident cross-culturally. Nelson et al. (2012) found that solitary behaviour amongst pre-schoolers (three to five years) in China was associated with low levels of prosocial behaviour. Therefore, these associated outcomes for children show the importance of studying young children's behaviour across several categories rather than focusing on one category in isolation.

This section has drawn on each category of behaviour to demonstrate that children's behaviour is related to several positive and negative outcomes. As a result, it is particularly pertinent to study these behaviours amongst young children, in order to allow for the possibility of intervening early in order to reduce these behaviours and potential negative outcomes. Researchers are aware of this importance, and young children's behaviour is a highly studied area (e.g. Coplan et al., 2014; Monks et al., 2003). One way of studying children's behaviour, is to understand prevalence levels and to identify characteristics in children who display these different behaviours. However, most researchers studying this have based their findings on reports from others, such as teachers (e.g. Ladd & Profilet, 1996), peers (e.g. Malti et al., 2009a), parents (e.g. Dodge, Laird, Lochman, & Zeli, 2002) and observers (e.g. Coplan et al., 2014), with limited use of self-reports from young children. There are benefits to using these different reports, but there are biases involved within each method. These are discussed in the next section, in order to demonstrate that the methods currently used to assess children's behaviour may have limitations.

2.3 Reports of children's behaviour

As mentioned above, research into the prevalence and impact of children's solitary, prosocial and aggressive behaviours, is mostly based on reports from informants including teachers, peers, parents and observers. In some cases, self-reports are used in behavioural research with older children, but these are generally neglected in research with young children. In the next section, each of the different methods of collecting behaviour reports from adults and peers are presented in relation to possible associated biases. This is followed by a review of the benefits of collecting children's self-reports.

2.3.1 Reports from adults and peers

Reports from adults and peers are useful in the study of children's behaviour. However, there are several limitations to these approaches, which show that more than one type of reporter should be used when researching children's behaviour. This section provides an overview of the possible biases and limitations in peer- and adult-reports.

Teacher-reports are commonly seen by researchers as the most reliable source of information regarding children's behaviour and many behavioural measures are heavily reliant on these (e.g. Crick, Casas, & Mosher, 1997; Ladd & Profilet, 1996). These can be beneficial because teachers are able to provide reports for up to 30 children in their class and are able to give comparative reports of the child in relation to other children of the same age (Tomada & Schneider, 1997). However, research has suggested than an overreliance on teacher reports may mean that a true representation of behaviour is not collected. It is possible that, when teaching a large group, teachers may not be aware of the less impactful behaviours that occur amongst children, particularly unobtrusive and non-problematic behaviours (Henricsson & Rydell, 2004). Therefore, teachers may have less awareness of relational aggression, solitary behaviour or prosocial behaviours, which could have less explicit impacts on children than other forms of behaviour (e.g. physical aggression). It is also possible that individual relationships between teachers and children may influence their reports of children's behaviours. For instance, they may provide more socially desirable responses for particular children (Henricsson & Rydell, 2004) or have greater awareness of some behaviour where there is greater adult dependency from the child (Ladd & Burgess, 1999). Relying solely on teacher-reports may be problematic. For instance, an overreliance on teacher reports of children's solitary behaviour led to the view that solitary behaviour had less developmental significance than later research with additional informants has found (Rubin & Coplan, 2004). In addition, whilst teachers are asked about how children behave with their peers, it is possible that they are influenced by children's adult-directed behaviour which may lead to inaccuracies because of differences between this and peer-directed behaviour (Hinde, Easton, Meller & Tamplin, 1983). It is also possible that teachers simply do not see many of the behaviours they are asked to report on. This may include more explicit behaviours such as aggression. Zumerbrunn, Doll, Dooley, LeClair, and Wimmer (2013), found that eight to 10 year olds reported the classroom, gym, library

and cafeteria as school venues where students 'get along' most, and the playground, toilets and cafeteria as where the most peer-conflict occurs. Whilst teaching staff may see children in some areas outside the classroom, teachers spend less time in these locations and therefore may be less aware of these behaviours.

Another common method to obtain reports of children's behaviour is the use of peer-reports. In contrast to teachers, peers have access to a wider variety of situations and settings at school (Greener, 2000). The use of peer-reports means that it is possible to get as many as 20 or 30 opinions of each participant, thus increasing the reliability of peer measures (Crick & Grotpeter, 1995; Monks et al., 2003). Furthermore, peers may be better placed to provide reports on behaviour which they are directly aware of. However, as with teacher-reports, there are biases to this approach. Peers have been found to show favouritism for more socially desirable behaviours such as prosocial behaviour amongst friends (Greener, 2000), and experience difficulties when inferring unobservable states and feelings which are important for the reporting of solitary behaviours (Younger, Schneider, Wadeson, Guirguis, & Bergeron, 2000). Whilst research has suggested that younger children may have low awareness of less explicit behaviours in their peers, these have been found to become more reliable as they become older because of improved memory abilities which enable them to recall this information (Bukowski, 1990). Furthermore, Younger et al. (2000) examined reports of social withdrawal provided by different reporters of children aged six to 13 years and found higher concordance amongst self and peer-reports than self and teacher-reports, suggesting that peers may have a better understanding of how a child views their own behaviour than other reporters. Therefore, there are several benefits to the use of peer-reports, although it is possible that there are biases and challenges inherent within these, amongst younger children.

The usefulness of peer-reports may also be influenced by the way in which the data are collected from peers. In some cases peers are asked to nominate other children for a specific role, such as 'aggressor' or 'victim' (Salmivalli & Nieminen, 2002); asked to nominate a set number of peers from their class from pictures of children (e.g. Eivers, Brengden, & Borge, 2010); or select a set number of the most salient (e.g. top three) from a list of names (e.g. Huesmann & Guerra, 1997). However, these methods limit the number of reports that can be collected and forces children to make a choice about

these. An alternative method, seen as more ecologically valid and higher in reliability (Marks, Babcock, Cillessen, & Crick, 2013), is to allow children to provide an unlimited number of responses, where children are asked about all the children in their class and prompted with 'anyone else?' until they say no (Monks et al., 2003). This allows children to provide responses about all of their peers taking part in the research, whilst still collecting details of the children with the most salient behaviours.

Another method of collecting behaviour reports includes parent / carer-reports which can be associated with both challenges in participant recruitment, and validity of data. Methodologically there is a need to recruit at least one parent / carer for each child taking part. This normally takes place through using indirect communication via children's school and therefore the researcher has limited control over this and can result in a low response rate. In addition, parents / carers may have limited knowledge of their child's behaviour at school and peer-interactions and so parent / carer-reports are likely to be based on second-hand knowledge (via teachers or their children). Furthermore, children's behaviour at school is different from their behaviour at home (LaGreca, 1990), which may lead to inaccuracies in parent / carer- reports.

Observations are also used in the study of children's behaviour (e.g. Coplan, Giradi, Findlay, & Frohlick, 2007), where children's peer-related behaviour is coded by occurrence. Whilst observations of children's behaviour with peers can be highly objective and useful (Spangler & Gazelle, 2009), they can be time consuming and costly, because of the need for extensive training and observations over an extended period of time. Furthermore, when compared to observations in other areas of psychology, such as Applied Behaviour Analysis (Kazdin, 2012), observations of young children's peer-related behaviour are much less systematic and informed and likely to contain biases. For instance, observers spend comparatively less time with the children and so may be less aware of their behaviour and historical factors which may play a role in children's behaviours (Spangler, & Gazelle, 2009). In addition, researchers have found gender differences in observations with females showing more awareness and higher accuracy than males in their interpretation of some behaviour, such as relational aggression (Ostrov, Crick, & Keating, 2005). Researchers have made use of creative methods to reduce biases such as video recording and wireless microphones (Tapper & Boulton, 2002), but this is not possible in all areas of behaviour, and a child may behave

differently when aware that they are being filmed, recorded or in the presence of a researcher.

Material introduced in this section so far has shown that most research into young children's behaviour is based on reports which may have embedded biases and limitations, meaning that the methods used to study children's behaviour may lack reliability. One way researchers have attempted to overcome this, is through the use of more than one reporter (Gest, 2006; Pellegrini & Bartini, 2000). Researchers have compared the use of teacher-, peer-, parent- and observer-ratings (in different combinations) across different behaviours and found that a combination of these reports may be the most reliable in assessing occurrences of children's behaviour. However, many of the criticisms of using ratings from these reporters relate to a lack of awareness or ability to infer children's internal states and feelings. The only way to ensure that reports of behaviour are based on all children's experiences and interactions is to also collect children's self-reports. However, the use of multi-agents mostly neglects children's own self-reports, despite evidence that these would provide a unique perspective and that children are capable of providing these. This is discussed in more depth in the next section.

2.3.2 Children's self-reports of behaviour

In this section, an argument is presented that there is a need to explore the use of behaviour self-reports from young children, in terms of their prevalence ratings and how these compare to reports from others. This will contribute new knowledge as it will help to inform future use of young children's self-reports in behaviour research. The argument presented in this section is based on a range of evidence including research with older children, findings relating to self-perceptions and individual outcomes, and children's capabilities and skills needed to provide self-reports.

Self-reports may provide a unique insight to behaviour, particularly in cases where other reporters need to infer internal mental states, such as solitary behaviour. As self-reports have been neglected amongst young children, research is needed to explore the contribition these can make to the study of children's behaviour. In some cases, children's self-reports have been found to be more accurate than reports from others, or

more similar to one set of repoters than other reporters are to each other. For instance, Ladd and Kochenderfer-Ladd (2002) compared children's self-reports and peer-reports of victimisation and found that self-reports were more accurate than peer-reports prior amongst five and six year olds. Similarly, Monks et al., (2003) explored self-reports of peer-victimisation compared with reports from peers and teachers in four to six year olds and found that self-reports of aggressive behaviour were lower than reports from others. However, sex differences were evident in reports from peers and self, showing that there were some similarities between these two reporters which were not present in teacher-reports. Spangler and Gazelle (2009) showed different levels of agreement between eight to nine year olds' self-reports and reports from peers, teachers, parents and observers, across different types of solitary behaviour. The most convergent reports were amongst school-based informants meaning that there was higher agreement between self- and peer-reports than with parents, although peer-reports did show the highest validity. Furthermore, self-reports of solitary behaviour may be a more useful method than adult-reports because of the associated internal thoughts and feelings. Spooner, Evans, and Santos (2005) found higher ratings of shyness from self-reports in 10 to 11 year olds' than reports from teachers and parents. Children's own reports of their behaviour have also been found to be important for individual outcomes. Researchers (Panak & Garber, 1992; Sandstrom et al., 2003 have shown that children who self-report higher levels of rejection than other reporters, or provide similar reports about high levels of rejection experience an increased level of negative outcomes. Therefore, it is important to understand children's own reported perceptions even if they differ from the reports of others.

With the exception of Monks et al. (2003) and Ladd and Kochenderfer-Ladd (2002), the studies presented above explored behavioural self-reports in children older than seven years. However, research has shown that young children are capable of reporting on their own behaviour, and so there is scope to extend research into children's self-reports to a younger age group and across a wider spectrum of behaviours. Although there may be challenges in collecting self-reports in early childhood, these "provide an important counter perspective to that of researchers who argue that only responses by adults should be used in research with preschool children," (Marsh, Ellis & Craven, 2002, p.390). There are several areas of research which suggest that young children are able to report and discuss their own behaviour. For instance, by four years of age most children

have a Sense of Self (Rochat, 2003), in which they develop an ability to "become consciously aware of one's own bodily and mental states," (Geangu, 2008, p.103). In addition, the development of children's Executive Function (EF) also suggests that they are capable of self-reporting. EF is the cognitive process responsible for planning, goal-directed, future-orientated behaviour which enables individuals to plan, focus attention and remember instruction (Goldstein, Naglieri, Princoptta, & Otero, 2014). There are a range of EF skills including working memory, mental flexibility and self-control (Zelazo, Muller, Frye, & Marcovitch, 2003). Whilst one of the challenges in understanding the development of EF is that different components of EF may follow different trajectories (Anderson, 2002), researchers have shown that there are substantial gains in EF from aged two to five years in EF (Best & Miller, 2010). Anderson explains that attentional control is present in infancy and developed in early childhood which indicates that young children are able to effectively give their attention to tasks. He also explains that simple planning skills are exhibited by four year olds and that by this age children are capable of simple conceptual reasoning. This suggests that young children may be capable of both thinking about and reporting on their own behaviour. Furthermore, with the use of suitable techniques, children aged four to seven years have been found to provide reliable and accurate self-reports in relation to personality (Measelle, Ablow, Cowan, & Cowan, 2005), self-concept (Marsh, et al., 2002), academic, social and emotional lives (Measelle, Ablow, Cowan, & Cowan, 1998) peer-victimisation (Monks, et al., 2003), and competence and social acceptance (Harter & Pike, 1984). These methods have included the use of puppets (e.g. Measelle et al., 1998, 2005); static cartoons (Monks et al., 2003); and pictures (Harter & Pike, 1984). In addition, Marsh et al. (2002) noted that checking children's accurate understanding of the question by talking to them about what both the question and their answers mean, could aid in the collection of accurate self-reports. This overview of self-reports and other research with children shows that, with appropriate methods, young children are capable of providing self-reports. However, these are rarely collected from young children when studying children's solitary, prosocial and aggressive behaviour, and an exploration of these could contribute new knowledge to the study of young children's behaviour.

Wihlst the above review has shown the usefulness of children's self-reports and explanations, there are risks of social desirability in this method. It is possible that

children over-report socially desirable behaviours and under-report socially undesirable behaviours. For instance, Greener (2000) found that eight to 12 year olds reported higher levels of prosocial behaviour than their peers or teachers, and Pakaslahti and Keltikangas-Jarvinen (2000) found that adolescents provided lower ratings of aggressive behaviour than their teachers or peers (although they were more similar to teachers than peers). However, risks of social desirability biases occur in all areas of research across all age groups and are not unique to young children (Monks et al., 2003). It is also possible that younger children are less likely than older children to display these patterns of social desirability in their responses. Researchers have argued that even being aware of what is socially desirable at a young age would be an accomplishment (Denham et al., 2014); and in some areas of behaviour research, older children were more likely to display social desirability than younger children (Malti et al., 2009a). Furthermore, it is possible to reduce the effects of social desirability with child participants by discussing truth telling (London & Nunez, 2002) demonstrating scope to utilise self-reports from young children. As such, it is possible that any higher-reporting and lower-reporting of different behaviours from children, may not only relate to social desirability biases, but also to other developing cognitive abilities where children are able or unable to take the perspective of others to identify and report on behaviours (discussed in more depth in Section 2.5). It is also possible that self-reports which are higher or lower than reports from others, relate to biases in the latter, as explained earlier in this section. Therefore, the risks of social desirability do not negate the usefulness of collecting young children's self-reports of their behaviour.

This section has shown that there are a number of benefits to an exploration of behaviour self-reports in young children and comparison of these with other reporters. Not only will this provide a unique insight into children's understanding of their own behaviours, it will also show how reports from others compare to children's self-reports and may inform the usefulness of young children's self-reports within multi-informant reports. There may also be value in collecting children's explanations for their behaviour, which this is discussed in the next section.

2.4 Explanations of children's behaviour

In addition to collecting children's self-reports of their behaviour, there is also value in asking children why they behave the way they do. This will enable a further understanding of reasons for children's behaviour and potentially lead to improving outcomes related to young children's behaviour. At present, most researchers rely on other reporters (e.g. teachers and peers) to rate behaviours based on children's underlying reasons of these. One example of this is in the study of aggressive behaviour. Adults and peers are often asked to rate children's proactive aggression and reactive aggression (Crapanzano, Frick, & Terranova, 2009; Dodge & Coie, 1987). Similarly, reporters are sometimes asked to provide ratings of children's shyness, unsociability and exclusion (Findlay, Girardi, & Coplan, 2006), which reflect the underlying reasons for children's solitary behaviour. In some cases, similar distinctions have been applied to prosocial behaviours such as sharing, which has been categorised into spontaneous sharing where children choose to share proactively, and sharing by request where this behaviour is a reaction to a request from a peer or adult (Hay, Castle, Davies, Demetriou, & Stimson, 1999). Developing an understanding of the underlying reasons for children's behaviour is important, as these reasons help to understand children's behaviour and may impact upon individual outcomes for children (as discussed earlier in this review). Whilst reporters may be able to base their ratings of these behaviours on situational cues, a child's own perception of these underlying reasons for their behaviour is an internal process which other reporters can only infer. Therefore, it is possible that asking children about the reasons for their behaviour may be more useful than studying these via reports from adults and peers.

Researchers have demonstrated the benefits of asking individuals about the reasons for their own and others' actions and behaviours. For instance, this is evident in attribution theory. An overview of attribution theory is provided below in order illustrate the importance of this factor to children's explanations, Furthermore, attempts have been made to understand social information processing in relation to children's social competence and behaviour (Dodge, 1986). A review of Dodge and colleagues' research follows below the review of attribution theory in the next section. This is followed by a review of the methods used by researchers to investigate these cognitive processes, and how this applies to the current research.

2.4.1 Attribution theory

Attribution theory considers how individuals explain their own and others' actions and behaviour where "individuals approach situations as cognitive thinkers who search for causes to stimulus, and who respond behaviourally on the bases of those attributions and inferences," (Dodge & Crick, 1990, p.10). This is relevant to the research in this thesis because children's interpretations of their own and others' actions and behaviour, may in turn impact upon how they behave. Furthermore, attribution theory is useful for conceptualising the study of children's explanations, and has played a role in subsequent research looking at the cognitive processes involved in children's behaviour (Dodge, 1986). The history of attribution theory lies in social perception (Heider, 1958) where individuals make inferences about others' behaviour (Rutherford & Kuhlmeier, 2013), but attribution theory has come to focus on making inferences "regarding the cause of their own and others' behaviour," (LaBelle & Martin, 2014, p.110).

Researchers have developed different models and focused on various dimension when studying attributions. As explained earlier in this review, researchers who study children's behaviour tend to distinguish between whether children's behaviour is proactive and internally motivated (e.g. shyness, unsociability, spontaneous sharing, proactive aggression), or reactive and externally motivated (e.g. active-solitude, reactive aggression, sharing by request). Therefore an overview of the internal-external distinction in attribution theory can help to understand how this could be applied across a range of behaviours in the current study. This is a commonly studied dimension which considers to whom or to what individuals attribute behaviour and whether this is internal to the person in question, or due to external factors (which may include other people). Early theorists focused on how individuals use these dimensions to explain others' behaviours. Heider's (1958) founding ideas argued that adults perceived others' behaviours as personal or environmental (Malle, 2011). Similarly, Jones and Davis (1965) more formalised attribution theory also focused on how far individuals interpret others' actions as a result of an underlying internal disposition. Kelley's (1967) co-variation principles and Bem's (1972) self-perception theory were similar as individuals attribute behaviour to internal dispositions or external environmental factors. However, Kelley and Bem were also interested in attributions for one's own behaviour (in addition to others' behaviour). This was also the case for Weiner (1979; 2010) who included 'locus' alongside other dimensions in his study of how individuals perceived

their own task success or failure in educational contexts. 'Locus' overlaps with Rotter's (1966) locus of control, which is based on whether people perceive events and consequences as contingent on their own behaviours (internal locus of control) or the behaviours of others or things around them (external locus of control). A small body of research has also considered the change of the internal-external dimension in children. Researchers have shown that attributions amongst pre-school children (three to four years) are mostly external and situational; and that these become more internal as they move into school (Miller & Aloise, 1989). Similar changes have been found amongst eight to 13 year olds (Sherman, 1984) and eight to 11 year olds (Aguila, 2012) and therefore this pattern may be detected when exploring children's explanations in the current study. In sum, this overview of the internal-external dimension of attribution theory has shown that this is a common focus that could be applied to the study of children's explanations for their behaviour.

Furthermore, research has indicated that, in some instances, attribution biases occur, which provide further information about individuals' thinking and the internal-external dimension. These are adaptive characteristics of everyday social perception in which people make errors when explaining their own or other people's behaviours (Böhm & Pfister, 2015). A common attribution bias is the 'fundamental attribution error' (Ross, 1977) which occurs when individuals explain others' behaviour by making more attributions to internal, dispositional causes than to external causes. Often used interchangeably is the 'correspondence bias' in which people are more likely to make attributions to underlying personality attributes. Other biases include the 'hostile attribution bias' in which an individual's attributions about another person's behaviour are based on a view of that there are underlying hostile intentions, (Orobio de Castro et al., 2004) and 'self-serving bias' which refers to a process by which individuals are more likely to attribute their own success to internal factors and their own failure to external ones (Miller & Ross, 1975). These biases help to understand how individuals can interpret circumstances differently and may make internal / external attributions in one situation where a different individual may make the opposite attribution.

An extension of attribution theory is the consideration of outcome expectancies and the anticipated outcomes by individuals (Hall, Herzberger, & Skowronski, 1998), when explaining their own and others' behaviour. The anticipated consequences and

outcomes of behaviour can influence the selected response (Bandura, 2002). The steps involved in the consideration of the outcome expectancies have been developed in a wider framework of Social Learning Theory (Hall et al., 1998). For instance, Rotter (1954) proposed that behaviour occurs because of an expected probability of a particular outcome (expectancy), and the preference associated with that outcome occurring (value). These ideas are closely linked to Atkinson's Expectancy Value Theory (1967) which has most recently been applied in the study of motivation in educational settings (Wigfield, Tonks & Klauda, 2009). This shows that outcomes may play an important role in how individuals explain their behaviour and actions, and may also be relevant within children's explanations for their peer-related behaviour.

This section has contained an overview of classic attribution theories and biases. Whilst these were developed through research with adults, this area of study demonstrates that cognitive processes can vary across individuals when explaining the actions and behaviours of themselves and others. Attribution theory can be used to describe an individual difference in attributional style, which refers to the pattern of attributions that individuals tend to use across all situations (O'Donnell, Chang, & Miller, 2013), such as that encompassed in Seligman's Attributional Style Questionnaires for children and adults (Seligman & Kaslow, 1984). Alternatively, attribution theory can be conceptualised as an information processing model (Brewer, 1977) by which people understand and justify different events and behaviours in terms of both cause and outcomes and in relation to themselves and others (Blank, 2014). This approach acknowledges that behavioural choices may change across different situations as these may vary according to the different conditions they find themselves in (Ryan & Deci, 2000). As solitary, prosocial and aggressive behaviours include a broad range of behaviour forms, the focus on children's explanations in this thesis is on the latter rather than on models of individual difference. This will allow an exploration of whether explanations vary across behaviours. Furthermore, researchers have tried to understand the cognitive processes involved specifically in children's behaviour, by adopting an information processing approach. For instance, Dodge (1986) integrated attribution theory with theories of decision making (e.g. Kahneman & Tversky, 1973) and social information processing theories (e.g. McFall & Dodge, 1982) to develop a model specifically applied to children's social competence and behaviour. This is presented below.

2.4.2 Dodge's (1986) application of Social Information Processing to children's social competence and behaviour

Dodge (1986) was concerned with the cognitive operations used by children to generate a behavioural response during a social interaction. Social information processing models are used to describe the sequence in which individuals process information from their social environment and Dodge applied this to try and explain the behavioural responses deployed by children. Dodge's work supports the importance of understanding children's reasons for their behaviour. This is reviewed in the following section and used to make some tentative suggestions about findings in the current study.

Dodge (1986) proposed that individuals (in this case children) move through five main cognitive stages when faced with social situations. These include: (1) encoding of social cues through paying attention to them and remembering them; (2) interpretation of these cues by giving meaning to them; (3) searching for possible responses from memory or formulating new response possibilities; (4) making a response decision through evaluating the probable outcomes of different responses; (5) and finally enacting this response. Numerous researchers have explored Dodge's proposed cognitive stages across different peer-relations and behaviours (Dodge, 1986; Dodge & Pettit, 2003; Gifford-Smith & Rabiner, 2004) and found that these cognitive processes are related to children's behaviours and adjustment. This is particularly the case at the second and fourth stage, where children interpret the cues around them and assess the possible outcomes (e.g. Crick & Dodge, 1994; Nelson & Crick, 1999; Ziv, 2012). Further usefulness of Dodge's (1986) work comes from the development of behavioural interventions such as 'Making Choices' and 'Strong Families Programs' (Conner & Fraser, 2011; Fraser, 2005). Research with eight to nine year olds found that children demonstrated improvements on academic competence, social competence, depression, and aggressive behaviour when taught to consider different choices in particular situations. This highlights the importance of understanding the cognitive processes involved in children's behaviour as this may lead to improvements in children's behaviour and outcomes.

Traditionally, Dodge's (1986) work focused on externalising behaviours such as aggression, but other researchers have applied his ideas to internalising behaviours such

as solitary and withdrawn behaviours (Ziv, 2012) as well as prosocial behaviours (Nelson & Crick, 1999), although these are mostly studied independently. Furthermore, Dodge (1986) initially considered the various cognitive stages in children aged six years and over but findings that pre-school children's cognitive processes relate to their behaviour have shown that the model can be applied to children as young as four years old (Ziv, 2012). This supports the idea that reasons for behaviour could be explored amongst children of the focal age in this thesis (four to seven years).

Within Dodge's (1986) model of children's social competence and behaviour, processes at the second and fourth stage are based on attribution theory. In particular, children are asked questions which relate to attribution biases at the second stage of the model (Crick & Dodge, 1994). For aggression, this may include a Hostile Attribution Bias (Orobio de Castro et al., 2004) where children assume that others' actions are hostile or provocative. Similarly, research has focused on the 'Benign Attribution Bias' among prosocial children as a reason for not displaying aggression (Nelson and Crick, 1999), where children make the assumption that others' potentially provocative behaviour is benign. A small number of researchers have also explored attribution biases in children who display withdrawn and solitary behaviour. Some authors have suggested that withdrawn children internalise blame when selecting behaviours (Burgess, Wojslawowicz, Rubin, Rose-Krasnor & Booth-LaForce, 2006; Wichmann et al., 2004). Furthermore, research has shown that children who are neglected or rejected by their peers tend to show a self-serving bias where they attribute positive events to themselves but negative events to others (Crick & Ladd, 1990). It is possible that children who remain by themselves because they have been rejected or excluded (active isolation) may also display these biases. This review shows the importance of studying how children's interpretation of situations relates to their behaviour. Whilst not specifically studying children's cognitive biases in the current study, aspects of these may be evident within children's explanations for their behaviour.

At the fourth stage of the Dodge's (1986) model of social competence and behaviour, children are thought to evaluate the probable outcome of their response. This is much less researched than the second stage of Dodge's model. Fontaine and Dodge (2006) developed the 'Response, Evaluation, Decision' (RED) model, to provide further detail to this stage. This explains that children undergo several processes when considering the

outcome of their behaviour including response evaluation, response efficacy and emotional, social and instrumental outcome expectancies. Researchers have shown links with children's outcome evaluations and aggressive behaviours. For instance, in children aged 10 to 15 years, Hall Herzberger, and Skowronski (1998) found that children who were less concerned with making others feel bad, were more likely to show aggression. Similarly, they found that children who scored lower on punishment expectancy were also more likely to be aggressive. Pornari and Wood (2010) found the expectation of positive outcomes increased the likelihood of engagement in peer aggression in 11 to 14 year olds. Furthermore, Fontaine, Yang, Dodge, Bates and Pettit, (2008), found that outcome expectancies at age nine and 12 years, were related to behaviour in adolescence at age 13 and 16. This also highlights the need to give longitudinal consideration to the association between social cognition and behaviour over time (Fontaine & Dodge, 2006). This studies presented above demonstrate the important role that outcome expectancies may play in relation to children's behaviours, although this is less researched amongst younger children and in relation to prosocial and solitary behaviour. Consideration of this would contribute important new knowledge to the study of children's behaviour.

The review above has included an outline of Dodge's (1986) application of a social information processing model to children's behaviour and social competence. This has shown the importance of studying children's behavioural explanations, as there are associations between particular cognitive processes and children's behaviour. However, Dodge's model is mostly studied in relation to individual categories of behaviour and the focus on outcomes is under-researched. In addition, methodological factors in Dodge's work and attribution theories may also be of importance when studying children's explanations for their behaviour. These are discussed below.

2.4.3 Collecting children's explanations for behaviour

The presentation of attribution theories and work by Dodge and colleagues (e.g. Coie & Dodge, 1988; Crick & Dodge, 1996; Dodge et al., 2002; Dodge et al., 2003; Dodge & Coie, 1987; Dodge, Laird, Lochman, & Zeli, 2002; Dodge & Price, 1987) has further highlighted the usefulness of asking children about their reasons for their behaviour as it

is possible that specific cognitive processes may relate to different behaviours. However, there are criticisms to the approaches taken to do this.

The first criticism relates to work by Dodge and colleagues as children's cognitive processes are mostly compared with ratings provided by teachers and peers (Coie & Dodge, 1988; Crick & Dodge, 1996; Dodge et al., 2003; Dodge & Coie, 1987; Dodge et al., 2002); parents (Dodge et al., 2002) and observers (Coie & Dodge, 1988). In a small number of studies, self-reports from children aged ten years and over have been used in conjunction with reports from others (e.g. Calvete & Orue, 2011; Burgess et al., 2006). However, research considering the relationship between cognitive processes and behaviour in younger children tends to rely on ratings of behaviour from other reporters. It is possible that children's self-reports of behaviour may relate differently to these cognitive processes and this emphasises the need to collect children's self-reports, in order to compare these with children's explanations.

The next criticism relates to the use of hypothetical scenarios. For instance, in order to compare children's cognitive processes with reports of their behaviour, researchers have made use of Dodge and Price's Social Information Processing Interview (1994) and a pre-school version of this interview (Ziv, 2012) both of which use video-recorded actor vignettes depicting different interactions. Children are asked to imagine that they are the protagonist in each scenario and answer specific questions from a predetermined set of responses. Firstly, this method asks children to put themselves in somebody else's position. As discussed later in this chapter (Section 2.5), developmental theories would suggest that young children may have difficulty in doing this, meaning this may not be a reliable way of asking children about their social cognitive processes. Furthermore, hypothetical situations may be challenging for children to think about reliably. Johnston and Lee (2005) showed that five to 11 year old made more internal attributions when asked about hypothetical children, but that this was not the case for children aged under eight years, when asked about their own behaviour. This shows different findings for these two different methods. As such, it is suggested that asking individuals about real-life events, rather than hypothetically created scenarios, enables a richer understanding of the cognitive processes actually employed (Munton et al., 1999) and would provide new knowledge to the understanding of children's behaviour.

Another criticism of the methods employed is the use of specific closed-ended questions with fixed-choice answers. This is often the case in research into attributions (Hall et al., 1998) and research using Dodge and Price's (1994) interview. For instance, individuals are asked specific questions about whether other protagonists meant to do something (i.e. yes or no) and related to specific biases, rather than investigating children's own spontaneous reference to intention. Not only does this mean there is a limited number of responses that they can provide to this question, but the use of these direct questions, limits what the child can comment on when talking about behaviours. As explained by Punch (2002), the imposing of researcher views by limiting participants' to set of predetermined responses, presents a risk within research with children and therefore efforts should be made to design research to enable participants to fully respond to questions. This can be done via the use of open-ended question. This method is used in the collection of attributions in other areas, such as the Leeds Attribution Coding System (Munton et al., 1999) which was used to code attributions from natural discourse in family therapy sessions. Whilst not directly applicable to understanding children's responses to questions about their behaviour, it highlights the usefulness of open-ended questions and responses and has also been successfully used with young children (Eslea, 1999). Researchers have shown that children are able to engage with this style of questioning. Malti et al., (2009b), asked children as young as six years old 'why' or 'why not?' when discussing morals and emotions in peers' prosocial behaviour and found that children were capable of answering these.

This section has contained the argument that there are benefits to asking children open-ended questions about the reasons for their real-life behaviour. This will provide insight to children's cognitive processes and interpretation of their own behaviour that has not been studied in previous research. The current research will also compare these to children's self-reports as opposed to reports from others to understand these further. Importantly, the research in this thesis will consider how both children's self-reports and behaviour explanations change as children become older. One reason for this is because of the several social changes experienced by children as they become older (as discussed earlier in this review). Another reason is because it is possible that the cognitive processes involved in children's behaviour, may change with their acquisition of cognitive skills (e.g. Crick & Dodge, 1996). This is addressed in the next section in relation to developmental theories.

2.5 Developmental theories and children's self-reported perceptions of behaviour

With age, children acquire new skills and knowledge relating to their understanding of others' perspectives and knowledge, and the appropriateness of social behaviours. Psychologists have considered the development of children's social cognitive skills and several developmental theories underpin the research in this thesis. These theories demonstrate cognitive changes experienced by young children, particularly between the ages of four to seven years, which further highlights the importance of this period in children's lives. In addition, these theories can be used to make some suggestions about how children may behave and report on their own behaviour at these ages. These are discussed in the next section with particular reference to Piaget's Theory of Cognitive Development (1951); Theory of Mind and empathy; and theories of moral development (e.g. Kohlberg & Kramer, 1969; Nucci, 2001; Piaget, 1999; Turiel, 1998). Furthermore, there is some consideration of how findings in this thesis can inform the application of developmental theory to children's behaviour.

2.5.1 Piaget's Theory of Cognitive Development

Piaget's (1951) Theory of Cognitive Development is of relevance to the developmental research in this thesis. Piaget proposed that children move through a universal, invariant, series of stages from birth up to adolescence, in which they develop cognitive abilities and construct a mental image of the world. He proposed that between the ages of two and seven years, children are in the pre-operational stage. There are several characteristics of the pre-operational stage including language development, an increased use of symbols, and egocentrism. This shows several important cognitive changes for the focal age group in this thesis (four to seven years). Particularly relevant to this research is Piaget's concept of egocentrism, which refers to the idea that children struggle to 'decentre' (the ability to consider multiple aspects of a situation) and therefore mostly see things from their own perspective. At this stage Piaget believed that children focus on one characteristic and base their judgement and decisions on this. Whilst it is now known that Piaget underestimated children's abilities to take others' perspectives, this is an important developmental process and egocentrism has been found to decline as children grow older (Frick, Möhring, & Newcombe, 2014).

As Piaget's (1951) concept of egocentrism relates to the inability to take others' viewpoints, it is possible that children are more likely to display behaviours based on their own perspectives when they are younger. For instance, younger, more egocentric children may display higher levels of aggressive and solitary behaviours, but lower levels of prosocial behaviour, as they may have less awareness of their peers' experiences or views when they display these behaviours towards them (Rubin & Coplan, 2004). Declining egocentrism as children grow older may relate to decreasing aggressive behaviour, decreasing solitary behaviour, and increasing prosocial behaviour as children become more aware of others' experiences as well as how others may view them. Alternatively, children may use their increasing perspective taking skills to make other decisions about their behaviour relating to higher levels of solitary and aggressive behaviours, and lower levels of prosocial behaviours. For instance, a child may perceive that others do not want to play with them, and so remain solitary. Similarly, a child could use their perspective taking skills in order to intentionally upset a child they dislike (either by not displaying prosocial behaviour or being aggressive towards them) or behave aggressively because they want to appear dominant to their peers. Therefore, the concept of egocentrism may relate to children's behaviours in a number of ways. However, it is also possible that, whilst children's have an increasing capacity to see things from others' perspectives, they do not utilise these skills in all their behaviours, or that other factors outweigh this cognitive process. For instance, whilst a child may realise how others view their behaviour, there may be personal outcomes where the costs or benefits of behaving in this way are more important to a child than others' perspectives. These varying relationships may be evident when investigating trajectories of children's reported behaviour, as researchers have found different patterns of stability and change across solitary, prosocial and aggressive behaviours.

Broadly speaking, withdrawn behaviour (an internal source of solitude) has been found to be stable across both time and context (Rubin, Chen, McDougall, Bowker, & McKinnon, 1995; Schneider et al., 2000), over at least two years (Rubin et al., 1995). Therefore, it is possible that children's display of solitary behaviour is unaffected by their increasing perspective taking skills. Furthermore, as explained previously, one reason for solitary behaviour may be exclusion by others (active isolation – Rubin et al., 1989), which may take the form of peer-victimisation. In contrast to social withdrawal,

peer-reports of victimisation in early childhood have been found to be unstable over a four month period (Monks et al., 2003). Similarly, Schäfer and Albrecht (2004) collected self-reports of victimisation in slightly older children (eight to 10 year olds) and also found these to be unstable, but with no clear patterns relating to increasing or decreasing victimisation. Whilst it is possible that there may be different findings for longer research timeframes, one reason for this instability may be as a result of children using their decreasing egocentrism to see things from others' perspectives and so avoid situations where they are excluded.

The trajectories of prosocial behaviour also show contradictory findings across studies. Some researchers have found that the frequency of children's prosocial behaviour increases from age four years upwards to adulthood (Eisenberg et al., 2007) and Eisenberg et al. (1999) argued that prosocial tendencies become more evident as children grow older. However, whilst researchers have found this to be the case for some forms of prosocial behaviour such as sharing (Jackson & Tisak, 2011) or helping (Hannah & Midlarsky, 1985), other researchers have found the opposite pattern with decreasing prosocial behaviour (Kokko, Tremblay, Lacourse, Nagin, & Vitara, 2006), particularly for comforting behaviour (Gottman & Pankhurst, 1980). Therefore, it is possible that children make use of the perspective taking abilities in a variety of ways across different forms of prosocial behaviour.

It is also possible that increasing perspective taking skills, lead to the display of different aggressive behaviours. According to research by Björkqvist (e.g. Björkqvist, Lagerspetz, & Kaukiainen, 1992; Björkqvist, 1994) there are progressive stages in the development of aggressive behaviour with higher prevalence of physical and verbal aggression before the development of indirect aggression as children move into middle childhood / adolescence. This has been supported by research. Côté, Vaillancourt, Barket, Nagin, and Temblay (2007) showed a steady decrease in mothers' reports of physical aggression but an increase in relational aggression with the child's age. Reducing egocentrism with age may increase children's awareness of others' perspectives if they physically hurt them. Furthermore, it is possible that some children use their increasing perspective taking to engage in more relational aggression which can be both an indirect form of aggression and less obvious to others. Therefore, if children are concerned with others' perspectives, engaging in this form of aggressive

behaviour, instead of more direct forms, may reduce negative perceptions from others. It is possible that changes in aggressive behaviour occur over an extended time period, as there is a body of research which has shown temporal stability in aggressive behaviour. Vaillancourt et al. (2003) found that four to seven year olds were consistent over time with the form of aggression they used. Similarly, Camodeca, Terwogt and Schuengel (2002) found that this was temporally stable in seven to eight year olds over the course of one year and Monks et al., (2003) found that this was also the case over the course of at least four months. Similarly, Ladd and Burgess (1999) found moderate stability in five to eight year olds' aggressive behaviour over the course of one year. These findings of stability indicate that the display of aggressive behaviour may be unaffected by reducing egocentrism, or that an extended time period is required to detect any changes.

These contrasting findings indicate that the relationship between egocentrism and children's behaviour may be complex, with several possible associations between these. One way to further understand the association between children's egocentrism and their behaviour is through the study of children's behaviour explanations. Comparing children's explanations with their self-reports may help to understand children's awareness of others and how this is related to their behaviour, through references to other children or individuals. Increasing perspective taking abilities may also be evident through the comparison of how children's self-reports vary from reports from others. On one hand, research has shown increasing concordance in five to six year olds' self-reports of peer-victimisation, as compared to other reporters' as children became older (Ladd & Kochenderfer-Ladd, 1996). Salley, Vannatta, Gerhardt, and Noll (2010) obtained similar findings when looking at self-perceptions of behaviour and peer-relations in seven to 13 year olds. It is possible that these reports became more similar because of children's increasing perspective taking abilities which they may utilise when reporting on their own behaviour. However, as per the overview in the previous section, just because a child is capable of taking the perspective of others, they may not necessarily do so when providing self-reports and this may vary across behaviours. The present study will help to understand this further.

The concept of egocentrism may also be particularly important when comparing children's self-reports and peer-reports. According to Piaget (1951), younger children

are inherently egocentric and therefore, children's peer-reports may be based on their own perspectives and experiences, with little awareness of children's behaviour towards others. With this in mind, it is possible that there will be larger differences between self-reports and peer-reports of children's behaviour, when compared to differences between self-reports and adult-reports who, most likely, consider children's behaviour with various peers.

Whilst it is possible that the findings of the current study will relate to Piaget's Theory of Cognitive Development (1951) it is now generally agreed that Piaget underestimated children and that they were capable of more advanced cognitive abilities younger than he proposed. Two examples of this can be seen with perspective taking in Theory of Mind (ToM) and empathy, which are discussed in the next section.

2.5.2 Theory of Mind and empathy

Closely linked to Piaget's (1951) concept of egocentrism is Theory of Mind (ToM), although there are subtle differences between these two concepts. Whilst egocentrism refers to the inability to see things from others' perspectives, ToM is the ability to reason about what other people know or believe, specifically "the ability of an individual to make inferences about what others may be thinking or feeling and to predict what they may do in a given situation based on these inferences," (Schlinger, 2009, p.435). Researchers often assess children's ToM by asking children to participate in a range of tasks to where they are presented with fictional scenarios, using a range of resources including pictures, videos and dolls, which test their ability to predict knowledge, behaviour and emotion in others. Research has shown that by age four to five years, typically developing children are able to pass these tasks (Wellman, Cross, & Watson, 2001). Further development of ToM is measured through second order false belief tasks, which explore whether children understand that an individual can hold beliefs about someone else (e.g. 'I think that X thinks that Y thinks'). Sullivan, Zaitchik and Tager-Flusberg (1994) explored second order false belief tasks in young children and found that approximately half the pre-schoolers (aged four to five years) and all of the kindergarteners (aged five to six years) could complete the task. These findings further highlight the cognitive changes experienced by children between the ages of four to seven years (the focal age group of this thesis). Other assessments include a

battery of ToM tasks (Pons & Harris, 2002) and researchers have demonstrated increasing ToM abilities with age across these tasks (Caputi et al., 2012). Therefore, whilst the concept of ToM proposes that children have greater perspective taking abilities from a younger age than Piaget (1951) proposed, both theories present a developmental approach in the increasing complexity of children's perspective taking abilities as children grow older.

Closely related to ToM, is the concept of 'cognitive empathy' (Perry & Shamay-Tsoory, 2012) which relates to the perspective-taking capabilities of individuals. Davis (1980) proposed that 'cognitive empathy' should be measured separately to 'affective empathy' which refers to the emotional reactions of individuals and can be defined as "an affective response that stems from the apprehension or comprehension of another's emotional state or condition and is similar to what the other person is feeling or would be expected to feel," (Eisenberg, 2000, p. 671). Hoffman (2000; 1982) devised a theory outlining the development of affective empathy. For Hoffman, from age two years, children are able to recognise distress in others. However, at this stage a child will offer support which would make themselves feel better, rather than considering the support that the individual in distress may want to receive. Between the ages of three years and eight years, children reach the 'Empathy for Another's Feeling' stage where children demonstrate more appropriate support wanted and needed by the other individual. Therefore, according to Hoffman, the focal age group in this thesis (four to seven years), experience significant changes in their empathy skills.

As with the concept of egocentrism, children may use their ToM and empathy skills in different ways across the display of specific behaviours. First, some researchers have found that a more advanced ToM is related to the display of higher levels of prosocial behaviours, but lower levels of solitary and aggressive behaviours. For instance, research has shown that a more developed ToM is related to a higher display of helping and prosocial behaviours (Carlo, Hausmann, Christiansen, and Randall, 2003; Zahn-Waxler, Shiron, Robinson, Emde, & Schmitz, 2001), although research into cooperative behaviour found no association with ToM (Ruffman, Slade, Devitt, & Crowe, 2006). This pattern is also reflected in findings which have shown that children with a poorer developed ToM were more likely to engage in solitary behaviour (Les & Rubin, 1987; Walker, 2005) and higher levels of aggressive and bullying behaviours (Randall, 1997).

However, it is also possible that children use a more developed ToM to their advantage when engaging in behaviours with their peers. For instance, Sutton, Smith and Swettenham (1999) and Renouf et al., (2009) found that some aggressive children had more advanced ToM skills and suggested that children may use this as a tool in their display of aggression (through awareness of what other children may think or believe), although other researchers have not replicated this finding among younger children (Monks et al., 2005). It is also possible that children make use of a developing ToM in making a choice to be alone. For instance, Wellman, Lane, LaBounty and Olson (2011) found that socially withdrawn pre-schoolers had a more developed ToM than non-socially withdrawn pre-schoolers. As with the discussions of egocentrism, this could be explained by them opting to avoid their peers because they are able to see things from their point of view and possibly pre-empt behaviours such as peer-victimisation. Therefore, there is conflicting evidence relating to the relationship between ToM and children's behaviour, which may result in varying use of ToM skills across different forms of behaviour and children's understanding of their own behaviours.

In contrast, most researchers have shown an association between empathy and children's behaviour. In these cases, researchers have used empathy to refer to what Davis (1980) and Hoffman (1982, 2000) describe as 'affective empathy'. For instance, researchers have found associations between empathy and lower levels of withdrawn behaviour (Findlay, Giradi & Coplan, 2006), and aggressive behaviour (Hughes & Dunn, 2000; Funk, Buchman, Jenks, & Bechtoldt, 2003; Strayer & Roberts, 2004;) and increased prosocial behaviour (Hoffman, 1982, 2000 ; Malti et al., 2009b; Stocks, Lishner, & Decker, 2009) because of an increased ability to understand and feel the emotions and experiences of others (Taylor et al., 2013). However, it is possible that children may be capable of showing affective empathy towards others, but do not apply this to their behaviour. For instance, Eisenberg's Model of Prosocial Reasoning (Eisenberg et al., 1987) proposes that children do not make use of their empathy skills until adolescence. Therefore, although Hoffman's (1986, 2000) theory proposes that children are capable of affective from a young age, they may not make spontaneous use of this until they are older.

Similar to the concept of egocentrism (Piaget, 1951), an exploration of how children's self-reports compare to their explanations may be particularly useful in understanding

the role of ToM and empathy in children's behaviours. For instance, children's references to others may indicate how far a child is employing their ToM or empathy skills. Therefore, whilst the current study is not proposing the direct study of either of these concepts itself, the exploration of children's awareness of others when deciding how to behave may indicate associations with ToM and empathy and whether this changes over time and across behaviours.

The concepts of ToM and empathy may also relate to the current research in other ways. First, as with egocentrism, developing ToM and empathy skills may relate to increasing agreement between self-reports and reports from others when reporting on children's behaviour. However, the concepts of ToM and empathy propose a developing complexity in children's ability to understand that others' have different thoughts and feelings to themselves. This shows more advanced perspective taking skills which were unexplored by Piaget (1951). It is possible that some behaviours require more complex thinking such as a more developed ToM where second-order thinking is required. This is particulary the case for the concept of different roles in aggressive behaviour and peer-victimisation, such as reinforcers or ringleaders, where a child is required to think about the involvement of several parties, rather than just the actor and recipient of the behaviour. It is possible that younger children, with less developed ToM and empathy skills, lack the ability to engage in second order thinking and consider the feelings individuals in different roles. Therefore, children may be less likely to either report or actually display these behaviours. This may be evident in children's self-reports of their behaviour, as well as reports from others.

Unlike the development of egocentrism or ToM, researchers have found sex differencs in empathy, with females shown as more empathetic than males, particularly when they are asked to self-report their empathy levels (e.g. Eisenberg & Lennon, 1983; Eisenberg & Strayer, 1987; Hoffman, 1977). It is possible that this will extend to the use of self-reports from young children in the current study, with females making more use of empathy in their behaviour and reasons for their behaviours, than males. Higher empathy amongst females may lead to a greater display of prosocial behaviour, and lesser display of solitary and aggressive behaviours. However, previous research suggests that females are selective in the use of their empathy skills as informants have reported that females engage in higher levels of prosocial behaviour (Malti et al., 2009a)

across a range of cultures (Carlo, Roesch, Knight, & Koller, 2001), but no sex differences have been found in solitary behaviour (Coplan & Rubin, 2001; Sadker & Sadker, 1994) and sex differences in aggressive behaviour are complex across different forms (e.g. Card et al., 2008). It is also possible that females may use their empathy skills in order to understand how others think and feel when reporting on their behaviour, and so have higher agreement with other reporters.

The concepts of egocentrism, ToM and empathy focus on children's ability to take the perspectives of others. However, these do not explain how children judge these acts and behaviours. This is considered within theories of morality. The next section contains a review of different theories of moral development, and how these may inform the behaviours children engage in, and their understanding of these.

2.5.3 Theories of moral development

Salient to the current research are theories of moral development where children develop an understanding and reasoning about what is right and wrong. Moral reasoning may play a role in children's cognitive processes when thinking about a specific behaviour. This section considers how theories of moral development may be applied to the current research and contribute new knowledge about the association between moral reasoning and children's behaviour.

Central to traditional theories of moral reasoning is the consideration of rules and consequences. Piaget's (1999) Theory of Moral Development proposed that prior to four to five years of age children have no understanding of rules. According to Piaget, from age four to five years, children move from being unconcerned with moral reasoning into the heteronomous stage where they perceive rules to be absolute, unbreakable and coming from a higher authority (such as adults or God). Therefore, around age five year upwards, children experience a change in the way they judge situations, and this further highlights the importance of the focal age group in this thesis (four to seven years). Piaget proposed that children's understanding of why these rules should be followed is closely related to their judgement of situations based on outcomes and consequences of an action rather than intentions. As rule-breaking would lead to personal negative consequences (i.e. punishment) children try to ensure that they follow

rules. Piaget proposed that children remain in this heteronomous stage until around age 10 years old, when they become more autonomous in their moral reasoning and develop an increased belief and understanding that their choices should be based on more than just the personal consequences of actions. Kohlberg and Kramer (1969) further developed Piaget's ideas. They agreed with Piaget that, prior to nine years old, children's moral codes are shaped by higher authorities and the consequences and outcomes of actions rather than social expectations and duties. However, they were more specific in focusing on children's concern with consequences for themselves than Piaget was.

According to these classical theories, children aged four to seven years (the focal age group in the current research) mostly focus on the consequences and outcomes, particularly for themselves, when considering whether something is right or wrong. Therefore, the associated outcomes may influence how a child views their behaviour. It is possible that children associate prosocial behaviour with praise (and therefore positive consequences); solitary behaviour with feeling lonely (and therefore negative consequences); and aggressive behaviour with punishment (and therefore negative consequences). Alternatively, they may associate solitary behaviour with happiness (and therefore positive consequences) and aggressive behaviour with achieving a goal (and therefore positive consequences). Therefore, children may self-report their behaviour, based on what they perceive to be 'right' and 'wrong' from the associated outcomes. This is different to the concept of social desirability, as it may be that children's moral reasoning influences their thinking about their own behaviour (as opposed to saying what they think others way to hear).

Children's explanations are important in detecting children's understanding of 'right' and 'wrong' in their behaviours and theories of moral development may relate to patterns in children's explanations. According to Piaget (1999) and Kohlberg and Kramer's (1969) theories, it is likely that children will make more references to consequences and personal impacts in their explanations for displaying or not displaying different behaviours. Findings such as this are evident in the consideration of hypothetical situations and children's behaviour. For instance, Malti, Gasser and Buchmann (2009) looked at children's moral judgements and emotion attributions for moral rule transgressions amongst children, and how this differs for those rated as

prosocial and aggressive by their teachers. Malti et al. presented hypothetical rule violations (not sharing and stealing) and asked children to attribute emotions and justify their responses. The findings from this study can be seen to support suggestions based on Piaget, and Kohlberg and Kramer, as the younger group of children (aged six to seven years) were more likely to focus on hedonistic gains (personal consequences) than the older group of children (aged seven to eight years). Similarly, O'Connor, Cuevas, and Dollinger (1981) found inner-directed motivations for prosocial behaviour increased, accompanied by a decrease in self-gratification or reward, as children moved into middle childhood. These findings suggest that younger children are more focused on personal outcomes and consequences than older children. There is scope to explore this further using longitudinal research. Malti et al., (2009c) have specifically commented on the need for more longitudinal research to understand children's reasons for behaviour in order to detect changes, such as becoming less hedonistic over time.

Despite these patterns in theories of moral development, there is a small body of research which suggests that children have an increasing ability to think about the future. Therefore, it is possible, that children's focus on the consequences and outcomes of their behaviour increases with age because of this increasing ability, rather than declines as proposed by theories of moral development. Atance and O'Neil (2001) proposed the concept of future episodic thinking, which is the ability to mentally project oneself into the future to pre-experience an event. This is not fully developed until at least four years of age (Atance & O'Neil, 2005) but increases with age. Suddendorf and Busby (2005) examined whether children could act in a way to prevent future boredom. Three to five year old children were given the opportunity to bring something with them to an empty room, the four and five year old children were more likely to take puzzle pieces with them (and anticipate that they may get bored without these), whereas the three year olds were unable to act in the present to avoid a future outcome. Increasing future orientation seems to continue beyond childhood. For instance, research with 10 to 30 year olds (Steinberg et al., 2009) found that those aged 16 and over had stronger future orientation that those in the younger sample. Therefore, it is possible that children make use of this increasing ability in their cognitive reasoning for behaviours. Other research has also indicated opposite patterns to those proposed by classical theories of moral development. Eisenberg, Lundy, Shell, and Roth (1985) looked at how three to six year old children justified helping behaviour requested by peers. They found that

children were most likely to refer to the other child's needs or their own relationship with the other child, compared to reasons associated with authority / punishment, hedonistic gain, direct reciprocity (reference to benefits or cost deriving from showing or not showing reciprocal behaviour), or stereotypical reasons (such as 'it's nice to help'). These findings indicate that children may not always focus on consequences and outcomes as proposed in theories of morality. In addition, consequences have been found to have little impact upon prosocial acts in infants. Hepach, Vaish, and Tomasello (2013) found that children aged two years old were intrinsically motivated to help others rather than by the prospect or presence of rewards. In addition, Belacchi and Farina (2012) found that three to six year olds had a genuine willingness to help others rather than simply to please others. Therefore, whilst classical theories of morality indicate a focus on consequences and outcomes amongst younger children, other areas of research suggest that this may not be the case when applying to one's own actions and an exploration of children's self-explanations will help how this applies to children's behaviour.

It is possible, that children's focus on consequences and personal outcomes may vary by behaviour and how frequently they display these. For instance, Malti et al., (2009c) found that moral judgements differed by behaviour, with children who were rated as more prosocial providing less hedonistic reasons than those who were rated aggressive. Similarly, Jennifer and Cowie (2012) asked children aged 10 and 11 years, the reasons they thought that other children bullied others (and therefore showed aggression). They found that children thought that bullies did not care about the consequences of their actions on others and therefore, it may be that the identification of consequence and outcomes are less common amongst self-reported aggressors than non-aggressors. In addition, Bandura's Social Cognitive Theory of Moral Agency (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996) focused on moral disengagement and anti-social behaviour, and linked this to the development of anti-social behaviour in children aged 10 years and over (Pelton, Ground, Forehand, & Brody, 2004). Bandura proposed that the decision to engage in anti-social behaviour is related to the disregarding or distorting of any consequences of their behaviour (in addition to an initial cognitive restructuring with a justification for the behaviour; the minimising of one's own agentive role in any harm caused; and an attribution of blame where behaviours are attributed to other

people). Therefore, this illustrates specific cognitions for different forms of behaviour, which may be evident in the current research.

One possible explanation for the different findings relating to consequences and personal outcomes across behaviours may be that children make use of different domains to account for their social experiences. Turiel's Social Domain Theory (1998, 2008) proposed that children develop moral reasoning earlier than predicted by theorists such as Piaget (1999) and Kohlberg (1969) and that children younger than four years old have some understanding of the difference between moral and social conventions. Turiel proposed that children make use of these different domains in order to assess social situations. When using the moral domain, the intrinsic outcomes for another individual are considered whereas social conventions focus more on social rules which may have led to specific action. Nucci (1981, 2001) expanded upon Turiel's theory, to develop the concept of the 'personal' domain, in which effects are perceived to be primarily on the actor rather than others. It is possible that children use different domains for reasoning about different behaviours. It is also possible that children's own behaviour influences their reasoning about different forms of behaviour. Wardle et al., (1996) found a link between children's behaviours and the use of different domains. They asked 10 to 12 year olds about their peers' reasons for behaving in prosocial ways, and found that children who were more likely to behave in an anti-social way, were also more likely to attribute peer's prosocial behaviour to personal motives (about the actor themselves) but less anti-social children were more likely to attribute peer's prosocial behaviour to moral motives. Therefore, it is possible that children use specific domains dependant on the types of behaviours they themselves engage in, and so there may be variation in children's explanations for different behaviours within the current research. It is also possible that different domains are used, not only with different behaviours, but in order to make different decisions about behaviours. For example, Durkin (2003) explained that prosocial behaviour towards others is not always simply about a concern for others. He distinguished between prosocial behaviour which can occur for selfish and / or unselfish reasons and altruism in which there is no constructed benefit for the helper and they may actually face disadvantage because of it. Therefore, the moral domain may be used when behaving altruistically but the personal domain when demonstrating prosocial behaviour for selfish reasons and these may be evident in the current research findings. Researchers (Arsenio, Adams, & Gold, 2009; Arsenio &

Lemerise, 2004; Dodge 2004) have proposed the integration of domain theories of morality into the Dodge's (1986) work into a Social Information Processing Model of social competence and behaviour, further highlighting the usefulness of moral domain theories in the study of children's behaviours.

This section has shown that theories of moral development may play an important role in children's cognitive reasoning about behaviour. According to Piaget (1999) and Kohlberg's (1969) theories, it is likely that younger children will focus more on personal outcomes and consequences of their behaviours. However, other research has suggested an increasing ability to think about consequences with age, and it is possible that this varies across behaviours. This may be a result of children using make use of different domains when discussing different behaviours, and an exploration of their self-reported ratings and explanations will enable a further understanding of this.

2.5.4 Theoretical application to the current research

This section has introduced a range of developmental theories and applied these to the research in this thesis. Piaget's Theory of Cognitive Development (1951) was presented, with a particular focus on the concept of egocentrism and how this may relate to children's self-reports, trajectories of children's behaviours and reference to others within children's explanations of their behaviours. Similar ideas were presented in relation to the concept of ToM and empathy, and how children may use these skills in their behaviour. Next, theories of moral development were discussed, highlighting how both classical theories, and domain theories may inform the current research. The review of these theories has been useful in making some tentative suggestions relating to findings and the exploration of children's self-reports and explanations in the current study. The current study will contribute new knowledge to the study of young children's behaviour, by understanding the role that children's development may play in their self-reported perceptions of this.

2.6 The current study

In this chapter research has been presented that demonstrates the need to study four to seven year olds' self-reports and explanations of their own solitary, prosocial and aggressive behaviour. This will help to contribute new knowledge in understanding how young children perceive their behaviours and contribute to the current study of children's behaviour, developmental theories, future research and work with children.

In order to address this research need, the current study proposes considering children's own reports in several ways. Firstly, the comparison of reported prevalence levels from children and other reporters will provide an overview of how frequently children report behaviour compared to other reporters. Secondly, analysis of how individual children's self-reports of their behaviour compare with reports from others will help to understand agreement levels across behaviours and over time. Thirdly, the study of how children explain their behaviours will offer insight to the reasons young children provide for displaying or not displaying different behaviours.

Central to the research in this thesis was the need to consider change across four to seven year olds; the study of several behaviours; comparison of self-reports with other reporters; and the focus within children's explanations. Further review was undertaken in order to approach each of these research needs, and this is outlined below in relation to the current study, with some reference to literature presented earlier in this review.

2.6.1 Longitudinal research

A recurring theme throughout the presentation of literature and developmental theories in this chapter was the consideration of children's behaviours and reports over time, across the ages of four to seven years. This has helped to understand how developmental processes may play a role in children's understanding of their behaviour and shows the importance of studying children's reported self-perceptions over several time points.

Research considering children's development may make use of either longitudinal or cross-sectional data. Whilst both methods can be useful, there are many advantages to

the former, as it allows within-individual analysis of change (Duncan & Duncan, 2012). However, few studies have used this type of design when exploring playground behaviour and peer status (Boulton, 1999). Whilst there has been an increase in the use of longitudinal methods in recent years (e.g. Caputi et al., 2012) it is still the case that the majority of research has been cross-sectional (e.g. Trach, Hymel, Waterhouse & Neale, 2010). Many researchers have explicitly stated the need for more longitudinal work in the areas of prosocial behaviours (Nantel-Vivier et al., 2009); and solitary behaviour (Karevold et al., 2012), and in the understanding of children's cognitive processes when making decisions about their behaviour (e.g. Malti et al., 2009c). Although longitudinal research is more common in the study of aggressive behaviour, authors have also stressed the benefits of this (Crick, Ostrov, & Werner, 2006). This highlighted the need to include a longitudinal design in the current study, alongside the more commonly used cross-sectional method for comparison.

Importantly, and central to the current study, longitudinal research not only allows for developmental trajectories to be explored, but also facilitates investigation of change / continuity over the course of the school year which is not possible from cross-sectional analyses. In many schools, children undergo a transition at the end of a school year, into a new year group with a new class teacher, and in some cases a new set of class-mates, and therefore there may be changes in behaviour as children enter a new school year. It is possible that the transition into a new school year can be disruptive for children (Pellegrini et al., 2010), although others have suggested that children find the end of the school year stressful and are more relaxed after the summer break as they enter a new academic year (Lohaus, Elben, Bau, & Klein-Lessling, 2011). Researchers have shown that children's behaviour may change over the course of a school year; with higher levels of coercion at the start of the academic year (Pellegrini & Long, 2002) and more prosocial behaviour and relational aggression at the end of the school year (Roseth et al., 2011; Little et al., 2003). It is also possible that externalising behaviour may decrease for females but increase for males (Hammarberg & Hagekull, 2006). This highlights the importance of conducting a longitudinal study over the course of a school year. In addition, Reijntjes, Kamphuis, Prinzie and Telch (2010) noted that the majority of longitudinal studies concentrate on only two assessment periods and on time periods spanning twelve months or less. The use of only two research time points may make it

difficult to assess when change occurs, and therefore, the use of more time points allow a greater understanding of children's development.

As a result of the above review, it was decided to adopt a longitudinal approach to the study of young children's reported self-perceptions of their behaviour, across two year groups to also allow cross-sectional comparison.

2.6.2 Reporters

In the exploration of children's self-reports and the insight these provide, it is necessary to also collect reports from others as comparators. As explained earlier in this review, despite biases, there are several benefits to reports from school-based informants and these are mostly used in behavioural research, namely, Class Teachers and peers. Therefore, it was decided to collect ratings from these informants to provide further insight into how these may differ from self-reports. Objective researcher observations would have also provided an interesting comparison to children's self-reports, but the scope of this doctoral thesis meant that this was not possible. Instead, it was decided to provide another comparison, via collecting reports from other school-based adults; Teaching Assistants.

Teaching Assistants / Learning Support Assistants (referred to as Teaching Assistants throughout this thesis) are an under-utilised group of informants. These titles describe individuals who work alongside teachers to offer extra support within a classroom, either to one child or to the class as a whole. Teaching Assistants often have several roles within the school, such as lunch and playground duties (Roffey-Barentsen & Watt, 2014), and may be more likely to witness the behaviours that occur between peers at these times. In the UK, there has been an increase in the number of Teaching Assistants in schools over the past ten years (Department of Education, 2013b). Groom and Rose (2005), explored their role with children in Year three (ages seven to eight years) through to Year Six (ages 10 to 11 years) and found that they play a crucial role in the inclusion of children with Social, Emotional and Behavioural Difficulties (SEBD), into the mainstream classroom. Children's perceptions of Teaching Assistants are also positive (Fraser & Meadows, 2008), with most considering them to be an important part of the school community. Teaching Assistants may provide more support towards the

development of confidence, motivation and other 'soft skills' (Blatchford, Russell, & Webster, 2012), than academic support because of nurturing skills including sensitivity, attentiveness and empathy (Dunne, Goddard, & Woodhouse, 2008). Therefore it is possible that Teaching Assistants have different perceptions of children's behaviour to Class Teachers because they focus on developing different skills from each other and develop different relationships with the children. It is also possible that they witness different behaviours. To date, the author of this thesis is not aware of any research which has explored the inclusion of Teaching Assistants' ratings of children's behaviour, and this may provide an additional measure to assess children's behaviour at school, as well as which to compare self-reports. Therefore it was decided to include reports from Teaching Assistants in the current study.

2.6.3 Forms of behaviour

This chapter has presented the argument that there is a need to focus on children's perceptions of their own solitary, prosocial and aggressive behaviour. In addition, it has also shown that there is a range of definitions and nomenclature in the study of these behaviours (Section 2.2.1.1). In order to study these categories of behaviours, it was necessary to select which forms of behaviours to include in the present research.

In relation to solitary behaviour, the distinctions used in previous research were not appropriate for the current study. This is because the one aim of the current research was to consider children's own reasons for their solitary behaviour and therefore it seemed inappropriate to use the distinctions pre-determined by researchers, which are based on different underlying motivations (e.g. active isolation, shy and unsociability / social disinterest). It seemed appropriate to merge the aspects of reticent and on-looking behaviour with solitary active play and speak to children about their 'behavioural solitude', in which a child stays by themselves, even in the presence of peers, either playing or watching others but making no effort to join in. The less researched solitary behaviour, 'avoidance', was also selected as a second form of behaviour, based on Asendorpf's (1991) definition and recent findings that this is a distinct form of solitary behaviour in young children (Ding et al., 2015). In this context, it has been used to refer to a child who rejects an offer to play or join in, and remains by themselves instead. Neither of the solitary behaviour forms in the current study made assumptions about

reasons for its occurrence and the broad nature of these behaviours meant that children could provide many different reasons for being alone.

Whilst measures of children's behaviour include a range of different forms of prosocial acts, most validated measures include sharing, comforting, helping and cooperation such as Behar and Stringfield's (1974) Pre-school Behaviour Questionnaire (sharing); Matson's (1983) Evaluation of Social Skills with Youngsters (MESSY) (sharing and helping); Ladd and Profilet's (1996) Child Behaviour Scale (cooperation and comforting). Crick, et al.'s (1997) Pre-school Social Behaviour Scale (sharing, comforting and helping); and Goodman's (1997) Strength and Difficulties Questionnaire (sharing, cooperation and comforting). These are also commonly identified by children when asked about prosocial behaviours (Greener & Crick, 1999). It was decided to include sharing and cooperating in the present study because of their frequent use in other measures. It was also decided to use the premises of helping and comforting but further consideration was given to the distinction and most appropriate way to include these as researchers have previously merged these into one category (Eisenberg-Berg & Hand, 1979). Furthermore, Jackson and Tisak (2001) found that helping behaviours were often associated with the response to an emergency or non-emergency situation where a peer requires help. Therefore, comforting could be seen as a form of helping behaviour. This decision was also made within the current research to focus on 'caring' which makes reference to both comforting or helping someone who needs it because they are sad or upset.

Greener (2000) has argued that the definition of prosocial behaviour is broader than most studies allow for and that the focus on sharing, cooperation and caring results in the omission of other prosocial behaviours such as relational inclusion in which a child invites another child to join a group or game. Relational inclusion has been identified when children aged eight years and over have discussed prosocial behaviour and identified examples of when peers had been nice to them (Greener & Crick, 1999; Warden, Christie, Kerr & Low, 1996). Therefore, relational inclusion seems important to older children. This was supported by Greener and Crick's (1999) findings who found that children aged eight to nine years were more likely to cite typically assessed behaviours whereas 10 to 11 year olds were more likely to identify prosocial acts which establish dyadic ties. However, the author of this thesis was unaware of any published

research which has asked young children about the prevalence of relational inclusion. Therefore, it was decided to make use of an 'including' behaviour where children invite others to come and play with their group to see how young children's understand this form of behaviour. It was decided to make this in reference to children who were alone in order to ensure clarity of this behaviour for the young focal age group.

In relation to aggressive behaviour, the four main forms of aggressive behaviour, used by Monks et al., (2003), were selected. Therefore, for the purposes of the current research the following behaviours were used: direct relational aggression (excluding and rejecting behaviour); indirect relational aggression (rumour spreading and gossiping); verbal aggression (shouting or saying nasty things to a peer); and physical aggression (hitting, kicking, punching or physically harming another child). This was also based on a review of measures showing that these are regularly used within aggression research and that other nomenclature has been used to refer to the same forms. Measures used for behavioural research also include these four forms of aggression (Behar & Stringfield, 1974; Crick et al., 1997; Goodman, 1997; Matson, 1983). Similarly, Smith (2011) describes the main forms of bullying which are closely linked to those of aggression, as including physical, verbal, social exclusion, indirect and other relational. He also discussed the inclusion of cyber-bullying, but this is not generally studied among children aged under seven years (e.g. Monks, Robinson, & Worlidge, 2012) and is unlikely to occur in a school based setting amongst peers of ages four to seven years (the focal age of this research).

In addition, it was decided to include two ringleader behaviours (verbal and physical), where the focal child instructs another child to act verbally or physically aggressive towards another based on research into different bullying roles (Salmivalli et al., 1996). Specifically, the inclusion of these behaviours aimed to further explore findings by Monks et al., (2003) where there was a lack of perception of peripheral roles (e.g. followers) amongst four to six year olds. This role of a ringleader as instructing somebody else to behave in this way, rather than directly carrying out aggressive acts, has not been explored with children of this age. Therefore, its inclusion within the current research allowed clarity about whether Monks et al.'s findings relating to peripheral roles in young children extend to ringleading roles of this form.

There are conflicting findings about how behaviour-reports should be treated. On one hand, research has suggested that forms of behaviours should be considered separately because of different prevalence levels and associated outcomes. For instance, Nelson (2013) found similar internalising problems in individuals who showed some forms of solitary behaviour (shyness), but that others reported relationship problems (unsociable). Similarly, Dunfield, Kuhlmeier, O'Connell, and Kelley (2011) suggested that prosocial behaviours should not be grouped together as one general category of unified behaviour (based on infancy research). In addition, Monks et al., (2003) have shown some aggressive forms to be more common than others in young children, highlighting the need to consider these individually. Therefore, this is the approach adopted in Chapter 4 (solitary behaviours), Chapter 5 (prosocial behaviours) and Chapter 6 (aggressive behaviours) of the current research, which considers children's self-reports and explanations for each individual form of behaviour within each category.

Other research findings have demonstrated usefulness in collating different forms of behaviours into broader categories. For instance, research has indicated that different forms of solitary behaviour are not mutually exclusive, and there is evidence to suggest an overlap between children's withdrawn behaviour and unsociability (Coplan et al., 2004). Similarly, research with children aged five to six has shown that there is high consistency between prosocial behaviours including helping peers, recognising feelings, showing concern about distress, being kind towards peers, cooperative towards peers, concern for moral issues and offering help, according to teacher-reports (Ladd & Profilet, 1996). Research has also highlighted the overlap between several forms of aggression. Crick (1999) also found a modest correlation between relational and physical aggression in pre-school children (aged three to five years). Similarly, Crick et al.'s (2006) research showed that later social-psychological adjustment problems were best predicted by children showing a combination of these two behaviours. Furthermore, Xie, Farmer and Cairns' (2003) found high levels of correlations in six to 11 year olds between physical and verbal aggression for both males and females and between indirect relational aggression and direct relational aggression. Similarly, Card et al. (2008) also found an overlap between physical / verbal aggression and relational aggression. Therefore, this overview of findings suggests that there is scope to consider how children's self-reports and explanations of individual behaviour forms relate to

each other both within categories. As explained earlier in the chapter, there is also scope to consider profiles of children's behaviour across categories, and collating different forms of behaviour enables this. Therefore this approach is adopted in Chapter 7 in the consideration of children's behaviour self-reports and explanations.

2.6.4 Areas of focus in children's explanations for their behaviour

This chapter has also contained the argument that asking children for explanations of their behaviour can help researchers to understand their cognitive processes and reasons for either behaving or not behaving in different ways. A review of attribution theories and Dodge's (1986) work was used to argue that open-ended questions and conversations with children about their real-life behaviour (as opposed to hypothetical scenarios) will provide new knowledge about how children explain their peer-related behaviour. However, it was also necessary to decide on particular areas focus within these explanations, to address the research questions in this thesis relating to how children explain their behaviour.

There was scope to consider several aspects based on attribution and developmental theories. However, the exploratory nature of this research meant that it was necessary to adopt an approach considering children's cognitive processes across all behaviours, and which could potentially be used to inform future research with a more specific focus on each developmental theory or behaviour. The selected approach is discussed below. The coding system applied is described in depth in Chapter 3.

A recurring theme within the review of literature and theory was reference to causes and consequences within cognitive processing. In particular, the theme of consequences and outcomes recurs within theories of moral development. In addition, Dodge's (1986) work has suggested that children both interpret cues and assess outcomes when deciding how to behave. Therefore, it was decided to use the term 'explanation focus' to assess whether children's explanations for behaviour were focused on causal reasons (based on the past or present) and / or consequential reasons (based on future outcomes).

It was decided to use the term 'agency' to refer to who or what was perceived as causing the behaviour in children's explanations. This overlaps with theories of

attributions; the concept of an ‘agent’ in The Leeds Attributional Coding System (LACS - Munton, Silvester, Stratton, & Hanks, 1999) and the second stage of Dodge’s (1986) model. The LACS also involves identification of targets in explanations. This was combined with outcome expectancies in attribution theory and outcome evaluation in Dodge’s (1986) model and so it was decided to also concentrate on this aspect of children’s explanations. This was termed ‘outcome focus’ and refers to who or what was affected in a prior scenario that led to the child’s behaviour, or as a result of the behaviour itself.

It was decided to focus on the internal-external distinction for both agency and outcome focus for three main reasons. Firstly, this was a consistent dimension across several attribution theories (as discussed earlier in this review). Secondly, the LACS (Munton et al. 1999) which is used to code attributions from natural discourse, also makes use of an internal-external dimension (in addition to other dimensions). Eslea (1999) had made use of the LACS with children (seven to 11 year olds) and shown the highest reliability in this dimension across the LACs. Thirdly, as discussed earlier, proactivity and reactivity are common distinctions in motivations for children’s behaviours and therefore this distinction allows overlap with this. Munton et al. (1999) explain that there has been some debate about the use of the definitions of the internal-external distinction. Some authors (e.g. Abramson, Seligman & Teasdale, 1978) have used this distinction, to refer to situational or dispositional factors, with ‘internal’ meaning anything caused by themselves or within another person, as compared to ‘external’ situations of either person. However, others (e.g. Jones & Davis, 1965) have made us of the self-other dichotomy where interpreted ‘internal’ is used to mean they themselves decided to act in that way and ‘external’ to mean that anything external to them led to their actions (including other people). In the context of this present research, the latter distinction is used.

This section has outlined key aspects of this study which have been informed by previous literature and research, relating to the behaviours considered and the analysis of explanations.

2.7 Chapter summary

In this chapter, the importance of studying children's behaviour, in particular solitary, prosocial and aggressive behaviours, has been presented, along with the many possible biases that may occur within the current methods used to study children's behaviour. This chapter has contained a review of the potential insight that could be gained from collecting self-reports of behaviour from young children, and exploring how these may differ to others. Furthermore, this chapter presented the usefulness of asking children for explanations of their behaviour, through a review of attribution theory and Dodge's (1986) work applying a social information processing approach to understanding children's social competence and behaviour. This chapter has also shown the importance of children's cognitive development and provided an overview of developmental theories including Piaget's (1951) Theory of Cognitive Development, Theory of Mind and empathy, and theories of moral development. These theories have been applied to the current research in three main ways. First they were used as further justification for the numerous cognitive changes experienced by children across the ages of four to seven years, in addition to their social and practical changes. Second, they were used to highlight where the collection of self-reports and explanations may provide useful information about the application of theory to children's behaviours and to make some tentative suggestions about possible findings. Finally, the examination of these theories informed several methodological decisions, including the use of a longitudinal design and focus within children's explanations.

This chapter has finished by reaffirming the important contribution of the current research and providing an overview of how this review has informed the approaches taken relating to a longitudinal design, reporters used for comparison, forms of behaviour, and the approach taken to considering children's self-reported explanations. In the next chapter, the measures and methods employed in the current research are presented.

3 METHODOLOGY

3.1 Introduction to chapter

In Chapters 2, the background literature, research and theory were discussed, demonstrating the need for the present research. The focus of this chapter is on the general methodology employed for the collection of longitudinal data reported in this thesis. Measures were designed to collect reports from children of their own and others' behaviour. Reports of children's behaviours were also collected from the main teacher of each child (Class Teachers) and main member of support staff from the class of each child (Teaching Assistants). Treatment of data including statistical assumptions and preliminary analysis is also described. The chapter ends with a summary of findings from pilot work.

3.2 Aims and research questions

The aim of this thesis was to provide new insights into psychological explanations for behaviours with peers, through considering four to seven year olds' reported self-perceptions of these. Central to this, was the objective of considering the nature of these reported self-perceptions longitudinally over the course of 12 months, in order to assess how these may change as children become older, and over the course of a school year. The aim was to do this through exploring their self-reported ratings and explanations, and comparing these to ratings from Class Teachers, Teaching Assistants and peers.

To address these aims, five main research questions were focused on within this thesis. Across all research questions, findings were considered longitudinally, in order to detect changes in children's reported perceptions of their behaviour. In addition research questions were also addressed across two age groups (cross-sectionally) and by sex of child. These are stated below.

1. How prevalent are four to seven year olds' solitary, prosocial and aggressive behaviours compared to previous research, according to self-, peer-, Class Teacher- and Teaching Assistant-reports?

2. How different are four to seven year olds' self-reported prevalence ratings of solitary, prosocial and aggressive behaviours, to those provided by peer-, Class Teacher- and Teaching Assistant-reports?

3. What types of explanations do four to seven year olds' provide for exhibiting and / or not exhibiting solitary, prosocial and aggressive behaviours?

4. How do four to seven year olds' self-reported ratings relate to each other, across the three categories of solitary, prosocial and aggressive behaviours?

5. How do four to seven year olds' explanations for exhibiting or not exhibiting behaviours relate to each other, across the three categories of solitary, prosocial and aggressive behaviours?

These general research questions have been developed into more specific research questions in later chapters. For instance, research questions 1 to 3 have been specifically applied to each category of behaviour in Chapter 4 (solitary behaviour), Chapter 5 (prosocial behaviour), and Chapter 6 (aggressive behaviour). Research questions 4 and 5 have been considered in Chapter 7. A visual display of how the research design and procedure are linked to the research questions can be seen in Figure 3.2, Section 3.9.

3.3 Design

The above five research questions were addressed within a single large-scale study. The study adopted a longitudinal cohort sequential design (Cole et al., 2001). There were three time points in the study, with a lag of approximately six months between each time point. Therefore children were seen three times over the course of 12 months. Time 1 took place in the final term of a school year; time 2 took place in the first term of the next school year, and time 3 took place in the final term of that school year (see Table 3.1). Not only did this approach allow the consideration of any changes in self-reports and explanations as children became older, but it also allowed for a comparison of change over the course of the school year, using time 1 as a comparator.

Two groups of children took part at each time; these have been referred to as the 'younger age group' and 'older age group' throughout this thesis. The repeated measures design was used for longitudinal analysis over the three time points and independent groups were also used to compare perceptions of the two age groups cross-sectionally. The comparison of two age groups, one year apart, made it possible to assess whether any differences in findings were related to age and development, or whether both age groups followed the same patterns and trajectories in findings over the course of the school year. The design is outlined below in Table 3.1.

Table 3.1. Design

Detail	Time 1	Time 2	Time 3
Time point	April to July 2012	September to December 2012	April to July 2013
Academic term	Final (April - July)	First (September - December)	Final (April - July)
Younger age group	Reception year (4 to 5 years)	Year 1 (5 to 6 years)	Year 1 (5 to 6 years)
Older age group	Year 1 (5 to 6 years)	Year 2 (6 to 7 years)	Year 2 (6 to 7 years)

There were three independent variables: age group (younger, older), sex (male, female) and time-point (time 1, time 2, time 3). The main dependent variables were children's ratings of their own and peers' behaviours on a three-point scale (lots, sometimes, never) and open-ended explanations in response to verbatim interview questions about their own behaviour. Class Teacher and Teaching Assistant-reports of children's behaviour (lots, sometimes, never) were also collected with closed-ended questions.

3.4 Context

Five mainstream schools based in South East England participated in this study. Children from a Reception class (age 4 to 5 years) and Year 1 class (age 5 to 6 years) at each school were recruited7 at time 1. At time 2 and 3, the younger age group had moved into Year 1 (age 5 to 6 years) and the older age group had moved into Year 2

(age 6 to 7 years). All schools had behaviour policies in line with the English national requirement (Department for Education, 2014a, 2012). In some cases, when children moved up a school year to a new teacher, their peers and class structure remained the same. In other cases, some schools adopted a 'mixing class' policy in which new classes were formed from all children in the year group.

Details of this and context for each school has been presented below with demographic and biographic information (based on Department for Education statistics, 2013c; and Ofsted reports, 2014). Information for each school has been compared to the national averages for deprivation level (percentage of children eligible for free school meals) (19.2%), average class size (27.2 children) and average percentage of children from BME backgrounds (28.5%), percentage of males and females (49.0% females and 51.0% males nationally), and proportion of children who are supported by school action plus or had a statement of SEN (7.7%). Ofsted reports were also reviewed, and the most up to date rating applied to children's classroom behaviour has been reported. An overview of each school is provided below.

3.4.1 School A

At School A, there was a high level of deprivation (25.0%) and a higher than the national average percentage of children from a BME background (47.2%). There was a slightly larger percentage of males (56.2%) than females (43.8%) at this school. Class sizes were in line with the national average (approximately 28 children in each class). By time 2 and 3, a mixing class policy had been adopted for both the younger and older age group. The Reception class of participating children at time 1 was restructured across three classes with other children in the year group at time 2 and 3. Similarly, the Year 1 class of participating children at time 1 was restructured across two classes with other children from the year group at time 2 and 3. Participating children were equally spread across the restructured classes. Ofsted (2014) reports show that 6.2 % of children were supported by school action plus or had a statement of SEN which is below the national average. The most recent Ofsted report (2014) showed children's classroom behaviour rated as 'good'. At the time of the current study, the most recent report (2012) had rated children's classroom behaviour as 'satisfactory'.

3.4.2 School B

At School B there was a very low level of deprivation (3.0%) and a high percentage of children from a BME background (50.3%). There was a slightly larger percentage of males (53.5%) than females (46.5%) at the school. Class sizes were large (approximately 31 or 32 children in each class). This school did not adopt a mixing class policy and children remained in classes with the same peers at all three time points. 5.9% of children were supported by school action plus or had a statement of SEN which is below the national average. The most recent Ofsted report (2013) showed children's classroom behaviour rated as 'outstanding'. At time 1 of the study, the most recent report (2009) had rated children's classroom behaviour as 'good'.

3.4.3 School C

At School C, there was a low level of deprivation (8.7%) and a low percentage of children from a BME background (14.9%). Males (51.7%) and females (48.3%) at this school were closely balanced. Class sizes were large (approximately 30 children in each class). By time 2 and 3, a mixing class policy had been adopted for both age groups. The Reception class of participating children at time 1 was restructured across three classes with other children from the year group. This was also the case for the Year 1 class of participating children. Children were equally spread across the three restructured classes. Ofsted reports show that 7.5% of children were supported by school action plus or had a statement of SEN which is a similar proportion to the national average. The most recent Ofsted report (2013) and report applicable at time 1 of the study (2011) showed children's classroom behaviour rated as 'good'.

3.4.4 School D

At School D, there was a low level of deprivation (7.5%) and a high percentage of children from a BME background (61.6%). There was a slightly larger percentage of males (53.6%) than females (46.4%) at the school. Class sizes were large (approximately 30 children in each class). By time 2 and time 3, a mixing class policy had been adopted within each age group and three new classes had been created with

other children from the year group. This was also the case for the Year 1 class of participating children. Children were equally spread across the three restructured classes. Ofsted reports show that 7.1% of children were supported by school action plus or had a statement of SEN which is below the national average. The most recent Ofsted report (2014) showed that children's classroom behaviour was rated as 'good'. At time 1 of the study, the most recent report (2011) had rated children's classroom behaviour as 'outstanding'.

3.4.5 School E

At School E, there was a low level of deprivation (8.3%) and a low percentage of children from a BME background (20.4%). There was a slightly larger percentage of males (53.6%) than females (46.4%) at the school. The younger age group class size was in line with the national average (28) but the older age group was slightly larger than the national average (30). By time 2 and time 3, a mixing class policy had been employed for the older age group only. Therefore, the Reception class of participating children moved into Year 1 with the same class structure and peers. However, the Year 1 class of participating children at time 1 was restructured across three classes with other children from the year group at time 2 and time 3. Ofsted reports show that 5.9 % of children were supported by school action plus or had a statement of SEN which is below the national average. The most recent Ofsted report (2013) and relevant report at time 1 of the study (2009) showed that children's classroom behaviour was rated as 'good'.

3.5 Participants

Letters (see Appendix A) were sent to parents / guardians of 297 children requesting consent for their child to participate in the study and providing them with the opportunity to opt out of participating. Parents / guardians of 12 children returned reply slips opting out of the research (3.0%). At time 1 (N = 285) there were 141 children in the younger age group (M = 66, F = 75) and 144 children in the older age group (M=77, F=67). At time 2 (N = 280) there were 138 children in the younger age group (M = 64, F = 74) and 142 children in the older age group (M = 76, F = 66). At time 3 (N = 273)

there were 133 children in the younger age group (M = 63, F = 75) and 140 children in the older age group (M = 75, F = 65). Participants who no longer participated at time 2 and time 3 had left the participating schools. Details of children's ages are presented in Table 3.2, which shows a standard deviation of approximately three to four months and a range of 13 months in each age group. All participants attended mainstream schools. Two children with Special Educational Needs were given the opportunity to participate but it was not possible to use their data. One child who participated in all time points of the study had a hearing impairment but was able to fully participate.

Table 3.2. Child participants' ages (in months)

Ages (months)	Time point	Age group		
		Younger	Older	All
Mean	1	62.06	75.01	68.51
	2	67.22	80.25	73.82
	3	73.79	87.01	80.57
Standard Deviation	1	3.70	3.48	7.48
	2	3.49	3.54	7.42
	3	3.61	3.59	7.53
Range	1	13.00	13.00	25.00
	2	13.00	13.00	25.00
	3	13.00	14.00	25.00

Class Teachers provided ratings about participating children's behaviours at time 1 (N = 10: F = 10, M = 0), time 2 (N = 23: F = 20, M = 3) and time 3 (N = 23: F = 19, M = 4). In addition, Teaching Assistant provided ratings of participating children's behaviour at time 1 (N = 10: F = 9, M = 1), time 2 (N = 22: F = 21, M = 1) and time 3 (N = 21: F = 20, M = 1). Where there was more than one Class Teacher or Teaching Assistant in each class, ratings were provided by those who spent the most time with the children. Some Teaching Assistants worked across more than one class.

3.6 Measures

An extensive review was conducted on existing measures which include different combinations of solitary, prosocial and aggressive behaviours, but none were appropriate for this research. For instance, these were either designed to collect self-reports from older children, (e.g. Goodman's Strengths and Difficulties Questionnaire,

1997; Reynolds' Behavior Assessment for Children, 1994), collect reports of children's behaviour from adults, (e.g. Ladd & Profilet's Child Behavior Scale, 1997), only included behaviours from two of the three categories, (Crick et al.'s Social Behaviour Scale, 1997; Behar and Stringfield's Pre-School Behaviour Questionnaire) or has been criticised for its appropriateness with young children (such as Matson et al.'s 62 item questionnaire, 1983). Therefore, a measure was designed for use in this study, based on the forms of behaviour discussed in Chapter 2.

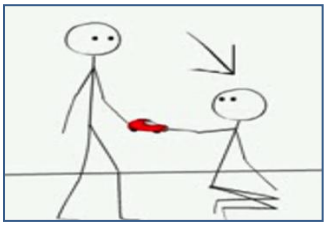
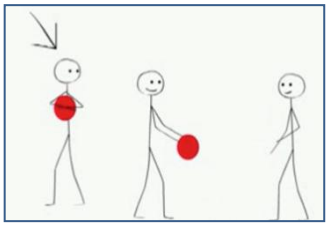
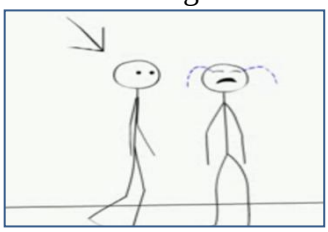
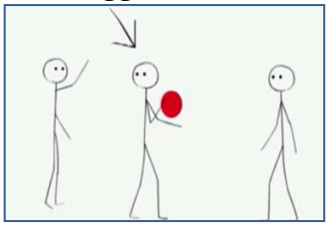
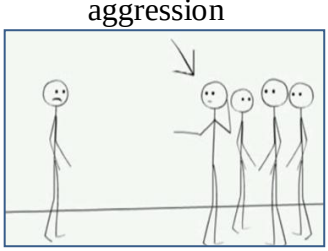
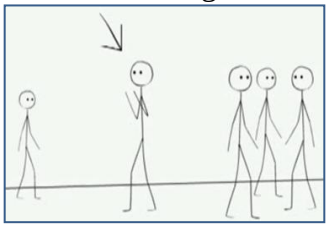
Eleven[2] animations were developed specifically for this thesis, in order to collect self- and peer-reports of children's behaviour. These depicted gender-neutral stick figures displaying 11 different behaviours. The use of animations was based on previous research using static cartoon figures to research the peer-victimisation roles (Monks et al., 2003) and was another way to display behaviours with added clarity.

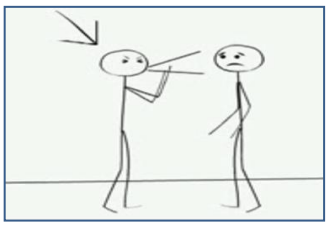
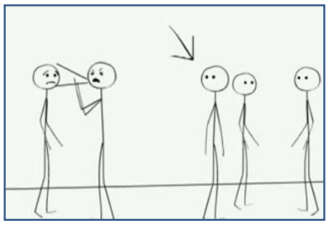
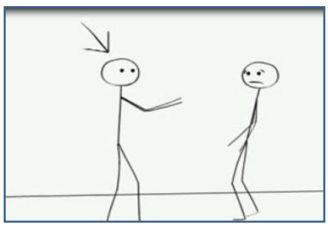
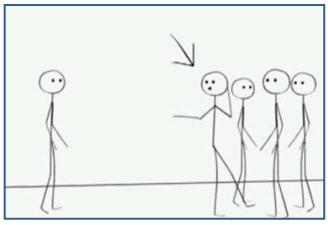
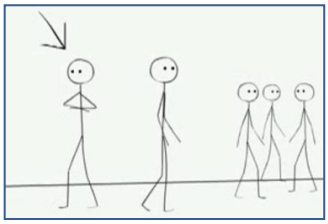
A three-point scale (lots, sometimes, never) was selected because this is more sensitive than a binary measure, and has been used successfully with children as young as five years (Ladd and Kochenderfer-Ladd, 2002). A more sensitive likert scale was not selected because younger children (age five to six years) have been found to respond at each of the extremes in five point scales than seven to 12 year olds (Chambers & Johnston, 2000). Peer reports were marked on a tally sheet by the researcher (see Appendix A).

In Figure 3.1 there are screen-shots and descriptions of each animation presented to children. Each accompanying verbatim instructions is also shown. The instructions followed the introductory question "do you ever..?" and "does anyone in your class / on the list of other children ever..?"(see Section 3.8). Behaviours are listed in the order presented to children. The order was selected based on pilot research (see Section 0) where it was decided that more innocuous behaviours should be presented at the beginning of the study, and also that potentially confusing behaviours would be separated.

[2] 12 animations were initially designed, including 'cooperation'. However, this was removed following pilot research. This is explained further in Section 3.11.

Figure 3.1. Behaviour videos and verbatim descriptions

Behaviour	Description / verbatim description
Sharing 	Description: Child A (arrow) is sat on the floor playing with a toy car. Child B is standing nearby. Child A glances at them, and reaches out the toy car. Child B walks over and takes it from them. Both children smile. Verbatim question: "Share your / their toys or things you / they are using with other children at school?"
Behavioural solitude 	Description : Child B and Child C are playing together with a ball. Child A (arrow) is playing with a ball on their own and looks over at the Child B and Child C but does not attempt to join in. Verbatim question: "Stay on your/their own and not try to join in or play with others at school?"
Caring 	Description: Child B is crying with tears coming out of both eyes. Child A (arrow) walks and pats them on the back. Child B looks at Child A smiles, and stops crying. Verbatim description: "Care for a child who is sad, upset or has hurt themselves at school."
Direct relational aggression 	Description: Child A (arrow) and Child B are playing with a ball. Child C comes and asks to play and is told they cannot join in by Child A. Child C's mouth turns downwards to demonstrate that they are upset. Verbatim question: "Play with children, but tell other children that they cannot join in with you / them and the people you're / they're playing with at school."
Indirect relational aggression 	Description: Child A (arrow) is standing with three other children. Child B is standing nearby looking at them. Child A whispers to the other three children, looks over and points at Child B. Child B's mouth turns downwards to express that they are upset. Verbatim question: "Whisper and say nasty things about other children at school."
Including 	Description: Child A (arrow) is standing with a group of three other children. Child B is standing nearby on their own. Child A walks over to Child B and gestures for them to come over. Child A and Child B then walk back to the group together. Verbatim question: "Ask children who are on their own to come and join you and the people you're / they're playing with at school."

Behaviour	Description / verbatim description
Verbal aggression 	Description: Child A (arrow) shouts at another child. Child B frowns and shows sadness with mouth turned downwards. Verbatim question: "Shout and say nasty things to another child at school."
Ringleader verbal aggression 	Description: Child A (arrow) is standing with three other children. Child A talks to Child B and points at Child C who is standing nearby. Child B then nods and walks over Child C and shouts at them. Child C mouth turns down to demonstrate that they are upset. Verbatim question: "Tell other children to go and shout or say nasty things to somebody else at school?"
Physical aggression 	Description: Child A (arrow) pushes Child B. Child B's mouth turns down to demonstrate that they are upset. Verbatim question: "Push, hit, pinch or kick other children at school?"
Ringleader physical aggression 	Description: Child A (arrow) is standing with three other children. Child A talks to Child B and points at Child C who is standing nearby. Child A demonstrates a kick. Child B nods and walks over Child C and kicks them. Child C mouth turns down to demonstrate that they are upset. Verbatim question: "Tell children to go and push, hit, pinch or kick other children at school?"
Avoidance 	Description: Child A (arrow) is standing alone. Child B is standing with two other children. Child B walks over to Child A and gestures for them to join in. Child A shakes their head. Child B returns to the group and Child A remains alone. Child D, who was previously not in the video, enters and invites Child A to join in. Child A shakes their head and remains alone. Verbatim question: "Say no when other children invite you / them to join in and play, and stay by yourself / themselves instead?"

Note. 'Arrow' refers to the focal stick figure which children are instructed to concentrate on.

3.7 Equipment

The behaviour animations were integrated into a program within the software 'Superlab' where children could watch the animations via a laptop and then provide their answer via a response pad. Self-reported behaviour ratings were then automatically recorded in one document. A laptop was used to show this program to children. On the response pad, there were three buttons used for children's self-reports. Each one had a picture of a different sized circle (a large circle for 'lots'; a medium sized circle for 'sometimes' and a small circle for 'never'). A separate button on the response pad was used for navigation between the animations and response screens.

Additionally, paper-based questionnaires were designed to collect behaviour ratings from Class Teachers and Teaching Assistants. Participating children's names were listed vertically on the left hand side of the page and descriptions of the 11 behaviours written horizontally across the top. A behaviour rating for each child was selected by selecting ''lots', 'sometimes', or 'never' (see Appendix A). The description of behaviours aligned with those used to collect children's self-reports.

3.8 Procedure

The procedures presented below were used at all three time points of the study. For all research in this thesis, the University of Greenwich Research Ethics Committee granted ethical approval. The following sections detail the procedure employed with children to collect self- and peer-reports, and the procedure used with Class Teachers and Teaching Assistants, to collect their reports of children's behaviours.

3.8.1 Participant introductions and ethics

The researcher was introduced to participating children and teaching staff and spent approximately half a day in each class prior to commencing research at each time point. This increased familiarity between participants and the researcher. The study was explained to all participants and they were all informed that they did not have to take part and could withdraw at any time. In addition, child participants were told that that

they could ask for a break if they wanted one. After data collection, all participants were asked about their experience of the study and informed that they could speak to the researcher if they were upset or concerned about any of the questions. Children were also informed they could speak to a member of teaching staff if they felt this way. For confidentiality reasons, children were also asked not to discuss their answers with their peers.

3.8.2 Interviews with children

3.8.2.1 Interview structure

Each child took part in an individual interview, ranging from 20 to 30 minutes in order to collect both peer- and self-reports. Children were seen one at a time in a room separate from their classroom or other adults / children. Introductory instructions included showing children A3 pictures of static stick figures in which with the focal stick person had an arrow above their head. They were told that they needed to concentrate on the person with the arrow over their head in each animation, similar to the one in the picture. They were also told the importance of saying what they really thought and assured that the experimenter would not tell anybody their answers. They were reminded of both these points throughout the session.

A short break was taken midway through each session if the child seemed to be losing concentration or growing distracted. During this break, the child was given a sticker and general conversation was made with them.

At the end of the session they were thanked for participating and all given a second sticker. All children received two stickers even if they did not take a break midway through the procedure.

3.8.2.2 Animations and behaviours

Children were instructed to navigate their way through the behaviour animations and response screens. After each animation, children were asked to "think about the stick person with the pointy arrow above their head - what do you think they were doing in

that video?" Depending on their answer, they were told "that's right" or "nearly" and the behaviour described adhered with the verbatim shown in Figure 3.1. This was discussed with the child until they demonstrated an accurate understanding of the behaviour. They were then shown the animation a second time.

3.8.2.3 Peer-reports

Once children presented an understanding of the animation and behaviour, they were asked for peer-reports.

At time 1, they were asked if they could "think of anybody in your class who behaved this way?" and whether each nominated peer did this "lots or sometimes?" Children were asked "anyone else?" until they said that nobody else did or repeated names.

At time 2 and time 3, class restructuring for some children (see Section 3.4) meant that it was not possible to use this method for collecting peer-reports because some participants were now in different classes. Therefore, children were presented with a list of names at the start of the interview, which they were supported to read aloud. They were asked if they "ever see these children around school or on the playground?" This aimed to ensure that they concentrated on behaviours exhibited at time 2 and time 3, rather than time 1 or reputation. After each animation and discussion of behaviour, children were asked "does anyone on the list ever do that when you see them around school or on the playground?" As per time 1, they were asked "anyone else?" until they said nobody else displayed this behaviour. This method for collecting peer-reports was selected after the consideration of several possible methodology adaptations. This was based on findings from Bellmore, Jiang and Juvonen (2010)[3] and discussions with

[3] Bellmore, Jiang, and Juvonen, (2010) found reliability in peer-reports from adolescents who no longer spent all their lesson time together. Based on randomly generated lists of students from their year group (but not necessarily in their classes) participants were able to provide reports, which were similar to those, gained from students as an entire class in their first year.

teaching staff at time 1. Additional research (see Appendix A)[4] also informed this method.

3.8.2.4 Self-reports and explanations

After providing peer-reports, children's self-reports were collected by asking them "do you ever do that when you're at school?" If they said yes, they were asked whether this was, "lots or sometimes?" They used the response pad to indicate their answer. They were then asked, "why is that?" If they responded 'sometimes' they were asked "when you do that, why is that?" and "when you don't do that, why not?" If they said they never exhibited the behaviour, they were asked "why not?" Children were asked whether there were "any other reasons?" until they said that there were no other reasons, or repeated a previous answers. This process was repeated for all 11 behaviours.

In order to collect children's explanations, each session was recorded via the laptop voice recorder. Their expanations were listened to, transcribed and coded shortly after the session. Details of these codes can be seen in Section 3.10.1.

3.8.3 Class Teacher- and Teaching Assistant-reports

Class Teachers and Teaching Assistants were asked to provide ratings (lots, sometimes, never) of each of the 11 behaviours for each participating child (see Figure 3.1). They were asked to provide these separately from each other and within two weeks of children participating at each time points (see Appendix A).

[4] A small pilot study was run to test this methodology change. Two five-year-old children, two six-year-old children, and one seven year old child took part. They were able to remember some names of children from their class in the previous year and able to read a list of these children. They were also able to identify different times and locations that they saw these children at school. In addition, when asked about their previous school year's classmates, children did not attempt to go through the names one by one on the list but either pointed to or said the most salient names, which resulted in a similar procedure to that used at time 1.

3.9 Application of method to research questions

Figure 3.2 is a flow chart linking the main aspects of the research design and procedure to the research questions in the current study (numbered as in Section 3.2). The corresponding chapters in this thesis are also referenced. Reports and explanations were collected at each time point and used to address more than one research question. In some cases, for ease of presentation in Figure 3.2, these have been repeated (i.e. reports from peers, Class Teachers and Teaching Assistants). Other variables considered in relation to each research question have also been presented (i.e. time point, age group, sex of child).

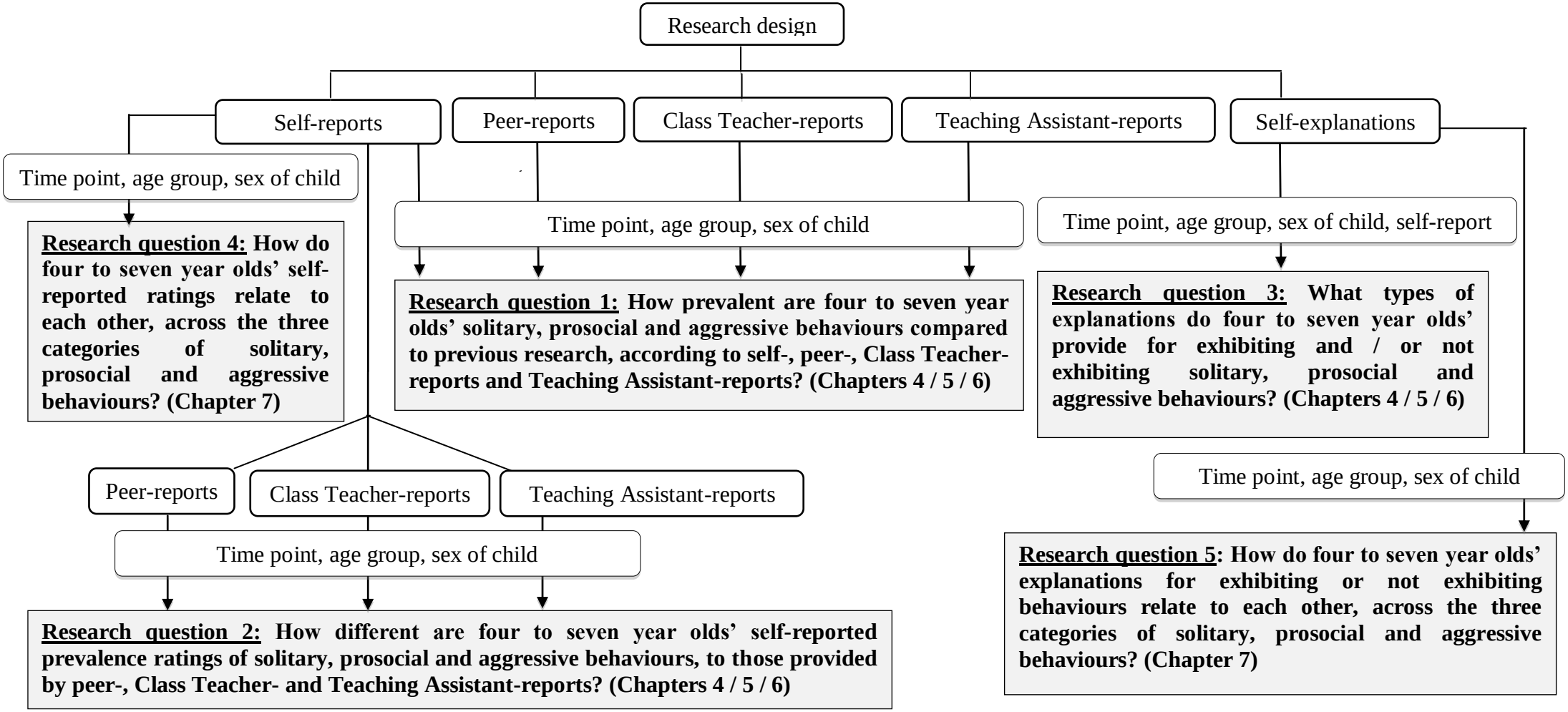


Figure 3.2. Research design (at each time point) and research questions

3.10 Treatment of data and statistical assumptions

In the following sections, the treatment of data applied before analysis is presented. This includes coding self-explanations and use of peer-reports. In addition, results from preliminary analyses are discussed, in order to ensure that there was no school effect in the results, and whether class restructuring and the adapted peer-report collection methodology impacted upon results. This section also contains a discussion of how violations of statistical assumptions have been treated. Finally, the use of effect sizes in this thesis is addressed.

3.10.1 Coding children's explanations

Children provided open-ended explanations for their exhibited or non-exhibited behaviours. Where children reported that they 'sometimes' behaved in a particular way, their explanations were collected for both exhibiting and not exhibiting this behaviour. Based on Chapter 2, explanations were coded by whether their explanation focus was 'causal' (from themselves, others or the action itself) or 'consequential' (with reference to instrumental outcomes). Explanations were also coded by whether any agency (something or someone being identified as causing them to exhibit or not exhibit behaviour, or agency in a potential outcome) was 'internal' (reference to themselves) or 'external' (reference to other people or things). Finally, explanations were coded for any outcome focus (something or someone affected by the cause of, or potential outcome of this behaviour) as 'internal' or 'external'. Children were asked for explanations until they said there were no more or repeated the same ones and therefore some children provided several explanations and it so was possible for children to have responses, coded as 'mixed' within each dimension. All responses could be coded for explanation focus (causal, consequential, mixed) but not all responses included agency (internal, external, mixed) or outcome focus (internal, external, mixed). Table 3.3 provides some examples of responses and how these were coded.

Table 3.3. Example coding of children's explanations

Explanation(s)	Number of reasons	Focus	Agency	Outcome focus
"Because it makes people upset." "It might hurt them."	2	Consequential	None	External
"They will tell the teacher and they will tell me off."	1	Consequential	External	Internal
"It's the core values." "I want to go in the Star People book."	2	Mixed	Mixed	Internal
"Because it would get me into trouble."	1	Consequential	None	Internal
"No-one is playing with them."	1	Causal	External	External
"Because I'm nice."	1	Causal	Internal	None
"Because I don't like it when people are sad."	1	Causal	Internal	External
"They are on their own."	1	Causal	External	None
"Because I want them to be happy."	1	Consequential	Internal	External

Inter-rater reliability coding took place with supervisors on separate occasions, for over 10% of cases. 100% agreement was achieved. Across all behaviours and time points all children who answered the questions provided between one and three unique (without repetition) explanations. This finding supported the assumption that verbal ability played a minimal role in children's explanations for their behaviour.

3.10.2 Peer-reports

Reports from peers were collected via asking children to think of any other children who behaved in each way, and then asking whether they did this 'sometimes' or 'lots'.

In order to split peer-reports into the same categories as other reporters (lots, sometimes, never) a system was devised to ensure comparability. In previous research peer-reports, have been used to assign a child to a role. Salmivalli (2010, 1996) used relative *z* scores, (peer nominations weighted by class size) to assign children to different bullying roles. Goossens, Olthof, and Dekker (2006) compared role classification based on the highest *z* score for each child with the use of absolute criteria using percentages. Children were assigned roles based on whether they received greater than 10%, 15% or 20% of available

peer ratings, with the highest role taking precedent. Goossens et al. (2006) argued that the *z* scores method produces too many false positives and whilst the percentage methods may produce too many false negatives, they proposed use of this over the former method. They argued that absolute scores may be better able to uncover differences between times and easier to classify subjects. Absolute criteria with percentages was used in the current study but adapted to assign a rating category. Any child who received less than 10% of nominations from peers was rated as 'never' exhibiting this behaviour. Any child who received nominations from at least 10% of their peers' was coded as exhibiting this behaviour. The category with the most ratings (lots or sometimes) was then assigned for this child.

3.10.3 Testing for confounding variables

Preliminary analyses with Chi-Square tests were conducted to see whether there were differences in reports for each participating school. Preliminary analyses confirmed that children's self-reports and explanations were not related to which of the participating schools they attended. There was a significant association between school and some ratings from Class Teachers and Teaching Assistants. However, these were not consistent across times or school. Therefore, the impact of these associations on results was considered to be minimal and counteracted by the use of five schools.

Preliminary analyses with Chi-Square showed no associations between school and peer-reports. To assess whether the change in peer-report method impacted upon results, Chi-Square was also used to see whether there was an association between ratings from whether the child was from a restructured class at time 2 and 3, and the peer-reports they received at time 2 and time 3. There were no associations between these factors for any of the aggressive or solitary behaviours. There was a significant association for sharing and including at time 2 and all three prosocial behaviours at time 3. Ratings were higher for children from a restructured class. Therefore, when conducting analyses using peer-reports of prosocial behaviour, this was considered as an additional variable.

3.10.4 Statistical assumptions

The design of this study required several sophisticated analyses in order to further insight into children's reported perceptions of their own behaviour. In-depth discussion of these has been provided within Chapter 4, Chapter 5, Chapter 6 and Chapter 7. However, across these chapters, there were some recurring results regarding statistical assumptions of the analyses required. Therefore, general principles applied in this thesis relating to violation of statistical assumptions have been discussed here.

Ratings of behaviour (never, sometimes, lots) were used in several analyses including prevalence ratings and difference scores created between reporters. These categorical responses were ordinal on a three-point scale, and therefore analysis suitable to categorical analysis such as Chi-Square was most appropriate and applied wherever possible. Where assumptions relating to low expected cell counts in Chi-Square analyses were violated (Cochran, 1954), Monte Carlo simulations were used to produce reliable unbiased estimates (Chen, Diaconis, Holmes & Liu, 2005; Mehta & Patel, 2012).

In some cases, these types of statistical tests did not allow for the complex analysis across several variables required. Therefore analysis required the use of parametric tests, such as *t*-tests, Intraclass Correlation and ANOVAs. Whilst ratings and differences were on an ordinal scale (0, 1, 2), it is commonly accepted that parametric tests can be used with interval levels of measurement due to the overstating in the importance of measurement levels (Langdridge & Hagger-Johnson, 2011). When conducting ANOVAs, the assumption of normal distribution was violated on several occasions. However, it was decided to continue with this analysis due to the large sample size (N = 273). A *t*-test can be considered 'just a special case of the analysis of variance' (Howell, 2002, p. 232) and Lumley, Diehr, Emerson, and Chen (2002) explained that assumptions of normal distribution in *t*-tests are not the main focus when there are large sample sizes. Instead the importance lies with "detecting and estimating a difference in the mean of the outcome answers the scientific question at hand," (Lumley et al, 2002, p.151). Howell also argues that moderate departures from normality do not have a strong effect on the results. Where Mauchley's test of sphericity was significant, the Greenhouse-Geisser and Huynh-Feldt were used.

In addition, when conducting analyses that compared groups by sex and age group using ANOVAs, some statistical violations occurred with significant results from Levene's homogeneity of variance. However, there were a similar number of children in each group and Howell (2002) explains that if sample sizes are approximately equal, this violation is not an intolerable level of inaccuracy. Therefore, as there were similar sample sizes across all independent variables (age group and sex), these violations did not prevent these tests from being used. When reporting the results of mixed ANOVAs unweighted means have been used to ensure that any confounding variables have been eliminated.

Despite running multiple analyses, Bonferroni corrections were not made. This is because this research was generally exploratory without firm expectations (Monks, et al., 2012).

3.10.5 Effect sizes

With the growing importance in effect sizes, these have been calculated and reported throughout analyses. Commonly used effect sizes for different statistical tests have been used and their magnitudes in Table 3.4 have been used for interpretation. It should be remembered that there is a need to interpret effect sizes in context (Vacha-Haase & Thompson, 2004) and that the specified magnitudes (Durlak, 2009) provide a general rule of thumb that should be followed in the absence of previous findings and knowledge of the area (Volker, 2006). Durlack (2009) provides an example in education research where an effect size of 0.2 is still useful for policy implication, despite estimations (e.g. Cohen, 1992) implying that this is a 'small effect'. Therefore, whilst effect sizes provide further detail, it is essential to treat these with caution.

Table 3.4. Effect sizes used and magnitudes

Statistical test	Effect size	Magnitude		
		Small	Medium	Large
Correlations	r (Pearson) / r_s (Spearman)	0.10	0.30	0.50
ANOVA	η^2_p (Partial eta squared)	0.01	0.09	0.25
Chi-Square	Cramer's V	0.10	0.30	0.50
McNemar-Bowker	Φ (Phi)	0.10	0.30	0.50
One way Chi-Square (Goodness of Fit)	Cohen's W	0.10	0.30	0.50

Note. The content of this table is based on Kabaccoff (2014); Field (2015); Osteen and Bright (2010)

3.11 Pilot work

3.11.1 Introduction

The method outlined in Section 3.8 was designed based on a wide review of existing research. Exploratory focus groups were also carried out with children to collect their views on potential methods. These discussions with children supported the use of the proposed method. A detailed copy of the focus group schedule and results can be seen in Appendix A.

Pilot work was conducted to test whether the proposed method was reliable and valid. This was primarily related to the process of collecting self-reports from young children and the selection of the behaviour forms.

3.11.2 Method

3.11.2.1 Design and participants

Repeated measures design was used at two time points, one week apart. The pilot research was conducted with 18 children from a London Primary School (see Table 3.5). Class Teachers also provided reports at both time points (N = 7). All teaching staff participants were female.

Table 3.5. Child participants in pilot research

School year	Age group	Males	Females	Total
Reception	4 to 5 years	3	3	6
Year 1	5 to 6 years	3	3	6
Year 2	6 to 7 years	3	3	6
Total	-	9	9	18

3.11.2.2 Measures and equipment

The measures and equipment detailed in Section 3.6 and 3.7 were used. In addition to the 11 behaviours detailed, the behaviour 'cooperation' was included in which the animation showed Child A (arrow)[5] and Child B both smiling and bouncing a ball to each other. The accompanying verbatim was that they were 'playing nicely together.'

3.11.2.3 Procedure

The procedure followed the same as that detailed in Section 3.8. However, animations were presented in the following order to try and separate similar behaviour forms: physical aggression; cooperation; verbal aggression; actively withdrawn; caring; ringleader physical; including; indirect relational aggression; sharing; ringleader verbal; passively withdrawn. In addition, it was necessary to use a different method to Section 3.8 to collect peer-reports. This was because there were only six child participants in each year group (rather than an entire class as per the main study). Instead, children were asked whether they could think of anyone in their class who behaved in this way, but not to specify who this was.

3.11.2.4 Findings from self-reports

The findings from the pilot research informed the methodology employed in the study. Firstly, this related to children's self-reports. Results of Spearman's correlation reliability tests showed that children's self-reports were reliable at two points in time, with the

[5] 'Arrow' refers to the stick figure showing the focal behaviour

exception of cooperation, avoidance and direct relational aggression. The results are shown in Table 3.6, with the level of change that occurred.

Table 3.6. Reliability of self-reported ratings of behaviour at Time 1 and Time 2

Behaviour	r_s	Stable [a]	1 point change [b]	2 point change [c]
Indirect relational	.79***	17	1	0
Caring	.69***	16	1	1
Verbal aggression	.72***	16	2	0
Ringleader verbal	.67***	16	2	0
Sharing	[d]	15	3	0
Physical aggression	.79***	15	2	1
Ringleader physical	.48*	15	3	0
Behavioural solitude	.56*	13	3	2
Including	.48*	13	4	1
Cooperation	-.09	10	8	0
Direct relational	.51*	9	8	0
Avoidance	-.10	8	10	1

Notes. Responses for each behaviour total 18 participants; *** $p <. 001$, ** $p <. 01$, * $p <.05$
[a]No change in response from time 1 to time 2. [b]Change in response from lots to sometimes, sometimes to lots, never to sometimes or sometimes to never. [c]Change in response from lots to never or vice versa. [d]There was a lack of variation in the responses as most children reported sharing 'lots' and it was not possible to run reliability tests.

Findings also showed that children were capable of reliably providing similar behaviour explanations over two time points. Attributions and children's explanations for exhibiting or not exhibiting behaviours were coded based on the coding system outlined in Section 3.10.1 (explanation focus (causal, consequential, mixed); agency (internal, external, mixed), and outcome focus (internal, external, mixed)). Inter-rater reliability coding took place with supervisors, for over 10% of cases, and 100% agreement was achieved. McNemar-Bowker[6] tests showed that there were no statistical changes in children's explanations for their behaviour between the two time points.

Validity was assessed by comparing children's self-reported ratings of behaviours with their behaviour-explanations. This comparison showed high validity of the behaviour

[6] Where children provided different behaviour ratings at the two time points, these explanations were omitted from this analysis, because it was likely that this would affect their explanation coding. Where children had answered 'sometimes' at both stages, their responses for both behaving and not behaving in these ways were included.

measure used. Children's explanations were coded as a 'complete match' if it was a valid reason related to their rating[7]; a 'partial match' if only some of their explanation aligned with their behaviour rating[8]; or 'no match' if the child gave a completely irrelevant explanation, or one that corresponded more with the opposite rating[9]. The majority of responses were a 'complete' or 'partial match' (Time 1: *N* = 193 (89.35%); Time 2: *N*=188 (87.03%)). Very few were recorded as 'no match' (Time 1: *N* = 8 (3.70%)); Time 2: *N* = 9 (4.17%)). Furthermore, a very low number of children reported not knowing why they behaved in this way (Time 1: *N* = 0 (0.00%); Time 2: *N* = 2 (0.93%)).

These explanations were inspected more closely, particularly for cooperation, avoidance and direct relational aggression, because there had been low reliability in children's self-reports of these. Children's explanations for these three behaviours were often conflated with each other. It was decided to remove cooperation from the measure. This was often confused with the other play-related behaviours and literature considering cooperation (e.g. Nabuzoka, 2003) suggested that cooperation is a complex behaviour, for which it was not possible to capture the multi-faceted meanings, within the scope of this research. The descriptions of avoidance and direct relational aggression were made clearer and the differences emphasised. In addition, an additional stick figure's rejected offer to play was added into the avoidance animation. As these two behaviours had previously been presented consecutively, this may have added to children's confusion.
Therefore, the order that animations were presented to children was altered to separate these two behaviours.

3.11.2.5 Peer-reports

Children were able to report peers as exhibiting the majority of behaviours. With the exception of verbal ringleading behaviour (T1 = 8, T2 = 5) and behavioural solitude (T1

[7] E.g. If they self-reported that they never hit people, and said this was because they did not want to hurt them.
[8] E.g. If a child's self-report was that they never hit people because they did not want to hurt them and they always annoy them. The first part of the explanation corresponds with them never showing this behaviour, but the second part reflects the behaviour occurring sometimes or lots.
[9] E.g. If a child said they never hit people because they hit them first and so they do it back.

= 7, T2 = 6), a minimum of eight children (out of 18) reported that they could think of peers who showed the 12 behaviours. At both time points, the majority of children said they could think of children who showed physical aggression (T1 – 14, T2 – 17); cooperation (T1 – 11, T2 – 16); verbal aggression (T1 – 11, T2 – 11); caring (T1 – 12, T12 – 14), and sharing (T1 – 13, T2 – 15). They were also able to identify children who showed avoidance (T1 – 8, T2 – 11), relational aggression (T1 – 8, T2 – 9), including (T1 – 9, T2 – 12) and indirect relational aggression (T1 – 10, T2 – 8).

3.11.2.6 Class Teacher-reports

Class Teacher-reports showed reliability in their reports across the two time points, with the exception of avoidance, ringleader of verbal aggression and ringleader of physical aggression. The finding of low reliability for avoidance was rectified by modifying the description of avoidance as discussed in Section 0. The findings relating to ringleader behaviours may be a reflection of a lack of perception of peripheral behaviours which may not have yet developed (based on Monks et al., 2003). Results of Spearman's correlation reliability tests can be seen in Table 3.7.

Table 3.7. Reliability of Class Teacher ratings of behaviour at time 1 and time 2

Behaviour	r_s	Stable[a]	1 point change[b]	2 point change[c]
Indirect relational	.87***	15	3	0
Caring	.55*	13	5	0
Verbal aggression	.85***	14	4	0
Ringleader verbal	.39	13	5	0
Sharing	.84***	15	3	0
Physical aggression	.86**	15	3	0
Ringleader physical	-.57*	14	4	0
Behavioural solitude	.82***	15	3	0
Including	.81***	13	5	0
Cooperation	.61**	15	3	0
Direct relational	.76***	14	4	0
Avoidance	.30	11	6	1

Notes. Responses for each behaviour total 18 participants; *** $p<.001$, ** $p<.01$, * $p < .05$.
[a]No change in response from time 1 to time 2. [b]Change in response from lots to sometimes, sometimes to lots, never to sometimes or sometimes to never. [c]Change in response from lots to never or vice versa.

3.11.2.7 Researcher observations

Several observations were made in the pilot work that led to small changes in the methodology. Firstly, it was noticed that children reacted nervously to the first behaviour they were asked about (physical aggression) and it was decided to adjust the order of presentation to start with more innocuous behaviours (sharing) to ensure they felt comfortable answering the questions. Secondly, unless reminders were provided, children often spoke about behaviours at home, rather than at school, and so "when you are at school" was added in to the verbatim questions. Furthermore, when children were unsure how to answer the question, being reminded that there were "no right or wrong answers" led to them responding 'sometimes' instead of 'lots (e.g. prosocial) or 'never' (e.g. aggression). Therefore, more frequent reminders of this were added for each behaviour. Finally, the pilot study showed that a maximum of a 30 minute session was suitable for the children and that some benefitted from having a small break in the middle (of approximately two to three minutes).

3.11.3 Conclusions

In conclusion, the pilot work showed that the proposed method and measures were reliable and valid for use with children's self-reports, peer-reports and teaching staff-reports. However, they also indicated that some small changes were necessary. This involved the removal of cooperation, adjusting the order in which other behaviours were presented, and reminding children of details of the study throughout to ensure they remained on track, and felt comfortable answering honestly.

3.12 Chapter summary

In this chapter, the study methodology was described including design, measures, procedures and treatment and analysis of data. The chapter ended with a summary of preliminary and pilot work which informed the longitudinal study.

Findings from the main data collection are presented in Chapters 4, 5, 6 and 7.

4 SOLITARY BEHAVIOUR

4.1 Introduction to chapter

The purpose of previous chapters was to present the rationale for the current research and the methodology employed. In this chapter, there is a focus on the analysis conducted on data related to solitary behaviour, where children choose to stay alone despite the availability of nearby peers. Data were collected for two forms of behaviour: behavioural solitude, where children stay by themselves and make no attempt to join in with others; and avoidance, where children actively reject offers from other children to join in and therefore remain by themselves. The method employed followed that described in Chapter 3.

The first section in this chapter contains a brief recap of the literature, leading to the three main research questions (based on research questions outlined in Chapter 3). Within the results sections, children's self-reported ratings of their solitary behaviour are considered and how these compare to the reports of others. Following this, results are presented from children's explanations for their behaviour through looking at their explanation focus (causal, consequential, mixed), their agency (internal, external, mixed) and their outcome focus (internal, external, mixed). The last section of this chapter provides discussion about the findings relating to solitary behaviour and integrates this with the literature discussed in Chapters 2.

4.2 Overview of literature and research questions

Three main areas of research are addressed within this chapter. These correspond with research questions 1 to 3 of the main study (outlined in Chapter 3.) These address the prevalence and stability of behaviour reports, the differences between self-reports and reports from others, and children's explanations for their own behaviours. In this chapter, these research questions have been specifically applied to solitary behaviour. These are discussed in turn below, and explained with reference to the research and

literature addressed in Chapter 2. In addition to the following literature, it should be noted that previous research is consistent in reporting no sex differences in solitary behaviour among children (e.g. Sadker & Sadker, 1994) and therefore there were no specific sex differences expected relating to solitary behaviour. However, sex was included across all analyses to see whether this finding was replicated.

4.2.1 Reported ratings of solitary behaviour

The overview in this section relates to the first research question in this study, regarding the prevalence of children's different behaviours across different reporters. Findings from observational research have suggested that approximately a quarter of children aged five to six years behave in a socially withdrawn way (Harrist et al., 1997). Other research has suggested this is less straightforward, and differs based on the form of solitary behaviour (Coplan & Ooi, 2014). The forms of solitary behaviour examined in the current research were broader than those defined in some previous studies. This was because some researchers split solitary behaviour into subtypes related to the inferred reasons or motivations for the behaviour. This was not appropriate for the current study as children were asked to provide reasons for their behaviour. In addition, previous research focusing on prevalence has used observation, whereas the current research collected ratings from four different groups of reporter (self, peer, Class Teacher and Teaching Assistant). Therefore, it was unclear what prevalence of solitary behaviour would be found in the current research. It was possible that reports of avoidance would be more similar to Harrist et al.'s findings than reports of behavioural solitude because of the increased choice associated with both children staying by themselves and withdrawing. Furthermore, as behavioural solitude may also include children experiencing rejection, it was possible that there would be higher ratings of the prevalence of this behaviour than identified by Harrist and colleagues.

Previous research has indicated stability of observer-, teacher- and parent-reports of solitary behaviour across time and context (Rubin et al., 1995). However, the degree of stability has been found to vary across different samples and measures (Rubin et al., 1989). Furthermore, there may be changes in child reports based on their age. Rubin et

al. (1989) found peer-ratings to be relatively unstable in early childhood but highly stable in mid to late childhood. This is supported by findings that peer-reports of solitary behaviour increase in stability with age (Bukowski, 1990). It would be interesting to see whether this is also the case for self-reports, as this has not been studied with children in early childhood. Victimisation may also play a role in some children's solitary behaviour (i.e. rejection by peers). Research has indicated that victimisation shows low levels of temporal stability amongst children in early childhood (e.g. Monks et al., 2003). Therefore, stability may vary between reporters and between different forms of solitary behaviour. This review of previous literature led to the following research question. This relates to the first research question of the main study (see Chapter 3). Addressing this question will help to understand how self-reports of solitary behaviour compare to prevalence levels found in previous research. It also considers ratings from peers, Class Teachers and Teaching Assistants for comparative purposes.

1. How do reported ratings of behavioural solitude and avoidance compare to reported prevalence and stability from previous research?

4.2.2 Differences in reporters' ratings of solitary behaviour

The area of focus for the second research question, was the difference between self-reported ratings of behaviour from children, and ratings from other reporters. As discussed in Chapters 2, little research has collected self-reported solitude from children aged four to seven years. Research with older children has suggested that there is greater overlap between self- and peer-reports of solitary behaviour than self- and teacher-reports (Spangler & Gazelle, 2009.) However, there are challenges associated to collecting peer-reports of solitary behaviour because of the need to concentrate on unobservable inner states and feelings (Younger et al., 2000) and therefore peer-reports may be less reliable when used with children of the focal age group of this thesis. It was therefore unclear whether there would be higher differences between self- and peer-reports or self- and teacher-reports among children aged four to seven years. In addition, it was unclear how far self-reports and Teaching Assistant-reports of solitary behaviour

would align with each other. Furthermore, concordance between different reporters may vary in relation to the form of solitary behaviour displayed (Younger et al, 2000).

Teachers may be more aware of certain forms of solitary behaviour than they are of other forms, which may be reflected in their reporting. Arbeau and Coplan (2007), found that teachers viewed shyness as being associated with more problems than unsociability and Ladd and Burgess (1999) found that shy children had a greater dependant relationship with teachers than other children.

As peer-reports of solitary behaviour have been found to become more stable with age (Bukowski, 1990), there may be age-related differences in the differences between peer- and self-reported solitary behaviour. In addition, previous research in other areas of children's behaviour, such as victimisation, has shown that concordance between reporters (self, peer and teacher) increases with age (Ladd & Kochenderfer-Ladd, 2002). To date, the author of this thesis is unaware of any research that has looked directly at age-related changes in concordance of reports of solitary behaviour, but it is possible that growing concordance may also be observed among reports of solitary behaviour.

This review of research presented above led to the application of the second research question to solitary behaviour:

2. How different are children's self-reported ratings of behavioural solitude and avoidance from other reporters' ratings (peers, Class Teachers, Teaching Assistants) and does this differ by sex, age group, and across time points?

4.2.3 Explanations for solitary behaviour

This third research question in this study, was focused on how children explained why they exhibited, or did not exhibit, solitary behaviour. Research has indicated some general developmental trends in how children explain their behaviour; they think about the outcomes of their behaviour more (Suddendorf & Busby, 2005) and have an increasing external locus of control with age (Sherman, 1984). Therefore, it was

expected that there may be an age-related increase in explanations with a consequential focus and external agency, across explanations for both exhibiting and not exhibiting solitary behaviours. Furthermore, based on research showing internal biases in withdrawn children (Burgess et al., 2006; Wichman et al., 2004), it was expected that children who self-reported exhibiting solitary behaviour may provide explanations with more internal agency (caused by the self) than external agency (caused by people or aspects external to the self). The different reasons identified by researchers for solitary behaviour may also be identified by children's explanations (active-isolation, shyness, social disinterest). Children who display solitude because of rejection may provide more reactive reasons and therefore higher external agency. In contrast, those who display solitude because of shyness or unsociability may provide explanations that include higher internal agency. Whilst relatively under-researched, some evidence has suggested that solitary males have a poorer ToM (Walker, 2005), although there is some conflicting literature that suggests solitary behaviour can result in a later advanced ToM (Wellman et al., 2011). ToM may relate to children's outcome focus within their explanations, and whether this focused internally or externally. It was also possible that there may be some gender differences in these findings.

The research reviewed in this section, related to third research question presented in Chapter 3, and was applied specifically to solitary behaviour in the research question below:

3. How do children explain why they exhibit or do not exhibit behavioural solitude and avoidance, in terms of explanation focus, agency and outcome focus? Do these explanations vary by sex, age group and across time points?

4.2.3.1 Further research

A further area of exploration, also related to the consideration of the third research question and children's explanations, was to compare differences between self-reports and other reporters, with children's explanations for their behaviour. It was also examined whether children's self-reports could be predicted from previous explanations

for their behaviour. As both of these areas were previously understudied, this work was exploratory, without any clear evidence based expectations.

4.3 Preliminary analyses and structure of results

Prior to conducting the main analyses, preliminary tests were used to consider how ratings of behavioural solitude and avoidance from all four reporters were related to each other. This was useful because it informed whether reports from teaching staff and peers should be collapsed for comparison with self-reports or considered individually. Intraclass Correlations (ICC) were used for this analysis. The results of these ICCs can be seen in Appendix B and showed only some moderate agreement between Class Teachers and Teaching Assistants and several non-significant results between peers and teaching staff. Therefore, it was decided to consider the ratings of behaviours from Class Teachers, Teaching Assistants and peers separately when comparing with self-reports. In addition, the ICCs showed little agreement between self- and other reporters' ratings of solitary behaviour further highlighting the need to explore this.

The following results sections are organised into three main subsections, which relate to the research questions outlined in the previous section. Ratings and stability of solitary behaviours are considered in order to address the first research question. This is followed by consideration of differences between self-reported ratings and ratings from other reporters to answer the second research question. The final results section is based on the third research question, and analysis of children's explanations for exhibiting or not exhibiting solitary behaviours. Within each section, data are described and results presented. In some cases, several tests were performed across reporter, time point, and behaviour. Where the same pattern was found across these an overview of results have been presented, and further detail provided in Appendix B. As explained in Chapter 3, Bonferroni corrections were not applied due to the exploratory nature of this analysis.

4.4 Ratings of solitary behaviour

In this section, results are presented which correspond to the first research question regarding ratings of solitary behaviour and how reported ratings of behavioural solitude and avoidance compare to reported prevalence and stability from previous research.

Reports on the two forms of solitary behaviour (behavioural solitude and avoidance) were obtained from self-reports, peer-reports, and reports from Class Teachers and Teaching Assistants on a three-point scale of 'never' (0), 'sometimes' (1) and 'lots' (2).

4.4.1 Reported ratings of solitary behaviour

Chi-square Goodness of Fit tests were conducted for each reporters' ratings at each time point in order to consider whether ratings of 'lots', 'sometimes' or 'never' differed from each other and to enable comparison with prevalence levels found in previous research (research question 1). These were considered for all reporters in order to compare with self-reports.

Significant differences were found between the ratings of 'lots', 'sometimes' or 'never,' with reports of 'lots' lower than the other ratings (all at $p < .001$, with *Cohen's W* all > .54) suggesting that, according to all reporters, and at all three time points, most children demonstrate solitary behaviour only 'sometimes' or not at all. Percentages (see Table 4.1) of responses suggested that ratings of behavioural solitude were higher than avoidance. This was confirmed by performing paired-sample *t*-tests to compare whether ratings of the two behaviours were significantly different from each other. 11 out of 12 tests were statistically significant and showed higher ratings for behavioural solitude than avoidance. A breakdown of these results can be seen in Appendix B.

Table 4.1. Ratings of solitary behaviours (percentage of total sample at each time)

	Rating	Self			Peer			Class-Teacher			Teaching Assistant		
		1	2	3	1	2	3	1	2	3	1	2	3
Behavioural solitude	L	8.1	10.0	6.6	6.0	6.4	10.5	4.6	3.3	1.1	5.6	2.5	1.1
	S	42.8	32.7	33.7	13.6	7.9	3.3	36.6	32.2	29.3	36.6	32.6	19.7
	N	49.1	57.3	59.7	80.4	85.7	84.2	58.8	64.5	69.6	57.8	64.9	79.1
Avoidance	L	8.8	5.7	6.6	3.9	5.0	4.5	3.2	1.5	1.5	3.5	1.1	2.2
	S	23.9	28.4	34.4	2.8	2.5	2.5	22.5	18.5	10.2	27.5	23.3	9.5
	N	67.3	65.9	59.0	93.3	92.5	93.0	74.3	80.0	88.3	69.0	75.6	88.3

Note. L: Lots; S: Sometimes; N: Never; Time 1 N = 285; Time 2 N= 280, Time 3 = 273

4.4.2 Stability in ratings of solitary behaviour

A further consideration when addressing research question 1 was to assess whether reports of solitary behaviour were stable across the three time points. Stability was addressed through running ICCs for self-reports and each other reporters' ratings (peers, Class Teachers, Teaching Assistants) for comparison purposes. ICCs were run across the three time points using absolute agreement for average measures. ICCs for the whole sample showed that there was consistency in self-reports across the three time points (behavioural solitude: ICC = .41, $p < .001$; avoidance: ICC =.44, $p < .001$). ICCs across the three time points were also significant for peer-reports (behavioural solitude ICC = .40, $p < .001$; avoidance = .21, $p < .001$). Similarly, ICCs were significant for ratings from Class Teachers (behavioural solitude: ICC = .46; avoidance = .38) and for ratings from Teaching Assistants (behavioural solitude: ICC = .51; avoidance = .41) all at $p < .001$. For all reporters, there was moderate strength of consistency across the three time points. These results indicated that reports of both behavioural solitude and avoidance were stable over the three time points with similar results for all reporters.

4.5 Differences in ratings of solitary behaviour between self-reports and other reporters

The results from the previous section indicated similarities across reporters in terms of the stability and prevalence of solitary behaviours. In this section, results are presented which correspond with the second research question as to how different children's self-reported ratings of behavioural solitude and avoidance were from other reporters' ratings (peers, Class Teachers, Teaching Assistants) and whether this differs by sex, age group, and across time points.

Analysis used to address the second research question considered the difference between self-reports and reports from others in two main ways, using difference scores and difference types.

4.5.1 Difference scores

Difference scores were calculated between ratings from self-reports and ratings from each other reporter. This ranged between 0 (no difference) and 2 (complete difference) and indicated the size of difference in order to understand how far ratings from self-reports differed from ratings provided by peers, Class Teacher sand Teaching Assistants. A mixed ANOVA[10] was conducted with difference scores as the dependent variable. To consider the effect of other variables on differences in ratings, several independent variables were included. Independent variables included time point (time 1, 2 and 3), solitary behaviour form (behavioural solitude and avoidance), reporter (differences between self-peer, self-Class Teacher and self-Teaching Assistant), age group (younger, older) and sex (male, female).

There was a significant interaction between solitary behaviour form (behavioural solitude and avoidance) and reporter differences (self-peers, self-Class Teacher, self-Teaching Assistant), with a small effect size (F (1.96, 508.33) = 4.51, p = .01 η^2_p = .02).

[10] Unweighted means reported in order to eliminate effects of other variables

For behavioural solitude, the greatest difference occurred between self and peers (M = 0.58, SE = 0.03) followed by self and Teaching Assistants (M =0.54, SE = 0.03). The lowest difference was between self and Class Teachers (M = 0.52, SE =0.02). In contrast, for avoidance, the greatest difference was between self and Teaching Assistants (M = 0.50, SE = 0.03) and self and Class Teachers (M = 0.50, SE = 0.03) and lowest for differences between self and peers (M = 0.47, SE = 0.03). Simple contrasts showed significant differences between self-peer differences and self-Class Teacher differences (p = .007, η^2_p = .02). Contrasts also showed significant differences between self-peer differences and self-Teaching Assistant differences (p = .03, η^2_p = 0.03). Whilst this suggested that difference scores varied by reporter, there was no independent effect of reporter on differences for behavioural solitude or avoidance, when looking at the two behaviours separately. Whilst effect sizes were small for the interaction, results indicated varied patterns in differences across the two solitary behaviours and three reporters. Therefore, this showed that self-peer difference scores were highest for behavioural solitude and lowest for avoidance, but that difference scores with each reporter were similar for each form of behaviour.

There was an independent effect of age group, (F (1, 260) = 4.65, p = .032, η^2_p = .02) with lower differences in the younger age group (M =0.48, SE =0.03) than the older age group (M =0.56, SE =0.03), suggesting increasing differences in ratings with age. However, this was a small effect size and there were no interactions between age group and any other variables.

There was an interaction between time point (1, 2, 3) and solitary behaviour form (behavioural solitude and avoidance) (F (1.88, 489.89) = 5.63, p = .004, η^2_p = .02), with a small effect size[11]. Simple contrasts showed that this interaction was not significant between times 1 and 2, but that change occurred between time 2 and 3 (p = .011, η^2_p = .04) and time 1 and 3 (p < .002, η^2_p = .04), where effect sizes were approaching

[11] There was an independent effect of both solitary behaviour form (F (1, 524) = 3.20, p = .049, η^2_p = .02) and time (F (1.2, 520) = 4.99, p = .007, η^2_p = .02) on difference scores, with small effect sizes. However, the interaction between these variables provided more detailed information.

medium magnitude. The greatest difference occurred at time 1 for both forms of behaviour (behaviour solitude: *M* =0.63, *SE* =0.03; avoidance: *M* = 0.51, *SE* = 0.03). After time 1, there were different trajectories of difference scores for each form of solitary behaviour. There was a linear reduction in difference score for behavioural solitude (*M* = 0.54, *SE* = 0.03 to *M* =0.45, *SE* =0.03). However, for avoidance, there was a slight dip in differences at time 2 (*M* =0.47, *SE* =0.03) which increased again at time 3 (*M* = 0.49, *SE* = 0.04). This showed that the trajectory of difference scores between self-reports and ratings from others varied for behavioural solitude and avoidance.

In order to understand these results further, mixed ANOVAs were run separately for the two solitary behaviours, keeping all other independent variables the same as described above. When the behaviours were considered separately, there was an interaction between time point and age group for behavioural solitude (F (2, 520) = 3.66, p = 0.27, η^2_p = 0.01), where there was a stable decline across the three times for the younger age group from time 1 (*M* =0.62, *SE* =0.04), to time 2 (*M* =0.56, *SE* =0.04), to time 3 (*M* =0.38, *SE* =0.04). The pattern was different from the older age group with time 1 (*M* =0.66, *SE* =0.03) reducing at time 2 (*M* =0.52, *SE* =0.04) but increasing again slightly at time 3 (*M* =0.55, *SE* =0.04). There was no independent effect of time point on avoidance differences, or an interaction between age group and time. However, there was an independent effect of age group (F (1, 260) = 4.46, p = .036, η^2_p = 0.02) where the older age group had higher difference scores (*M* =0.55, *SE* =0.03) than the younger age group (*M* =0.45, *SE* =0.03). Effect sizes were small across these results. These findings showed inconsistent trajectories across form of solitary behaviour and the age groups in the current study.

Previous research has found no effect of sex on reports of solitary behaviour. However, as part of the mixed ANOVA referenced previously, sex was included to test the effects this had on difference scores for solitary behaviour. As expected, there were no independent effects of sex in the difference reports.

Whilst analyses of difference scores indicated whether ratings became more or less concordant, they did not indicate the direction of difference scores. In addition, where

difference scores were equal to zero (no difference) there was no indication whether this related to exhibiting or not exhibiting each behaviour. Therefore, a difference type was calculated between self-reports and each other reporter (at each time point and for both solitary behaviours) in order to further address the second research question, as to how different self-reported ratings were from ratings provided by peers, Class Teachers and Teaching Assistants.

4.5.2 Difference types

'Difference type' was a nominal variable created for each form of behaviour at each time point, which compared self-reports with others' reports by describing the type of difference and direction of difference. For instance: 'no difference – reported' referred to cases where self-reports and ratings from other reporters were identical about the display of behaviour occurring 'lots' or 'sometimes'. 'No difference – non-reported' referred to cases where self-reports and ratings from other reporters were identical regarding the behaviour 'never' being displayed by the child. 'Higher self-reporters' referred to children who gave higher ratings of their solitary behaviour than other reports and 'Lower self-reporters' referred to children who gave lower ratings of their solitary behaviour than other self-reports. These were analysed across times, age groups and sex using Chi-Square and McNemar-Bowker tests to further understand how children's self-reports compared to those from other reporters.

One-way Goodness of Fit Chi-Square tests were conducted to consider difference types between self-reports and other reporters' ratings at each time point. The purpose of this analysis was to see whether particular difference types occurred more or less frequently than others. This was to further address research question 2, as to how different self-reported ratings of solitary behaviours were from ratings provided by peers, Class Teachers and Teaching Assistants. This showed significant results at each time point and between self-reports and ratings from all other reporters (all at $p < .001$) with medium to large effect sizes (*Cohen's W* all between 0.29 and 0.98 – see Appendix B). The percentage of children in each self-report 'difference type' group with peers, Class Teachers and Teaching Assistants are shown in Figure 4.1, Figure 4.2, and Figure 4.3.

With the exception of behavioural solitude at time 1, the most common difference type was ‘no difference – non-reported’ meaning that children’s self-reports and reports from others agreed that children did not display solitary behaviour. This was followed by ‘higher self-reporters’ showing that children’s self-reports of solitary behaviour were higher than reports from others. At time 1, for behavioural solitude, children were more likely to be ‘higher self-reporters’ than agree that they did not display this behaviour.

The pattern of difference types between self-reports and Class Teachers differed from the findings comparing self-reports with Teaching Assistants, and self-reports with peers. There was a higher percentage in the categories ‘no-difference - reported’ and ‘lower self-reports’ for behavioural solitude. To assess whether this finding was significantly different for behavioural solitude and avoidance, a McNemar-Bowker test was run and found higher percentages of children in the ‘no-difference - reported’ and ‘lower self-reports’ groups for behavioural solitude than for avoidance at time 1 (McNemar-Bowker = 50.09, (6, N = 284), p < .001), time 2 (McNemar-Bowker = 21.74, (6, N = 270), p = .001) and time 3 (McNemar-Bowker =37.42, (6, N =273), p < .001).

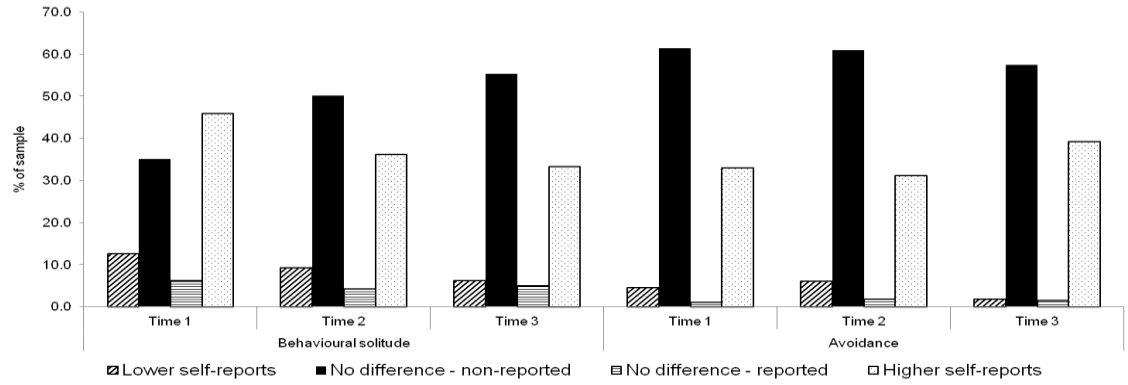


Figure 4.1. Difference types between self- and peer-reports for solitary behaviour

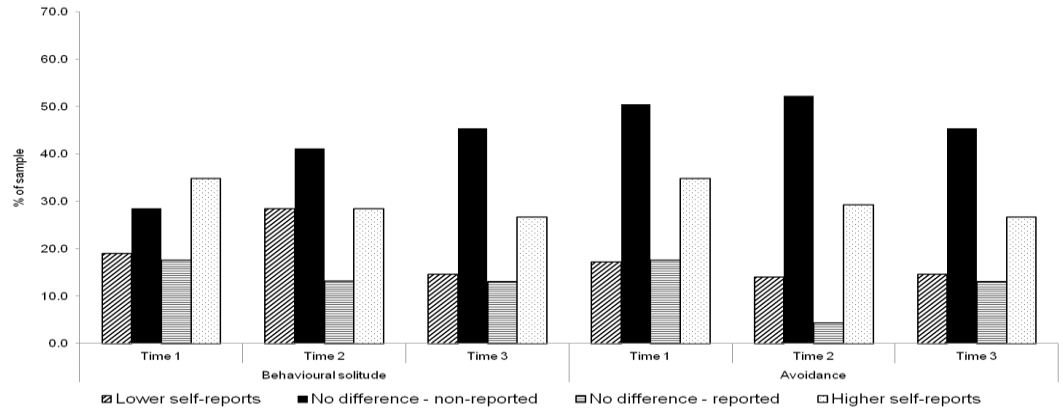


Figure 4.2. Difference types between self- and Class Teacher-reports for solitary behaviour

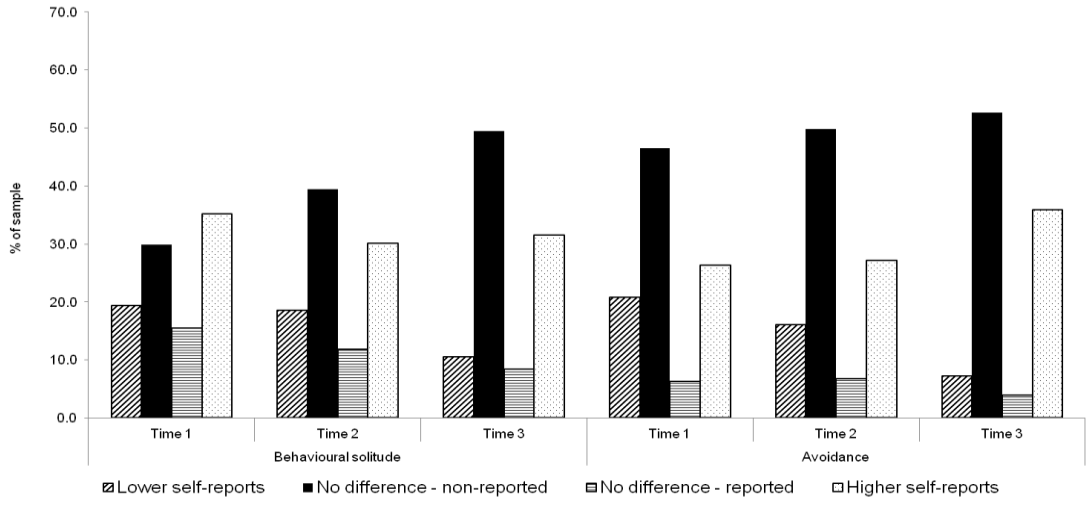


Figure 4.3. Difference types between self- and Teaching Assistant-reports for solitary behaviour

The previous analysis addressed the second research question, by showing the proportion of children with each difference type. A central aspect to research question 2 was also to consider how differences in ratings changed over time, and therefore analysis was run with difference types to assess this. Variables were calculated to consider whether these remained stable or changed, for each form of behaviour and with each reporter (peers, Class Teachers and Teaching Assistants) for each behaviour. Chi-Square analysis was conducted to see whether this was associated with age group[12]. One Way Goodness of Fit tests were conducted to see whether there was a significant difference between whether these difference types changed or remained the same between times points. If difference types were more likely to change than remain stable, contingency tables and standardised residuals were then used to explore this change further. Where there was a significant association with age group, the One Way Goodness of Fit tests were carried out separately for each age group. This has only been referenced below where there was a significant difference by age group. Where this is not mentioned, it means that there were no significant associations between whether difference types changed and age group.

One Way Goodness of Fit tests for behavioural solitude self-peer difference types from time 1 to time 2 (χ^2 = 7.26 (1, 279), p = .007, *Cohen's W* = 0.16) and time 1 to time 3 (χ^2 = 19.29 (1, 273), p = .001, *Cohen's W* = 0.27), showed that difference types were more likely to change (58.0%, 59.3%) than remain the same (42.0%, 40.7%). However, inspection of standardised residuals did not indicate any significant pattern of change.

Self-Class Teacher difference types for behavioural solitude were more likely to change (67.2%, 68.1%) than remain the same (22.8%, 21.9%) between time 1 and time 2(χ^2 = 32.49 (1, 272), p < .001, *Cohen's W* = 0.35), and time 1 and time 3 (χ^2 = 35.57 (1, 270), p < .001, *Cohen's W* = 0.36). However, standardised residuals did not indicate any significant patterns in these changes.

[12] Chi-Square analysis was also conducted to see whether change varied by sex but there were no significant associations.

There was a significant association between age group and difference type change for avoidance for time 1 to time 2 (χ^2 = 22.05, (1, *N* = 268), *p* < .001 *Cramer's V* =0. 29) and time 2 to time 3 (χ^2 = 7.26, (1, *N* = 266), *p* = .007 *Cramer's V* =0. 17). In both cases, a larger proportion of the older age group's difference type changed (57.07%, 56.1%) compared the younger age group (42.4%, 41.7%). Therefore, One Way Goodness of Fit tests were run separately for the two age groups. In the younger age group (χ^2 = 5.85, (1, 134), *p* = .016, *Cohen's W* = 0.21), the difference type between children's and Class-Teachers was significantly more likely to stay the same for avoidance between time 2 and time 3 (60.4%) than change (39.6%). However, in the older age group (χ^2 = 22.74, (1, 133), *p* = .001, *Cohen's W* = 0.41) children were more likely to change difference type (70.7%) than remain the same (29.3%). There was no significant result as to how this change occurred.

For self-Teaching Assistant difference types, One Way Goodness of Fit tests showed that these were more likely to change than remain the same between time 1 and time 2 (χ^2 = 17.06 (1, 279), *p* < .001, *Cohen's W* = 0.25), and time 1 and time 3 (χ^2 = 25.23 (1, 279), *p* < .001, *Cohen's W* = 0.30). In both cases, difference types were more likely to change (62.3%, 65.2%) than remain the same (37.7%, 34.8%). Standardised residuals in contingency tables were inspected and showed that children who had agreed with their Teaching Assistant that they showed behavioural solitude at time 1, were more likely to report lower levels than their Teaching Assistants at time 2 (*p* < .05, Std. Residual = 2.5). However, there was no significant pattern from time 1 to time 3.

For self-Teaching Assistant difference types for avoidance, there was a significant association between whether this changed and age group from time 2 to time 3 (χ^2 = 7.70, (1, *N* = 273), *p* = .006 *Cramer's V* =0. 17). Therefore, One Way Goodness of Fit tests were then conducted by age group to assess whether children's difference types were more likely to change or remain the same between times. Children's difference type with Teaching Assistants for avoidance were more likely to change (57.1% for both) than remain the same (42.9% for both times) between time 1 and time 2 (χ^2 = 5.71 (1, 279), *p* = .017, *Cohen's W* = 0.14) and time 1 and time 3 (χ^2 = 5.57 (1, 273), *p* = .018, *Cohen's W* = 0.14). However, standardised residuals did not indicate any clear

change. Between time 2 and time 3, the younger age group were actually less likely to change (36.8%) than remain the same (63.2%) in their difference types with Teaching Assistants for avoidance (χ^2 = 9.21 (1, 133), p = .002, *Cohen's W* = 0.26), but there was no significant result for the older age group.

These analyses show that there were several changes in children's difference types across time points, in particular from time 1. However, there was no consistency in how these difference types changed. This has addressed research question 2, in showing that whilst change in differences do occur, there are no clear findings relating to associated patterns.

4.6 Children's explanations for reporting exhibiting or not exhibiting solitary behaviours

The third research question in the current study relates to children's explanations for their behaviours. In this chapter, this specifically relates to how children explain why they exhibit or do not exhibit behavioural solitude and avoidance, in terms of explanation focus, agency and outcome focus and whether these explanations vary by age group and across time points.

Results are presented in three main sections including explanation focus (causal, consequential, mixed); agency (internal, external, mixed); outcome focus (internal, external, mixed). These explanations were then considered by children's self-reported rating for each solitary behaviour, and whether explanations differed as a function of this. Analysis involved using Chi-Square and McNemar-Bowker tests.

Most children provided explanations for their behaviours. However some also said that they did not know why they did or did not exhibit solitary behaviours. For behavioural solitude, this was the case for nine children at time 1, five children at time 2, and three children at time 3. For avoidance, this was the case for 12 children at time 1, four children at time 2 and one child explanation at time 3.

4.6.1 Explanation focus of exhibiting and not exhibiting solitary behaviours

4.6.1.1 Across all reports of solitary behaviour

As part of analysis relating to the third research question, children's explanation focus (causal, consequential, mixed) was explored across all children (who reported exhibiting or not exhibiting solitary behaviour) in order to consider whether children have a particular focus when discussing solitary behaviour. This was also considered by sex, age group and across times points.

Chi-Square tests showed no significant differences between age group and explanation focus for exhibiting or not exhibiting solitary behaviour, or sex and explanations for exhibiting or not exhibiting solitary behaviour. Therefore, explanation focus was considered in the sample as a whole, and not split by age group. Explanations relating to exhibiting or not exhibiting behavioural solitude were more likely to be causal than consequential for three out of three tests, all of which had large effect sizes. This was significant in at time 1 (χ^2 = 129.28 (2, N = 276), p < .001, *Cohen's W* = .68), time 2 (χ^2 = 72.40 (2, N = 274), p < .001, *Cohen's W* = .51) and time 3 (χ^2 = 47.57 (2, N = 270), p < .001, Cohen's W = .42) (see Table 4.2).

For avoidance, results showed that children from both age groups were more likely to provide explanations with causal focus than consequential focus at time 1. However, at time 2 and time 3, the opposite pattern was found (see Table 4.2). There were significant results for avoidance across all tests, with moderate effect sizes. This was the case at time 1 (χ^2 = 50.92, (2, N = 273), p < .001, *Cohen's W* = .43), time 2 (χ^2 = 37.45 (2, N = 274), p < .001, *Cohen's W* = .37) and time 3 (χ^2 = 47.57 (2, N = 272), p < .001, *Cohen's W* = 0.42).

Table 4.2. Explanation focus for exhibited and not exhibited solitary behaviour

Time point	Behavioural solitude (%)			Avoidance (%)		
	Ca	Co	M	Ca	Co	M
1	63.5	16.3	18.1	52.7	28.9	18.4
2	56.2	28.8	15.0	36.9	46.4	16.8
3	50.7	38.6	10.7	36.0	48.9	15.1

Notes. 'Ca': Casual focus; 'Co' Consequential focus; 'M' Mixed focus with both causal and consequential focus.

Therefore, children's explanations were more causal for behavioural solitude at all three time points and avoidance at time 1, but more consequential for avoidance at time 2 and time 3.

The third research question also relates to whether there was any change in children's explanation focus over the three time points. Across the whole sample, McNemar-Bowker tests showed a significant change in the explanation focus for exhibiting and not exhibiting behavioural solitude from time 1 to time 2 (McNemar-Bowker = 13.34, (3, N = 267), p = .004, φ = 0.17), with a small effect size. There was a change in the proportion of children with causal focus in their explanations from time 1 to time 2 (65.2% to 55.8%) and an increase in consequential explanations (16.9% to 29.6%). There were no significant changes from time 2 to time 3. The same pattern as time 1 to time 2, followed for time 1 to time 3 (McNemar-Bowker = 43.43, (2, N = 262), p < .001, φ = 0.07), with a very small effect size.

Furthermore, results from McNemar-Bowker tests also showed that there was a significant change in the explanation focus in explanations for exhibiting and not exhibiting avoidance from time 1 to time 2 (McNemar-Bowker = 19.73, (3, N = 265), p < .001, φ = 0.16), with a small effect size. There was a decrease in the percentage of children who were causal in their reasons for exhibiting and not exhibiting avoidance from time 1 to time 2 (52.5% to 36.2%) and an increase in consequential focus (29.4% to 47.2%). There was no significant change from time 2 to time 3, but the same pattern as time 1 to time 2, followed for time 1 to time 3 (McNemar-Bowker = 23.55, (3, N = 262), p < .001, φ = 0.07) with a very small effect size.

Therefore, across both behaviours, consequential explanation focus increased.

4.6.1.2 Comparing explanation focus for children who reported exhibiting or not exhibiting solitary behaviour

The previous results showed the explanation focus in children's explanations for exhibiting and not exhibiting solitary behaviour. In order to further address the third research question and whether this varied by children' self-reports of solitary behaviour, Chi-Square analyses were conducted to consider whether children's explanations for their behaviour varied by whether they rated that they display each solitary behaviour 'lots', 'sometimes', or 'never'. In addition, there was a subgroup of children who responded that they 'sometimes' showed behavioural solitude and / or 'sometimes' engaged in avoidant behaviour. Therefore, they provided explanations for both exhibiting and not exhibiting these behaviours. Their responses for exhibiting and not exhibiting solitary behaviour were compared through the use of McNemar-Bowker tests.

For behavioural solitude, across all three times and responses, children were more likely to provide explanations that were causal focused. However, Chi-Square tests found that there was a significant association between explanation focus and children's self-reported rating for the frequency of solitary behaviour, with small to medium effect sizes at time 1 (χ^2 = 33.42, (4, *N* = 266), *p* < .001 *Cramer's V* =0. 35), time 2 (χ^2 = 42.80, (4, *N* = 273), *p* < .001, *Cramer's V* = 0. 28) and time 3 (χ^2 = 39.29, (4, *N* = 270), *p* < .001, *Cramer's V* = 0. 27). At each time point, those who reported showing behavioural solitude 'lots' the most likely to provide explanations with causal focus (T1 – 93.2%, T2 – 88.0%, T3 – 64.7%) compared to those who reported showing behavioural solitude 'sometimes' (T1 – 73.0%, T2 – 68.5%, T3 – 68.1%) or 'never' (T1 – 49.6%, T2 – 44.2%, T3 – 39.5%). In contrast, consequential explanations were most common in those who reported 'never' exhibiting behavioural solitude (T1 – 28.6%, T2 – 42.9%, T3 – 53.1%) compared to those who reported doing so 'sometimes' (T1 – 7.4%, T2 – 9.8%, T3 – 14.3%) or 'lots' (T1 – 4.8%, T2 – 12.0%, T3 – 29.4%). Explanations which included mixed focus occurred infrequently amongst those who reported showing behavioural solitude 'lots' (T1 – 0.0%, T2 – 0.0%, T3 – 3.9%) compared to those who said 'sometimes' (T1 – 17.6%, T2 – 21.7%. T3 – 17.6%) or 'never' (T1 – 21.8%, T2 – 12.8%, T3 – 7.4%).

For avoidance, the previous section showed that children's explanation focus was mostly causal at time 1, but consequential at time 2 and time 3. When comparing by self-reports, there was a similar pattern to behavioural solitude, with significant associations between ratings and explanation focus with small to medium effect sizes, at time 1 (χ^2 = 12.78, (4, *N* = 273), *p* = .012 *Cramer's V* =0. 15), time 2 (χ^2 = 37.73, (4, *N* = 274), *p* < .01, *Cramer's V* =0. 26) and time 3 (χ^2 = 24.19, 4, (*N* = 272), *p* < .001, *Cramer's V* =0. 21). As with behavioural solitude, causal focus were most common amongst children who reported that exhibited avoidant behaviour 'lots' (T1 – 62.2%, T2 – 73.4%, T3 – 50.0%) compared to those who did so 'sometimes' (T1 – 59.7%, T2 - 53.1%, T3 – 43.2%) or 'never' (T1 – 48.0%, T2 – 26.0% , T3 – 29.2%). Consequential focus was most common amongst children who reported 'never' exhibiting avoidant behaviour (T1 – 33.2%, T2 – 58.0%, T3 – 60.9%), compared to those who reported doing so 'sometimes' (T1 – 13.4%, T2 – 23.1%, T3 – 31.2%) or 'lots' (T1 – 22.7%, T2 – 26.7%, T3 – 33.4%). Explanations with mixed explanation focus were most common amongst those children who reported 'sometimes' showing avoidant behaviour (T1 – 23.0%, T2 – 21.8%, T3 – 23.7%) compared to those who said they did so 'lots' (T1 – 9.1%, T2 – 0.0%, T3 – 16.7%) or 'never' (T1 – 16.8%, T2 – 16.0%, T3 – 9.9%).

McNemar-Bowker tests were used to compare whether there were differences in the explanation focus of those children who reported that they behaved in solitary ways 'sometimes'. Comparison of explanations for and for not being solitary in children who reported 'sometimes' showing these behaviours supported the findings from the differences in focus of children who self-reported 'lots' and 'never', with small to medium effect sizes, at time 1 for avoidance (χ^2 = 9.97, (3, *N* = 64), *p* = .019, φ = .37), at time 2 for behavioural solitude (χ^2 = 7.87, (3, *N* =88, *p* = .049, φ = .33), and at time 3 for behavioural solitude (χ^2 = 10.00, (3, *N* =83), *p* = .019, φ = .32).

Therefore, in relation to the third research question, children who reported not exhibiting solitary behaviour were more likely to provide consequential explanations than those who reported doing so, where as those who reported exhibiting solitary behaviour were more likely to provide causal explanations than those who reported not doing so.

4.6.2 Agency in explanations for exhibiting and not exhibiting solitary behaviour

4.6.2.1 Across all reports of solitary behaviour

Agency (internal, external, mixed) in children's explanations was explored across all children (who reported exhibiting or not exhibiting solitary behaviour) in order to consider research question 3 further, and whether children have a particular style when discussing solitary behaviour. This was also considered by age group, sex and across times.

On average, 80% of children provided explanations which included agency (younger age group: Behavioural solitude - T1 = 89.5% (255), T2 = 84.9% (237), T3 = 76.6% (209); Avoidance – T1 = 85.6% (244), T2 = 81.7% (228), T3 = 80.2% (219). Percentages below have been discussed using the total number of children in each case who provided an explanation with agency. One Way Goodness of Fit tests were used to compare the proportions of agency types made (internal, external, mixed).

Chi-square tests found no significant association between age group and agency, or sex and agency, and so analysis was conducted for the whole sample across all analysis of agency.

For behavioural solitude, there was only one significant difference between responses, at time 2, with a small effect size (χ^2 =10.10 (2, N = 237), p = .006, *Cohen's W* = .21) where mixed agency (24.0%) was less common than internal (40.5%) or external (35.5%) agency. At time 1 and time 3, explanations were equally spread across children making internal, external or mixed causal agencies about exhibiting and not exhibiting behavioural solitude.

There were significant differences in agency for exhibiting or not exhibiting avoidance at time 2 (χ^2 = 24.98 (2, N = 228), p < .001, *Cohen's W* = .33) and time 3 (χ^2 =24.36 (2, N = 223), p < .001, *Cohen's W* = .33) both with medium effect sizes. At time 2, perceived internal agency (47.8%) was higher than external (31.1%) or mixed (21.1%).

This was also the case at time 3 with higher internal agency (48.9%) than external (24.7%) or mixed (26.4%). At time 1, explanations were equally spread across internal, external and mixed.

Therefore, in most cases, there were no clear patterns of agency when discussing solitary behaviour, with the exception of avoidance at time 2 and time 3 where internal agency was more likely than external agency.

The third research question was also focused on whether there was any change in agency over the three time points. McNemar-Bowker tests were run for the whole sample, to look at change in agency over time. Results of McNemar-Bowker tests for behavioural solitude showed similar patterns to the analysis of explanation focus. There was a significant change in terms of agency for reports for exhibiting and not exhibiting behavioural-solitude from time 1 to time 2, with a small effect size (McNemar-Bowker = 10.62, (3, N = 213), p = .014, φ = 0.17). This finding was due to a decrease in mixed agency from time 1 to time 2 (36.6% to 23.9%) and an increase in internal agency (28.6% to 40.8%). There was no significant change from time 2 to time 3 or from time 1 to time 3.

Findings of McNemar-Bowker tests which considered agency in children's explanations for exhibiting and not exhibiting avoidance showed similar patterns as behavioural solitude. There was a significant change from time 1 to time 2, with a small to medium effect size (McNemar-Bowker = 9.22. (3, N = 197), p = .027, φ = 0.26). This reflected a decrease in mixed agency (29.4% to 21.3%) and an increase in internal attributions (36.0% to 47.2%). from time 1 to time 2. There was no significant change from time 2 to time 3, but the same pattern as time 1 to time 2, followed for time 1 to time 3 (McNemar-Bowker = 9.12. (3, N = 192), p = .028, φ = 0.19), also with a small effect size.

Therefore, there was some increase in internal agency when discussing solitary behaviours, but this was not consistent across all time points.

4.6.2.2 Comparing agency for children who reported exhibiting or not exhibiting solitary behaviour

The previous results showed the agency in children's explanations for exhibiting and not exhibiting solitary behaviour. However, in order to further address the third research question and understand whether this varied by whether children report that they exhibit or do not exhibit solitary behaviour, analyses were run to consider whether children's explanations for their behaviour, varied by whether they reported that they display each solitary behaviour 'lots', 'sometimes', or 'never'. In addition, there was a subgroup of children who responded that they 'sometimes' showed behavioural solitude and / or 'sometimes' engaged in avoidant behaviour. Their responses for exhibiting and not exhibiting solitary behaviour were compared through the use of McNemar-Bowker tests.

Findings from Chi-Square tests showed that there was a significant association between agency type (internal, external, or mixed) and self-reported frequency of behavioural solitude, with small to medium effect sizes at time 1 ($\chi^2 = 23.41$, (4, $N = 255$), $p < .001$, *Cramer's V* =0. 22), time 2 ($\chi^2 = 43.44$, (4, $N = 237$), $p < .001$, *Cramer's V* =0. 31) and time 3 ($\chi^2 = 16.12$, (4, $N = 209$), $p = .002$, *Cramer's V* =0. 20). External agency was most common amongst those children who self-reported that they exhibited behavioural solitude 'lots' (T1 – 57.1% , T2 – 56.0% , T3 – 61.5%) compared with those who said they did so 'sometimes' (T1 – 32.6%, T2 – 32.2%, T3 – 32.2%) and 'never' (T1 – 34.3%, T2 – 33.6% , T3 – 34.9%). In contrast, internal agency was most common amongst children who said that they 'never' exhibited behavioural solitude (T1 – 42.4 %, T2 -56.6%, T3 – 45.3%) compared with those who said they did 'sometimes' (T1 - 19.3%, T2 – 23.4%, T3 – 27.8%) or 'lots' (T1 – 19.0%, T2 – 24.0%, T3 – 30.8%). Mixed agency was most common amongst children who reported that they 'sometimes' exhibited behavioural solitude (T1 – 48.1%, T2 – 44.4%, T3 – 40.0%) compared with those who did so 'lots' (T1 – 23.8%, T2 – 20.0%, T3 – 7.7%) or 'never' (T1 – 23.2%, T2 – 9.8%, T3 – 19.8%).

Similarly, there was a significant association between agency in children's explanations and their reported frequency of avoidant behaviour, with small to medium effect sizes at

time 1 (χ^2 = 16.53, (4, *N* = 244), *p* = 0.002, *Cramer's V* =0. 18), time 2 (χ^2 = 23.86, (4, *N* = 228), *p* < .001, *Cramer's V* =0. 32) and time 3 (χ^2 = 23.07, (4, *N* = 223), *p* < .001, *Cramer's V* =0. 24). However, residuals showed fewer patterns than for behavioural solitude. There was little difference at each time in the proportion of children who gave explanations that only included internal agency between those who responded 'lots' (T1 – 27.3%, T2 – 40.0%, T3 – 50.0%), 'sometimes' (T1 – 30.6%, T2 – 39.0%, T3 - 40.2%) or 'never' (T1 – 39.3%, T2 – 53.7%, T3 – 55.7%). There was also little difference at each time for external agency only between those who reported 'lots' (T1 – 36.4%, T2 – 46.7%, T3 – 25.0%) and 'never' (T1 – 41.3%, T2 – 34.6%, T3 – 31.3%). However, those who responded 'sometimes' were the least likely to give explanations with external agency (T1 – 25.0%, T2 – 22.1%, T3 – 16.3%). Furthermore, mixed agency was most common amongst children who said they 'sometimes' showed avoidance (T1 – 44.4%, T2 – 39.0%, T3 – 43.5%) compared to those who said they did so 'lots' (T1 – 36.4%, T2 – 13.4%, T3 – 25.0%) or 'never' (T1 – 19.3%, T2 – 11.8%, T3 – 13.0%). Therefore, these results showed that children who reported displaying behavioural solitude were more likely to provide explanations with external agency than those who said they did not, but there was little difference between agency types for those who reported displaying avoidance.

The previous sections have considered the agency in children's explanations relating to solitary behaviour, in order to address the third research question. To provide further detail of this and understand who or what the external agencies were, proportions of each explanation for exhibiting and not exhibiting solitary behaviour were calculated for agency of 'other children', 'adult' and 'general' (see Chapter 3 for a detailed explanation of this). Other child/ren was the most common external agency, followed by 'general' explanations relating to morals or rules. Adults were rarely identified within the agency for children exhibiting or not exhibiting solitary behaviour (see Table 4.3).

Table 4.3. Mean percentage of explanations with each external agency

Form	Reporter	Exhibited			Not exhibited		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Behavioural solitude	Other children	57.10	57.76	49.05	35.68	27.69	22.42
	Adults	0.86	0.86	0.00	0.82	0.82	0.61
	General	3.76	7.83	6.19	8.00	8.16	11.29
Avoidance	Other children	40.47	35.16	26.45	30.46	23.19	21.33
	Adults	1.65	0.00	0.92	0.82	0.39	0.00
	General	4.21	8.33	12.23	12.71	13.78	12.00

4.6.3 Outcome focus explanations for exhibiting and not exhibiting solitary behaviour

4.6.3.1 Across all reports of solitary behaviour

Also considered in relation to the third research question, was the outcome focus within children's explanations for exhibiting or not exhibiting solitary behaviours. Outcome focus in children's explanations was explored across all children (who reported exhibiting or not exhibiting solitary behaviour) in order to consider whether there was a pattern when discussing solitary behaviour. This was also considered by age group, sex and across time points.

At least 70% of children provided explanations for exhibiting or not exhibiting solitary behaviour which included outcome focus (Behavioural solitude - T1 = 81.8% (233), T2 = (86.0%) (240), T3 = 84.6% (231); Avoidance – T1 = 73.3% (209), T2 = 88.5% (247), T3 = 76.5% (229)). Percentages reported in the following sections are based on the total numbers of children who reported outcome focus rather than of the total sample.

Results of Chi-Square tests showed that there was no significant association between age group and outcome focus, or sex and outcome focus, for either behavioural solitude or avoidance. One Way Goodness of Fit tests were used to compare the proportions of outcome focus types provided by children (internal, external, mixed). Children's explanations for both behavioural solitude and avoidance mostly consisted of internal

outcome focus (see Table 4.4). This was significant for both behaviours across all three time points with large effect sizes.

Table 4.4. Outcome focus in children's explanations for exhibiting and not exhibiting solitary behaviour

Form	Time	I	E	M	Chi-Square result
Behavioural solitude	1	67.0	13.7	19.3	$\chi^2 = 119.60^{***}$ (2, N = 233), *Cohen's W* =0.72
	2	84.2	5.8	10.0	$\chi^2 = 279.80^{***}$ (2, N =240), , *Cohen's W* = 1.08
	3	76.6	11.3	12.1	$\chi^2 = 194.83^{***}$ (2, N = 231) *Cohen's W* = 0.91
Avoidance	1	65.6	18.2	16.2	$\chi^2 = 97.73^{***}$ (2, N = 209), *Cohen's W* = 0.68
	2	73.3	17.8	8.0	$\chi^2 = 180.30^{***}$ (2, N = 247), *Cohen's W* = 0.85
	3	81.2	8.3	10.5	$\chi^2 = 236.50^{***}$ (2, N = 229), *Cohen's W* =1.01

Notes. 'I': Internal; 'E' External; 'M': Mixed (internal and external). $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

In order to address research question 3 (how children explain why they do or do not exhibit solitary behaviour), it was also important to consider how outcome focus may change over the three time points. McNemar-Bowker tests were conducted to examine whether there were changes in outcome focus across the period of the study for the two behaviour types. It was found that, across the whole sample, there was a significant change in the outcome focus in behavioural solitude from time 1 to time 2, with a small effect size (McNemar-Bowker = 16.33, (3, N = 201), p = .001, φ = .09) where there was an increase in internal outcome focus (66.2% to 83.6%) and a decrease in external outcome focus (14.9% to 6.0%) and mixed outcome focus (18.9% to 10.4%). There was no change from time 2 to time 3 or from time 1 to time 3.

McNemar-Bowker tests also indicated a significant change in the outcome focus of children's explanations across both exhibiting and not exhibiting avoidant behaviour from time 1 to time 2, with a small effect size (McNemar-Bowker = 9.64, (3, N = 184) p = .022, φ = .22). There was an increase in internal focus (64.7% to 74.5%) and a decrease in mixed outcome focus (17.4% to 6.5%). There was also a change between time 2 and time 3 (McNemar-Bowker = 10.36, (3, N = 166) p = .016, φ = .23), with a small effect size, with an increase in internal focus (72.7% to 81.0%) and decrease in external focus (18.5% to 8.8%). There was also a significant change between time 1 and

time 3, also with a small effect size (McNemar-Bowker = 18.60, (3, N = 173) $p < .001$, $\varphi = .19$) with the same pattern found between times 1 and 2 (increase in internal focus and decrease in mixed focus). Therefore, these results showed that internal outcome focus within children's explanations increased after time point 1.

4.6.3.2 Comparing outcome focus for children who reported exhibiting or not exhibiting solitary behaviour

The results presented above examined outcome focus in children's explanations for exhibiting and not exhibiting solitary behaviour. In order to further address the third research question and whether explanations varied by self-reports, analyses were conducted to examine whether children's explanations for their behaviour, varied by whether they reported that they displayed each solitary behaviour 'lots', 'sometimes', or 'never'. In addition, there was a subgroup of children who responded that they 'sometimes' showed behavioural solitude and / or 'sometimes' engaged in avoidant behaviour. Their responses for exhibiting and not exhibiting solitary behaviour were compared through the use of McNemar-Bowker tests.

Across all time points, the most common outcome focus in children's explanations for exhibited and not exhibited behavioural solitude was internal. There was no significant association between children's self-reported frequency of behaviour and their outcome focus at time 1 or time 3. However, there was a significant association at time 2 (χ^2 = 9.94, (4, N = 240), p = .038 *Cramer's V* =0. 14) with a small effect size. Whilst only significant at time 2, internal outcome focus was more common amongst the children who reported behavioural solitude 'lots' across all time points (T1 – 84.2%, T2 - 100.0%, T3 – 81.2%), although this was also high amongst those who reported it 'sometimes' (T1 – 63.9%, T2 – 83.2%, T3 – 76.3%) and 'never' (T1 – 67.4%, T2 – 82.7%, T3 – 76.3%). External focus was generally low across all time points and responses with those who responded 'lots' (T1 - 10.5%, T2 – 0.0%, T3 – 12.5%), those who responded 'sometimes' (T1 – 10.9%, T2 – 2.5%, T3 - 13.2%) and those who responded 'never' (T1 – 17.9%, T2 – 8.6%, T3 - 10.1%). Finally, mixed responses were also low for those who responded 'lots' (T1 – 5.3%, T2 – 0.0%%, T3 – 6.2%, 'sometimes' (T1 – 25.2%, T2 – 15.2%, T3 – 10.5%) and for those who responded

'never' (T1 – 14.7%, T2 – 8.6%, T3 – 13.7%). The significant association at time 2, was explained by the finding that no children who reported 'lots' gave explanations with an external or mixed outcome focus.

There were significant associations between the self-reported frequency of avoidance and the outcome focus of children's explanations at time 1 ($\chi^2 = 19.52$, (4, $N = 209$) , $p < .001$, *Cramer's V* =0.22), time 2 ($\chi^2 = 14.75$, (4, $N = 247$), $p = .008$, *Cramer's V* =0.13) and time 3 ($\chi^2 = 11.75$, (4, $N = 229$), $p = .023$, *Cramer's V* =0.16), all with small effect sizes. Children who reported showing avoidance 'lots' were more likely to provide explanations with internal outcomes (T1 – 92.9%, T2 – 100.0%, T3 – 92.9%) compared to those who reported avoidance 'sometimes' (T1 – 81.4%, T2 – 82.6%, T3 – 84.1%) or 'never' (T1 – 55.9%, T2 – 67.9%, T3 – 78.2%). In contrast, external outcome focus was most common amongst those children who reported 'never' exhibiting avoidance (T1 – 25.7%, T2 – 23.8%, T3 – 12.8%) compared to those who said they did so 'lots' (T1 – 0.0%, T2 – 0.0%, T3 – 7.1%) or 'sometimes' (T1 – 5.1%, T2 – 5.8%, T3 – 1.2%). Mixed outcome focus was low amongst those children who reported showing avoidance 'lots' (T1 – 7.1%, T2 – 0.0%, T3 – 0.0%) compared to those who said 'sometimes' (T1 – 13.6%, T2 – 11.6%, T3 – 14.6%) or 'never' (T1 – 18.4%, T2 – 8.3%, T3 – 9.0%). Therefore, children who reported displaying avoidance were more concerned with internal outcome focus than those who reported never displaying this behaviour, but the rating of behaviour did not affect the outcome focus for behavioural solitude.

In order to develop a further understanding of who or what the external focus was within children's explanations for exhibiting or not exhibiting solitary behaviour, these were coded as a focus on 'other children', 'adults' and 'general' (see Chapter 3 for a more detailed explanation of this). The percentage of children's explanations which included this external focus was low. When there was an external focus, other child/ren were the most common external perceived focus, followed by 'general' focus relating to rules or morals. Adults were rarely identified as the outcome focus in children's behaviour (see Table 4.5).

Table 4.5. Mean percentage of explanations with each external outcome focus

Behaviour	Reporter	Exhibited			Not Exhibited		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Behavioural solitude	Other children	10.86	0.86	6.08	17.11	10.95	11.90
	Adults	0.22	0.00	0.00	0.00	0.00	0.00
	General	1.00	0.43	0.00	0.61	1.84	1.75
Avoidance	Other children	4.58	4.40	2.14	18.89	16.93	9.27
	Adults	0.00	0.00	0.00	0.50	0.39	0.00
	General	0.00	0.00	1.22	0.61	2.04	3.27

4.7 Exploring the relationship between difference types and explanations for exhibited and not exhibited behaviour

As explained earlier in this chapter, exploratory analysis also considered whether explanations were related to difference types ('higher self-report', 'no difference-reported', 'no difference – non-reported' and 'lower self-report'). This was linked to the third research question and how children explain their behaviours. There were consistent findings related to explanation focus (causal, consequential, mixed). For behavioural solitude, across all times and reporters, there was a significant association between difference type and explanation focus (all $p < .001$, all *Cramer's V* > .20). For avoidance, this was the case across all reporters for time 2 and time 3 only (all $p < .001$, all *Cramer's V* > .20). Inspection of residuals indicated that differences occurred between 'higher self-report' and 'no difference – reported' compared to 'lower self-report' and 'no difference – non-reported'. For instance, for self-peer differences in behavioural solitude at time 1, 'lower self-reporters' and 'no difference – non-reported' were more likely to make consequential explanations (24.4%, 51.1%) and less likely to make causal explanations (11.0%, 29.8%). In contrast, those who were 'higher self-reporters' and 'no difference – reported' were more likely to make causal explanations (51.4%, 7.7%) than consequential (20.0%, 4.4%). It is likely that these significant associations were a result of the differences in children's explanations for exhibiting or not exhibiting behaviours, rather than related to the difference type. A full breakdown of these results can be seen in Appendix B.

There were no consistent associations between difference types and agency or outcome focus in explanations.

4.8 Predicting later self-reports of solitary behaviour from explanations

Also related to the third research question was the relationship between explanations and later self-reports of solitary behaviours. Multinomial regressions were used to see whether later self-reports could be predicted from explanations at an earlier time (explanation focus, agency and outcome focus). There were no significant models for predicting self-reports of behavioural solitude at time 2, based on explanations from time 1 or for self-reports at time 3, based on explanations from time 2 or time 1. Similarly, there were no significant models for predicting self-reports of avoidance at time 2, based on explanations from time 1. This was also the case for predicting self-reports at time 3, based on explanations from time 2 or time 1.

4.9 Discussion of findings relating to solitary behaviour

The following discussion of results has been split into three sections corresponding with the three research areas presented above and questions outlined in Section 4.2. Across all three areas, effect sizes ranged between small and large. However, as discussed in Chapter 4, there is a need to interpret effect sizes in context (Vacha-Haase & Thompson, 2004) and small effect sizes can still be useful in the interpretation of findings.

4.9.1 Reports and behaviour ratings of solitary behaviour

The first research question considered how the reports of solitary behaviour in this research compared to prevalence and stability levels from existing research. The current research collected frequency ratings of solitary behaviour (lots, sometimes, never) from

self-, peer-, Class Teacher- and Teaching Assistant- reports. Findings showed that between 30% and 50% of children were reported as showing behavioural solitude at least 'sometimes' from self-reports and reports by Class Teachers and Teaching Assistants. These levels are slightly higher than those reported by Harrist et al.'s (1997) observations (approximately 25%) and may be because children's reasons for exhibiting behavioural solitude also include rejection (Rubin, 1989). Reports of avoidance were lower than those for behavioural solitude, across all reporters. Within reports of avoidance, ratings were highest from self-reports with 30 - 40% of children reporting that they display avoidance at least 'sometimes'. This was lower amongst teaching staff (10 - 30%) and lower amongst peers (less than 10%). This may overlap more with the prevalence of withdrawn behaviour found by Harrist et al., because of the associated choice of staying alone. Reports from peers were lowest for both behavioural solitude (15 - 20%) and avoidance (less than 10%). The low ratings from peer-reports suggest that Younger et al.'s (2000) proposal that peers are unable to engage with the inner mental states required to identify solitary behaviour may hold some weight and that they potentially struggle to remember this behaviour (Bukowski, 1990) possibly because of its low saliency (Younger & Boyko, 1987).

As part of the first research question, stability of ratings from self-reports were considered. These were also analysed for other reporters for comparative purposes. Findings showed that there was consistency across the three times for both behavioural solitude and avoidance, from all reporters. This supports findings from previous research, where withdrawn behaviour, as reported by observers, parents and teachers, has been found to be temporally stable (Rubin et al., 1995) and extends it to include child reports. However, the consistencies found were only moderate in strength. This may relate to the underlying reasons for behavioural solitude. As explained previously, researchers have proposed that one reason for solitary behaviour is 'active isolation' where peers reject other peers (Rubin et al., 1989). Based on research into victimisation, which has found a lack of stability in this age group (e.g. Monks et al., 2003), it was expected that this may affect the stability of ratings. Therefore, if the reasons for behavioural solitude were considered more closely, this may have played a role in the stability of reports.

Previous research has found that peer-reports of solitary behaviour become more stable as children get older (Bukowski, 1990). The current research supported this for behavioural solitude, where the older age group had higher consistency in their reports across the three times than the younger age group. However, this was not the case for avoidance, when stability was assessed separately for the two age groups, there was no significant consistency across the three times amongst the older age group and this was weak in the younger age group. Therefore, whilst peer reports of behavioural solitude may become more stable as children get older, avoidance seems to be related to a less consistent interpretation. A potential explanation for this low stability in reports of avoidance in both age groups is that peers may notice avoidance occurring when they are on the receiving end of being told that the solitary child does not want to play with them. Therefore, this may be salient to them at different time points. However, it is possible that, if they do not consistently approach the solitary child to play, they will be unaware of whether this avoidant behaviour continues because they are no longer directly affected by this behaviour. Similarly, it is possible that, as time goes on and their offers continue to be rejected, they choose to no longer approach the solitary child, also leading to reduced awareness of this avoidant behaviour.

4.9.2 Differences in ratings of solitary behaviour

In order to address the second research question, difference scores and types were considered between self-reports of solitary behaviour and reports from others. Difference scores, between self-Class Teacher and self-Teaching Assistant were similar for behavioural solitude. The largest differences for behavioural solitude occurred between self- and peer-reports. This is in contrast to the findings of Younger et al., (2000) and Spangler and Gazelle (2009) where there were higher levels of agreement between peer- and self-reports, than between self-reports and teacher-reports. However, this is consistent with previous findings relating to children potentially not noticing and remembering this behaviour (Bukowski, 1990). Differences tended to relate to children exhibiting this behaviour rather than not doing so, as analysis of difference types showed that there was a large group of children who agreed with their peers that they 'never' showed behavioural solitude. In contrast to behavioural solitude, self- and peer-

ratings had the lowest difference for avoidance, compared to self-Class Teacher differences or self-Teaching Assistant differences. Analysis of difference types found that a small percentage of children agreed with their peers that they behaved in avoidant ways, but the largest group consisted of agreement about not exhibiting avoidance rather than agreement regarding showing this behaviour.

Of particular note was the consideration of difference types between self-reports and Class Teacher-reports. When compared with self-peer or self-Teaching Assistant difference types, a higher percentage of children made lower self-reported ratings than their Class Teacher's rating, or agreed with their Class Teacher that they exhibited solitary behaviour, particularly for behavioural solitude. This overlaps with some tentative expectations relating to teachers' views of solitary behaviour. For instance, the findings that teachers tend to view shyness as being associated with more problems than unsociability (Arbeau & Coplan, 2007), and that shy children have a greater dependant relationship with teachers (Ladd & Burgess, 1999) had led to the tentative suggestion that there would be variation in the differences with teaching staff, because they would likely pay more attention to behaviours related to shyness. On one hand, this does seem to be the case, with higher agreement that children show behavioural solitude but the higher level of 'lower self-reports' also suggests that Class Teachers are making reports of behavioural solitude, where this is not self-reported by the child. This particular finding also highlights that patterns in self-Class Teacher differences, do not match those between children's self-reports and those of Teaching Assistants.

In line with the second research question, difference scores and difference types were also considered over the three time points. Previous literature has suggested increasing concordance between informants in other areas of research such as victimisation (Ladd & Kochenderfer-Ladd, 2002). However, the patterns in difference varied between the two types of solitary behaviour, and between age groups. For behavioural solitude, in the younger age group, there was a linear decrease in differences across all times between self and all other reporters, suggesting increasing concordance over the period of the study. There were no clear patterns in difference type changes that led to this increasing concordance. Relating to behavioural solitude for the older age group, there was a slight decrease in differences at time 2 (first term of the school year). This pattern

of findings (a decrease in differences at time 2) was found for both age groups in relation to avoidance. However, analysis of difference types did not highlight any consistent changes at this time point.

4.9.3 Children's explanations for exhibited and not exhibited solitary behaviours

In order to address the third research question, analysis was conducted on children's explanations for exhibiting and not exhibiting solitary behaviour. Research which considers prevalence of solitary behaviour, has concentrated on identifying the prevalence of withdrawn behaviour (which encompasses shyness and unsociability) using observations (Harrist et al., 1997); or has focused on considering how often different forms of solitary behaviour and passive or active play occur (Coplan & Ooi, 2014). Little research has enabled the collection of children's own reasons for their solitary behaviour. This study aimed to address this by asking children their reasons for exhibiting or not exhibiting solitary behaviour. When discussing both exhibiting and not exhibiting behaviour with children aged four to seven years, findings showed that they were most likely to provide causal focused explanations. There was an increase in consequence focused explanations from time 1 (the last term of the school year) to time 2 (the first term of the next school year) in relation to both behavioural solitude and avoidance. However, this did not then change over the course of the school year (to time 3). This finding is somewhat perplexing as the same pattern followed for both age groups, and did not change over the course of the school year (from time 2 to time 3). In order to understand this change further, it would be necessary to conduct research in the first term of the academic year following time 3 to see if this increase in consequential explanations occurred again for each age group. It may be that children show an increased focus on consequences at the start of the school year because of the change in environment and teacher. However, the findings that this focus on consequences does not then reduce again at time 3, would indicate that this is not the reason for this. Instead, it may be that time away from school, over the summer holidays, led to an increase in their focus on consequences. The increase in consequential explanations over time does overlap with findings by Suddendorf and Busby (2005) that future

orientation increases as children become older. However, it may be that the time frame and age groups used within the current research were too close together to demonstrate a consistently large increase in consequential explanations with age (e.g. there was only one school year between the two age group). It is also possible that children may have been affected by repeated testing; with responses being affected by being asked the same questions for a second and third time. However, there were considerable time gaps between the testing times, which would mean that this would be unlikely.

A further finding was that children who said they 'never' displayed behavioural solitude or avoidance, were more likely than those who said they did so 'sometimes' or 'lots' to focus on the consequences of their behaviour. However, this did not account for the increase in consequential explanations over the three times as there was not a clear increase in those reporting that they 'never' do this. It does, however, seem that thinking about the consequences of behaviour, may play a role in children engaging in peer interactions. As shown by previous research, there are several negative outcomes resulting from solitary behaviour such as difficulties in school adjustment, and peer rejection (Rubin & Coplan, 2004), and therefore, it seems that some children who choose not to behave in this way, consider the consequences of doing so, more so than those children who reported solitary behaviour 'lots' or 'sometimes'.

The findings relating to agency within children's explanations for showing or not showing the behaviour were similar for both behavioural solitude and avoidance. Agency was fairly evenly spread between internal and external. This became more internal between time 1 (last term of the school year) and time 2 (first term of the next school year) in a similar way to that of explanation focus but did not change at time 3. Whilst this poses the same questions regarding this change, it also aligns with previous research that has found children's attributions tend to become more internal with age (Sherman, 1984; Aguila, 2012). In order to understand these explanations further, the association between self-reported ratings of solitary behaviour and agency were considered. For behavioural solitude, external agency was most common amongst those children who said they engaged in this behaviour 'lots' compared to 'sometimes' or 'never'. This does not support expected findings based on research by Burgess et al. (2006) that withdrawn children show an internal bias. However, this difference may be

due to methodological differences. Rubin et al., (1989) focused on the function of solitary behaviour (withdrawn) whereas the definition used in the current research encompassed all reasons such as rejection, shyness and unsociability. The higher proportion of external attributions made by those who reported behaving in this way 'lots,' combined with the finding that 'other child/ren' made up the majority of external attributions, suggest that characteristics or behaviours shown by other children may be reported as being the main reason for the display of solitary behaviour. This also aligns with previous findings by Crick and Ladd (1993) that rejected children display a self-serving bias in which they blame others for their rejection. In relation to avoidance, those who reported 'sometimes' showing this behaviour were more likely than other children to provide mixed agency but this did not differ between their reasons for showing and not showing avoidance. This difference in agency suggests that these two behaviours are distinct and are considered in different ways by children (Coplan et al. 2013).

When considering outcome focus, the majority of children considered the potential impact upon themselves of exhibiting or not exhibiting solitary behaviour. This focus on internal outcomes increased from time 1 to time 2 for behavioural solitude and between all three times for avoidance. Although the developmental literature indicates that generally children become less egocentric as they get older (Frick et al, 2014), it appears that when thinking and talking about solitary behaviour, children focus mostly on the effect of these outcomes on themselves.

There were some differences in the associations between self-reported rating of solitary behaviour (lots, sometimes or never) and outcome focus, for avoidance only. Findings showed that those children who reported 'never' behaving in this way were more likely than children who said they did so 'lots' or 'sometimes' to provide explanations that considered external outcomes (mostly for other children). This may relate to the concept of actually rejecting an offer to play and the concern about how this may impact upon other children when considering not to behave in this way. Whereas, for those who do reject play offers from others, the explanation was more likely to be related to the impact on themselves. It is possible that this may indicate lower levels of concern for others when rejecting their offers to play and may tentatively be related to findings that

children who are socially withdrawn show lower levels of empathy (Findlay et al., 2006).

4.9.4 Predicting future behaviour

Analysis showed that it was not possible to predict later behaviours based on earlier explanations. This may relate to the short timeframe of the study and exploration of this over a longer period may yield different results.

4.9.5 Sex differences in children's perceptions of exhibited and not exhibited solitary behaviour

As mentioned in the previous section, there were no sex differences in children's explanations for exhibiting or not exhibiting solitary behaviour. In addition, there were no sex differences across reports of solitary behaviour, or difference scores which supports previous findings (Sadker & Sadker, 1994) that reported that frequencies of solitary behaviour do not differ by child's sex.

4.10 Chapter summary

This chapter considered research questions 1-3 of the main study, in relation to solitary behaviours. The main findings from this chapter were that reports of behavioural solitude were higher than findings from observational research. Ratings of avoidance were more similar to findings from observational research. However, peer-, Class Teacher- and Teaching Assistant-ratings for both were generally low. The findings demonstrate that behavioural solitude and avoidance seem to be two distinct behaviours which do not necessarily overlap with each other. Where children self-reported not exhibiting solitary behaviours, other reporters tended to agree with them about this. However, a large group also reported higher levels of solitary behaviour than other reporters. There was little change in difference scores over time, suggesting that reports of solitary behaviour do tend to be stable, as expected. When providing explanations for

exhibiting or not exhibiting solitary behaviour, children tend to provide causal explanations, although there is a greater focus on consequences amongst those who do not report solitary behaviour. Furthermore, children who reported showing behavioural solitude were most likely to provide explanations with external agency, whereas this pattern did not occur for avoidance. In addition, across both exhibited and not exhibited behavioural solitude children were most concerned with internal outcome focus, as those who reported 'never' displaying avoidance were more likely than other children to provide explanations with external outcome focus.

In conclusion, self-reports of both solitary behaviours were higher than those of other reporters, but behavioural solitude and avoidance differed in several ways, such as differences and explanations for exhibited and not exhibited solitary behaviours.

The next chapter contains the research questions, results and discussion specific to prosocial behaviour.

5 PROSOCIAL BEHAVIOUR

5.1 Introduction to chapter

In this chapter, there is a focus on prosocial behaviour – "behaviours that are positively responsive to others' needs and welfare," (Radke-Yarrow & Zahn-Waxler, 1986, p. 208). In this thesis, prosocial behaviour refers to actions where children share something of theirs or something they were using with peers; care for another child who was sad or hurt; and include a child who was alone by inviting them to join in with them and the rest of their group. The procedure employed followed that described in Chapter 3. Analysis considers children's self-reports of prosocial behaviour and how these compare to the reports from other reporters (peers, Class Teachers and Teaching Assistants). Analysis also examines children's explanations for their behaviour through looking at their explanation focus (causal, consequential or mixed); agency (internal, external or both); and outcome focus (internal, external or both).

5.2 Overview of literature and research questions

There are three main areas of research addressed within this chapter. These correspond with the main research questions 1 to 3, from Chapter 3. In this chapter, these research questions apply specifically to prosocial behaviour. These address the prevalence and stability of behaviour reports, the differences between self-reports and reports from others, and children's explanations for their behaviours. These are discussed below, and explained through reference to research and literature addressed in earlier in the thesis, within Chapter 2.

5.2.1 Reported ratings of prosocial behaviour

The first research question in this study relates to the frequency ratings of prosocial behaviour from self-, peer-, Class Teacher- and Teaching Assistant-reports. It also relates to the stability of these ratings and sex differences in reports. The author of this

thesis was unaware of any research to date that has considered the number of children who display prosocial acts. However, research has suggested that prosocial behaviour is related to a personality disposition, which becomes more evident as children grow into adults (Eisenberg et al., 1999). Therefore, it is possible that ratings of prosocial behaviour would be low amongst younger children, and increase with age (Eisenberg et al., 2007). However, conflicting research by Kokko et al., (2006) found contradictory results with prosocial behaviour decreasing with age. As the current research was longitudinal and took place with two age groups (one year apart), it was possible that ratings of prosocial behaviour would be found to increase or decrease with age and it was aimed to find evidence to draw some clarity on the inconsistencies in the literature. Other research has suggested that prevalence of prosocial behaviour may vary over the course of a school year, increasing at the end (Roseth et al., 2011) and therefore it was possible that prosocial behaviour would be higher at time 1 and time 3 (both the final term of the school year). Research has also found different trajectories for different forms of prosocial behaviour (Eisenberg & Fabes, 1998) and therefore, this may result in different patterns for the three behaviours of sharing, caring and including, used within the current research. Other research has also shown higher reports of prosocial behaviour in females than males from self-, peer-, teacher- and parent-reports (Keresteš**,** 2006), and therefore it was expected that ratings would be higher for females.

The following research question relates to the first research question of the main study (see Chapter 3), and has been specifically applied to prosocial behaviour. This will help to understand how self-reports compare to previous literature. It also considers ratings from other reporters for comparative purposes:

1. How do reported ratings of sharing, caring and including compare to reported prevalence and stability of prosocial behaviour from previous research?

5.2.2 Differences in ratings of prosocial behaviour

The second research question in this study focused on the consideration of differences between self-reports of prosocial behaviour compared to those from other reporters.

Previous research has indicated that children are prone to response bias and are likely to try and represent themselves as more prosocial than they actually are (Greener, 2000). Therefore, it was expected that children's self-reports would be higher than ratings from other reporters. In addition, peers have been found to report higher levels of prosocial behaviour in children than their Class Teachers (Greener, 2010) suggesting that there would be lower differences between self- and peer-reports, than self- and Class Teacher-reports. Researchers have given little consideration to the trajectories of report differences, or any associations between these and sex. However, other findings relating to the display of prosocial behaviours led to tentative suggestions relating to report differences. For instance, young children report higher levels of prosocial behaviour than other reporters (e.g. adults), and prosocial behaviour increases with age. Therefore, whilst self-reports may remain high over time, ratings from others may increase. This would result in a reduction in differences over time. Similarly, as females often receive higher ratings of prosocial behaviour than males from self-, peer-, teacher- and parent-reports (Keresteš, 2006); it was likely that there would be greater differences amongst males than females, as their higher self-reports would have greater similarity to ratings from others. No research has previously considered Teaching Assistants' ratings of behaviour, and therefore it was unclear how their ratings of prosocial behaviour would compare to self-reports. It was possible that their ratings may be more similar to self-reports than Class Teacher-reports because they take up several roles outside of the classroom such as lunchtime duties, which is not always the case for Class Teachers.

With this research in mind, the second main research question from Chapter 3 was specifically applied to prosocial behaviour, to directly compare children's self-reports of their behaviour with reports from peers, Class Teachers and Teaching Assistants. This is presented below:

2. How different are children's self-reported ratings of sharing, caring and including, from other reporters' ratings (peers, Class Teachers, Teaching Assistants) and does this differ between sex, age group, and across time points?

5.2.3 Explanations for prosocial behaviour

The third research question in this thesis is focused on children's explanations for their behaviour. In this section, there is a review of literature relating to children's explanations for exhibiting or not exhibiting prosocial behaviours. Firstly, research with two and three year olds (Hepach et al., 2013) and three to six year olds (Belacchi & Farina, 2012) has demonstrated intrinsic motivations to help others, rather than focusing on rewards or consequences. Therefore it was expected that children's explanation focus would be more causal than consequential. Conflicting findings meant that it was unclear whether this focus would change with age. Suddendorf and Busby (2005), found that children generally become more future orientated with age (i.e. thinking about the outcomes of their behaviour) but O'Connor et al., (1981) found that inner motivations for prosocial behaviour increased as children became older, whilst motivations relating to self-gratification or reward decreased. Therefore, it was unclear how explanation focus would change over the three time points.

Children (aged 10 years to 12 years) rated as prosocial by their peers have been found to explain their peers' prosocial behaviour through morals (and therefore external factors) whereas children rated as antisocial by their peers were more likely to attribute others' prosocial behaviour to internal factors (Wardle et al., 2011). Therefore, it was possible that children with higher ratings of prosocial behaviour may use more external explanations for their own behaviour. Other research has presented the possibility of the opposite pattern. The functional distinction between spontaneous sharing and sharing by request, and furthermore the findings that sharing by request increases with age, (with a decline in spontaneous sharing) (Hay, et al., 1999) suggested that explanations may change from an internal agency to external agency. In addition, research has also suggested that children who display prosocial behaviour have more empathetic skills (Malti et al., 2009b) and a superior ToM (Caputi et al., 2006) to those who do not. Therefore, with this in mind, it was also possible that children with higher ratings may also be more likely to provide explanations with external outcomes where they focus on the impacts on others.

This review led to the research question presented below. This was based on the third main research question from Chapter 3, and specifically applied to prosocial behaviour:

3. How do children explain why they exhibit or do not exhibit sharing, caring and including, in terms of explanation focus, agency and outcome focus? Do these explanations vary by sex, age group and across time points?

5.2.4 Further research

A further area of exploration, also related to the consideration of the third research question and children's explanations, was to compare differences between self-reports and other reporters, with children's explanations for their behaviour. In addition, it was investigated whether children's self-reports could be predicted from previous explanations for their behaviour. As both of these areas were previously understudied, this work was exploratory, without clear evidence based expectations.

5.3 Preliminary analyses and structure of results

Prior to conducting the main analyses, preliminary tests, using Intraclass Correlations (ICCs) were used to consider how ratings of sharing, caring and including from all four reporters were related to each other. This was useful because it informed whether reports from teaching staff and peers should be collapsed for comparison with self-reports or considered individually. The results of these ICCs can be seen in Appendix C and showed only some moderate agreement between Class Teachers and Teaching Assistants and several non-significant results between peers and teaching staff. Therefore, it was decided to consider the ratings of behaviours from Class Teachers, Teaching Assistants and peers separately when comparing with self-reports. In addition, the ICCs showed little agreement between self- and other reporters' ratings of solitary behaviour highlighting the need for further exploration of this.

The following results sections are organised by three areas. Ratings and stability of prosocial behaviours are considered in order to try and answer the first research question. This is followed by consideration of differences between self-reported ratings and ratings from other reporters to answer the second research question. The last results section is based on the third research question and analysis of children's explanations for exhibiting or not exhibiting prosocial behaviours. Data are described within each section. In some cases, several tests were performed across reporter, time point, and behaviour. Where the same pattern was found across these an overview of results have been presented, and further detail provided in Appendix C. As explained in Chapter 3, Bonferroni corrections were not applied due to the exploratory nature of this analysis.

5.4 Ratings of prosocial behaviour

In order to address the first research question, relating to prevalence and stability of behaviour reports, ratings (lots, sometimes, never) of sharing, caring and including behaviour were analysed, as per the procedure described in Chapter 4, p.115.

5.4.1 Reported ratings of prosocial behaviour

In order to assess the prevalence of prosocial behaviour reports (research question 1), One Way Goodness of Fit tests were performed for each reporter at each time point and showed significant differences with medium to large effect sizes across the three ratings. Percentages of ratings can be seen in Table 5.1 and a breakdown of statistical results can be seen in Appendix C.

Percentages indicated that self-reports were similar across the three behaviours. However, they also indicated lower ratings of including compared to sharing or caring from teaching staff and lower ratings of caring from peers. This was confirmed by a repeated measures ANOVA (see Appendix C). Reports of sharing from peers, Class Teachers and Teaching Assistants showed a slight dip in frequency at time 2. Ratings of

caring behaviour were slightly lower than sharing behaviour. There was a slight dip in frequency of Teaching Assistant reports at time 2.

Table 5.1. Ratings of prosocial behaviours

Reporter / time		Sharing			Caring			Including		
		L	S	N	L	S	N	L	S	N
Self	T1	74.0	24.6	1.4	74.7	20.4	4.9	72.6	18.9	8.5
	T2	75.3	24.3	0.4	73.1	22.2	4.7	76.3	17.2	6.5
	T3	66.3	31.5	2.2	71.8	22.3	5.9	73.6	16.5	9.9
Peers	T1	62.5	18.9	18.6	36.5	13.7	49.8	53.0	4.9	42.1
	T2	53.4	15.4	31.2	44.7	9.9	45.4	53.4	7.9	38.7
	T3	60.0	14.7	25.3	58.2	10.2	31.6	67.0	10.5	22.5
CT	T1	53.5	45.4	1.1	39.4	45.4	15.2	13.7	49.6	36.7
	T2	57.7	40.5	1.8	52.7	44.4	2.9	7.9	54.1	38.0
	T3	67.0	31.1	1.9	59.7	37.4	2.9	18.7	56.8	24.5
TA	T1	47.5	49.3	3.2	49.3	37.3	13.4	16.5	52.5	31.0
	T2	42.3	49.8	7.9	25.8	56.3	17.9	5.4	33.3	61.3
	T3	65.6	29.3	5.1	33.0	47.3	19.7	13.2	49.8	37.0

Notes. 'L': Lots; 'S': Sometimes; 'N': Never. CT: Class Teacher, TA: Teaching Assistant

5.4.2 Sex differences in ratings of prosocial behaviour

In order to further consider the first research question, analysis took place to see whether there were sex differences in the prevalence of prosocial behaviour reports. Results from a series of Chi-Square tests showed that females were more frequently rated as displaying prosocial behaviour 'lots' compared to males, with small to medium effect sizes for peer-, Class Teacher- and Teaching Assistant-reports (*Cramer's V* ranged between 0.15 and 0.30). A breakdown of results is provided in Appendix C. This was significant across all three times and behaviours for Class Teacher-reports ($p < .001$ for caring and $p < .05$ for sharing and including). There were significant associations between sex and peer-reported ratings of prosocial behaviour (all at $p < .01$) at all three times for sharing and caring and at time 3 for including. For Teaching

Assistant-reported ratings of prosocial behaviour there were significant associations for caring at all three times (all $p < .001$), for sharing at time 2 and including at time 3. Comparatively, there were fewer significant associations in self-reports. This was significant at time 1 for sharing ($\chi^2 = 7.12$, (2, $N = 285$), $p = .028$, *Cramer's V* = 0.16), and including ($\chi^2 = 6.75$, (2, $N = 285$, $p = .034$, *Cramer's V* = 0.16), and caring at time 3 ($\chi^2 = 10.38$, (2, $N = 279$), $p = .006$, *Cramer's V* = 0.20) where females were more likely to self-report that they display these behaviours than males.

5.4.3 Age group differences and stability in ratings of prosocial behaviour

Also addressing the first research question, Chi-Square tests were used to examine whether there was an association between age group and the ratings of each prosocial behaviour form from each reporter. There were no significant age group differences in self-reports of sharing, caring or including. In contrast, there was an association between peer-ratings and age group for all prosocial behaviours (at least $p < .05$) significance and weak to medium effect sizes (all *Cramer's V* > 0.16). There were two significant associations between Class Teacher-reports and age group for including behaviour at time 1 ($\chi^2 = 9.25$, (2, $N = 284$), $p = .010$, *Cramer's V* = 0.18) and time 3 ($\chi^2 = 19.52$, (2, $N = 273$), $p < .001$, *Cramer's V* = 0.27), and significant associations between child's age group and Teaching Assistants' reports of sharing at time 1 ($\chi^2 = 15.56$, (2, $N = 284$), $p < .001$, *Cramer's V* = 0.23), caring at time 2 ($\chi^2 = 8.43$, (2, $N = 279$), $p = .015$, *Cramer's V* =0.17) and including at time 3 ($\chi^2 = 10.25$, (2, $N = 273$), $p = .006$, *Cramer's V* =0.19). Where this was significant, reports of 'lots' were higher for the older age group. A breakdown of results can be seen in Appendix C. Therefore, whilst sex differences were present in ratings of prosocial behaviours from peers, Class Teachers and Teaching Assistants, this was not the case for self-reports.

A further consideration within research question 1 was to assess whether reports of prosocial behaviour were stable across the three time points. Stability was addressed through running ICCs for self-reports and each other reporters' ratings for comparison purposes. There were significant ICCs for each prosocial behaviour (all at $p < .001$), in the ratings from self-reports (ICC = .52; caring: ICC = .53; including: ICC = .48). This

was also the case for peer-reports (sharing: ICC = .53; caring: ICC = .59; including ICC = .48), Class Teacher-reports (sharing: ICC = .58; caring: ICC = .56, including: ICC = .33) and Teaching Assistant-reports (sharing: ICC = .57; caring: ICC = .43; including: ICC = .37). All correlations for sharing and caring were moderate but for including, ICCs for teaching staff-reports were weak. These findings showed that reporters were generally stable in their ratings of behaviour over the course of the study.

5.5 Differences in ratings of prosocial behaviour between self-reports and other reporters

The results from the previous section indicated similarities across reporters in terms of the stability and prevalence of solitary behaviours but variation in sex differences of reports. This section considers the second research question as to how different individual children's self-reported ratings of sharing, caring and including were from other reporters' ratings (peers, Class Teachers, Teaching Assistants), and whether this differs by sex, age group, and across time points. Analysis addressing the second research question was used to consider the difference between self-reports and reports from others in two main ways, using difference scores and difference types, as per the procedure described in Chapter 4, p.117 and p. 120.

5.5.1 Difference scores

Difference scores (ranging from 0 to 2) were calculated in order to understand how far ratings from self-reports differed from peer-, Class Teacher- and Teaching Assistant-reports. A mixed ANOVA[13] was conducted with difference scores as the dependent variable. Independent behaviours included time (time 1, time 2, time 3), prosocial behaviour form (sharing, caring and including), reporter (differences between self-peer, self-Class Teacher and self-Teaching Assistant), age group (younger, older) and sex (males, females).

[13] Unweighted means reported in order to eliminate effects of other variables

There was a two-way interaction[14] between sex and prosocial behaviour form (F (1, 269) = 34.35, $p < .001$, $\eta^2_p = 0.11$). Overall, there were higher difference scores amongst males (M = 0.85, SE = 0.02) than females (M = 0.68, SE = 0.02) but with higher differences for including behaviour (M = 1.05, SE = .03) than caring (M = .82, SE = 0.03) or sharing (M = 0.68, SE = .03). When looking individually at prosocial behaviour forms, this sex difference also occurred for sharing (F (1, 269) = 31.35, $p < .001$, $\eta^2_p = 0.10$), caring (F (1, 269) = 24.67, $p < .001$, $\eta^2_p = 0.09$) and including (F (1, 265) = 4.27, $p < .05$, $\eta^2_p = 0.02$). This suggests that difference scores of prosocial behaviours vary by the sex of the child self-reporting.

Results also showed interactions between several of the variables, suggesting that difference scores varied because of several other factors. There was a four-way interaction between time point, prosocial behaviour form, reporter and age group[15] (F (6.92, 1860.02) = 4.13, $p < .001$, $\eta^2_p = .02$). The unweighted means from the four-way interaction are shown in Figure 5.1. These show that differences with self-reports of sharing were lowest for Class Teachers and highest for peers. Furthermore, these were mostly stable, with the exception of those with peers at time 2 and time 3, in the younger age group, which were much higher than at other time points. For caring, differences with self-reports were lowest for Class Teachers and highest for peers. There was a decrease in differences between self-reports and Class Teachers, as children became older, as this declined between time points for the younger age group and then continued to decline between time points for the older age group. There was a slight increase in difference scores between self-reports and Teaching Assistant reports,

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[14] This two-way interaction matched the independent effects found from the independent effect of sex (F (1, 269) = 34.35, $p < .001$, $\eta^2_p = 0.11$) and prosocial behaviour form (F (1.83, 493.04) = 114.38, $p < .001$, $\eta^2_p = 0.07$).

[15] There was an independent effect of age group (F (1, 269) = 43.36, $p < .001$, $\eta^2_p = .14$), reporter, and time (F (1.9, 502.67) = 9.07, $p < .001$, $\eta^2_p = .03$) There was also an interaction between reporter and prosocial behaviour form (F (3.44, 925.78) = 59.69, $p < .001$, $\eta^2_p = 0.18$); time and prosocial behaviour form (F (3.71, 925.78) = 12.13, $p < .001$, $\eta^2_p = 0.43$), a three way interaction between time point, prosocial behaviour form and reporter (F (5.96, 1860.02) = 12.13, $p < .001$, $\eta^2_p = 0.43$). These all demonstrated similar patterns to the four-way interaction.

with the younger age group over time, but a much greater increase in differences within the older age group, particularly at time 3. Differences with peers remained similar over time within each age group but there was a decrease in differences at time 2 within the younger age group. Finally, as can be seen in Figure 5.1, differences for including were lowest with peers and greatest with Teaching Assistants. These differences peaked at time 2 both age groups across all reporters, particularly Teaching Assistants. Differences with Class Teachers and peers declined over the time points.

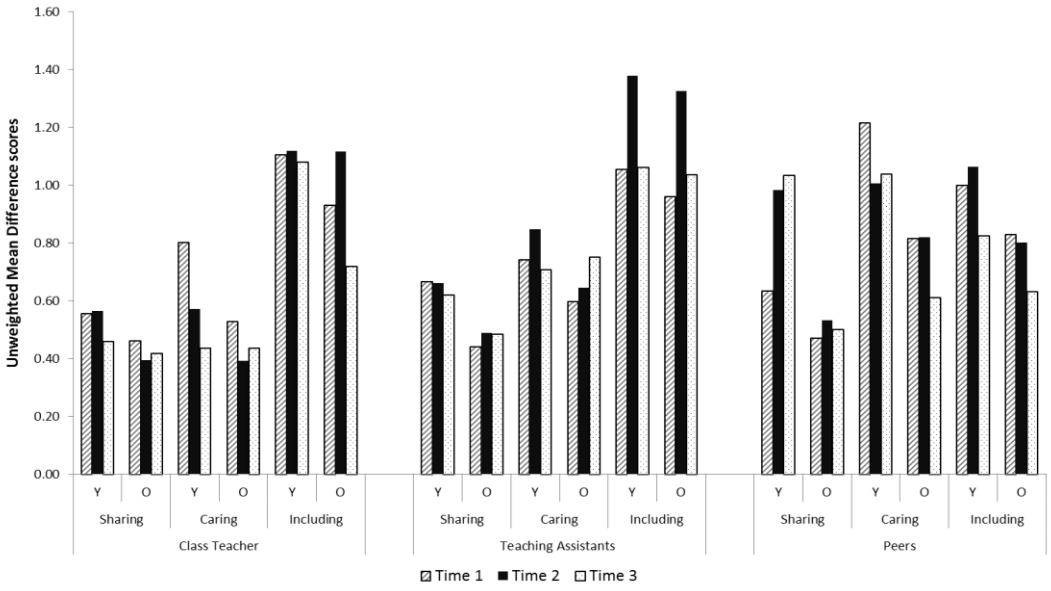

Figure 5.1. Interaction between time point, prosocial form, reporter and age group
Note. 'Y: Younger age group; 'O': Older age group

As explained in Chapter 3, there was an association between peer-reports of prosocial behaviours and whether children were in a class that had been restructured as they moved up a school year (at time 2 and time 3). Therefore, it was important to take this into account this when running analysis relating to the second research question. This was considered by running a mixed ANOVA for differences between self- and peer-reports, for each prosocial behaviour separately (sharing, caring, including). This included the independent variables of time point (1, 2 and 3), age group (younger and older), and sex (male, female). It also included 'reorganised class' (yes or no) as an independent variable.

There were two-way interactions between 'reorganised class' and age group for difference scores relating to sharing (F (1, 265) = 4.66, p = .013, η^2_p = .03) and caring (F (1, 265) = 8.35, p = .004, η^2_p = .03). For sharing, differences between self-reports and peer-reports in the younger age group were greater amongst those in a reorganised class (M = 0.97, SE = 0.06) compared to those in the same class as the previous academic year (M =0.72, SE = 0.07). This was also the case in the older age group but these differences were lower. Those in a reorganised class (M = 0.38, SE = 0.09) had higher differences than those in the same class as the previous academic year (M = 0.53, SE = 0.05). For caring, differences were also higher in the younger age group for those who were in a reorganised class (M = 1.22, SE = 0.06) compared to those who remained in the same class as the previous academic year (M = 0.89, SE = 0.07). However, there was very little difference in the older age group. Self-reports from children in a reorganised class (M = 0.79, SE = 0.10) had similar difference scores from peer-reports to those who were in the same class as the previous year (M = 0.74, SE = 0.05). There was no effect of changing class on differences between self- and peer-reports for including. Therefore, this change in class seems to have a greater impact on reports of behaviour in younger age group than the older age group.

When running analysis related to the second research question, analyses of difference scores indicated complex patterns across reporters, time point, age group and sex. However, difference scores did not indicate the type or direction of difference. Therefore, a difference type was calculated between self-reports and each other reporter at each time point, and for each prosocial behaviour in order to address the second research question further.

5.5.2 Difference types

'Difference type' was a nominal variable created for each form of prosocial behaviour, at each time point, which compared self-reports with reports from others by describing the type and direction of difference, as per the procedure applied in Chapter 4, p.120. These were analysed across times, age groups, sex and time point using Chi-Square and

McNemar-Bowker tests to further understand how children's self-reports compared to those from other reporters (research question 2).

One-way Goodness of Fit Chi-Square tests were run on difference types to assess how many children were in each group. There was a significant difference between difference types for each time and reporter (all at $p < .001$) with moderate to large effect sizes (*Cohen's W* all between 0.50 and 0.81). The percentage of children in each 'difference type' with peers, Class Teachers and Teaching Assistants is shown in Figure 5.2, Figure 5.3 and Figure 5.4 (on the next page). The largest difference type with peers varied between 'no-difference – reported and 'higher self-reporters'. Differences with Class Teachers and Teaching Assistants the most common group for sharing and caring was generally 'no difference – reported' whereas for including the most common group was 'higher self-reporters.'

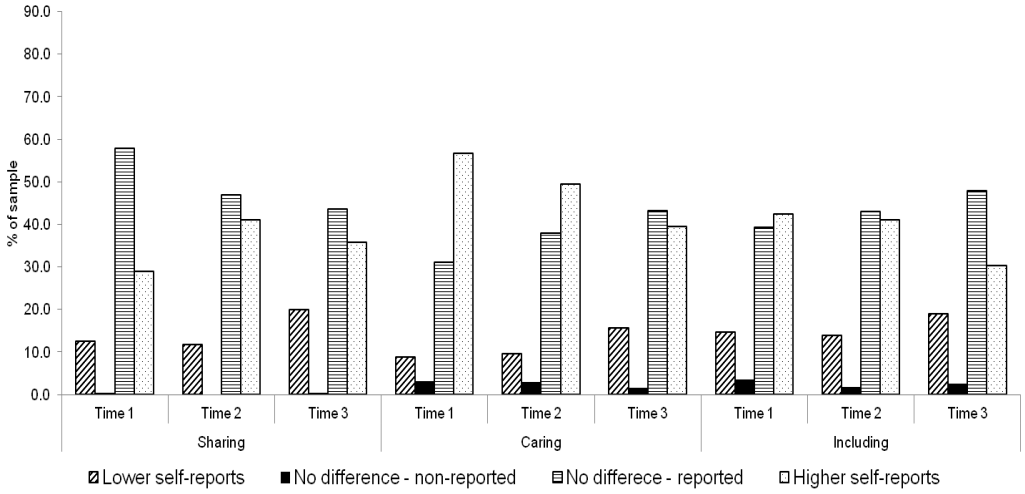

Figure 5.2. Self - peer reports difference types for prosocial behaviours

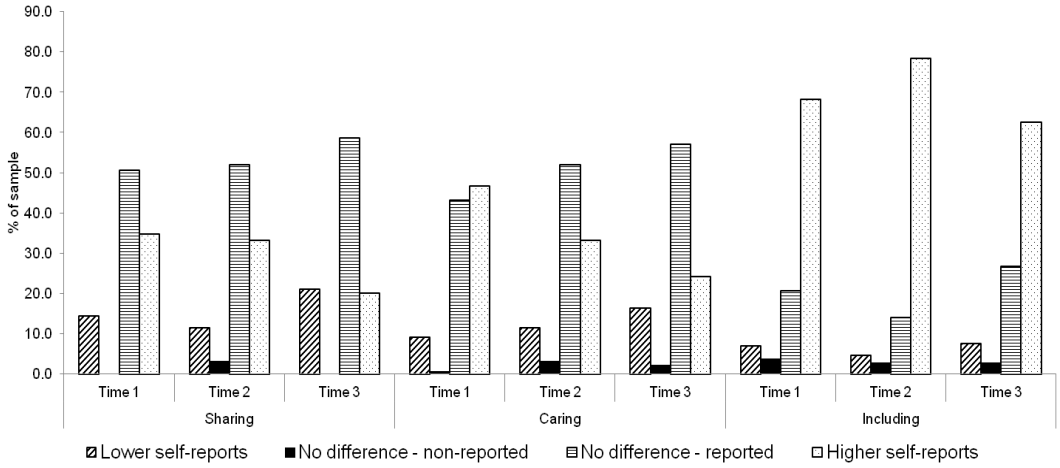

Figure 5.3. Self - Class Teacher difference types for prosocial behaviours

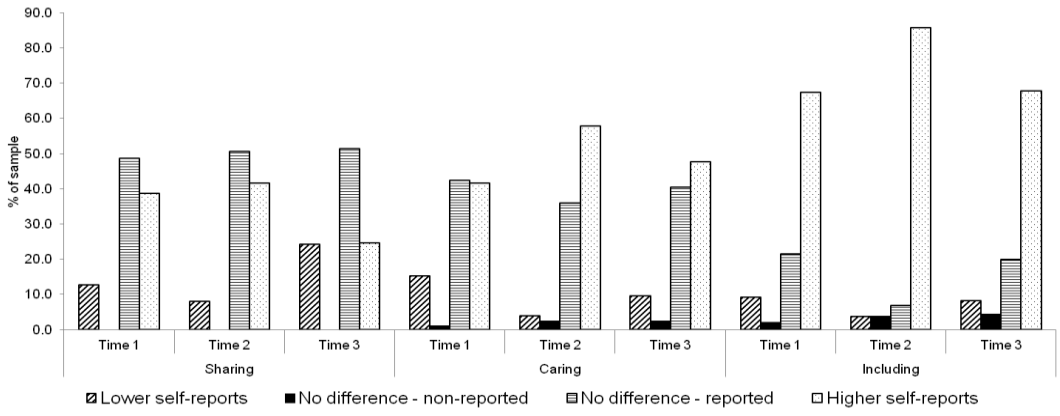

Figure 5.4. Self - Teaching Assistants reports difference types for prosocial behaviours

In order to further consider research question 2, and how difference types changed over time, variables were calculated to consider whether these remained stable or changed, for each form of behaviour and with each reporter (peers, Class Teachers and Teaching Assistants). Chi-Square analysis was conducted to see whether this was associated with age group[16]. One Way Goodness of Fit tests were conducted to see whether there was a significant difference between whether these difference types changed or remained the same between time points. If difference types were more likely to change than remain stable, contingency tables and standardised residuals were then used to explore this change further. Where there was a significant association with age group, the One Way Goodness of Fit tests were carried out separately for each age group. Significant results are presented below.

There were no significant associations between whether self-peer difference types changed and age group at any times for any of the three prosocial behaviours. One Way Goodness of Fit tests showed that children's difference types were equally likely to change or remain the same between time points for all three prosocial behaviours.

There were no significant associations between whether self-Class Teacher difference types changed and age group for any of the prosocial behaviours. One Way Goodness of Fit tests showed that children's difference types were equally likely to change or remain the same between time points for all three prosocial behaviours with the exception of caring behaviour and difference type between self- and Teaching Assistant-reports.

There were no significant associations between whether self-Teaching Assistant difference types changed and age group for any of the prosocial behaviours. One Way Goodness of Fit tests showed that, for caring behaviour, difference types were more likely to change than remain the same between time 1 and time 3 ($\chi^2 = 26.46$ (1, 273), $p < .001$, *Cohen's W* = 0.31). In both cases, difference types were more likely to change (62.2%) than remain the same (37.8%). However, standardised residuals did not indicate any clear pattern in these changes. One Way Goodness of Fit tests showed that,

[16] Chi-Square analysis was also conducted to see whether change varied by sex but there were no significant associations.

for including behaviour, difference were more likely to remain the same than change between time 1 and time 2 (χ^2 = 23.37 (1, 279), p < .001, *Cohen's W* = 0.29) and time 2 and time 3 (χ^2 = 30.33 (1, 273), p < .001, *Cohen's W* = 0.33). In both cases, difference types were more likely to change (64.1%, 66.6%) than remain the same (35.9, 33.4%). Therefore, whilst children's difference types were likely to change over the three time points, there was no consistent pattern in the nature of this change.

5.6 Children's explanations for exhibiting and not exhibiting prosocial behaviours

The following sections are focused on the third research question. These contain a consideration of children's explanations for exhibiting or not exhibiting prosocial behaviour. There are three main sections including of explanation focus (causal, consequential, mixed); agency (internal, external, mixed) and outcome focus (internal, external, mixed). These explanations were then considered by children's self-reported rating for each of the three prosocial behaviours (sharing, caring and including), and whether explanations differed as a function of this. Analysis involved using Chi-Square and McNemar-Bowker tests.

Most children provided explanations for their behaviours. However, some children said that they did not know why they did or did not exhibit the behaviour in question. For sharing behaviour, this was the case for six children at time 1; eight children at time 2; and one child at time 3. For caring behaviour, this was the case for eight children at time 1; two children at time 2 and two children at time 3. For including, this was the case for 12 children at time 1, six children at time 2 and three children at time 3.

5.6.1 Explanation focus of exhibiting and not exhibiting prosocial behaviours

5.6.1.1 Across all reports of prosocial behaviour

As part of the third research question, children's explanation focus was explored across all children (who reported exhibiting or not exhibiting prosocial behaviour) in order to consider whether children have a particular focus when discussing each prosocial behaviour. This was also considered by age group, sex and across time points.

Chi-Square tests showed no significant association between age group and explanation focus, or sex and explanation focus. Across all three prosocial behaviours, explanations were more likely to be causal than consequential (see Table 5.2). This was significant across all three behaviours, all three times points, and for both age groups (all $p < .001$). For sharing, effect sizes were large. For caring, effect sizes were large in the younger age group but for the older age group these were medium. For including, effect sizes were medium to large across both age groups.

Table 5.2. Explanation focus for exhibiting and not exhibiting prosocial behaviour

Form / Time		Ca	Co	M	One Way Goodness of Fit
Sharing	1	73.5	11.8	14.7	$\chi^2 = 188.51^{***}$ (2, N = 279), *Cohen's W* = 0.82
	2	65.2	19.7	15.2	$\chi^2 = 88.24^{***}$ (2, N = 271), *Cohen's W* =0.57
	3	59.4	27.1	13.5	$\chi^2 = 71.83^{***}$ (2, N = 272), *Cohen's W* = 0.51
Caring	1	66.2	12.0	21.8	$\chi^2 = 98.65^{***}$ (2, N = 277), *Cohen's W* = 0.60
	2	63.2	22.1	14.7	$\chi^2 = 69.80^{***}$(2, N = 277), *Cohen's W* = 0.50
	3	57.3	23.7	19.1	$\chi^2 = 38.97^{***}$ (2, N = 271), *Cohen's W* = 0.38
Including	1	67.2	19.8	13.0	$\chi^2 = 113.69^{***}$ (2, N = 273), *Cohen's W* = 0.65
	2	62.9	24.2	12.9	$\chi^2 = 83.23^{***}$ (2, N = 273), *Cohen's W* = 0.55
	3	57.9	27.1	15.0	$\chi^2 = 64.02^{***}$(2, N = 270), *Cohen's W* = 0.49

Notes. 'Ca': Casual; 'Co' Consequential; 'M' Mixed with both causal and consequential focus. ; ***$p < .001$, **$p < .01$, *$p < .05$

As part of the third research question, analysis also considered whether explanation focus changed over time. Across the whole sample, McNemar-Bowker findings showed significant changes in the explanation focus for exhibiting or not exhibiting prosocial behaviours with an increase in consequential explanations. These results are presented below for each form of prosocial behaviour.

There was a significant change in explanation focus for sharing from time 1 to time 2 (McNemar-Bowker = 12.62, (3, N = 268), p = .006, φ = .19), with a small to medium effect size. There was a decrease in causal focus (73.1% to 60.1%) and an increase in consequential explanations (13.8% to 21.6%). There was no significant change from time 2 to time 3. The same pattern as time 1 to time 2, followed for time 1 to time 3 (McNemar-Bowker = 19.85, (3, N = 267), p < .001, φ = 0.06), although the effect size was small.

When considering explanation focus for exhibiting or not exhibiting caring behaviour, there was no significant differences between each time point (time 1 to time 2 / time 2 to time 3). However, there was a change from time 1 to time 3 (McNemar-Bowker = 10.52, (3, N = 264), p = .015, φ = 0.16), with a small effect size. There was a very small decrease in causal focus (50.6% to 50.4%) but an increase in consequential focus (17.4% to 27.3%).

Finally, there was a significant change in children's explanation focus for exhibiting or not exhibiting including behaviour from time 1 (last term of one school year) to time 2 (first term of next school year) (McNemar-Bowker = 8.30, (3, N = 263), p = .04, φ = 0.10), with a small effect size. There was a decrease in causal focus (63.5% to 56.7%) and an increase in consequential focus (19.4% to 29.7%). There was no significant change from time 2 (first term of school year) to time 3 (last term of school year) but the same pattern as time 1 to time 2, followed for time 1 to time 3 (McNemar-Bowker = 10.07, (3, N = 260), p = .018, φ = 0.03), although the effect size was very small.

5.6.1.2 Comparing explanation focus for children who reported exhibiting or not exhibiting prosocial behaviour

The previous results examined children's explanation focus for exhibiting and not exhibiting prosocial behaviour. In order to further address the third research question, analysis was run to consider whether explanation focus varied by whether children reported that they exhibited prosocial behaviour 'lots', 'sometimes' or 'never' as per the procedure in Chapter 4, p. 128.

As shown in the previous section, across all three time points and responses, children were most likely to provide explanations with causal focus. Chi-Square tests showed a significant association between focus and children's self-reported rating of prosocial behaviour in five out of nine possible analyses. This association was found for sharing at time 2 (χ^2 = 12.00, (2, *N* =139), $p < .001$, *Cramer's V* =0.29) and time 3 (χ^2 = 6.37, (2, *N* =136), $p = .04$, *Cramer's V* =0.22); caring at time 2 (χ^2 = 29.20, (4, *N* =141), $p < .001$, *Cramer's V* =0.32) and time 3 (χ^2 = 21.09, (4, *N* =139), $p < .001$, *Cramer's V* =0.28); and including at time 2 (χ^2= 13.58, (4, *N* =137), $p = .01$, *Cramer's V* =0.22).

Across all three prosocial behaviours, consideration of residuals showed that consequential focus was more frequent from children who reported that they exhibited prosocial behaviour 'lots'. Mixed focus explanations were more frequent from those who reported that they exhibited prosocial behaviour 'sometimes'. Causal focus was more frequent from those children who reported that they 'never' exhibited prosocial behaviour. This is detailed below.

Mixed focus (both causal and consequential explanations) was most common amongst those reporting that they 'sometimes' share (T2 – 31.4%, T3 – 25.5%) compared to those who reported that they did so 'lots' (T2 – 17.3%, T3 – 10.6%). However, consequential focus was more common in those who reported that they shared 'lots' (T2 – 30.88%, T3 – 35.3%) compared to 'sometimes' (T2 – 2.9%, T3 – 21.6%).

For caring, explanations with mixed focus were most common amongst those children who reported 'sometimes' (T2 – 20.8%, T3 – 27.5%) compared to those who reported

exhibiting caring behaviour 'lots' (T2 –18.8%, T3 – 19.2%) and those who reported 'never' (T2 - 0.0% , T3 – 0.0%). Similarly, consequential focus was most common amongst those children who reported showing caring behaviour 'lots' (T2 – 42.6%, T3 – 38.2%) compared with those who did so 'sometimes' (T2 – 3.1%, T3 – 11.5%) or 'never' (T2 – 0.0%, T3 – 9.1%). Causal focus was most common amongst those children who said they 'never' exhibited caring behaviour (T2 – 100.0%, T3 – 90.0%) compared with those who said they did so 'sometimes' (T2 – 78.1%, T3 – 69.2%) or 'lots' (T2 – 36.6%, T3 – 34.3%).

Explanations with mixed focus were most common amongst those who reported that they 'sometimes' exhibited including behaviour (T2 – 27.3%, T3 – 25.0%) compared to those who said they did so 'lots' (T2 – 12.5%, T3 – 10.4%) or 'never' (T2 – 0.0%, T3 – 15.4%). However, consequential focus was more common in those who reported that they showed including behaviour 'lots' (T2 – 39.6%, T3 – 44.8%) compared to those who said they did so 'sometimes' (T2 – 4.5% , T3 – 17.9%) or 'never' (T2 – 2.2% , T3 – 7.7%) Causal focus was most common across those who said they 'never' include other children (T2 – 87.5%, T3 – 76.9%) compared to those who said they 'sometimes' did (T2 – 68.2%, T3 – 57.1%) or did so 'lots' (T2 – 47.7%, T3 – 44.8%).

There were also some significant results when comparing explanations for and for not exhibiting prosocial behaviour in children who reported 'sometimes' which supported the findings from comparisons of 'lots' and 'never'. In the older age group, for sharing at time 2 (McNemar-Bowker = 13.29, (2, N =36), p = .001, *Cramer's V* =0.23) and time 3 (McNemar-Bowker = 13.97, (3, N =45), p = .003, *Cramer's V* =0.28) and time 2 for caring (McNemar-Bowker = 7.80, (2, N =30), p = .02, *Cramer's V* =0.26), explanations for exhibiting prosocial behaviour were more consequential, whereas those explanations for not doing so were more causal.

5.6.2 Agency in explanations for exhibiting and not exhibiting prosocial behaviour

Also important to the third research question, was the study of children's agency in their explanations. Across all forms of prosocial behaviour and all time points, at least three quarters of children provided explanations where agency could be identified and coded. For sharing behaviour: T1 = 9% (264), T2 = 92.7% (259), T3 = 89.0% (243). For caring: T1 = 88.1% (250), T2 = 86.0% (242), T3 = 88.6% (242). For including: T1 = 87.0% (248), T2 = 85.7% (239), T3 = 85.3% (233). Percentages presented in the following sections are based on the total number of children who provided explanations with agency included.

5.6.2.1 Across all reports of prosocial behaviour

In order to address the third research question, agency was considered across all reports and by self-reported rating. Agency explanations (internal, external, mixed) provided by children were explored across all children (who reported exhibiting or not exhibiting prosocial behaviour) in order to consider how children explain their behaviour when discussing prosocial behaviour. This was also considered by age group, sex and across times points.

Chi-Square tests showed no significant associations between age group and agency, or sex and agency. Goodness of Fit Chi-Square tests showed that, across all three prosocial behaviours, agency was more likely to be external than internal or mixed (see Table 5.3). Effect sizes were medium to large.

Table 5.3. Agency in explanations for exhibiting and not exhibiting prosocial behaviour

Form / time		I	E	M	One Way Goodness of Fit
Sharing	T1	20.8	48.5	30.7	$\chi^2 = 31.11^{***}$(2, *N* = 264), *Cohen's W* =0.34
	T2	25.1	56.8	18.1	$\chi^2 = 65.82^{***}$(2, *N* = 250), *Cohen's W* =0.51
	T3	21.4	52.3	26.3	$\chi^2 = 40.07^{***}$ (2, *N* = 259), *Cohen's W* =0.39
Caring	T1	18.0	57.2	24.8	$\chi^2 = 65.82^{***}$ (2, *N* = 250), *Cohen's W* =0.51
	T2	23.6	55.4	21.1	$\chi^2 = 53.11^{***}$ (2, *N* = 249), *Cohen's W* =0.39
	T3	22.7	57.4	19.9	$\chi^2 = 63.58^{***}$ (2, *N* = 242), *Cohen's W* =0.51
Including	T1	19.4	53.6	27.0	$\chi^2 = 48.15^{***}$ (2, *N* = 251), *Cohen's W* =0.44
	T2	21.8	60.2	18.0	$\chi^2 = 78.44^{***}$ (2, *N* = 239), *Cohen's W* =0.57
	T3	26.9	59.2	32.9	$\chi^2 = 72.76^{***}$ (2, *N* = 223), *Cohen's W* =0.57

Notes. 'I': Internal; 'E' External; 'M': Mixed (internal and external). ; $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$

In order to further understand children's explanations of prosocial behaviour (research question 3), McNemar-Bowker tests were run to look at changes in agency over the three time points. Results showed significant changes in agency over the three times points, for sharing only. There was a significant change in the agency for exhibiting and not exhibiting sharing from time 1 to time 2 (McNemar-Bowker = 12.92, (3, *N* = 245), *p* = .005, φ = .19), with an increase in both internal (21.4% to 28.6%) and external agency (48.4% to 55.6%) but a decrease in mixed agency (30.2% to 15.9%). There was no change from time 2 to time 3, or time 1 to time 3.

5.6.2.2 Comparing agency for children who reported exhibiting or not exhibiting solitary behaviour

The previous results examined the agency in children's explanations for exhibiting and not exhibiting prosocial behaviour. In order to understand this further, analysis was run to consider whether children's explanations for their behaviour, varied by whether they rated that they exhibited each prosocial behaviour 'lots', 'sometimes', or 'never'. In addition, there was a subgroup of children who responded that they 'sometimes' showed each prosocial behaviour and their responses for exhibiting and not exhibiting prosocial

behaviour were compared through the use of McNemar-Bowker tests. There were no differences in the associations of each age group and therefore, the two age groups were considered as a single sample in this section. In the case of sharing, analysis compared 'lots' and 'sometimes' response because a very low number of children self-reported 'never' exhibiting sharing behaviour at time 1 (N = 3), time 2 (N= 1) and time 3 (N = 5).

As shown in the previous section, external agency was most frequent across explanations for exhibiting and not exhibiting prosocial behaviours. However, there were significant associations between self-reported rating and agency within explanations for sharing at all three times (T1 - χ^2 = 11.80, (2, N = *261)*, p = .003, *Cramer's V* =0. 21; T2 - χ^2 = 16.03, (2, N = 258), p< .001 *Cramer's V* =0.25; T3 - χ^2 = 20.21, (4, N = 243), p < .001 *Cramer's V* =0.20), all with small effect sizes. There were also significant associations between self-reported rating and agency within explanations for caring at time 2 (χ^2 = 12.13, (4, N = 249), p = .016, *Cramer's V* =0.22) and time 3 (χ^2= 42.02, (4, N = 242), p < .001, *Cramer's V* =0.30), with small to medium effect sizes. There were also significant associations between self-reported rating and agency within explanations for including at time 2 (χ^2 = 28.81, (4, N = 239), p < .001, *Cramer's V* =0.25) and time 3 (χ^2= 30.38, (4, N = 223), p < .001, *Cramer's V* =0.26), with small to medium effect sizes.

Across all significant associations, children who reported that they 'sometimes' exhibited each prosocial behaviour were more likely to provide mixed explanations, including both internal and external agency. Mixed agency was most common amongst those who reported sharing 'sometimes' (T1 – 38.3%, T2 – 33.3%, T3 – 43.8%) compared to those who reported sharing 'lots' (T1 -25.5%, T2 – 13.0%, T3 – 17.2%). Explanations with mixed agency were most common amongst children who self-reported 'sometimes' caring (T2 – 28.8%, T3 – 41.8%) compared to those who said 'lots' (T2 – 13.4%, T3 – 13.5%) or 'never' (T1 – 7.7%, T2 – 12.5%). Mixed agency was most common amongst children reporting that they exhibited including behaviour 'sometimes' (T2 – 42.6%, T3 – 38.1%) compared to 'lots' (T1 – 11.9%, T2 – 7.6%) or

'never' (T1 – 12.6%, T2 – 13.0%). No clear patterns emerged for internal or external agency.

When looking at children who responded 'sometimes', the results of some of the McNemar-Bowker tests comparing their responses for and for not behaving in this way, there was one significant finding which matched that of sharing at time 1 (McNemar-Bowker = 9.07, (3, N = 54, p = .028, φ = 0.32).

In order to understand who or what external agencies were, proportions of each explanations for exhibiting and not exhibiting prosocial behaviour were calculated for agency of other children, adult and 'general' (see Section 3.10.1 in Chapter 3 for a detailed explanation of this). Other child/ren were the most common external agency, followed by 'general' agency relating to rules or morals. Adults were rarely identified as the agency in children's behaviour (see Table 5.4).

Table 5.4. Mean percentage of explanations with each external agency

Behaviour form	External agency	Exhibited			Not exhibited		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Sharing	Other child/ren	44.48	45.76	41.79	51.96	57.14	50.43
	Adults	3.24	1.94	1.87	0.00	0.00	1.30
	General	15.39	12.39	16.14	3.68	20.00	14.72
Caring	Other child/ren	47.64	43.78	45.84	51.41	41.79	37.07
	Adults	3.78	2.31	1.33	1.69	0.75	0.86
	General	8.98	9.96	10.93	5.65	35.82	18.10
Including	Other children	51.11	50.56	50.56	54.90	38.79	42.25
	Adults	0.80	0.78	0.78	0.00	0.00	1.45
	General	6.88	9.32	9.32	13.15	31.03	9.68

5.6.3 Outcome focus in explanations for exhibiting and not exhibiting prosocial behaviour

Also relevant to the third research question, was the study of children's outcome focus in their explanations. Across all forms of prosocial behaviour and time points, between 60% and 80% of children provided explanations that included at least one outcome focus. The following percentage of children provided explanations with outcome focus for sharing: T1 = 73.3% (209), T2 = 77.1% (215), T3 = 65.9% (180). For caring: T1 = 77.9% (222), T2 = 70.3% (196), T3 = 75.5% (206). For including: T1 = 74.0% (211), T2 = 68.8% (192), T3 = 67.8% (185). Percentages presented below are based on the total number of children who provided explanations with outcome focus.

5.6.3.1 Across all reports of prosocial behaviour

Outcome focus in children's explanations for exhibiting or not exhibiting prosocial behaviour was explored across all children in order to consider whether there were patterns in discussions of prosocial behaviour and further address the third research question. This was considered by age group, sex and across time points.

Chi-square tests indicated no significant associations between age group or sex and outcome focus. One Way Goodness of Fit tests were used to compare the proportions of outcome focus types (internal, external, mixed). Results can be seen in Table 5.5.

For sharing, children were most likely to provide explanations with an internal outcomes focus with medium effect size. In contrast, for explanations relating to exhibiting and not exhibiting caring and including, children were more likely to provide explanations with an external outcome focus. Effect sizes were medium to strong for both caring and including.

Table 5.5. Outcome focus in explanations for exhibiting and not exhibiting prosocial behaviour

Form / time		I	E	M	One Way Goodness of Fit
Sharing	T1	44.0	26.8	29.2	$\chi^2 = 10.92^{**}$(2, *N* = 209), *Cohen's W* =0.23
	T2	54.4	27.0	18.6	$\chi^2 = 45.27^{***}$(2, *N* = 215), *Cohen's W* =0.46
	T3	50.6	31.1	18.3	$\chi^2 = 28.43^{***}$ (2, *N* = 180), *Cohen's W* =0.40
Caring	T1	22.5	55.0	22.5	$\chi^2 = 46.70^{***}$ (2, *N* = 222), *Cohen's W* =0.46
	T2	24.0	63.8	12.2	$\chi^2 = 85.79^{***}$ (2, *N* = 196), *Cohen's W* =0.66
	T3	20.9	67.0	12.1	$\chi^2 = 107.40^{***}$ (2, *N* = 206), *Cohen's W* =0.72
Including	T1	27.0	51.2	21.8	$\chi^2 = 31.19^{***}$ (2, *N* = 211), *Cohen's W* =0.38
	T2	28.1	59.9	12.0	$\chi^2 = 68.47^{***}$ (2, *N* = 192), *Cohen's W* =0.60
	T3	23.8	66.5	9.7	$\chi^2 = 96.98^{***}$ (2, *N* = 185), *Cohen's W* =0.72

Notes. 'I': Internal; 'E' External; 'M': Mixed (internal and external). ; $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$

As part of the third research question, McNemar-Bowker tests were used to consider change in outcome focus across the three time points. Results indicated changes in the outcome focus in explanations for exhibiting and not exhibiting caring and including behaviours only (and not sharing).

There was significant change in the outcome focus for exhibiting or not exhibiting caring from time 1 to time 2 (McNemar-Bowker = 8.40, (2, *N* = 162), *p* = .038, Φ =0.27), with a medium effect size. There was an increase in external focus (55.6% to 65.46%) and a decrease in mixed focus (24.7% to 12.3%). There was no change from time 2 to time 3, but the same pattern followed from time 1 to time 3 (McNemar-Bowker = 9.15, (2, *N* = 164), *p* = .027, Φ =0.40), with a medium to strong effect size.

For including, there was no significant change in the outcome focus between time 1 and time 2, but there was a change between time 1 to time 3 (McNemar-Bowker = 10.43, (3, *N* = 142), *p* = .015, Φ = 0.23), with an increase in those with external outcomes (47.9% to 64.8%) and a decrease in mixed outcomes (19.7% to 10.06) and internal outcomes

(32.4% to 24.6%). There was a small to medium effect size for this change. Therefore, outcome focus became more external after time 1 for caring and including.

5.6.3.2 Comparing outcome focus for children who reported exhibiting or not exhibiting prosocial behaviour

In order to further address the third research question, and develop an understanding of children's behaviour explanations, analysis was conducted to compare the outcome focus within children's explanations with their self-reported rating of each prosocial behaviour at each time (lots, sometimes, never). There were no significant associations between outcome focus and self-reported rating of prosocial behaviours in the younger age group. All significant associations reported were for the older age group only.

There was a significant association for sharing at time 2 (McNemar-Bowker = 6.68, (2, N = 109), p = .037, Φ =0.25) where mixed responses were most common from those who self-reported 'sometimes' sharing (31.2%) compared to those who did so 'lots' (18.2%). External outcome focus was more common amongst those reporting that they shared 'lots' (36.4%) compared to those who said they did so 'sometimes' (12.5%). Internal focus was the most common overall, but did not differ by rating.

There was also a significant association for caring at time 2 (McNemar-Bowker = 7.14, (2, N = 108), p = .033, Φ =0.26) where mixed outcome focus and internal focus were more common amongst those children who reported that they care for other children 'sometimes' (17.4% and 34.8%) compared to those who said they did so 'lots' (8.2% and 15.3%). In contrast, external outcome focus was more common amongst children who reported that they care for other children 'lots' (76.5%) compared to 'sometimes' (47.8%).

For including, there were significant associations between self-reports and the outcome focus of explanations at time 2 (McNemar-Bowker = 10.99, (4, N = 101), p = .033, Φ =0.23) and time 3 (McNemar-Bowker = 21.82, (4, N = 97), p < .001, Φ =0.34). At time 2, mixed responses were highest amongst those who responded that they 'sometimes' exhibited including behaviour (38.5%) compared to those who said they did so 'lots'

(10.3%). At both time 2 and time 3 internal outcome focus was higher amongst children who reported 'sometimes' exhibited including behaviour (T2 – 30.8%, T3 – 33.3%) compared to those who did so 'lots' (T2 – 19.5%, T3 – 21.7%). In contrast, at time 2, external outcomes focus was more common amongst those who reported showing including behaviour 'lots' (70.1%) compared to 'sometimes' (30.8%).

The outcome of those children who said they 'sometimes' behave prosocially were then compared. This accounted for a low number of children who identified an outcome focus in both their reasons for and for not behaving in this way. There was no significant difference in the outcome focus for these children in caring and including. However, for sharing, there was a significant difference in the outcome focus mentioned in explanations for sharing and for not sharing at time 1 (McNemar-Bowker = 12.44, (3, N = 29), p = .006, Φ = 0.34), time 2 (McNemar-Bowker = 8.00, (3, N = 27), p = .046, Φ = 0.41) and time 3 (McNemar-Bowker = 6.80, (2, N = 32) p = .33, Φ = 0.50) where internal outcome focus was referred to more in reasons for not sharing, and external outcome focus in reasons for sharing.

To provide greater context in the consideration of the third research question, analysis was conducted to understand who or what the external outcome focuses were. Proportions of each explanation for exhibiting and not exhibiting prosocial behaviour were calculated with a focus on other children, adult and 'general' (see Section 3.10.1, Chapter 3). Other child/ren were the most common external outcome focus, followed by 'general' attributions relating to rules or morals. Adults were rarely identified as the outcome focus in children's behaviour (see Table 5.6).

Table 5.6. Mean percentage of explanations with each external outcome focus

Behaviour	External outcome	Exhibited			Not exhibited		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Sharing	Other children	23.41	23.12	23.16	7.35	5.56	3.68
	Adults	0.43	0.46	0.00	0.49	0.00	0.00
	General	2.53	3.43	1.53	0.00	0.00	1.30
Caring	Other children	42.83	44.81	46.28	28.25	8.21	12.93
	Adults	2.02	0.19	0.53	0.00	0.00	1.72
	General	2.16	1.54	2.52	0.00	0.00	1.75
Including	Other children	38.61	43.87	45.32	23.53	15.52	19.53
	Adults	0.27	0.20	0.76	0.00	0.00	0.00
	General	3.10	0.99	0.96	1.11	1.75	0.00

5.7 Exploring the relationship between differences types and explanations for reported and non-reported prosocial behaviour

As an extension to the understanding of children's explanations for prosocial behaviour (research question 3) analyses examined whether explanations were related to difference types ('higher self-report', 'no difference-reported', 'no difference – non-reported' and 'lower self-report'). There were no consistent findings related to explanation focus (causal, consequential or mixed), agency (internal, external, mixed) or outcome focus (internal, external, mixed).

5.8 Predicting later self-reports of prosocial behaviour

In addition, as part of the third research question considering children's explanations, multinomial logistic regressions were run to see whether later self-reports could be predicted from explanations at a previous time (explanation focus, agency and outcome focus). There was one significant model for the prediction of self-reports of caring behaviour at time 2, from explanations at time 1 ($\chi^2(12) = 28.64$, $p = .004$, R^2 (Cox & Snell) = .136.) in which there was an effect of agency only (χ^2 (4) = 84.45, $p = .007$), where children who provided explanations with internal agency at time 1, were more

likely to report ‘never’ exhibiting caring at time 2, compared to ‘lots’. However, there were no other significant models which predicted later self-reports of behaviour from earlier explanations from time 1 to time 2, time 2 to time 3, or time 1 to time 3.

5.9 Discussion of findings relating to prosocial behaviour

This section has been formatted based on the research questions from Section 5.2, which considered the prevalence and stability of each behaviour, the differences between self- and ratings from others, and how children explain why they exhibit or do not exhibit prosocial behaviours. Across all three areas researched, effect sizes ranged between small and large. However, as discussed in Chapter 3, there is a need to interpret effect sizes in context (Vacha-Haase & Thompson, 2004) and that small effect sizes can still be useful in interpretation of findings.

5.9.1 Reported ratings of prosocial behaviours

The first research question related to the prevalence of children’s behaviours according to the ratings provided by the different reporters. Self-reported ratings of all three prosocial behaviours, sharing, caring and including were high, with a very low number of children reporting that they ‘never’ exhibit these. However, ratings from other reporters were lower, with higher ratings of ‘sometimes’ and ‘never’. Whilst the self-reported ratings did not align with previous findings that prosocial behaviour is lower amongst younger children (Eisenberg et al., 1999), ratings from the other reporters did and this indicates that children show a self-serving bias when providing self-reports (Greener, 2000). Across all reporters, the lowest ratings were made for including behaviour. As shown by Greener and Crick (1999), relational inclusion was identified by children over eight years of age. Therefore, these lower reports for including behaviour amongst four to seven year olds, even amongst self-reports (whilst not as low as other reporters), may be a result of this behaviour occurring to a much lower degree than the behaviours of sharing and caring. Furthermore, this also supports the idea that

prosocial behaviours should be treated as distinct forms (e.g. Jackson & Tisak, 2001) with different findings in the prevalence of these behaviours.

Contrary to expected findings that prosocial behaviour increases with age (Eisenberg et al., 2007) or decreases with age (Kokko et al., 2006), ratings of prosocial behaviour remained stable across the three times for all reporters, although the Intraclass Correlations were weak. This suggests that prosocial behaviour does not increase within the age group included in the current research. That said, when comparing the reported ratings between age groups, there were significant findings from all reporters (except self-report), which indicated that prosocial behaviour was higher in the older age group. This is somewhat contradictory of the stability found from the tests of consistency. A potential explanation for this is that changes may have been too subtle to effect the tests of stability. However, this was highlighted when comparing between the two age groups. Alternatively, it may be that the older group of children displayed higher levels of prosocial behaviour because they were a separate sample of children. The higher ratings of including behaviour in the older age group, corresponds with ideas of Greener and Crick (1999) that this is a behaviour recognised in older children.

When comparing the prevalence of prosocial behaviour over the three time points, there were some patterns, which overlapped with the trajectory of prosocial behaviour, with increased prosocial behaviour towards the end of the school year (Roseth et al., 2011). This was the case in reports of sharing and including from teaching staff and peers, where they reported a lower level of prosocial behaviour at the start of the school year. However, this finding was less common for caring behaviour. This may be a result of caring behaviour being reliant on another child being upset or hurt in some way, which requires a response. Both sharing and including can occur spontaneously and therefore may play a larger role in children's behaviour. Interestingly, this pattern did not occur for self-reported ratings, suggesting that children may not be consciously aware of this shift between more coercive and prosocial behaviours. In addition, these patterns occurred when comparing prevalence rates across all children, rather than individual trajectories. Ratings of including behaviour were lowest across all reporters. This supports research suggesting that different forms of prosocial behaviour follow different trajectories (Jackson & Tisak, 2001). In addition, the finding that ratings from peers,

Class Teachers and Teaching Assistants were lower for caring than sharing corresponds with Jackson and Tisak's (2001) findings that children aged eight years considered sharing more important than comforting, although this pattern was not mirrored within self-reports of the present study.

The findings relating to sex differences in reported ratings of prosocial behaviours were mixed. Females were consistently rated higher in prosocial behaviour by Class Teachers, which corresponds with findings by Malti et al. (2009). These sex differences were also evident in ratings from peers and Teaching Assistants and from self-reports, but less consistently as those from Class Teachers. This suggests that prosocial behaviour does not always differ by sex (Eisenberg-Berg & Hand, 1979), and contradicts findings by Keresteš (2006) that there were sex differences in ratings from all reporters**.** This highlights questions about the interpretation of prosocial behaviour amongst Class Teachers, which may relate more to reputation than other reporters. In addition, the sex differences in reports from Teaching Assistants occurred consistently for caring, at the start of the school year for sharing and not at all for including. Sex differences in peer-reports were inconsistent across type of behaviour and time. Therefore, whilst these findings indicate that there were sex differences in the display of prosocial behaviour, these do not necessarily apply to all prosocial behaviours. In particular, other than Class Teachers, there were no sex differences in ratings of including behaviour, indicating this is a unique form of prosocial behaviour. In addition, there were sex differences in Teaching Assistants' ratings of sharing behaviour at time 2 only (first term of the school year). It may be that these sex differences are more pronounced when children settle into a new peer group and / or with a new teacher, or Teaching Assistants do not yet know the children well as so report based on stereotypical beliefs that they may hold.

5.9.2 Difference scores and types in relation to reported and non-reported prosocial behaviour

The second research question was focused on how self-reports differed to reports from others (peers, Class Teachers and Teaching Assistants). Across all three behaviours, children's self-reports of prosocial behaviours were higher than reports from their Class Teachers, Teaching Assistants and peers. It is possible that, despite all efforts to minimise social desirability, children were demonstrating a social response bias in which they are more likely to rate themselves higher in prosocial behaviour (Greener, 2000). However, the finding that difference scores between self-reports and each of the other three reporters were different from each other, further suggests that no one source of reporting can be relied on as there is variation amongst other reporters (Pellegrini & Bartini, 2000). There was a complex interaction between time point, age group, reporters and prosocial behaviour form. For sharing behaviour, the lowest differences were found between self-reports and those of Class Teachers, and the highest between self-reports and peers. These differences were mostly stable over time. There was a similar pattern for caring behaviour, where differences were highest with peers and lowest with Class Teachers. However, there were differing trajectories – differences with Class Teachers declined over time, differences with Teaching Assistants mostly increased over time, and differences with peers were mostly stable with only small changes. Furthermore, in both cases, there was a confounding variable of class restructuring (with higher differences between self- and peer-reports for the younger age group in reorganised classes at time 2 and time 3). Finally, for including behaviour, there was a peak in differences in the first term of the school year with all reporters. Combining this finding with the view that children's self-reports were higher than others, this suggests that including behaviour was exhibited less at the start of the school year, but was still rated highly by self-reports. These complex findings support arguments that forms of prosocial behaviours should be treated as distinct categories (Jackson & Tisak, 2001).

There seemed to be some overlap between different forms of prosocial behaviour. For instance, differences of sharing and caring were similar with teaching staff but much higher for including. In contrast, with the exception of some sharing behaviours in the

older age group, differences with peers were similar across all three prosocial behaviour forms. This pattern was continued when considering the types of differences, which contributed to these findings. Across all differences with peers, and sharing and caring with Class Teachers and Teaching Assistants, children were either most likely to agree that they exhibit prosocial behaviour, or provide higher ratings than the other reporters. This latter category likely accounted for the difference scores. However, for including, differences with Class Teachers and Teaching Assistants found that the majority of children provided higher ratings than these reporters with very few children falling into the other categories of difference types. This helps to increase understanding of why the lowest differences occurred with peers, as there is more agreement about the display of this behaviour, than with Class Teachers and Teaching Assistants, where higher reports from self-ratings were much more common.

There was a small but distinct group of children at each time point and for each form of prosocial behaviour who provided lower ratings of their prosocial behaviours than other reporters, particularly at time 3. This suggests that the self-serving bias does not apply to all children, and that there are also children who may under-estimate their prosocial behaviour. It may also be that other reporters overestimate their prosocial behaviour. This is an under-researched group, and these findings raise questions as to why these children report lower level of sharing, caring and including than other reporters. One potential explanation for this group relates to modesty. This is an area of research mostly considered in non-Western cultures, such as Japan where seven to nine year olds judged the acceptance of credit for a good deed less positively than children in the United States (Heyman, Itakura & Lee, 2010). Culture and ethnicity were not included as variables within the current study, but there were wide demographics in terms of deprivation and BME backgrounds across the participants (see Chapter 3). Therefore, this may have played a role in children's self-reports of prosocial behaviour, and a further area of interest would be to consider the ethnic background of those children reporting lower levels of prosocial behaviour.

For sharing and caring, there was an increase over the three time points in the size of the group of children who self-reported lower levels of prosocial behaviour than other reporters. Therefore, this suggests that an increasing number of children reported lower

levels of prosocial behaviour than others, or an increasing amount of others reported higher levels of prosocial behaviour. Alternatively, it may be a combination of both. There is scope to conduct further research considering this change, and how this relates to other factors and variables such as changes in modesty with age. One potential explanation, relates to the stability of friendship, which has been found to become increasingly stable with age (Bagwell & Schmidt, 2011). As explained by Asher, Guerry, and McDonald (2014) friends expect a lot from each other. Therefore, a potential explanation for this increase in lower self-reporting of sharing and caring, is that these are behaviours which encompass friendship and therefore are reported less as explicit behaviours, as children make more stable friendship groups. This idea is further supported by Berndt's (1981) work that found specific links between friendship and prosocial expectations from those friends.

In addition to the sex differences in ratings of prosocial behaviours, these were also present in difference scores. Males generally had higher difference scores with other reporters than females. Based on the idea that children over-report their prosocial behaviour, in conjunction with previous research that females do show higher levels of prosocial behaviour (Malti et al., 2009a), it was expected that all reporters would provide higher ratings for females, thus resulting in lower difference scores, because their baseline scores would be higher. However, on the other hand, this may be related to ideas of expectations, in showing stereotypes and therefore an under-reporting of prosocial behaviours from other reporters for male children (Malti et al., 2007).

As mentioned in Chapter 3, there was an association between peer-reports and whether children moved up as a class or were in a reorganised class at time 2 and time 3. Therefore this was considered when addressing the second research question in the analysis of differences. Findings showed that this did play a role for the younger age group for sharing and caring behaviours, meaning that findings should be treated with caution and that there is scope for further exploration as to whether this difference occurred as a result of methodological changes or because of this difference actually impacting upon the child's behaviour and self-perception. This is outside the scope of this thesis but an interesting unplanned development in this research. This is discussed in more depth in Chapter 8.

5.9.3 Children's explanations for reported and non-reported prosocial behaviours

The final research question in this chapter was focused on children's explanations for their behaviours. Across all three forms of prosocial behaviour, findings showed that children were more likely to provide explanations that were causal. However, findings also showed that these became more consequential as children became older. This overlaps with findings from previous research. Hepach et al. (2013) conducted research with two year old children and found that they were intrinsically motivated to help others (rather than motivated by extrinsic rewards). The results from the current research support these findings, as the majority of children provided causal explanations rather than focus on the consequences. The growing focus on the consequences with age also overlaps with a body of research that has found this shift amongst children (Harter, 1981). It also differs from expected findings based on work by O'Connor et al., (1981) who found an increase in inner-directed motivations for prosocial behaviour as children became older (eight to 13 years), as the current research has demonstrated the opposite direction. Further contradictory findings relate to the present research that consequential focus was more common amongst children who reported behaving in a prosocial way 'lots' but only once children were at the start of Year 2 (aged six to seven years). Therefore, their focus seems to have become more consequential as they became older and show prosocial behaviour. These findings may be contradictory to Hepach et al.'s because of the different age groups. Alternatively, Hepach et al.'s (2013) focus was on extrinsic outcomes for the actor themselves. Whereas, the term 'consequential' in this thesis has been used to describe any focus related to an instrumental outcome for anybody or anything.

Children's explanations were also coded for agency, in order to address the third research question. The current research showed that, for all three forms of prosocial behaviour, children were most likely to provide explanations with external agency. This external agency was mostly other child/ren and this suggests that children saw other child/ren as being the reason that they exhibited or did not exhibit prosocial behaviour. This did not change over the course of the study. Whilst this supports previous research that younger children have make more external attributions (Sherman, 1984) this does

not support the findings of O'Connor et al., (1981) who suggested that motivations for prosocial behaviour become more internal with age. However, O'Connor et al.'s (1981) work was conducted with eight to 13 years and therefore it may be that this is a developmental change that occurs in older children, rather than a change that would be expected amongst the focal group of this thesis. In addition, the analysis in the current thesis was a short time frame of 12 to 15 months.

There were differences across the three forms of prosocial behaviour when considering how agency differed by self-reported rating. In the case of sharing, those children who reported that they did this 'lots' were more likely to provide explanations with internal agency, compared to children who responded 'sometimes' or 'never'. However, this was not the case for caring and including, where children who provided 'sometimes' ratings were more likely to provide explanations with mixed agency (both internal and external sources). Neither of these findings support research which highlighted the likelihood of external agency for prosocial behaviour (e.g. Grusec & Redler, 1980), and suggests that external agency is more common across general discussions of prosocial behaviour (whether they exhibit it or not) and not unique to the actually display of these behaviours. Furthermore, the findings that children who reported sharing 'lots' were more likely to provide internal agency, sit in direct opposition to those that were expected. One potential explanation for this is the high percentage of children reporting that the display sharing behaviour, potentially due to a self-serving bias (Greener, 2000), and therefore this confounds with the identification of particular attribution patterns amongst these children. It may be that children who were rated as sharing by others demonstrate this pattern in agency, rather than children who self-reported this high level of sharing behaviour.

The outcome focus in children's explanations was also analysed in order to address the third research question. When considering who or what was the recipient of the outcome focus in children's explanations for exhibiting or not exhibiting prosocial behaviour, findings showed that children's reasons were more focused on the effect of outcomes internally for sharing but externally for caring and including. Outcome focus for sharing did not change over time, whereas for caring and including this became even more external. Similar to the findings relating to explanation focus, there were some

associations between children's self-reported rating of prosocial behaviour and their outcome focus but only once they had started Year 2 (aged six to seven years). Those children who reported sharing and / or caring 'lots' were more likely to have external outcome focus compared to those who provided other ratings. However this only occurred at the start of the school year. For including, this pattern of findings occurred at both time 2 and time 3. These external outcomes were most commonly other child/ren. The external outcome focus for caring and including overlaps with developmental research considering the relationship between prosocial behaviour and empathy where children who have higher levels of empathy are more likely to show prosocial behaviour (Hoffman, 2000). The current research supports this idea, but only after children are six years of age. Prior to this there is little distinction between their outcome focus, which was more internal for sharing and more external for caring and did not differ by whether they demonstrated prosocial behaviour or not. This may relate to the idea that children's emotional understanding increases with age (Denham & Couchoud, 1990) in which children are better able to understand elicitors of emotion and therefore this is one potential explanation of this shift. Based on theories of cognitive development such as ToM and perspective taking, it would be expected to see this difference younger, but the findings from the present study suggest that there is another factor at play, leading to this development around age six to seven years.

There were no sex differences in the explanations of males and females, and no sex differences in the changes in these explanations, suggesting that does not occur with this age group.

5.9.4 Predicting future behaviour and differences in reports

When analysing children's explanations as part of the third research question, analysis showed that it was not possible to predict later behaviours or report difference types (between self- and other-reporters) based on earlier explanations for behaviour. This may relate to the short timeframe of the study and exploration of this over a longer period may yield different results.

5.10 Chapter summary

This chapter considered research questions 1-3 of the main study, in relation to prosocial behaviours. In summary, the results presented in this chapter have shown that ratings of prosocial behaviour were highest amongst self-reports and lowest amongst other reporters, particularly peers for sharing and caring. Sex differences were at most consistent for Class Teacher reports. Differences varied between the behaviour forms, reporters, age groups and over time, and found different trajectories, highlighting the importance of longitudinal research, cross-sectional research, making use of multiple reporters and treating prosocial behaviours as distinct. Finally, children's explanations for exhibiting and not exhibiting prosocial behaviours were in some agreement with expected findings, such as their underlying focus and outcome focus, but differed in relating to agency, and between behaviours. The next chapter contains relevant research questions, results and discussion of ratings and explanations for aggressive behaviours.

6 AGGRESSIVE BEHAVIOUR

6.1 Introduction to chapter

Aggressive behaviours can be defined as "any behaviour directed towards the goal of harming or injuring another living being" (Baron & Richardson, 2004, p.37). Self-, Class Teacher-, Teaching Assistant- and peer-reports were collected in relation to four forms of aggressive behaviour. These were direct relational aggression (exclusion or preventing peers from joining in), indirect relational aggression (rumour spreading or gossiping about peers), verbal aggression (shouting or saying nasty things to peers) and physical aggression (hitting, kicking, pushing). In addition, two ringleader behaviours were included where one child instructed another child to behave aggressively (verbally or physically) to another child. The methods employed followed that described in Chapter 3.

The first section in this chapter contains a brief recap of the literature, leading to three research questions. Within the results sections, children's self-reported ratings of their aggressive behaviours are considered and how these compare to the reports of others. Following this, results are presented from children's explanations for their behaviour through looking at their explanation focus (causal, consequential, mixed), their agency (internal, external, mixed) and their outcome focus (internal, external, mixed). The last section of this chapter provides discussion about the findings relating to solitary behaviour and integrates this with the literature discussed in Chapter 2.

6.2 Overview of literature and research questions

Three main areas of research are addressed in this chapter. These correspond with research questions 1 to 3 of the main study (outlined in Chapter 3.) In this chapter, these research questions apply specifically to aggressive behaviour. These research questions address the prevalence and stability of behaviour reports, the differences between self-reports and reports from others, and children's explanations for their behaviours. The

research questions are presented below with reference to literature addressed in Chapter 2.

6.2.1 Reported ratings of aggressive behaviour

The first research question in this study focused on the prevalence of aggressive behaviours, according to self-reports and reports from adults and peers. Relevant literature is reviewed in this section, specifically related to aggressive behaviour.

Direct relational aggression has been found to be the most frequently reported in children aged four to five years (Monks et al., 2003). This was followed by physical, verbal, and lastly, indirect relational aggression. It was expected that this level of prevalence would also be seen in the current research. Monks et al. also indicated that peer-victimisation in four to five year olds is dyadic rather than a group process. This was because of low identification of peripheral roles from peer nominations. However, they did not consider this from the perspective of the peripheral 'organiser' which was included in the current study. Based on Monks et al., it was likely that there would be low prevalence ratings of ringleader behaviours, which take place separately to the aggressive act itself.

There have been mixed findings relating to sex differences in the prevalence and different forms of aggression. Some researchers suggested that males display higher levels of physical and verbal aggression; and that females show higher levels of relational aggression (Crick et al., 1997). However, more recent research has suggested that, whilst males show higher levels of physical and verbal aggression, sex differences in relational aggression are small (Card et al., 2008). It was expected that there would be higher reports of physical and verbal aggression for males than females, but that there would be no sex differences evident for relational aggression. The analysis relating to sex differences in ringleader behaviours was exploratory with no clear expectations.

Aggressive behaviour has been found to be temporally stable (Camodeca et al., 2002) particularly amongst older children (Olweus, 1979). However, Pellegrini and Long (2002) found that children display higher levels of coercion at the start of the school year than the end of the school year because they are establishing dominance within their peer group. With these contradictory findings, expectations relating to the developmental trajectory of aggressive behaviour in the current research were unclear. It was possible that reports may be stable, and that there would be greater stability in the reports relating to the older age group than the younger age group. However, it was also possible that there would be a peak in reports of aggressive behaviour at the start of the school year.

As a result of this review, the research question shown below was considered. This relates to the first research question of the main study (see Chapter 3) and will help to understand how ratings of aggressive behaviour compare to previous literature.

1. How do reported ratings of aggressive and ringleader behaviours compare to reported prevalence and stability of aggressive and ringleader behaviour from previous research?

6.2.2 Differences in ratings of aggressive behaviour

The second research question in this study focused on the differences between self-reports and reports from adults and peers. This section includes a review of relevant literature, related specifically to aggressive behaviour.

A general consensus by researchers is that children underestimate their own aggressive behaviour (Kupersmidt & Patterson, 1991) and that there is greater consistency between reports from others (e.g. peers and Class Teachers) than with self-reports (Ledingham et al., 1982). Research with adolescents has shown greater agreement in reports of aggression between self- and Class Teacher-reports, than self- and peer-reports (Pakaslahti et al., 2000). In contrast, research with children in early childhood (Monks et al., 2003) has suggested that there is little difference in the concordance between self

–peers and self-teachers. As the age group of focus in the current study was alike to Monks et al., (2003) it was likely that findings would be similar. Based on research into peer-victimisation (Ladd & Kochenderfer-Ladd, 2002), increasing agreement with age, across the three different areas of behaviour in the present study, was expected. In relation to sex differences, Monks et al., found that more males were assigned to the role of aggressor by self- and peer-reports, but that there were no sex differences in teacher-reports. Therefore, sex was not expected to play a role in differences between self- and peer-reports as both reporters identify males more as aggressors. It was possible that the differences between Class Teacher- and self-reports would vary by sex.

This research led to the research questions shown below, which directly applied the second main research question (see Chapter 3) to aggressive behaviour:

2. How different are children's self-reported ratings of aggressive and ringleader behaviours from other reporters' ratings (peers, Class Teachers, Teaching Assistants) and does this differ by sex, age group, and across time points?

6.2.3 Explanations for aggressive behaviour

The third research question in this study focused on children's explanations for their behaviour. A review of relevant literature is included in this section, specifically applied to aggressive behaviour.

Pornari and Wood (2010) found that children who expected positive outcomes from their behaviour were more likely to behave aggressively. Similarly, Hall et al. (1998) has found that a focus on negative outcomes, such as punishment, was associated with lower levels of aggression. Therefore, it was tentatively suggested that there would be a relationship between consideration of consequences and self-reports of aggressive behaviour. Research into the functions of aggression also helped to make tentative suggestions about the agency of aggression amongst children. Proactive aggression refers to an individual initiating an aggressive act whereas reactive aggression refers to an individual responding to a provocation (Little et al., 2003). Aggression may be

proactive or reactive. Researchers have also shown a relation between these. Reactive aggression may precede proactive aggression and proactive aggression has been found to become more likely with age (Vitaro, Brengden & Barker, 2006). Furthermore children may display aggressive behaviour for both reasons (Crapanzano, Frick, & Terranova, 2009). Therefore, it was possible that children's perceived agency for exhibiting aggressive behaviours may initially be more external and shift to being more internal over time but also that some children may provide explanations with mixed internal and external agency. However, the author of this thesis was not aware of any research related to explanation focus and perceived agency for not behaving aggressively and therefore expectations for this were unclear.

Hall et al., (1998) found that there was a relationship between a higher concerns for others and lower display of aggressive behaviour. Similarly, a higher display of aggressive behaviour has been associated with poorer perspective taking and ToM (Renouf et al., 2009) and lower empathy levels (Hughes & Dunn, 2000). These findings led to tentative suggestions that children who reported exhibiting aggressive behaviour would have less external outcome focus.

The research discussed in this section, related to third main research question presented in Chapter 3, and was applied specifically to aggressive behaviour:

3. How do children explain exhibiting or not exhibiting aggressive and ringleader behaviours, in terms of explanation focus, agency and outcome focus? Do these explanations vary by sex, age group and across time points?

6.2.4 Further research

A further area of exploration also related to the consideration of the third research question and children's explanations. This was to compare differences between self-reports and other reporters, with children's explanations for their behaviour. Similarly, another area of exploration was to consider whether children's self-reports could be predicted from previous explanations for their behaviour. As both of these areas were

previously understudied, this work was exploratory, without any clear evidence based expectations.

6.3 Preliminary analyses and structure of results

Prior to conducting the main analyses, preliminary tests were used to consider how ratings of direct relational aggression, indirect relational aggression, verbal aggression, physical aggression, and ringleaders of verbal and physical aggression, from all four reporters were related to each other. This was useful because it informed whether reports from teaching staff and peers should be collapsed for comparison with self-reports or considered individually. Intraclass Correlations (ICC) were used for this analysis. The results of these ICCs can be seen in Appendix D and showed only some moderate agreement between Class Teachers and Teaching Assistants and several non-significant results between peers and teaching staff. Therefore, it was decided to consider the ratings of behaviours from Class Teachers, Teaching Assistants and peers separately when comparing with self-reports. In addition, the ICCs showed little agreement between self- and other reporters' ratings of aggressive behaviour highlighting the need for further exploration of this.

The following results sections are organised into three main subsections which relate to the research questions outlined in the previous section. Ratings and stability of aggressive and ringleader behaviours are considered in order to address the first research question. This is followed by consideration of differences between self-reported ratings and ratings from other reporters to examine the second research question. The last final subsection within the results relates to the third research question, and analysis of children's explanations for exhibiting or not exhibiting aggressive and ringleader behaviours.

6.4 Ratings of aggressive behaviour

In this section, results are presented which correspond to the first research question regarding ratings of aggressive behaviour and how reported ratings of these six forms of behaviour compare to reported prevalence and stability from previous research. Analysis has been conducted for self-reports, and for reports from adults and peers for comparative purposes, as per the procedure used in Chapter 4, p. 115.

6.4.1 Reported ratings of aggressive behaviour

In order to address the first research question regarding the prevalence of behaviour reports, Chi-square Goodness of Fit tests were performed for each reporter at each time point to see whether responses of 'lots', 'sometimes' or 'never' differed from each other. These showed significant differences in ratings of aggressive behaviour for all reporters and all forms of aggression (all $p < .001$, with *Cohen's W* all medium at > 0.42). A breakdown of the statistical results from these analyses can be seen in Appendix D. The majority of self-reports, Class Teacher-reports and Teaching Assistant-reports of all forms of aggression were 'never' followed by 'sometimes'. Peer-reports of aggression were mostly 'never' followed by 'lots' (see Table 6.1).

Comparisons of the ratings across forms of aggressive behaviour indicated that direct relational aggression was higher than reports of any other form of aggression and that ringleader behaviours were lower than any other forms of aggression. Amongst self-reports, indirect relational aggression was the second most common at time 1 but verbal and physical aggression were more common at time 2 and time 3. Reports of these three forms of aggression seemed similar amongst other reporters. Repeated Measures ANOVA tests were used to compare whether ratings differed across aggressive behaviours and confirmed these observations (see Appendix D).

Table 6.1. Ratings of aggressive behaviour

Form / time		Self-reports			Peers-reports			Class Teacher-reports			Teaching Assistant-reports		
		L	S	N	L	S	N	L	S	N	L	S	N
Direct relational	1	5.4	20.4	74.2	11.6	8.4	80.0	13.7	41.5	44.8	13.8	41.5	44.7
	2	1.8	21.5	76.7	22.6	5.0	72.4	5.7	43.4	50.9	3.9	35.2	60.9
	3	1.5	14.3	84.2	15.0	6.9	78.1	1.5	41.0	57.5	4.0	33.4	62.6
Indirect relational	1	2.5	10.9	86.6	11.2	3.2	85.6	8.8	26.7	64.5	10.6	32.7	56.7
	2	0.4	7.5	92.2	16.5	6.1	77.4	1.1	30.1	68.8	2.2	26.1	71.7
	3	1.8	5.5	92.7	10.2	2.6	87.2	1.5	24.2	74.3	2.6	23.8	73.6
Verbal	1	1.1	7.0	91.9	11.9	2.1	86.0	8.1	30.3	61.6	11.3	31.7	57.0
	2	1.1	7.5	91.4	13.7	3.2	83.1	4.7	26.5	68.8	3.9	23.7	72.4
	3	0.0	9.2	90.8	3.6	0.7	95.7	2.2	25.4	72.4	2.6	23.4	74.0
Physical	1	2.1	6.0	91.9	11.9	2.1	86.0	4.2	24.3	71.5	7.4	22.2	70.4
	2	1.4	11.5	87.1	10.0	3.2	86.8	2.5	17.2	80.3	4.3	16.1	79.6
	3	1.5	8.4	90.1	12.5	3.6	83.9	1.5	14.3	84.2	2.9	16.9	80.2
Verbal ringleader	1	1.4	2.5	96.1	3.5	2.1	94.4	5.4	19.6	75.0	7.7	26.1	66.2
	2	0.7	5.0	94.2	7.5	2.5	90.0	1.4	12.2	86.4	2.9	13.2	83.9
	3	0.4	2.6	97.1	3.7	0.7	95.6	0.4	12	87.6	0.7	13.8	85.5
Physical ringleader	1	1.1	2.1	96.8	7.0	1.4	91.6	1.4	9.2	89.4	2.8	18.0	79.2
	2	0.4	1.4	98.2	5.7	1.5	92.8	0.4	6.4	93.2	2.5	9.0	88.5
	3	0.4	3.3	96.3	6.2	1.1	92.7	0.0	4.4	95.6	1.1	10.5	88.4

6.4.2 Sex differences in ratings of aggressive behaviour

In order to address research question 1 further, sex differences in ratings of children's aggressive behaviour were also considered across self-reports and reports from others for comparative purposes. Results from a series of Chi-Square analyses showed that there was an association between sex and reports of aggressive behaviours where ratings of 'lots' and 'sometimes' were higher for males than for females and ratings of 'never' were higher for females than males.

For self-reports, there were two significant associations at time 1, with small effect sizes. This was for direct relational aggression at (χ^2 = 6.54, (2, N = 285), p = .038, *Cramer's V* = 0.15) where females were more likely to report 'never' (81.0%) compared to males (67.8%) but less likely to report 'sometimes' (14.8%) or 'lots' (4.2%) compared to males (S - 25.9%, L - 6.3%). This was also the case for indirect relational

aggression at time 1 (χ^2 = 7.65, (2, *N* =285), *p* = .022, *Cramer's V* = 0.16) where females were more likely to report 'never' (92.3%) compared to males (81.1%) but less likely to report 'sometimes' (6.3%) or 'lots' (1.4%) compared to males (S - 15.4%, L - 3.5%).

There were a high number of significant results for peer-reports, where 15 out of 18 possible tests were significant, with small to medium effect sizes. Results were significant for all forms of behaviours at all three time points, with the exception of direct relational at time 1, verbal and ringleader verbal at time 3. Reports of 'lots' from peers were more common for male subjects than female subjects (see Table 6.2).

Table 6.2. Sex differences in peer-reported behaviour ratings

Form / time point		Male			Female			Chi-Square result
		L	S	N	L	S	N	
Direct relational	1	15.4	8.4	76.2	7.7	8.5	83.2	$\chi^2 = 7.65$ (2, $N = 285$) *Cramer's V* = 0.12
	2	34.5	4.3	61.2	10.7	5.7	83.6	$\chi^2 = 22.64^{***}$ (2, $N = 279$) *Cramer's V* = 0.29
	3	19.6	9.4	71.0	10.3	4.4	85.3	$\chi^2 = 8.20^{*}$ (2, $N = 273$) *Cramer's V* = 0.17
Indirect relational	1	16.8	2.8	80.4	5.6	3.5	90.8	$\chi^2 = 8.91^{**}$ (2, $N = 285$) *Cramer's V* = 0.17
	2	34.5	4.3	61.2	10.7	5.7	83.6	$\chi^2 = 22.64^{*}$ (2, $N = 279$), *Cramer's V* = 0.17
	3	13.8	4.3	81.9	6.6	0.7	92.6	$\chi^2 = 7.84^{*}$ (2, $N = 273$) *Cramer's V* = 0.17
Verbal	1	17.5	2.1	80.4	6.3	2.1	91.5	$\chi^2 = 8.44^{*}$ (2, $N = 285$) *Cramer's V* = 0.17
	2	19.4	2.9	77.7	7.9	3.6	88.5	$\chi^2 = 7.82^{*}$ (2, $N = 279$) *Cramer's V* = 0.17
	3	12.3	6.5	81.2	7.4	3.7	89.0	$\chi^2 = 3.29$ (2, $N = 273$) *Cramer's V* = 0.11
Physical	1	21.0	3.5	75.5	2.8	0.7	96.5	$\chi^2 = 25.98^{***}$ (2, $N = 285$) *Cramer's V* = 0.30
	2	16.5	4.3	79.1	3.6	2.1	94.3	$\chi^2 = 14.57^{**}$ (2, $N = 279$) *Cramer's V* = 0.23
	3	20.3	7.2	72.5	4.4	0.0	95.6	$\chi^2 = 28.13^{***}$ (2, $N = 273$) *Cramer's V* = 0.32
Ringleader verbal	1	5.6	4.2	90.2	1.4	0.0	98.6	$\chi^2 = 10.05^{**}$ (2, $N = 285$) *Cramer's V* = 0.19
	2	12.2	3.6	84.2	2.9	1.4	95.7	$\chi^2 = 10.48^{**}$ (2, $N = 279$) *Cramer's V* = 0.19
	3	4.3	1.4	94.2	2.9	0.0	97.1	$\chi^2 = 2.40$ (2, $N = 273$) *Cramer's V* = 0.09
Ringleader physical	1	11.9	2.8	85.3	2.1	0.0	53.3	$\chi^2 = 14.90^{**}$ (2, $N = 285$) *Cramer's V* = 0.23
	2	10.1	0.7	89.2	1.4	2.1	96.4	$\chi^2 = 10.46^{**}$ (2, $N = 279$) *Cramer's V* = 0.19
	3	11.6	0.7	87.7	0.7	1.5	97.8	$\chi^2 = 14.02^{**}$ (2, $N = 273$) *Cramer's V* = 0.23

Notes. L: Lots, S: Sometimes, N: Never. $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$

There were three significant associations between sex and reports of aggression for Class Teachers, all of which occurred for physical aggression, with small to medium effect sizes at time 1(χ^2 = 20.54, (2, *N* = 284), *p* < .001, *Cramer's V* = 0.27), time 2 (χ^2 = 9.44, (2, *N* =279), *p* = .009, *Cramer's V* = 0.18) and time 3 (χ^2 = 17.38, (2, *N* =274), *p* < .001, *Cramer's V = 0.*25). Class Teachers provided higher reports of 'never' for females (T1 - 83.7%, T2 - 87.1%, T3 – 93.3%) compared to males (T1 - 59.4%, T2 – 73.4, T3 – 75.4%), and lower reports of 'sometimes' (T1 - 14.2%, T2 – 12.1, T3 – 6.7%) and 'lots' (T1 - 2.1%, T2 – 0.7%, T3 – 0.0%%) compared to males 'sometimes' (T1 - 34.5%, T2 – 22.3%, T3 – 21.7%) and 'lots' (T1 - 6.3%, T2 – 4.3%, T3 – 2.9%).

This was also the case with Teaching Assistant reports at time 1(χ^2 = 12.72, (2, *N* = 285), *p* = .002, *Cramer's V* = 0.21), time 2 (χ^2 = 18.81, (2, *N* = 279), *p* < .001, *Cramer's V = 0.*26) and time 3 (χ^2 = 27.05, (2, *N* = 274, *p* < .001, *Cramer's V = 0.*21). Teaching Assistants provided higher reports of 'never' for females (T1 – 77.3%, T2 – 90.0%, T3 – 92.6%) compared to males (T1 – 63.6%, T2 – 69.1%, T3 – 68.1%), but lower reports of 'sometimes' (T1 - 20.6%, T2 – 7.9%, T3 – 7.4%) and 'lots' (T1 – 2.1% , T2 – 2.1%, T3 –0.0%) compared to ratings for males of 'sometimes' (T1 – 23.8%, T2 – 24.5% , T3 – 26.1%) and 'lots' (T1 – 12.6%, T2 – 6.5% , T3 – 5.8%).

6.4.3 Age group differences and stability in ratings of aggressive behaviour

Research question 1 also focused on how ratings of behaviour change over time. Therefore, Chi-Square tests were performed on the association between age group and ratings across all reporters (for comparison purposes) and all forms of behaviour. There were only two significant associations with self-reports (out of a possible 18). This occurred for physical aggression at time 1, with a small effect size (χ^2 = 7.89 (2, *N* = 285), *p* = .019, *Cramer's V* = 0.17) and direct relational aggression at time 3, also with a small effect size (χ^2 = 8.86, (2, *N* = 230), *p* = .012, Cramer's V = 0.18). Self-reports of 'sometimes' were higher in the older age group (9.7%) than the younger age group for physical aggression (2.1%) and higher for the older age group (20.0%) than the younger age group (8.3%) for direct relational aggression.

There was also an association between age group and ratings from other reporters. For Class Teachers, there was a significant association for all aggressive behaviour types at time 1, where these were higher in the older age group with small effect sizes (all $p <$ .00, with *Cramer's V* between 0.22 and 0.26). For Teaching Assistants, there was an association between ratings of indirect relational aggression, verbal aggression, ringleader of verbal aggression at time 1; all forms of aggressive behaviour at time 2, and direct relational aggression, verbal aggression, ringleader of verbal aggression and ringleader of verbal aggression at time 3. These were all significant at $p < .01$ with small to medium effect sizes (all *Cramer's V* between 0.16 and 0.26). These results have been presented in Appendix D.

There was no association between age group and peer-reported ratings of aggression.

A key part of the first research question related to the stability of ratings from reporters, across the three time points. Stability was addressed through running ICCs for self-reports and each other reporters' ratings for comparison purposes. There were significant results across all six aggressive behaviours and all four reporters. In all cases, these were significant at $p < .001$. ICCs were of moderate strength for self-reports (direct relational: ICC = .30; indirect relational: ICC = .31, verbal: ICC = .37, physical: ICC = .48, verbal ringleader: ICC = .24; physical ringleader: ICC = .36). ICCs in peer-reports were moderate to strong (direct relational: ICC = .64; indirect relational: ICC = .63, verbal: ICC = .67, physical: ICC = .83, verbal ringleader: ICC = .69; physical ringleader: ICC = .64). This was also the case across Class Teacher-reports (direct relational: ICC = .48; indirect relational: ICC = .57, verbal: ICC = .73, physical: ICC = .66, verbal ringleader: ICC = .45; physical ringleader: ICC = .54). This result was similar across Teaching Assistant-reports (direct relational: ICC = .66; indirect relational: ICC = .60, verbal: ICC = .67, physical: ICC = .76, verbal ringleader: ICC = .57; physical ringleader: ICC = .58).

The data were also split by age group and ICCs performed for each reporter and each form of behaviour, to see whether stability of ratings varied by age group.

For self-reports, there were no significant ICCs for indirect relational aggression, ringleader of verbal aggression, and physical aggression, in the younger age group.

However, these were significant for the older age group (ICC = .42, $p < .001$; ICC = .28, $p < .05$; ICC = .60, $p < .001$) There were stronger ICCs amongst the older age group for direct relational aggression (ICC = .33, $p < .01$) compared with the younger age group (ICC = .12, $p < 01$). There were also stronger ICCs amongst ringleader of physical aggression amongst the older age group (ICC = .40, $p < .001$) compared with the younger age group (ICC = .23, $p < .05$). These were equal between age groups amongst self-reports of verbal aggression (ICC = .35, $p < .01$).

Similarly, ICCs amongst peer-reports of indirect relational aggression and ringleader of physical aggression were stronger in the older age group (ICC = .71, $p < .001$, ICC = .71, $p < .001$) than the younger age group (ICC = .53, $p < .001$, ICC = .55, $p < .001$). ICCs in the older age group for the other forms of aggression were also slightly higher than those in the younger age group but this difference was negligible[17].

ICCs amongst Class Teacher-reports of direct relational aggression, indirect relational aggression, verbal aggression and ringleader of physical aggression, were all stronger in the older age group (ICC = .55, $p < .001$; ICC = .69, $p < .001$; ICC = .43, $p < .001$; ICC = .60, $p < .001$;) than the younger age group (ICC = 36, $p < .001$; ICC = .16, $p < .001$; ICC = .29, $p < .001$; ICC = .45 , $p < .001$). This was also the case for Teaching Assistants-reports of direct relational aggression, indirect relational aggression, verbal aggression, ringleader of verbal aggression, physical aggression and ringleader of physical aggression, which were all stronger in the older age group (ICC = .75, $p < .001$; ICC = .66, $p < .001$; ICC = .71, $p < .001$; ICC = .58, $p < .001$, ICC = .81, ICC = .63) than the younger age group (ICC = .44, $p < .001$; ICC = .39, $p < .001$; ICC = .52, $p < .001$; ICC = .40 , $p < .001$, ICC = .63, ICC = .64).

[17] It is not possible to statistically compare ICCs and therefore this observation is based on descriptive comparisons.

6.5 Differences in ratings of aggressive and ringleader behaviour between self-reports and other reporters

This section is based on the second research question and analyses was used to consider how self-reports vary from other reporters' ratings (peers, Class Teachers, Teaching Assistants) and whether this differs by sex, age group, and across time points. The analysis addressing the second research question considered the difference between self-reports and reports from others in two main ways, using difference scores and difference types, as described in Chapter 3, p. 117 and p. 120.

6.5.1 Difference scores

In order to address the second research question, a mixed ANOVA[18] was conducted with difference scores (ranging between 0 and 2) as the dependent variable. Independent behaviours included time (time 1, time 2, time 3), aggressive behaviour form (direct relational aggression, indirect relational aggression, verbal aggression, physical aggression, ringleader of verbal aggression, ringleader of physical aggression), reporter (differences between self-peer, self-Class Teacher and self-Teaching Assistant), age group (younger, older) and sex (males, females).

Aggressive behaviour form affected differences scores. This interacted with other variables[19]. This included: a three-way interaction between reporter, aggressive behaviour form, and sex (F (7.46, 1991.99) = 2.38, p = .009, η^2_p = .09); a three-way interaction between aggressive behaviour form, time and reporter: (F (14.53, 3878.39) =

[18] Unweighted means reported in order to eliminate effects of other variables

[19] There were also several independent effects. These included: aggression behaviour form (F (5.00, 1146.72) = 142.64, p < .001, η^2_p = .35) sex (F (1, 267) = 16.94, p < .001, η^2_p = .06), time (F (1.79, 474.80) = 28.04, p < .001, η^2_p = 0.10), reporter (F (1.78, 474.80) = 7.70, p = .001, η^2_p = .03) and age group F (1, 267) = 5.66, p = .018, η^2_p = .021) There were also several two-way interactions. These included: reporter and sex (F (1.78, 474.80) = 14.68, p < .001, η^2_p = .05), aggressive behaviour form and sex (4.30, 1146.72) = 10.03, p < .001, η^2_p = 0.04) reporter and aggressive behaviour form (F (7.46, 1991.99) = 6.39, p < .001, η^2_p = .02); time and aggression type (F (8.75, 2335.09) = 2.52, p < .01, η^2_p = 0.01), and age group and reporter (F (1.78, 474.80) = 12.77, p < 0.01, η^2_p =.05).

2.74, $p < .001$, $\eta^2_p = 0.01$) and a three-way interaction between age group, reporter and time (F (3.81, 929.01) = 9.82, $p < .01$, $\eta^2_p = .04$). Results are presented in the next three sections.

6.5.1.1 Interaction between reporter, aggressive behaviour form, and sex

The results showed that difference scores varied across reporters and aggressive behaviour form for males and females. The unweighted means for the three-way interaction between reporter, aggressive behaviour form and sex have been presented below in Table 6.3. It shows that differences between self and other reporters amongst females follow similar patterns for all reporters. Females' highest differences were for both types of relational aggression, followed by verbal aggression, followed by verbal ringleader, physical and then physical ringleader. In contrast, whilst male differences with Class Teachers and Teaching Assistants follow the same order as each other, these varied from differences with peers. Males' differences with Class Teachers and Teaching Assistants occurred in the following order (highest to lowest): direct relational aggression, verbal and physical aggression, indirect relational, both ringleader behaviours. Male's self-peer differences occurred in the following order (highest to lowest): direct relational, indirect relational, physical, verbal, both ringleader behaviours.

Furthermore, across all behaviours, females had the lowest difference scores with peers. Difference scores with Class Teachers and Teaching Assistants were similar. However, whilst males had the greatest differences with peers for direct relational, indirect relational aggression, physical aggression and physical ringleader, they had the least difference with peers for verbal aggression and verbal ringleader. Their differences with Class Teachers and Teaching Assistants varied by behaviour.

Table 6.3. Results of three-way interaction between aggression type, reporter and child's sex

Aggression type	Difference	Males (M, SE)		Females (M, SE)	
Direct relational	Self-peers	0.61	0.04	0.37	0.04
	Self-Class Teachers	0.59	0.03	0.59	0.03
	Self – Teaching Assistants	0.55	0.03	0.52	0.03
Indirect relational	Self-peers	0.47	0.04	0.22	0.04
	Self-Class Teachers	0.38	0.03	0.38	0.03
	Self – Teaching Assistants	0.42	0.03	0.40	0.04
Verbal	Self-peers	0.38	0.04	0.22	0.04
	Self-Class Teachers	0.40	0.04	0.35	0.04
	Self – Teaching Assistants	0.45	0.04	0.33	0.04
Physical	Self-peers	0.47	0.04	0.11	0.04
	Self-Class Teachers	0.39	0.03	0.15	0.03
	Self – Teaching Assistants	0.42	0.03	0.18	0.03
Verbal ringleader	Self-peers	0.22	0.03	0.07	0.03
	Self-Class Teachers	0.26	0.03	0.18	0.03
	Self – Teaching Assistants	0.31	0.03	0.23	0.03
Physical ringleader	Self-peers	0.27	0.03	0.05	0.03
	Self-Class Teachers	0.13	0.02	0.07	0.02
	Self – Teaching Assistants	0.22	0.03	0.14	0.03

Notes. 'M': Unweighted Mean; 'SE': Standard Error

6.5.1.2 Interaction between age group, reporter and time point

The results showed that difference scores varied across reporters and form of behaviour for the two different age groups. The unweighted means for the three-way interaction between age group, reporter and time, are shown in Figure 6.1. This graph shows that differences were generally higher in the older age group. Secondly, differences with Class Teachers for the older age group were high at time 1 and resulted in a different trajectory of difference scores.

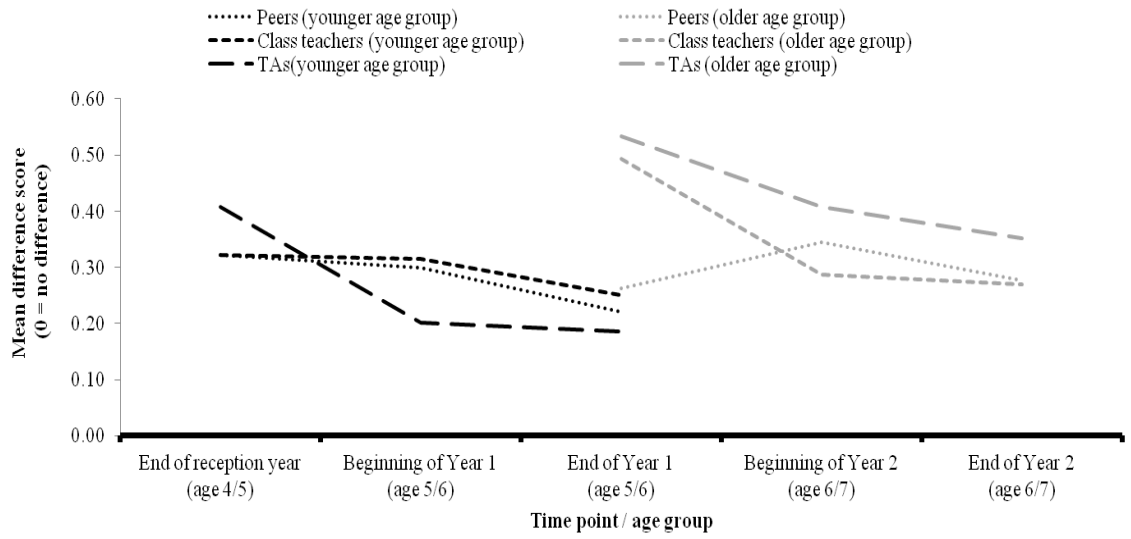

Figure 6.1. Interactions between age group, reporter and time point

Whilst the previous analysis addressed the second research question by comparing difference scores across aggressive behaviours, there was also scope to consider whether similar findings occurred for each aggressive behaviour in isolation. In order to determine whether this was the case for all aggressive forms of behaviour, mixed ANOVAs were run separately for each form of aggressive behaviour. There was an interaction between age group, reporter and time for all aggressive forms in line with the pattern above, with the exception of indirect relational aggression. For indirect relational aggression, there was a two-way interaction between reporter and time (F (3.34, 1004.59) = 13.22, $p < .001$, $\eta^2_p = .05$), and unweighted means showed that the highest difference with peers occurred at time 2 ($M = .42$, $SE = .04$) whereas this was at the end of time 1 with Class Teachers ($M = 0.48$, $SE = .04$) and Teaching Assistants ($M = 0.60$, $SE = .04$). There was also a two way interaction between age group and reporter for indirect relational aggression - F (1.74, 468.46) = 6.34, $p < .01$, $\eta^2_p = .02$). For differences between self-reports and peers, there were marginally lower differences with the younger age group ($M = 0.34$, SE = 0.04) than older age group ($M = 0.35$, $SE = 0.04$). This was also the case for differences between self-reports and Class Teacher-reports where the differences in the younger age group were lower ($M = 0.34$, $SE = 0.03$) than the older age group ($M = 0.42$, $SE = 0.03$). There were similar results for difference scores between self-reports and Teaching Assistant-reports which were lower in the younger age group ($M = 0.31$, $SE = 0.04$) than the older age group ($M = 0.51$, $SE = 0.03$).

6.5.1.3 Interaction between aggressive behaviour form, time point and reporter

The results showed a variation in the trajectories of difference scores with each reporter, for each form of aggressive behaviour.

For direct relational aggression, there was a slight decline in difference scores between self-reports and Class Teacher-reports over the three time points (T1 – *M* = 0.72, *SE* = 0.04, T2 – *M* = 0.56, *SE* = 0.04, T3 – *M* = 0.48, *SE* = 0.03). There were similar results for difference scores between self-reports and Teaching Assistants (T1 – *M* = 0.68, *SE* = .04; T2 – *M* = 0.51, *SE* = 0.04, T3 – *M* = 0.42, *SE* = .03). In contrast, there was a slight peak in difference scores between self-reports and peer reports, at time 2 (the first term of the school year) (T1 – *M* = 0.50, *SE* = 0.04, T2 – *M* = 0.57, *SE* = 0.04, T3 – *M* = 0.39, *SE* = 0.04). Differences were highest with Class Teachers and lowest with peers.

For indirect relational aggression, the same pattern in difference scores occurred as for direct relational aggression. There was a slight decline in difference scores between self-reports and Class Teachers over the three time points (T1 – *M* = 0.49, *SE* = 0.04, T2 – *M* = 0.34, *SE* = 0.03, T3 – *M* = 0.33, *SE* = 0.03). There were similar results for differences between self-reports and Teaching Assistants (T1 – *M* = 0.60, *SE* = .04; T2 – *M* = 0.31, *SE* = 0.03, T3 – M = 0.32, *SE* = .03). In contrast, there was a slight peak in difference scores between self-reports and peer reports, at time 2 (T1 – *M* = 0.33, *SE* = 0.04, T2 – *M* = 0.42, *SE* = 0.04, T3 – *M* = 0.28, *SE* = 0.04). Self-reports differed the most from Class Teacher-reports and the least from peer-reports.

For verbal aggression, difference scores between self-reports and Class Teacher-reports were mostly stable across the three time points (T1 – *M* = 0.43, *SE* = 0.04, T2 – *M* = 0.36, *SE* = 0.03, T3 – *M* = 0.34, *SE* = 0.03). There were similar results for difference scores between self-reports and peer-reports (T1 – *M* = 0.31, *SE* = 0.04, T2 – *M* = 0.30, *SE* = 0.04, T3 – *M* = 0.29, *SE* = 0.04). Difference scores between self-reports and Teaching Assistant-reports were greatest at time 1 and declined at time 2 and time 3 (T1 – *M* = 0.51, *SE* = 0.04; T2 – *M* = 0.32, *SE* = 0.03, T3 – M = 0.34, *SE* = 0.03). Differences with self-reports were similar across the three different reporters.

For physical aggression, differences between self-reports and peer-reports were mostly stable over the three time points (T1 – *M* = 0.31, *SE* = 0.02; T2 – *M* = 0.28, *SE* = 0.03, T3 – M = 0.28, *SE* = 0.03). There was a decline from time 1 to time 2 and to time 3, for differences between self-reports and Class Teacher-reports (T1 – *M* = 0.34, *SE* = .02; T2 – *M* = 0.27, *SE* = 0.02, T3 – *M* = 0.21, *SE* = 0.02). There were similar results for difference scores between self-reports and Teaching Assistant-reports (T1 – *M* = 0.38, *SE* = 0.02; T2 – *M* = 0.31, *SE* = 0.03, T2 – M = 0.22, *SE* = 0.02). Differences were similar between self-reports and the three different reporters.

For verbal ringleading behaviours, there was a decline over times in differences between self-reports and Class Teacher-reports (T1 – *M* = 0.32, *SE* = 0.03; T2 – *M* = 0.19, *SE* = 0.01, T3 – M = 0.14, *SE* = .01) and self-reports and Teaching Assistant-reports (T1 – *M* = 0.42, *SE* = 0.03; T2 – *M* = 0.23, *SE* = 0.02, T3 – M = 0.16, *SE* = 0.01). There was a unique pattern of differences between self-reports and peer-reports with a peak at time 1 (first term of school year) (T1 – *M* = 0.12, *SE* = .07; T2 – *M* = 0.21, *SE* = 0.01, T3 – M = 0.10, *SE* = 0.01). Differences were greatest with Teaching Assistants and lowest with peers.

For physical ringleading behaviours, there were similar patterns in differences between self-reports and peer-reports (T1 – *M* = 0.18, *SE* = .03; T2 – *M* = 0.14, *SE* = 0.03, T3 – *M* = 0.15, *SE* = .03), self-reports and Class Teacher-reports (T1 – *M* = 0.09, *SE* = .03; T2 – *M* = 0.05, *SE* = 0.02, T3 – *M* = 0.07, *SE* = .02) and self-reports and Teaching Assistant-reports (T1 – *M* = 0.24, *SE* = 0.03; T2 – *M* = 0.15, *SE* = 0.03, T3 – *M* = 0.15, *SE* = .02). Although differences were low, they were highest with Teaching Assistants and peers, but lowest with Class Teachers.

6.5.2 Difference types

The analyses of difference scores highlighted several interesting findings about the size of differences between self-reports and reports from others (peers, Class Teachers and Teaching Assistants) and how these changed. However, further analysis was needed to address research question 2 in more depth, based on how children's self-reports differ from reports from others. Therefore, 'difference types' were calculated for each aggressive behaviour, as described in Chapter 4, p. 120. These were analysed across age

groups, sex and times points using Chi-Square and McNemar-Bowker tests to see which difference types were most common amongst children and whether difference types changed over time.

The percentage of children in each category has been displayed for self-peer differences, self-Class Teacher differences and self-Teaching Assistant differences in Figure 6.2, Figure 6.3 and Figure 6.4. In addition, One-Way Goodness of Fit Chi-Square tests were run for each and showed a significant difference between difference types for each time and reporter (all at $p < .001$) with moderate to large effect sizes (*Cohen's W* between 0.3 and 0.7) indicating that some difference types occurred more frequently than others. A breakdown of these results can be found in Appendix D. Across difference types between self-reports and each other reporter, children were most commonly in the category of 'no difference – non-reported' meaning that they and other reporters tended to agree that children were non-aggressive. This was followed by 'lower reports' where children were reported as being aggressive by other reporters, but less aggressive by their own self-reports.

Difference types seemed to be unaffected by sex of the child as there were no consistent sex variations in difference types, with only two significant findings out of a possible 54 significant associations. One significant result occurred for difference types relating to physical aggression between self-reports and peer-reports at time 2 (χ^2= 11.16 (3, 279), $p = .011$) where females were more likely to have higher self-reports (16.5%) than males (7.1%) and males were more likely to agree that they were aggressive (12.9%) than females (4.3%). The other significant result was for verbal aggression between self-reports and Teaching Assistant-reports at time 3 ($\chi^2 = 9.07$ (3, $N = 273$), $p = .028$, *Cramer's V* = 0.18) where females were more likely to agree that they were aggressive (10.4%) than males (2.9%).

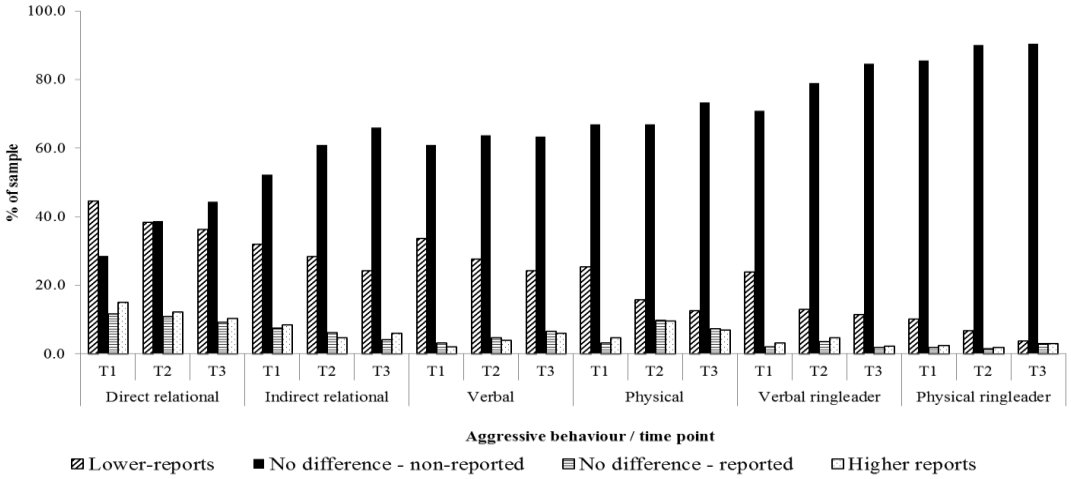

Figure 6.2. Self - peer reports difference types for aggressive behaviours

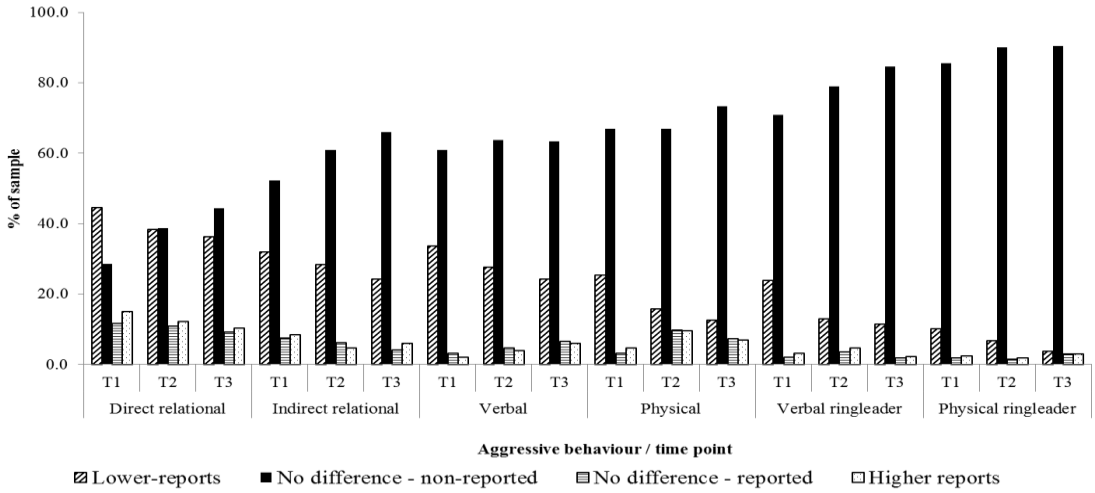

Figure 6.3. Self – Class Teacher reports difference types for aggressive behaviours

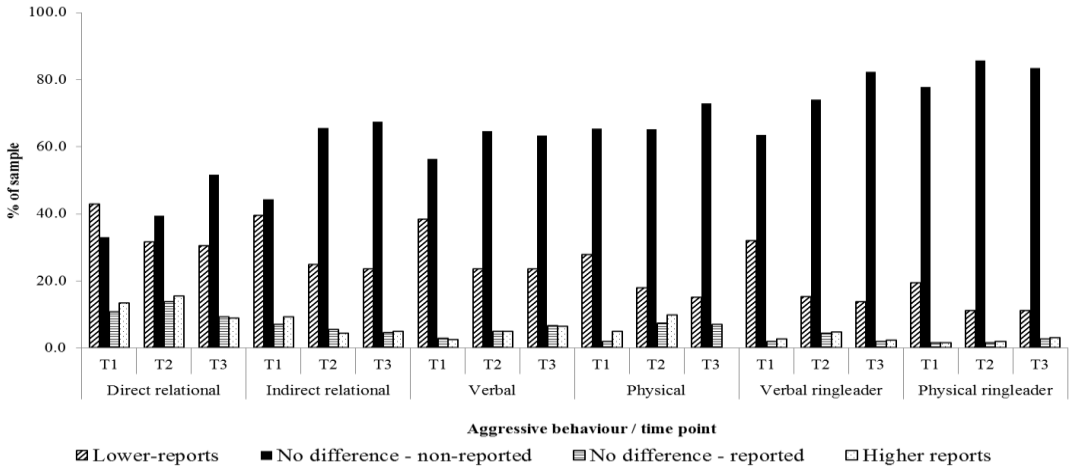

Figure 6.4. Self – Teaching Assistant reports difference types for aggressive behaviours

6.5.2.1 Change in difference types over time

To further understand the differences in ratings (research question 2) and trajectories of these, variables were created which indicated whether difference types for each child stayed the same or changed between each time point. These variables were created for each aggressive and ringleader behaviour form and with each reporter (peers, Class Teachers and Teaching Assistants) between each time point. Chi-Square analysis was conducted to see whether this was associated with age group[20]. One Way Goodness of Fit tests were conducted to see whether there was a significant difference between whether these difference types changed or remained the same between time points. If difference types were significantly more likely to change than remain the same, contingency tables and standardised residuals were then used to explore this change further. Where there was a significant association with age group, the One Way Goodness of Fit tests were carried out separately for each age group. In most cases, difference types were more likely to remain the same between time points than change, and effect sizes were mostly small. Effect sizes for the two ringleader behaviours were medium to large. Significant results are presented below.

For direct relational aggression, One Way Goodness of Fit tests showed that difference types between self- and peer-reports (χ^2 = 13.73 (1, N = 279), p < .001, *Cohen's W* = 0.22) were more likely to change between time 1 and time 2 (61.1%) than remain the same (38.9%). However, inspection of standardised residuals did not indicate any significant pattern of change. There was a significant result for difference types between self-reports and Class Teacher-reports from time 1 to time 2 (χ^2 = 32.35 (1, N = 279), p < .001, *Cohen's W* = 0.34) which were more likely to remain the same (67.0%) than change (33.0%). There was also a significant result for difference types between self-reports and Class Teacher-reports from time 1 to time 3 (χ^2 = 3.00, (1, N = 273), p = 0.046, *Cohen's W* = 0.10), which were also more likely to remain the same (54.0%) than change (44.0%). There was also a significant result for difference types between self- and Teaching Assistant-reports between time 1 and time 2 (χ^2 = 10.07, (1, N =

[20] Chi-Square analysis was also conducted to see whether change varied by sex but there were no significant associations.

279) $p = 0.02$, *Cohen's W* =0.19) where difference types were more likely to remain the same (59.5%) than change (40.5%).

For indirect relational aggression, difference types between self- and peer-reports were significantly more likely to change at all three time points (60.2%, 67.9%, 64.2%) than remain the same (39.8%, 32.1%, 35.8%). This was the case from time 1 to time 2 (χ^2 = 11.6 (1, N = 279), $p < .001$, *Cohen's W* = 0.20), time 2 to time 3 (χ^2 = 35.05, (1, N = 273), $p < .001$, *Cohen's W* = 0.11) and time 1 to time 3 (χ^2 = 22.20, (1, N = 273), $p <$ .001, *Cohen's W* = 0.28). However, standardised residuals did not show any patterns in this change. A different pattern was evident for difference types between self-reports and Class Teacher-reports. From time 1 to time 2, and time 1 to time 3, there was no significant difference in whether difference types changed or remained the same. However, between time 2 and time 3 (χ^2 = 9.53 (1, N = 273), p = .002, *Cohen's W* = 0.19) difference types were more likely to remain the same (59.3%) than change (40.7%). This was also the case for difference types between self- and Teaching Assistant-reports (χ^2 = 19.52 (1, N = 273), $p < .001$, *Cohen's W* =0.27) where these were more likely to remain the same (63.4%) than change (36.6%).

For verbal aggression, difference types were more likely to remain the same across the time points than change. This was the case for differences between self- and peer-reports between time 1 and time 2 (χ^2 = 55.3 (1, N = 279), $p < .001$, *Cohen's W* =0.45), time 2 and time 3 (χ^2 = 12.68 (1, N = 273), $p < .001$, *Cohen's W* = 0.22) and time 1 and time 3 (χ^2 = 14.42 (1, N = 273), $p < .001$, *Cohen's W* = 0.23). Difference types remained the same between each time point (72.3%, 60.6%, 61.3%) over and above changing (27.7%, 39.4%, 8.7%). This was also the case for differences between self- and Class Teacher reports, where there were significant results between time 1 and time 2 (χ^2 = 5.4,(1, N = 279), p = .02, *Cohen's W* = 0.14), time 2 and time 3 (χ^2 = 8.09 (1, N = 273), p = .004, *Cohen's W* = 0.17) and time 1 and time 3 (χ^2 = 6.16, (1, 273), p = .013, *Cohen's W* = 0.15). In all cases, difference types were more likely to remain the same (57.0%, 58.6%, 57.5%) than change (43.0, 41.4%, 42.5%). The same pattern occurred for differences between self-reports and Teaching Assistant reports at time 1 to time 2 (χ^2 = 6.03 (1, N = 279), p = .014, *Cohen's W* = 0.15), and time 2 to time 3 (χ^2 =

16.44 (1, N = 273), p < .001, *Cohen's W* = 0.25) where difference types were more likely to remain the same (57.3%, 62.3%) than change (42.7%, 37.7%).

For physical aggression, the same pattern was evident for difference types with peers from time 1 to time 2 (χ^2 = 73.29 (1, N = 279), p < .001, *Cohen's W* = 0.51), time 2 to time 3 (χ^2 = 31.68 (1, N = 273), p < .001, *Cohen's W* = 0.34) and time 1 to time 3 (χ^2 = 50.14 (1, N = 273), *Cohen's W* = 0.43). In all three cases, these difference types were more likely to remain the same (75.6%, 67.0%, 71.4%) than change (24.6%, 33.0%, 28.5%).

When examining difference types for verbal aggression between self- and Class Teacher-reports, there was a significant association between age group and whether there was a change in the difference types between time 1 and time 2 (χ^2= 4.79, (1, N =279) , p =.029, *Cramer's V* = 0.131), time 2 and time 3 (χ^2= 7.32, (1, N = 273), p =.007, *Cramer's V* = 0.161) and time 1 and time 3 (χ^2 = 13.79, (1, N =273), p < .001, *Cramer's V* = 0.123). In all three cases, there was a greater change in difference types amongst the older age group (45.5%, 47.1%, 49.3%) compared to the younger age group (32.6%, 31.1%, 27.4%) whereas more of the younger group remained the same in their difference types (67.4%, 68.9%, 72.6%) as compared to the older age group (54.6%, 52.9%, 50.7%). As a result of this finding, a One Way Goodness of Fit analysis was conducted by age group. In the younger age group, there was a significant result between time 1 and time 2 (χ^2 = 16.97, (1, N = 141), p < .001, *Cohen's W* = 0.36), time 2 and time 3 (χ^2 = 19.27, (1, N =141), p < .001 *Cohen's W* = 0.38) and time 1 and time 3 (χ^2 = 27.56, (1, N = 141), p < .001, *Cohen's W* = 0.46). In all cases, difference types were more likely to remain the same (67.4%, 68.9%, 72.6%) than change (32.6%, 31.1%, 27.4%). However, there were no significant results for the older age group.

In relation to physical aggression, there were also significant differences as to whether difference types between self-reports and Teaching Assistant-reports changed from time 1 to time 2 (χ^2 = 19.10 (1, N =279), p < .001, *Cohen's W* = 0.26), time 2 to time 3 (χ^2 = 17.44 (1, N =273), p < .001, *Cohen's W* = 0.25) and time 1 to time 3 (χ^2 = 10.29 (1, N

=273), $p < .001$, *Cohen's W* = 0.19*)*. In all cases, difference types were more likely to remain the same (63.1%, 62.6%, 59.7%) than change (36.9%, 38.5%, 40.3%).

For verbal ringleading, difference types were more likely to remain the same than change. This was the case for difference types between self- and peer-reports from time 1 to time 2 (χ^2 = 88.35 (1, 279), $p < .001$, *Cohen's W* = 0.56), time 2 to time 3 (χ^2 = 97.32 (1, *N* =273), $p < .001$, *Cohen's W* = 0.60) and time 1 to time 3 (χ^2 = 133.63 (1, *N* = 273), $p < .001$, *Cohen's W* = 0.70). Difference types remained the same (78.1%, 79.9%, 85.0%) more often than they changed (21.9%, 20.1%, 15.0%). This was also the case for difference types between self-reports and Class Teacher reports from time 1 to time 2 (χ^2 = 13.06, $p < .001$, (1, *N* =279), *Cohen's W* = 0.22), time 2 to time 3 (χ^2 = 70.77, (1, *N* =273), $p < .001$ *Cohen's W* = 0.51) and time 1 to time 3 (χ^2 = 31.68 (1, 273), $p < .001$ *Cohen's W* = 0.34). Difference types remained the same (60.7%, 75.5%, 67.0%) more often than they changed (39.3%, 24.5%, 33.0%). This result was similar for difference types between self-reports and Teaching Assistant-reports from time 1 to time 2 (χ^2 = 14.2 (1, *N* =279), $p < .001$, *Cohen's W* = 0.23), time 2 to time 3 (χ^2 = 43.52 (1, *N* =273), $p < .001$, *Cohen's W* = 0.40) and time 1 to time 3 (χ^2 = 18.47 (1, *N* = 273), $p < .001$, *Cohen's W* = 0.26). Difference types remained the same (61.3%, 70.0%, 63.0%) more often than they changed (38.7%, 30.0%, 37.0).

Difference types for physical ringleading behaviour were more likely to remain the same than change. This was the case for difference types between self- and peer-reports from time 1 to time 2 (χ^2 = 150.63 (1, *N* = 279), $p < .001$, *Cohen's W* = 0.73), time 2 to time 3 (χ^2 = 88.00 (1, *N* = 273), $p < .001$, *Cohen's W* = 0.57) and time 1 to time 3 (χ^2 = 70.77 (1, *N* = 273), $p < .001$, *Cohen's W* = 0.51). Difference types remained the same (86.7%, 78.4%, 75.5%) more often than they changed (13.3%, 21.6%, 24.5%). This was also the case for difference types between self-reports and Class Teacher reports from time 1 to time 2 (χ^2 = 112.29 (1, *N* =279), $p < .001$,*Cohen's W* = 0.63), time 2 to time 3 (χ^2 = 145.06 (1, *N* =273), $p < .001$, *Cohen's W* = 0.73) and time 1 to time 3 (χ^2 = 190.63,' (1, *N* =273), $p < .001$ *Cohen's W* = 0.83). Difference types remained the same (86.4%, 81.7%, 76.3%) more often than they changed (13.6%, 18.3%, 23.7%). This was also the case for difference types between self-reports and Teaching Assistant-reports from time 1 to time 2 (χ^2 = 77.45 (1, *N* = 279), $p < .001$, *Cohen's W* = 0.53),

time 2 to time 3 (χ^2 = 97.32 (1, 273), p < .001, *Cohen's W* = 0.53) and time 1 to time 3 (χ^2 = 51.87 (1, 273), p < .001, *Cohen's W* = 0.43). Difference types remained the same (81.7%, 79.9%, 71.8%) more often than they changed (18.3%, 20.1%, 28.2%).

6.6 Children's explanations for exhibiting and not exhibiting aggressive and ringleader behaviours

In the following sections, the third research question is addressed, where children's explanations for exhibiting or not exhibiting aggressive and ringleader behaviours are considered. There are three main sections which includes explanation focus (causal, consequential, mixed); perceived agency (internal, external, mixed) and perceived outcome focus (internal, external, mixed). Within each of these, explanations for exhibiting and not exhibiting (combined) each form of behaviour were considered together. Analysis was then performed using Chi-Square and McNemar-Bowker tests to consider whether explanations differed by children's self-reported rating (lots, sometimes, never) for each form of behaviour.

Most children provided explanations for their behaviours. However, there were some children who said that they did not know a reason for exhibiting or not exhibiting behaviours. This was the case for a low number of children for direct relational aggression at time 1 (*N*= 17, 6%), time 2 (*N* = 5, 2%) and time 3 (*N* = 3, 1%). A similar number of children said they did not know for indirect relational aggression at time 1 (*N* = 17, 6%), time 2 (*N* = 7, 3%) and time 3 (*N* = 7, 3%). For verbal aggression, this varied from time 1 (*N* = 21, 7%), time 2 (*N* = 6, 2%) and time 3 (*N* = 0, 0%). This also varied for physical aggression at time 1 (*N* = 13, 5%), time 2 (*N* = 6, 2%) and time 3 (*N* = 4, 1%). Numbers were highest for verbal ringleading aggression at time 1 (*N* = 26, 9%), time 2 (*N* = 7, 3%) and time 3 (*N* = 9, 3%) and for physical ringleading aggression at time 1 (*N* = 26, 9%), time 2 (*N* = 9, 3%) and time 3 (*N* = 9, 3%).

6.6.1 Explanation focus of exhibiting and not exhibiting aggressive behaviours

6.6.1.1 Across all reports of aggressive behaviour

As part of the third research question, children's explanation focus was explored across all children (for both exhibiting and not exhibiting aggressive behaviour together) in order to consider any patterns for discussions of each aggressive and ringleading behaviour. This was also considered by age group, sex and across time points.

Chi-Square tests were run to assess whether there was any association between age group and explanation focus for exhibiting and not exhibiting aggressive and ringleading behaviour. The only significant difference occurred for verbal aggression at time 3, although there was a small effect size (χ^2 = 9.43, 2df, $p < .01$, *Cramer's V* = 0.18), Therefore, this indicated that trajectories were similar for both age groups.

Chi-Square Goodness of Fit tests were conducted to explore which type of explanation focus occurred the most and least frequently. These were conducted for each form of aggression at each time point. A breakdown of results can be seen in Table 6.4.

At time 1 and time 2, explanations were more causal than consequential for exhibiting or not exhibiting direct relational aggression. Effect sizes were medium at time 1 and time 2. At time 3, causal and consequential focus were equally likely but mixed explanation focus was the least likely. There was a small effect size at time 3. For indirect relational aggression, consequential explanation focus was more common at all three time points. In all of these cases, effect sizes were small to medium. For verbal aggression there were no significant differences in the explanation focus of children at time 1. However, at both time 2 and time 3, there were significant results, with medium effect sizes. At these time points, consequential explanation focus was more common than causal explanation focus. For physical aggression, there were significant differences at all three time points, with small to medium effect sizes. Children's explanations were more consequential.

For both verbal and physical ringleader behaviour, consequential explanations with more common with small to medium effect sizes.

Therefore, children's explanations were more causal for direct relational aggression at time 1 and time 2. However, for the other aggressive behaviours, explanations were more consequential.

Table 6.4. Percentage of children's explanation focus for exhibiting and not exhibiting aggressive behaviour

Form / time		Ca	Co	M	Chi-Square result
Direct relational	1	53.4	22.4	24.2	$\chi^2 = 48.50^{***}$ (2, N = 268), *Cohen's W* = 0.43
	2	52.9	30.3	16.8	$\chi^2 = 54.80^{***}$ (2, N = 274), *Cohen's W* = 0.45
	3	37.4	38.2	24.4	$\chi^2 = 9.62^{**}$ (2, N = 270), *Cohen's W* = 0.19
Indirect relational	1	36.9	41.4	21.6	$\chi^2 = 17.29^{**}$ (2, N = 268), *Cohen's W* = 0.25
	2	34.9	46.7	18.4	$\chi^2 = 33.01^{***}$ (2, N = 272), *Cohen's W* = 0.35
	3	24.4	51.9	23.7	$\chi^2 = 41.20^{***}$ (2, N = 266), *Cohen's W* = 0.39
Verbal	1	36.0	35.2	28.8	$\chi^2 = 2.48$ (2, N = 264), *Cohen's W* = 0.09
	2	30.8	47.6	21.6	$\chi^2 = 28.51^{***}$ (2, N = 273), *Cohen's W* = 0.32
	3	25.5	55.5	19.0	$\chi^2 = 62.22^{***}$ (2, N = 274), *Cohen's W* = 0.48
Physical	1	39.0	40.1	21.0	$\chi^2 = 18.80^{***}$(2, N = 272), *Cohen's W* = 0.26
	2	28.9	54.2	16.8	$\chi^2 = 59.54^{***}$ (2, N = 273), *Cohen's W* = 0.47
	3	34.9	57.6	17.5	$\chi^2 = 73.64^{***}$ (2, N = 269), *Cohen's W* = 0.52
Verbal ringleader	1	35.9	40.6	23.5	$\chi^2 = 12.13^{**}$(2, N = 256), *Cohen's W* = 0.22
	2	26.6	53.9	19.6	$\chi^2 = 53.01^{***}$(2, N = 272), *Cohen's W* = 0.44
	3	30.7	50.4	18.9	$\chi^2 = 39.80^{***}$(2, N = 264), *Cohen's W* = 0.39
Physical ringleader	1	37.1	45.2	17.8	$\chi^2 = 30.82^{***}$(2, N = 259), *Cohen's W* = 0.34
	2	30.9	53.7	15.4	$\chi^2 = 60.38^{***}$(2, N = 270), *Cohen's W* = 0.47
	3	22.3	61.4	16.3	$\chi^2 = 94.80^{***}$(2, N = 274), *Cohen's W* = 0.59

Notes. 'Ca': Causal explanation focus ''Co' Consequential explanation focus; 'M' Mixed explanation focus. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

The third research question was also focused on whether there was any change in children's explanation focus over the three time points. McNemar-Bowker tests were used to consider changes in explanation focus over time for the whole age group. Residuals and follow-up McNemar-Bowker tests between fewer categories were used to understand the changes further. Only results of the overall McNemar-Bowker test have been reported with discussions around the specific change.

For exhibiting and not exhibiting direct relational aggression, there was a significant change in the explanation focus from time 1 to time 2 (McNemar-Bowker = 9.45, (3, *N* = 260), *p* = .024, φ = .24), with a small to medium effect size and decrease in mixed explanation focus (24.2% to 16.9%) and increase consequential explanation focus (23.1% to 30.4%). There was also a significant change in explanation focus from time 2 to time 3 (McNemar-Bowker = 15.23 (3, *N* = 266), *p* = .002, φ = .18) with a decrease in causal explanation focus (53.0% to 37.2%) and an increase in consequential explanation focus (30.1% to 38.0%) and mixed explanation focus (16.9% to 24.8%). However, this effect size was small. This pattern was also evident in the change from time 1 to time 3 (McNemar-Bowker = 18.86, (3, *N* = 256), *p* < .001, φ = .14) where causal explanation focus decreased (52.7% to 36.7%) and consequential explanation focus increased (23.0% to 38.7%).

There were no changes in explanation focus for exhibiting and not exhibiting indirect relational aggression.

There was a significant change in the explanation focus for verbal aggression from time 1 to time 2 (McNemar-Bowker = 10.81, (3, *N* = 258), *p* = .013, φ = .24) with a decrease in causal explanation focus (35.7% to 29.5%) and increase in consequential explanation focus (35.7% to 48.4%). There was a small to medium effect size for this result. This was also evident in the change from time 1 to time 3 (McNemar-Bowker = 23.62, (3, *N* = 253), *p* < .001, φ = .12) with a decrease in causal explanation focus from 35.6% to 24.9% and increase in consequential explanation focus from 35.6% to 56.9%. There was a small effect size for this result.

Similarly, this same pattern occurred for physical aggression (McNemar-Bowker = 16.14, (3, *N* = 262), *p* =.001, φ = .29) from time 1 to time 2 with a decrease in causal explanation focus (38.5% to 28.6%) and increase in consequential explanation focus (40.1% to 55.0%). There was a medium effect size here. This also occurred from time 1 to time 3 (McNemar-Bowker = 15.29, (3, *N* = 257), *p* < .002, φ = .06) with a decrease in causal explanation focus (38.9% to 25.3%) and increase in consequential explanation focus (40.5% to 57.6%). However, there was a very small effect size for this result.

There were no significant changes in explanation focus for exhibiting or not exhibiting either ringleader behaviour (verbal or physical).

6.6.1.2 Comparing explanation focus for children who reported exhibiting or not exhibiting aggressive behaviour

The previous results addressed the third research question by showing the types of explanation focus in children's explanations for exhibiting and not exhibiting aggressive and ringleader behaviour. In order to address the third research question further and understand whether this varied by whether children reported that they exhibited or did not exhibit aggressive and ringleader behaviour, analysis was performed with Chi-Square tests to consider whether children's explanations for their behaviour, varied by whether they rated that they displayed each behaviour 'sometimes', or 'never'. The number of children reporting that they exhibit aggressive behaviour 'lots' at each time was very low (*N* ranged between 0 and 15) and therefore comparisons did not include this group. In addition, a low number of children reported that they showed either ringleading behaviour 'lots' or 'sometimes' (verbal ringleading behaviour T1 = 7, T2 = 15) and T3 = 7; physical ringleading behaviour T1 = 6), T2 = 5, T3 = 9), and so these behavioural forms were not included in these analyses.

For direct relational aggression, explanation focus was associated with behaviour ratings at all three time points: (time 1: $\chi^2 = 24.42$, (2df, $N = 255$), $p < .001$, *Cramer's V = 0.*31; time 2: $\chi^2 = 24.93$, (2, $N = 269$), $p < .001$, *Cramer's V = 0.*30; time 3 ($\chi^2 = 20.17$, (2, $N = 266$), $p < .001$, *Cramer's V = 0.*28) all with medium effect sizes. Consequential explanation focus were more common amongst children who said they 'never' exhibit this behaviour (T1 - 29.0%, 38.3%, 43.4%) compared to those who said they did so 'sometimes' (T1 – 1.8%, T2 – 5.0%, T3 - 1.4%). In contrast, causal explanation focus were more common in those who said they 'sometimes' behaved in a direct relationally aggressive way (T1 -78.2%, T2 – 75.0%, T3 – 57.9%), compared to those who said they did so 'never' (T1 – 44.0%, T2 – 45.5%, T3 – 33.8%). There was little difference in the percentage of explanations with mixed explanation focus of each group. Whilst not included in the Chi-Square analysis, children who reported that they behaved in this way 'lots' all gave casual reasons for doing so.

For indirect relational aggression, explanation focus was associated with behaviour rating at all three time points: time 1 (χ^2 = 32.54, (2, *N* = 258), *p* < .001, *Cramer's V = 0.*35) time 2 (χ^2 = 13.84, (2, *N* =270), *Cramer's V* = 0.23) and time 3 (χ^2 = 29.25, (2, *N* = 263), *p* < .001, *Cramer's V = 0.*33), all with small to medium effect sizes. As with direct relational aggression, consequential explanation focus were more common amongst children who said they 'never' exhibit this behaviour (T1 – 46.8%, T2 – 50.0%, T3 – 55.2%), compared to those who said they 'sometimes' behave like this (T1 – 3.4%, T2 – 9.5%, T3 – 0.0%). In contrast, causal explanation focus were more common amongst those who said they 'sometimes' behave in this way (T1 – 82.8%, T2 – 66.7%, T3 – 80.0%) compared to those who said they did so 'never' (T1 – 30.0%, T2 – 32.0%, T3 – 22.6%). Whilst not included in the Chi-Square due to low frequencies, most children who said they exhibited indirect relational aggression 'lots' gave causal reasons for doing so. There was little difference in the percentage of children from each group providing mixed responses.

For verbal aggression, explanation focus was also associated with ratings at all three time points - time 1 (χ^2 = 19.74, (2, *N* = 263), *Cramer's V* = 0.27), time 2(χ^2 = 15.13, (2, *N* = 270), *Cramer's V* = 0.24) and time 3(χ^2 = 38.90, (2, *N* = 268), *p* < .001, *Cramer's V* = 0.38), all with medium effect sizes. Consequential explanation focus were more common in children who reported that they were 'never' verbally aggressive (T1 – 38.3%, T2 – 51.4%, T3 – 59.8%) compared to those who said they were 'sometimes' verbally aggressive (T1 – 0.0%, T2 - .5.4%, T3 – 0.0%). Causal explanation focus were more common in children who reported that they were 'sometimes' verbally aggressive (T1 – 80.0%, T2 – 52.6%, T3 – 75.0%), compared to those who said they were 'never' verbally aggressive (T1 – 32.5%, T2 – 28.3%, T3 – 21.3%). There was little difference in the percentage of children providing mixed responses.

Finally, there were significant associations between explanation focus and rating of physical aggression at all three time points: T1 (χ^2 = 11.54, (2, *N* = 268), *p* = .003, *Cramer's V* = 0.21), T2 (χ^2 = 42.28, (2, *N* = 269), *p* < .001, *Cramer's V* = 0.40) and T3 (χ^2 = 30.43, (2, *N* = 264), *p* < .001, *Cramer's V* = 0.34), all with small to medium effect sizes. The same pattern in response was also present here with consequential explanation focus as more common in children who reported that they were 'never'

physically aggressive (T1 – 42.6%, T2 – 61.8%, T3 – 63.6%) compared to those who said they were 'sometimes' verbally aggressive (T1 – 11.8%, T2 – 0.0%, T3 – 4.5%). Causal explanation focus was more common in children who reported that they were 'sometimes' verbally aggressive (T1 –76.5%, T2 – 64.5%, T3 –63.6%), compared to those who said they were 'never' verbally aggressive (T1 –35.5%, T2 – 23.9%, T3 – 20.7%). There was little difference in the percentage of children providing mixed responses.

Therefore, children who reported 'never' behaving aggressively were more likely than those who said were 'sometimes' aggressive to provide explanations with consequential focus. Analyses were also conducted on explanations from children who reported 'sometimes' behaving aggressively. Their explanations for exhibiting each behaviour form was compared with their explanations for not exhibiting each behaviour form, via a paired *t* test. There were no statistical differences.

6.6.2 *Agency in children's explanations for exhibiting and not exhibiting aggressive behaviours*

Also important to the third research question, was the study of children's agency in their explanations. Across forms and time points, between 73% and 86% of children provided explanations which included agency. For direct relational aggression: T1 = 85.3% (243), T2 = 85.3% (238), T3 = 80.2% (219). For indirect relational aggression: T1 = 82.5% (235), T2 = 83.5% (233), T3 = 83.2% (227). For verbal aggression: T1 = 77.5% (221) T2 = 77.8% (217), T3 = 81.7% (223). For physical aggression: T1 = 78.9% (225), T2 = 76.7% (214), T3 = 81.0% (221). For verbal ringleading: T1 = 75.4% (215), T2 = 74.6% (208) T3 = 81.3% (222) For physical ringleading: T1 = 74.4% (212), T2 = 74.6% (208), T3 = 78.8% (215). In order to address the third research question, agency was considered across all reports and by self-reported rating.

6.6.2.1 Across all reports of aggressive behaviour

Agency (internal, external, mixed) in children's explanations were explored across all children (who reported exhibiting or not exhibiting aggressive and ringleader

behaviour) in order to consider whether there was a pattern in explanations for discussions relating to ringleader behaviours. This was also considered by age group, sex and across time points. This analysis contributed to addressing research question 3.

There was one significant association between age group and agency, at time 2 for direct relational aggression (χ^2 = 9.64, (2, *N* = 238*)*, *p* = .008, *Cramer's V = 0.*20) where the younger age group had a lower percentage of mixed agencies (10.3%) than the older age group (25.6%). As there was only one age group difference, subsequent analysis was performed for the whole sample.

Chi-Square Goodness of fit tests showed that, across all six forms of aggressive behaviour, explanations with external agency were more common than those with internal or mixed agency (see
Table 6.5). Effect sizes were medium to large.

Table 6.5. Percentage of children's agency exhibiting and not exhibiting aggressive behaviour

Form / time		I	E	M	One Way Goodness of Fit
Direct relational	1	17.3	63.4	19.3	$\chi^2 = 98.84^{***}$ (2, *N* = 243) *Cohen's W* = 0.64
	2	15.5	66.4	18.1	$\chi^2 = 117.24^{***}$ (2, *N* =238), *Cohen's W* = 0.70
	3	17.4	67.1	15.5	$\chi^2 = 112.64^{***}$ (2, *N* =219), *Cohen's W* = 0.72
Indirect relational	1	28.1	58.3	13.6	$\chi^2 = 73.29^{***}$(2, *N* =235), *Cohen's W* = 0.56
	2	24.9	62.2	12.9	$\chi^2 = 92.61^{***}$ (2, *N* =233) *Cohen's W* = 0.63
	3	22.9	67.1	10.0	$\chi^2 = 49.79^{***}$ (2, *N* =227), *Cohen's W* = 0.47
Verbal	1	21.1	61.4	17.5	$\chi^2 = 81.26^{***}$ (2, *N* =221), *Cohen's W* = 0.61
	2	25.8	62.2	12.0	$\chi^2 = 87.66^{***}$ (2, *N* = 217) *Cohen's W* = 0.59
	3	22.7	66.2	11.1	$\chi^2 = 108.57^{***}$(2, *N* =2232) *Cohen's W* = 0.70
Physical	1	26.1	60.8	13.1	$\chi^2 = 81.11^{***}$ (2, *N* =225), *Cohen's W* = 0.60
	2	26.0	63.2	10.8	$\chi^2 = 89.15^{***}$ (2, *N* =214), *Cohen's W* = 0.63
	3	28.8	60.6	10.6	$\chi^2 = 100.03^{***}$ (2, *N* =221), *Cohen's W* = 0.67
Verbal ringleader	1	23.8	59.0	17.1	$\chi^2 = 63.89^{***}$ (2, *N* =215), *Cohen's W* = 0.55
	2	21.9	61.9	16.2	$\chi^2 = 78.17^{**}$ (2, *N* =208), *Cohen's W* = 0.61
	3	21.4	71.1	7.5	$\chi^2 = 72.30^{***}$ (2, *N* =222), *Cohen's W* = 0.57
Physical ringleader	1	23.9	62.4	13.7	$\chi^2 = 81.38^{***}$ (2, *N* =212), *Cohen's W* = 0.63
	2	23.8	65.8	10.4	$\chi^2 = 101.48$** (2, *N* =208) *Cohen's W* = 0.70
	3	24.6	66.1	9.3	$\chi^2 = 135.16^{***}$ (2, *N* =215) *Cohen's W* = 0.79

Notes. 'I': Internal agency ''E' External agency; 'M' Mixed agency. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

In order to further address the third research question, and understand whether children's explanations change as children become older, McNemar-Bowker tests were used to look at change in agency over time for the entire sample. Analyses showed no significant changes in agency in explanations for exhibiting or not exhibiting aggressive and ringleader behaviours.

6.6.2.2 Comparing agency for children who reported exhibiting or not exhibiting aggressive and ringleader behaviour

As shown in the previous section, across all aggressive and ringleader behaviour forms and time points, children were most likely to provide explanations which had external agency. To provide further insight to the third research question, and understand whether this varied by whether children reported that they exhibited or did not exhibit aggressive behaviour, analyses were performed to consider whether children's explanations for their behaviour, varied by whether they rated that they exhibited each behaviour 'sometimes', or 'never'. Due to low numbers of children reporting that they showed aggressive behaviour 'lots', these children were not included in these analyses (*N* ranged between 0 and 15). Furthermore, as a low number of children reported that they showed either ringleading behaviour 'lots' or 'sometimes' (verbal ringleading behaviour: T1 = 7, T2 = 15, T3 = 7, physical ringleading behaviour: T1 = 6, T2 = 5, T3 = 9) and so these behavioural forms were not included in these analysis

There were significant associations between children's self-reports and the agency in their explanations, across all four behavioural forms. This was the case for at least two time points for each behaviour. Effect sizes were small to medium. Statistically significant results are presented below.

For direct relational aggression, (T1 - χ^2 = 13.12(2, *N* = 243), $p < .001$, *Cramer's V* = .24, T2 - χ^2 = 9.36 (2, *N* = 233), *Cramer's V* = .20; T3 - χ^2 = 14.57 (2, *N* = 215), *Cramer's V* = .26), internal agency was more common amongst those children reporting that they 'never' behave in an aggressive way (T1 - 23.4%, T2 – 19.7%, T3 – 20.9%) compared to those who said they did so 'sometimes' (T1 – 1.8%, T2 – 3.3%, T3 – 2.5%). In contrast, external agency was more common amongst those who reported that they 'sometimes' behave in an aggressive way (T1 – 74.5%, T2 – 73.3%, T3 – 65.8%)

compared to those who said they 'never' did so (T1 – 58.9%, T2 – 63.6%, T3 – 67.8%). Mixed responses were also more common amongst those who said they 'sometimes' behave in an aggressive way (T1 – 23.6%, T2 – 23.3%, T3 – 31.6%) compared to those who said they 'never' did so (T1 – 17.7%, T2 – 16.8%, T3 – 11.3%). Although frequencies were too low to include in analysis, all children who said they showed direct relational aggression 'lots' provided explanations with external or mixed agency.

For indirect relational aggression (T1 - $\chi^2 = 13.12$ (2, $N = 229$), $p < .001$, *Cramer's V* = 0.21; T2 – $\chi^2 = 6.19$ (2, $N = 232$), $p = .045$, *Cramer's V* = 0.16, T2 – $\chi^2 = 6.19$ (2, $N = 232$), $p = .045$, *Cramer's V* = 0.16) internal agency was more common amongst those children reporting that they 'never' exhibit this behaviour (T1 - 31.5%, T2 - 26.9%) compared to those who said they did so 'sometimes' (T1 – 3.4%, T2 – 5.0%). There was little difference in external agency for those who reported that they 'sometimes' behave in this way (T1 – 75.9%, T2 – 70.0%) compared to those who said they 'never' did so (T1 – 55.5%, T2 – 61.3%). Mixed responses were also more common amongst those who said they 'sometimes' behave in an aggressive way (T1 – 20.7%, T2 – 25.0%) compared to those who said they 'never' did so (T1 – 0.0%, T2 – 11.8%).

For verbal aggression (T2 - $\chi^2 = 28.75$ (2, $N = 214$), $p < .001$, *Cramer's V* = 0.37; T3 - $\chi^2 = 23.38$ (2, 198), $p < .001$, *Cramer's V* = 0.34) internal agency was more common amongst those children reporting that they 'never' behave in an aggressive way (T2 – 28.6%, T3 – 25.9%) compared to those who said they did so 'sometimes' (T2 – 0.0%, T3 – 0.0%). There was little difference in external agency for those who reported that they 'sometimes' behave in an aggressive way (T2 – 50.0%, T3 – 62.5%) compared to those who said they 'never' did so (T2 – 50.0%, T3 – 66.7%). Mixed responses were also more common amongst those who said they 'sometimes' behave in an aggressive way (T2 – 50.0%, T3 – 37.5%) compared to those who said they 'never' did so (T2 – 8.7%, T3 – 7.5%).

For physical aggression (T1 - $\chi^2 = 7.2$ (2, $N = 218$), $p < .001$, *Cramer's V* = 0.34; T2 - $\chi^2 = 22.22$ (2, $N = 200$), $p < .001$, *Cramer's V* = 0.33; T3) , internal agency was more common amongst those children reporting that they 'never' behaved in an aggressive way (T1 – 28.1%, T2 – 29.6%) compared to those who said they did so 'sometimes' (T1 –6.7%, T2 – 3.2%). There was little difference in external agency for those who

reported that they ‘sometimes’ behave in an aggressive way (T1 – 60.0%, T2 – 64.5%) compared to those who said they ‘never’ did so (T1 – 60.1%, T2 – 63.3%). Mixed responses were also more common amongst those who said they ‘sometimes’ behave in an aggressive way (T1 – 33.3%, T2 – 32.3%) compared to those who said they ‘never’ did so (T1 – 11.8%, T2 – 7.1%).

In order to further address the third research question, McNemar-Bowker tests were used to compare agency in explanations for exhibiting and for not exhibiting aggressive behaviour amongst those children who reported that they ‘sometimes’ did so. However, there were no statistically significant findings in this comparison.

In order to have a greater understanding of external agencies, the proportions of these for each explanation were calculated by coding for other children, adult and ‘general’, which refers to morals or rules (see Chapter 3). Other children were the most common agency, followed by ‘general’ explanations relating to morals. Adults were rarely identified as the cause for children’s behaviour. These descriptive statistics indicated that children were more likely to refer to other children as being the agency for exhibiting or not exhibiting aggressive behaviour, than any other external agency.

Table 6.6. Percentage of explanations with each perceived external agency for exhibiting and not exhibiting aggressive and ringleader behaviour

Behaviour	Agency	Exhibiting			Not exhibiting		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Direct relational	Other children	68.46	61.46	57.56	42.52	46.10	39.91
	Adults	1.54	1.56	0.00	0.59	1.30	0.69
	General	21.54	30.21	25.61	17.60	16.67	15.35
Indirect relational	Other children	83.33	90.48	70.59	35.25	32.30	24.56
	Adults	1.51	0.00	0.00	1.94	4.38	2.08
	General	4.54	0.00	5.88	14.73	18.84	20.42
Verbal	Other children	80.00	81.75	95.83	31.98	29.24	24.64
	Adults	0.00	0.00	0.00	2.24	2.41	3.95
	General	7.50	9.52	2.08	16.22	16.36	15.12
Physical	Other children	78.57	62.90	63.46	29.55	27.76	23.38
	Adults	0.00	3.23	0.00	2.83	4.46	1.27
	General	0.00	12.90	19.23	19.28	15.82	14.07
Verbal ringleader	Other children	77.50	80.77	59.52	34.19	28.95	26.18
	Adults	5.00	0.00	4.76	3.26	3.96	3.70
	General	5.00	0.00	7.14	16.10	17.48	20.75
Physical ringleader	Other children	60.00	50.00	61.11	29.04	24.64	20.16
	Adults	0.00	0.00	0.00	4.67	4.44	3.18
	General	16.67	0.00	0.00	18.71	18.27	16.99

6.6.3 Outcome focus in explanations for exhibiting and not exhibiting aggressive behaviour

Also considered in relation to the third research question, was the outcome focus within children's explanations for exhibiting or not exhibiting aggressive behaviours. Outcome focus in children's explanations was explored across all children (who reported exhibiting or not exhibiting solitary behaviour) in order to consider whether there was a pattern when discussing aggressive behaviour. This was also considered by age group, sex and across time points.

Across all behaviour forms and time points, between 71% and 89% of children provided explanations with some outcome focus. In the younger age group, the following percentage of children provided explanations with at least one outcome focus for direct relational aggression: T1 = 76.5% (218), T2 = 74.9% (209), T3 = 80.6% (220). For indirect relational aggression: T1 = 77.2% (220), T2 = 78.5% (219), T3 = 82.8% (226).

For verbal aggression: T1 = 77.9% (225), T2 = 86.0% (240), T3 = 87.5% (239). For physical aggression: T1 = 73.7% (210), T2 = 83.9% (234), T3 = 82.1% (224). For verbal ringleading aggression: T1 = 69.8% (199), T2 = 79.6% (222) T3 = 74.7% (204). For physical ringleading aggression: T1 = 68.1% (194), T2 = 79.6% (222), T3 = 81.7% (223).

Percentages presented below are based on the number of children who provided an outcome focus within their explanations. The following two sections consider outcome focus in two ways: across reports of exhibiting and not exhibiting aggressive behaviour and then by considering the child's self-report of aggressive behaviour.

6.6.3.1 Across all reports of aggressive and ringleader behaviours

Outcome focus in children's explanations was explored across all children (who reported exhibiting or not exhibiting aggressive and ringleading behaviour) in order to consider whether children adopt a particular pattern when discussing aggressive and ringleading behaviour. This was also considered by age group, sex and across time points in order to address the third research question.

In order to explore change in the outcome focus for exhibiting and not exhibiting aggressive and ringleader behaviours, Chi-Square tests were run to see whether there was an association between outcome focus and age group. There was an association between age group and the outcome focus of aggressive behaviours at time 1 for direct relational aggression (χ^2 = 9.35, (2, N = 218, p = .009, *Cramer's* V = 0.21) and for physical aggression (χ^2 = 7.60, (2, N = 210), p < .022, *Cramer's* V = 0.19), both with small to medium effect sizes. The older age group were less likely to report internal outcome focus (35.0% and 40.0%) than the younger age group (55.5% and 58.9%) and more likely to report external outcome focus (49.6%, and 43.5%) than the younger age group (35.6% and 28.4%). There were also two significant associations at time 3 for indirect relational aggression (χ^2 = 9.89, (2, N = 226), p = .007, *Cramer's* V = 0.21) and verbal ringleader of aggression (χ^2 = 8.44, (2, N =204), p = .015, *Cramer's* V = 0.20), also both with small to medium effect sizes. For indirect relational aggression, the younger age group identified more internal outcome focus (52.8%) than the older age group (32.2%) and less external focus (34.3%) than the older age group (47.5%). For

verbal ringleader, there was a higher level of mixed focus in the older age group (26.2%) than the younger age group (10.3%). However, as there were no consistent age group differences, subsequent analysis was conducted for the sample as a whole.

One Way Goodness of Fit tests were used to compare the proportions of outcome focus types (internal, external, mixed). There were significant results across all forms of behaviour and times, with small to medium effect sizes. Results can be seen in Table 6.7. Across all times and behaviours, mixed outcome focus (internal and external) was lower than internal or external focus alone.

Table 6.7. Percentage of outcome focus for exhibiting and not exhibiting aggressive behaviour

Form / time		I	E	M	One Way Goodness of Fit
Direct relational	1	44.5	23.1	12.4	$\chi^2 = 43.11^{***}$ (2, N =218) *Cohen's W* = 0.44
	2	37.8	41.6	20.6	$\chi^2 = 15.77^{***}$ (2, N =219), *Cohen's W* = 0.27
	3	35.9	46.8	17.3	$\chi^2 = 29.46^{***}$ (2, N =220), *Cohen's W* = 0.37
Indirect relational	1	55.5	30.0	14.5	$\chi^2 = 56.33^{***}$ (2, N =220) *Cohen's W* = 0.51
	2	47.0	35.6	17.4	$\chi^2 = 29.45^{***}$ (2, N =219), *Cohen's W* = 0.37
	3	42.0	41.2	16.8	$\chi^2 = 27.78^{***}$ (2, N =226), *Cohen's W* = 0.35
Verbal	1	48.0	34.7	17.3	$\chi^2 = 13.00^{***}$ (2, N =225) *Cohen's W* = 0.24
	2	42.6	39.6	17.8	$\chi^2 = 18.94^{***}$ (2, N =240), *Cohen's W* = 0.28
	3	42.3	42.6	15.1	$\chi^2 = 35.91^{***}$ (2, N =239), *Cohen's W* = 0.39
Physical	1	48.6	36.7	14.8	$\chi^2 = 37.06^{***}$ (2, N =210) *Cohen's W* = 0.42
	2	44.9	38.5	16.7	$\chi^2 = 30.69^{***}$ (2, N =234), *Cohen's W* = 0.38
	3	39.7	43.3	17.0	$\chi^2 = 27.44^{***}$ (2, N =224), *Cohen's W* = 0.35
Verbal ringleader	1	46.7	40.7	12.6	$\chi^2 = 39.72^{***}$ (2, N =199) *Cohen's W* = 0.45
	2	36.9	44.6	18.5	$\chi^2 = 24.03^{***}$ (2, N =222), *Cohen's W* = 0.33
	3	38.2	43.1	18.6	$\chi^2 = 20.56^{***}$ (2, N =204), *Cohen's W* = 0.32
Physical ringleader	1	51.0	36.1	12.9	$\chi^2 = 43.00^{***}$ (2, N =194) *Cohen's W* = 0.47
	2	33.8	46.8	19.4	$\chi^2 = 25.16^{***}$ (2, N =222), *Cohen's W* = 0.34
	3	34.1	48.9	17.0	$\chi^2 = 34.29^{***}$ (2, N =223), *Cohen's W* = 0.39

Notes. 'I': Internal outcome focus, ''E' External outcome focus; 'M' Mixed outcome focus. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

As part of analysis considering the third research question, McNemar-Bowker tests were run to consider change in the outcome focus in children's explanations for

exhibiting or not exhibiting (together) aggressive and ringleader behaviours over the three time points. These were run for the whole sample and only split by age group where the previous Chi-Square analysis had shown age group differences. There were no significant changes in the outcome focus across the three times points.

6.6.3.2 Comparing outcome focus for children who reported exhibiting or not exhibiting aggressive behaviour

Addressing the third research question in the previous question showed that mixed outcome focus was less common than internal or external outcome focus. To consider children's explanations for their behaviour further (the third research question), analysis was also conducted to compare children's outcome focus, with their self-reported rating of each aggressive behaviour at each time point (sometimes, never). Due to low numbers of children reporting that they showed aggressive behaviour 'lots' (*N* ranged between 0 and 15), Chi-Square tests were run on 'sometimes' responses versus 'never' responses. As a low number of children reported that they showed ringleading behaviours 'lots' or 'sometimes', these forms of behaviour were excluded from the analyses (verbal ringleading behaviour: T1 = 7, T2 = 15, T3 = 7; physical ringleading behaviour T1 = 6, T2 = 5, T3 = 9).

With the exception of physical aggression at time 1 and indirect relational aggression at time 3, there were significant associations between children's self-reported frequency and the outcome focus within their explanations for exhibiting or not exhibiting aggressive behaviour, across all forms of aggressive behaviour at each time point.

For direct relational aggression, this was significant at time 1 ($\chi^2 = 6.88$, (2, $N = 207$), $p < .032$ *Cramer's V* = 0.18), time 2 ($\chi^2 = 9.77$, (2, $N = 205$), $p < .001$, *Cramer's V* = 0.22) and time 3 ($\chi^2 = 14.71$, (2, $N = 218$) $p < .001$, *Cramer's V* = 0.26), all with small to medium effect sizes. Internal outcome focus was more common amongst children who self-reported that they behaved aggressively 'sometimes' (T1 – 61.0%, T2 – 43.9%, T3 – 64.5%) compared to 'never' (T1 – 38.6%, T2 – 35.5%, T3 – 30.5%). External outcome focus was more common amongst children who self-reported that they behaved aggressively 'never' (T1 – 47.0%, T2 – 47.0%, T3 – 51.9%) compared to 'sometimes' (T1 – 31.7%, T2 – 22.0%, T3 – 19.4%). There were no consistent

differences in mixed outcome focus for those who reported that they behaved aggressively 'sometimes' (T1 – 7.3%, T2 – 34.1%, T3 –16.1%) compared to 'never' (T1 – 14.5%, T2 – 17.7%, T3 – 17.6%).

There was also a significant association for indirect relational aggression at time 1 (χ^2 = 15.03, (2, *N* = 214), *p* < .001, *Cramer's V* = 0.27) and time 2 (χ^2 = 6.71, (2, *N* = 218), *p* =.035, *Cramer's V* = 0.18) with small and medium effect sizes. Internal outcome focus was more common amongst children who self-reported that they behaved aggressively 'sometimes' (T1 – 88.9%, T2 – 70.0%, T3 – 61.5%) compared to 'never' (T1 – 49.7%, T2 – 44.4%, T3 – 40.3%). External outcome focus was more common amongst children who self-reported that they behaved aggressively 'never' (T1 – 34.2%, T2 – 38.4%, T3 -42.7%) compared to 'sometimes' (T1 – 3.7%, T2 – 10.0%, T3 – 23.1%). There were no consistent differences in mixed outcome focus for those who reported that they behaved aggressively 'sometimes' (T1 – 7.4%, T2 – 20.0%, T3 – 15.5%) compared to 'never' (T1 – 16.0%, T2 – 17.2%, T3 – 17.1%).

There was a significant association for verbal aggression at time 1 (χ^2 = 6.32 (2, *N* = 224), *p* = .011, *Cramer's V* = 0.17), time 2 (χ^2 = 11.60, (2, *N* = 227), *p* < .001, *Cramer's V* = 0.23) and time 3 (χ^2 = 19.65, (2, *N* = 233), *p* < .001, *Cramer's V* = 0.29), with small and medium effect sizes. Internal outcome focus was slightly more common amongst children who self-reported that they behaved aggressively 'sometimes' (T1 – 50.0%, T2 – 57.9%, T3 –82.6%) compared to 'never' (T1 -48.0%, T2 – 40.0%, T3 – 39.0%). External focused outcomes were more common amongst children who self-reported that they behaved aggressively 'never' (T1 – 36.3%, T2 – 43.3%, T3 -45.7%) compared to 'sometimes' (T1 – 15.0%, T2 – 5.4%, T3 – 0.0%). Mixed outcome focus was more common in those who reported that they behaved aggressively 'sometimes' (T1 – 35.0%, T2 – 36.8%, T3 – 17.4%) compared to 'never' (T1 – 15.7%, T2 – 16.3%, T3 – 15.2%).

Finally, there was a significant association for physical aggression time 2 (χ^2 = 10.17, (2, *N* = 230), *p* = .006, *Cramer's V* = 0.21), and time 3 (χ^2 = 12.08, (2, *N* = 220), *p* < .001, *Cramer's V* = 0.23), both with small to medium effect sizes. Internal outcome focus was more common amongst children who self-reported that they behaved aggressively 'sometimes' at time 2 and 3 (T2 – 53.6%, T3 – 77.8%) compared to

'never' (T2 – 43.6%, T3 – 36.6%). External outcome focus was more common amongst children who self-reported that they behaved aggressively 'never' (T1 – 39.1%, T2 –42.1%, T3 – 46.5%) compared to 'sometimes' (T1 – 14.3%, T2 –14.3%, T3 – 11.1%). There were no consistent differences in mixed outcome focus for those who reported that they behaved aggressively 'sometimes' (T1 – 28.6%, T2 – 32.1%, T3 – 11.1%) compared to 'never' (T1 – 25.0%, T2 – 14.4%, T3 – 16.8%).

In order to compare children's reasons for exhibiting and not exhibiting these aggressive behaviours further, reasons provided by those children who self-reported this behaviour 'sometimes' were analysed using McNemar-Bowker tests. However, there were no statistical differences in explanation focus in their reasons for behaving in each aggressive way and for not doing so.

In order to understand who or what the external outcome focus were in children's explanations, proportions of each explanation for exhibiting and not exhibiting aggressive and ringleader behaviour were calculated for outcome focus of other children, adult and 'general' (see Chapter 3). Other child/ren were the most common external outcome focus, followed by 'general' focus relating to social and class rules. Adults were rarely identified as the outcome focus in children's exhibited or non-exhibited aggressive behaviour. These descriptive statistics also indicate that children were more likely to perceive other children as the outcome focus for their non-aggressive behaviour than their aggressive behaviour.

Table 6.8. Percentage of explanations with each perceived external outcome focus for exhibiting and not exhibiting aggressive and ringleading behaviour

Behaviour	Outcome focus	Exhibiting			Not exhibiting		
		Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Direct relational	Other children	10.77	17.71	7.31	36.10	32.56	38.91
	Adults	0.00	0.00	0.00	31.97	0.74	0.13
	General	3.85	7.81	4.88	0.39	2.73	1.32
Indirect relational	Other children	3.03	21.43	23.53	27.32	29.75	34.38
	Adults	0.00	0.00	0.00	0.00	0.56	0.95
	General	0.00	0.00	0.00	1.72	2.32	4.23
Verbal	Other children	27.50	4.76	4.76	29.48	33.73	2.08
	Adults	0.00	0.00	0.00	0.32	0.68	0.00
	General	0.00	0.00	0.00	0.89	3.35	0.00
Physical	Other children	15.00	11.29	13.46	29.27	32.00	38.85
	Adults	0.00	0.00	0.00	0.00	0.00	0.00
	General	0.00	0.00	0.00	1.13	2.82	2.72
Verbal ringleader	Other children	7.14	30.77	4.76	31.88	40.86	35.50
	Adults	0.00	0.00	0.00	0.67	0.75	0.77
	General	14.29	0.00	0.00	2.12	2.08	2.30
Physical ringleader	Other children	16.67	10.00	61.11	28.86	39.94	43.79
	Adults	0.00	0.00	0.00	0.00	0.19	0.00
	General	0.00	0.00	0.00	1.17	4.23	3.40

6.7 Further analysis

A final set of analyses was run to test whether explanations were related to differences, using Chi-Square tests. This was linked to the third research question and how children explain their behaviours.

When considering the association between explanations and difference types, there were no consistent associations between difference types and explanation focus, agency or outcome focus. Multinomial regressions were also performed to see whether later self-reports could be predicted from previous explanations (explanation focus, agency and outcome focus). There were no significant models for any forms of aggression where explanations at time 1 predicted self-reports at time 2, or explanations at time 2 predicted self-reports at time 3.

6.8 Discussion of findings relating to aggressive behaviour

In this section, there is a discussion of findings in line with the three research questions outlined in Section 6.2, relating to prevalence and stability of reports; differences between self-reports and reports from others; and children's explanations for exhibiting or not exhibiting their behaviours. Across all three areas, effect sizes ranged between small and large. However, as discussed in Chapter 3, there is a need to interpret effect sizes in context (Vacha-Haase & Thompson, 2004) and small effect sizes can still be useful in the interpretation of findings.

6.8.1 Reported ratings of aggressive behaviours

When considering the first research question and prevalence of children's behaviour, according to self-, peers-, Class Teachers and Teaching Assistant-reports, consistency with previous research was found (Monks et al., 2003). Also in line with work by Monks et al., direct relational aggression was found to be the most frequently reported form of aggression across all reporters. Children's self-reported ratings of all aggressive forms were mostly 'never' but there were children who reported that they 'sometimes' behaved in this way, supporting the idea that children can provide self-reports of aggressive behaviour. However, both these self- and peer-reports were much lower than those of Class Teachers and Teaching Assistants.

Monks et al., (2003) found that direct relational aggression was the most commonly reported form of aggression in four to six year olds. This was consistent in the current findings. In addition, Monks et al., also found that children did not identify peripheral roles within peer victimisation. The current findings were consistent with expectations that this would also be the case for ringleader behaviours with very low reports from all reporters. However, reports of ringleader behaviours were higher from Class Teachers- and Teaching Assistants-reports than self- and peer-reports. This was particularly the case for Teaching Assistants. The finding that there were reports of ringleader behaviours 'sometimes' occurring suggests that the use of a three-point scale, may have led this behaviour to be acknowledged, particularly by teaching staff.

There were some were inconsistencies as to the relative order of reports of other forms of aggressive behaviours. In some cases, physical aggression was the second most commonly reported (as per Monks et al., 2003) but in other cases, indirect relational aggression and verbal aggression were the second most frequently reported. This may also relate to the use of a three-point scale or the use of slightly different definitions such as indirect relational aggression. The finding that physical aggression was higher in self-reports at time 2 may relate to the fact that this was the first term of the school year and therefore, children are more likely to exert more aggression to gain coercion over their peers (Pellegrini & Long, 2002).

There were some associations between sex and reports of aggression and ringleader behaviour, at time 1 and time 3 only, for relational forms of aggression, where males provided self-reported higher ratings than females. This supports Card et al.'s (2008) meta-analysis where boys perceived themselves as showing more relational aggression than females did, and although this was small in magnitude, the results of the present study are consistent with this. This also further contradicts previous suggestions that males show higher levels of physical and verbal aggression and that females show higher levels of relational aggression (Crick et al., 1997).

There were sex differences in peer-ratings across all forms of aggressive and ringleader behaviours where males were perceived to be more aggressive across all forms of aggression. This contradicts Giles and Heyman (2005) who found that children aged three to five years of age assigned relational aggression to females and physical and verbal aggression to males. They proposed that children's peer-reports are based on their beliefs rather than their actual observations. However the current research would suggest different beliefs than those found by Giles and Heyman as females were not given higher ratings of relational aggression. Furthermore, the findings in the current study support those found by McEvoy, Estrem, Rodriguez, and Olson (2003) that boys were rated higher than girls for relational and physical aggression, across peer and teacher reports as well as observations. However, these only occurred for physical aggression when considering the reports of Class Teachers and Teaching Assistants. Research by Monks et al., (2003) found no sex differences in teachers' reports of aggression and therefore these findings concur with both of these previous findings to some degree.

Intraclass Correlations were performed to consider stability of reports of aggressive and ringleader behaviours. These suggested consistency in reports, therefore aligning with previous research demonstrating that aggressive behaviour is stable (Camodeca et al., 2002; Ladd & Burgess, 1999; Monks et al., 2003). Furthermore, Intraclass Correlations were stronger amongst the older age group, further supporting the idea that stability increases with age (Olweus, 1979). There were other findings, which indicated that the amount of aggression shown actually increased with age. Self-reports of physical aggression at time 1, and direct relational aggression at time 3, were higher in the older age group. Similarly, a range of aggressive forms were rated higher in the older age group by Class Teachers and Teaching Assistants. Therefore, with the exception of peer-reports there was a consistent finding that direct relational aggression was higher in the older age group at time 3. This supports Björkqvist's Developmental Theory (e.g. Björkqvist et al., 1992; Björkqvist, 1994) which argues that relational aggression increases with age, although the current age group was much younger than what he proposed. However, it is likely that this change is small between the age groups included in this thesis, which accounts for the consistency found from the Intraclass Correlations.

Initial analysis looked at the consistency of ratings across reporters. There were some consistent findings relating to physical aggression, between self-reports and all other reporters at all times (with the exception of time 3 for peers). Therefore, this suggested that children tend to agree with others about their display of physical aggression. This finding was consistent with that of McEvoy et al., (2003), that there was greater agreement for physical aggression than relational aggression. However, the lack of agreement for other behaviour forms and inconsistencies in these between self-report and other reporters supported the further consideration of differences. All other reporters were found to be consistent in their reports of children's aggressive behaviours. This was unsurprising given than previous research had shown that there is greater consistency between other reporters such as peers and Class Teachers (Ledingham et al., 1982).

6.8.2 Difference scores and types in relation to exhibiting and not exhibiting aggressive behaviours

Analysis relating to the second research question considered how self-reports of aggressive behaviours differed from reports from others, in terms of the size and type of difference. One of the main findings regarding the comparison of ratings was that children tend to self-report much lower levels of aggression, than other reporters. Based on previous research findings (Kupersmidt, & Patterson, 1991) this was not surprising. Further findings relating to difference scores were complex and related to the behaviour form, the reporter and the sex of the child. For females, difference scores between self-reports and peer-reports were highest when compared to difference scores with other reporters for all forms of aggression. In contrast, this was only the case for four of six aggressive behaviours for males. The finding that the lowest differences occurred with peers for girls, sits in opposition to the findings of Pakaslahti et al., (2000) who showed that these differences were higher than with Class Teachers, but the finding that these were highest with peers for males, supports these ideas. Furthermore, the variation in the differences between reporters contradicts findings by Monks et al., (2003), that there is little difference in the concordance between self – peers and self – teachers.

There were also sex differences in the size of difference scores between self- and other-reporters for the different forms of aggressive behaviour. Males had higher difference scores than females across all forms of aggression. Difference scores for females followed the same pattern with all reporters that they had the highest differences with others' ratings for both forms of relational aggression, then verbal and verbal ringleader and then physical and physical ringleader. However, whilst males also had the highest differences for direct relational aggression, their differences for physical aggression were higher than that of females with all reporters but their differences for indirect aggression varied between peers and teaching staff. These differences were much higher with peers. This can be explained by the finding that peers rated males higher in indirect aggression than females, but that this was not the case for teaching staff. This indicates that there some sex differences in the self-reports of aggressive behaviours, but also that the sex of the child plays a role in the ratings provided by other reporters.

Furthermore, the trajectories of difference scores varied by aggressive form and reporter (self-peers, self-Class Teachers, self-Teaching Assistants). For both forms of relational aggression, differences with teaching staff declined over the three time points, but peaked at time 2, the start of the school year, with peers. Analysis into difference types showed that this was related to a greater display of aggression at the start of the school year being reported by peers but not by self-reports. Therefore, this coincides with previous research suggesting that there is a greater display of aggression at the start of the school year in order to gain control over other children (Pellegrini & Bartini, 2000), although this only related to one reporter group and so should be treated with caution. For all other behaviour forms, differences were either stable or declining, showing increased concordance which was expected, based on research into victimisation also displaying this pattern (Ladd & Kochenderfer-Ladd, 2002). However, an apparently contradictory finding was that the current research also showed higher differences in the older age group. However, this may not be indicative of less agreement in the older age group, but more representative of the higher ratings for the older age group. As shown by the exploration of difference types, whilst the most common group was made up of children who agreed with others that they were not aggressive, the second largest group (although still small) was those children who reported lower levels of aggression than the other reporters. Therefore, knowing that aggression was generally reported higher in the older age group may account for these differences. The findings seem to be more reflective of higher levels of aggression in this group rather than an increased difference.

The reduction in difference scores may also relate to the increased agreement about the non-reporting of aggressive behaviours, rather than an increasing agreement about displays of aggression. This supports some findings which have found a decrease in aggression such as physical aggression (Côté et al., 2007). However, it is contradictory of the finding that relational aggression increases with age (Côté et al.), although this may be because of the small age range used in the current research. Furthermore, the peak in peer-reports of relational aggression at the start of the school year contradict findings by Little et al. (2003), that this would be more expected at the end of the school year. Interestingly, there was a group of children (albeit small in some cases) who reported higher levels of aggression than other reporters and there is scope to understand the qualities of this group further. One potential explanation for this group

of children's possible cognitive biases about their view of themselves and poor perspective taking but comparisons of explanations, showed a relationship between whether they reported or non-reported aggressive behaviour rather than an association with the difference types itself.

6.8.3 Children's explanations for exhibiting and not exhibiting aggressive and ringleader behaviours

The analysis addressing the third research question considered how children explained exhibiting or not exhibiting aggressive behaviours. Across all four forms of aggressive behaviours and two ringleader behaviours, causal explanation focus was more common than consequential or mixed explanation focus. This overlapped with previous findings relating to solitary and prosocial behaviour. Furthermore, explanation focus shifted towards being more consequential over the three time points, which may relate to increase future orientation (Suddendorf & Busby, 2005). Furthermore, the current findings showed that explanation focus differed between whether a child reported showing aggressive behaviour 'sometimes' or 'never' with those children who said they 'never' behaved in this way providing explanation focus which were more consequential than those who said 'sometimes'. Therefore, this highlights a link between how far children think about the potential consequences and whether they believe they engage in aggressive behaviours. However, Hall et al., (1998) found that a focus on punishment led to less aggression (Hall et al., 1998) and Jennifer and Cowie (2012) said that children report that they believed bullies do not think about the consequences of their actions.

When discussing reasons for exhibiting and not exhibiting aggressive behaviours, children mostly provided explanations which included external agency. This corresponds with findings relating to locus of control that younger children are more external (Aguila, 2012) and relate acts of aggression to provocation (Boulton & Underwood, 1992). It also supports proposals that reactive aggression precedes proactive aggression (Vitaro et al., 2006). This external agency was most commonly focused on other child/ren. However, perceived agency did not change significantly over the three time points, suggesting that reactive aggression remains the most

common function of explanations for both reported and non-reported aggression in children of this age. This was a surprising finding with previous research indicating that children's internal attributions for aggression increase with age (Boxer & Tisak, 2003). However, this lack of a developmental change in attributions may be related to age differences in the research as Boxer and Tisak's work was conducted with adolescents and much of the work which focuses on the shift between external and internal attributions has been conducted with children aged over seven. Therefore, a potential explanation for this difference in findings is that this developmental shift in relation to aggression does not occur until children are older. When comparing children's explanations with their ratings of their aggressive behaviour, although external agency was more common across all children, internal agency was more common amongst those children who reported that they 'never' behaved in an aggressive way whereas those who said they 'sometimes' did so were more likely to provide explanations with external agency than their counterparts. Therefore, taking ownership for ones' behaviour may be associated with lower levels of aggression, and holding other child/ren responsible associated with aggressive acts (provocation). Consideration of the children's responses who said 'sometimes' showed no clear pattern in their explanations for when they did and did not show this behaviour.

Whilst explanations which had a mixed outcome focus were the least common, there was no consistent difference between whether explanations concentrated on internal or external outcomes across all six forms of aggressive behaviour. However, when considering age groups, analysis found that the older age group were more likely to have external outcome focus than the younger age group in some instances. However, despite this finding, there were no significant changes in children's outcome focus over time. Children who self-reported that they were 'never' aggressive were more likely to have external outcome focus than those who self-reported some aggression ('sometimes'). Whilst not directly studied in this research, this focus on the outcomes for other child/ren may relate to a link between higher empathy and lower levels of aggression (Hughes & Dunn, 2000). However, as before, when looking at those who reported 'sometimes' behaving in aggressive ways, there were no differences in their outcome focus. This therefore implies that those children who reported 'sometimes' were a unique group who provided the same responses whether they were describing their reasons for exhibiting or not exhibiting aggression. Combining this with the

findings that children tend to report lower levels of aggression compared to others, suggests that this 'sometimes' group was actually made up of children who do exhibit aggressive behaviour, but because of social desirability, report lower levels. With this in mind, the findings relating to those children who report they 'sometimes' behave in aggressive ways may actually be applied to aggressive children more generally. In addition, this 'sometimes' group were more likely than others to provide an internal outcome focus within their explanations. This may be related to the concept of reactive aggression with children reporting themselves as being affected within their reasons for their behaviours, and so thinking about what happened to them prior to their aggressive behaviour.

6.8.4 Predicting future behaviour

As part of the analysis addressing the third research question relating to children's explanations of aggressive behaviour, analysis considered whether explanations could be used to predict differences or future behaviour. Analysis showed that it was not possible to predict later behaviours based on earlier explanations. This may relate to the short timeframe of the study and exploration of this over a longer period may yield different results.

6.9 Chapter summary

In conclusion, the results of findings relating to aggressive behaviour from the analysis of ratings (research question 1), differences (research question 2) and explanations (research question 3) have been presented in this chapter. Findings showed that children aged four to seven years, reported lower levels of their aggressive behaviour compared to other reporters. Direct relational aggression was the most commonly occurring behaviour according to all reporters and ringleader behaviour the least occurring. Furthermore, some sex differences in reports of aggression were found, mostly related to relational aggression for self-reports, all forms of aggression for peers and physical aggression for teaching staff. In all cases males were rated as showing higher levels of aggression. This sex difference played a big part in the analysis of difference scores, with these differing according to sex, and females having the lowest differences with

peers but males having the highest. Finally children's explanations for exhibiting and not exhibiting aggressive behaviours were mostly causal with external agency. Children who self-reported exhibiting aggression were less likely to focus on the consequences of their behaviour, more likely to attribute the agency of their behaviour to other children and think about the outcomes of their behaviour on themselves, than their counterparts.

In the next chapter, focus is given to children's self-reports and explanations across solitary, prosocial and aggressive forms of behaviour together.

7 CHILDREN'S SELF-PERCEPTIONS OF THEIR BEHAVIOUR WITH PEERS

7.1 Introduction to chapter

In Chapters 4 to 6, analyses were conducted to consider how children report their own solitary, prosocial and aggressive behaviours compared with reports from peers, Class Teachers and Teaching Assistants. In addition, consideration was given to children's explanations for each of these forms of behaviours, in terms of their focus, agency and outcomes. Different forms of the three categories of behaviour were considered separately in each chapter. These addressed the first three research questions outlined in Chapter 3.

The primary focus of this chapter is children's perceptions of their own behaviours, in terms of the 11 different forms. Children's self-reports and explanations were collected as per the methods described in Chapter 3. Analysis has been used to consider the relationship between children's self-reported ratings; the trajectories of these; and explanations for the 11 behaviour forms within and between categories. The analysis in this chapter addresses research questions 4 and 5 of the main study (see Chapter 3), which focus on reports and explanations across all 11 forms of behaviour considered in this thesis. Research question 4 addresses how children's self-reported ratings relate to each other, and research question 5 considers to how children's explanations for exhibiting or not exhibiting behaviours relate to each other. This is discussed in more depth below.

7.2 Overview of literature and research questions

In this section, an overview of literature is provided based on Chapter 2. Three sub-research questions have been developed to address the main research question 4 and 5 (see Chapter 3.)

7.2.1 Forms and categories of behaviour

The overview in this section relates to the fourth research question in this study, regarding children's self-reports across all forms of behaviour and within categories. Children's behaviours are often studied in *categories*, such as solitary behaviours (e.g. Nelson, 2013), prosocial behaviours (e.g. Dunfield & Kuhleimer, 2013) and aggressive behaviours (e.g. Monks et al., 2003). In order to gain a complete view of these behaviours, researchers study different *forms* of behaviours within each category which can result in different findings. For instance, Coplan and Ooi (2014) found unsociability to be a relatively benign form of behaviour compared to other forms of solitary behaviour such as shyness. Jackson and Tisak (2001) found different trajectories for different forms of prosocial behaviour such as sharing and helping. Monks et al., (2003) found higher prevalence rates of direct relational aggression compared to other forms of aggressive behaviour such as verbal aggression. Crick et al. (1999) argued that relational aggression should be studied as a distinct category from other forms of aggression. The results presented in Chapters 4, 5 and 6 of this thesis, support the importance of studying different forms of behaviour in each category separately because of the different findings relating to prevalence, discrepancies, explanations and sex differences.

Researchers have found relationships between different forms of behaviour within these broader categories (e.g. solitary, prosocial and aggressive behaviours). Coplan et al., (2004) found that some children were observed showing different levels of more than one form of solitary behaviour, and so these were not mutually exclusive. In addition, Ladd and Profilet (1996) found similarities between teacher-reports of different forms of prosocial behaviours. Similarly, Xie, Farmer and Cairns (2003), found a strong correlation between peer-reports of physical and verbal aggression. They also found strong correlations between different forms of relational aggression. There were also several overlaps between different behaviour forms found in the present study (see Chapters 4, 5 and 6). These findings showing that several forms of behaviour are often related, illustrate why different forms are often collapsed into broader categories for research.

Researchers have also attempted to draw conclusions about trajectories of broader behaviour categories. Both withdrawn behaviours and aggressive behaviours have been

found to be stable over time (Rubin et al., 1995; Olweus, 1979). Whilst Rubin and colleagues considered 'withdrawn' behaviour rather than 'solitary', this stability is relevant here as solitary behaviour consists of both 'withdrawn' and 'rejected' children. Findings relating to prosocial behaviour have been less consistent, with some findings suggesting that it increases with age (Eisenberg et al., 2007) and others finding that it decreases with age (Hay et al., 1994). In the present study, findings from Chapters 4, 5 and 6 indicated that reports of each form of solitary behaviour and aggression were generally stable. Longitudinal analysis demonstrated stability in prosocial behaviours, but between-age group comparisons showed higher levels of prosocial behaviour in the older age group. Most research in this field has employed methods of observations, and peer- and teacher-reports to find out about children's behaviour. An aim of the analysis conducted in this chapter was to see whether children's self-reports of the 11 different behaviour forms (behavioural solitude, avoidance, sharing, caring, including, direct relational aggression, indirect relational aggression, verbal aggression, physical aggression, ringleader of verbal aggression, ringleader of physical aggression) were related to each other. It was tentatively suggested that these self-reports would relate to each other within the broad categories of solitary, prosocial and aggressive behaviours. Based on this, it was thought that it would be possible to aggregate related self-reports of the 11 behaviour forms together within three different categories. It was expected that (if these broader categories were evident) there would be stability in aggregated reports of solitary and aggressive behaviour. However, it was unclear what trajectory prosocial reports would follow.

The following questions were posed to address research question 4 of the study:

1. How do self-reports of behaviour forms relate to each other and how can these be aggregated to form broader categories? What trajectories do these categories follow over a 12 month period?

7.2.2 Behaviours across categories

The overview in this section also relates to the fourth research question in this study, with a focus on children's self-reports across the categories reviewed in the previous section.

There was scope to consider relationships across behaviour categories, such as developing joint profiles. For instance, Ladd and Profilet's (1996) Child Behaviour Checklist (for completion by teachers) includes questions on solitary, prosocial and aggressive behaviours. Ladd and Burgess (1990) used this questionnaire, with self-reports of victimisation, loneliness and social satisfaction, and peer-reports of friendship, and found that within a group of five year olds, some children scored highly on measures of both aggression and withdrawn behaviours ('aggressive-withdrawn'). This group of children experienced the most outcome difficulties compared to a non-aggressive and non-withdrawn group of children and children who were rated as aggressive or withdrawn. Ledingham and Schwartzmann (1984) reported similar findings from peer-reports. Therefore, it is evident that this group of children (rated as high in both solitary and aggressive behaviour) can be identified. It was tentatively suggested that this would also be the case for children's self-reports in the present study

There also appears to be an overlap between children's prosocial and solitary behaviours in some cases. Coplan et al. (2014) asked five to six year old children about their preference for solitude and collected teacher-reports of their prosocial behaviour. They found that those children who expressed a higher preference for being alone were reported as showing lower levels of prosocial behaviour. This was also found to be the case by Nelson, Hart, Yang, Wu, and Jin (2012) in research with Chinese preschoolers, across several subtypes of solitary behaviour which they termed 'nonsocial play.' Therefore it was possible that some children would self-report higher levels of solitary behaviour alongside lower levels of prosocial behaviour.

Researchers have also shown that aggressive and prosocial behaviours are not mutually exclusive. Hawley et al.'s (2003) findings has shown that children can be 'bistrategic controllers' in which they display aggressive acts towards peers in conjunction with prosocial behaviour which makes them preferred play partners. In addition, Roseth et al. (2011) observed two to five year old children over the course of the school year. They found that coercive and aggressive acts were more common at the start of the school year, which they concluded was because it is necessary to access resources and establish dominance in their social group at this time. However, prosocial behaviour increased over the course of the school year, which they concluded was because children need to keep

peers as allies. Therefore, it was possible that a group of children may report showing both prosocial and aggressive behaviours at once and that a group may report higher levels of aggressive behaviour at the start of the school year, and higher levels of prosocial behaviour at the end.

Based on the findings that solitary and aggressive behaviours tend to be stable, but that prosocial behaviour tends to increase or decrease, it was also unclear whether these combined self-reports would change over time.

Previous research has shown an absence of sex differences in solitary behaviour (Sadker & Sadker, 1994), higher prosocial behaviour amongst females (Malti et al., 2009a) and higher aggression amongst males (McEvoy et al., 2003), and therefore, there was uncertainty as how sex differences would occur within these different groups.

Based on the review presented above, the following questions were constructed to also address research question 4 of the study:

2. How do broader categories of children's self-report (identified in answering the previous research question) relate to each other? Does this vary by sex? How do these vary over time?

7.2.3 Children's explanations for exhibiting and not exhibiting behaviour with peers

The overview in this section relates to the final research question in this study. This is focused on how children's explanations may relate to each other within and across categories of behaviour.

The approach taken in the present study (Chapters 4, 5 and 6) was to consider children's behaviour explanations separately for the 11 specific behaviour forms. There were some general trends across the findings. For example, explanation focus was mostly causal and became increasingly consequential with age. Children's explanations mostly had external

agency, but the levels of this varied according to whether the child reported exhibiting behaviour or not. Furthermore, children's outcome focus varied across different behaviours but there were patterns relating to whether the reported exhibiting the behaviour or not.
As explained earlier, there is a dearth of research exploring children's own perceived reasons for their behaviour. However, related research by Goossens et al., (2002), found that when rating peers, eight to ten year old children had similar perceptions of withdrawn and prosocial children in relation to responsibility and feelings of anger and pity. However, their perceptions of aggressive children differed as they were more likely to consider the actor to be responsible for their own behaviours. Whilst this research was conducted with peers, it highlights that there may be similarities between explanations relating to prosocial and solitary behaviour, but that these may differ from explanations for aggressive behaviour. However, it was unclear what further exploration of these across behaviour categories would find.

In this chapter, consideration has been given to explanations across the 11 different behaviours. Two main areas of exploratory analysis were conducted. The first was to consider whether there was consistency in children's explanation focus, agency and outcome focus, across forms of behaviour within one broader category. Secondly, exploratory analysis considered explanations across these broader categories and whether explanations were related across these.

This overview led to the following question which contributes to the fifth research question of the main study (see Chapter 3):

3. How are children's explanations for exhibiting and not exhibiting behaviours related to each other (within and across categories)?

7.2.4 Terminology in this chapter

Within this chapter, there are several analyses with a range of terms used to describe what is being considered within each. This has been explained fully within the separate results sections, but a brief overview of this has also been provided below for ease.

First, exploratory analysis considered how self-reports of the 11 forms of behaviour were related to each other. This was used to create 'behaviour-aggregate scores' where self-reports were collated and standardised based on results of a Principal Component Analysis (PCA). These behaviour-aggregate scores were then used in several ways for further exploratory analysis.

Behaviour-aggregate scores were used to consider both general trends using ANOVA tests, and different 'trajectory-clusters' using Cluster Analysis.

Further Cluster Analysis was also carried out to consider how behaviour-aggregate scores created from children's self-reports, were related to each other. Children were assigned to different 'combined behaviour-aggregate clusters', which how children's self-reports were related to each-other across these different aggregates.

Finally children's explanations were analysed in two ways. Firstly, explanations for exhibiting behaviours within each behaviour-aggregate scores were compared for consistency. Explanations for not exhibiting behaviours within each behaviour-aggregate score were also compared for consistency. Furthermore, children's explanations were compared across the different behaviour-aggregate scores to explore how these were associated. Explanations for exhibiting behaviours and for not exhibiting behaviours were considered separately.

Throughout this chapter, the three sub questions developed to address research question 4 and research question 5 of the main study, are referred to as research questions 1, 2 and 3.

7.3 Behaviour-aggregate scores

To address the first research question, analysis was conducted in order to establish how self-reports of the 11 behaviours were related. Furthermore, this enabled the development of 'behaviour-aggregate scores' in which ratings from similar self-reports across the 11 behaviours, were collated and standardised. This process is presented below.

7.3.1 Principal Component Analyses

Principal Component Analyses (PCA) were run with self-reports of all 11 behaviours at each time point. This was to see how children's self-reports were related to each other by considering the different components in the PCA results.

Three PCAs were conducted on the 11 behaviours with orthogonal rotation (varimax) separately for time 1, time 2 and time 3. The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy for the analysis, KMO = .71, .75 and .77 (all acceptable, Kaiser, 1970) and all KMO values for individual items were above .5 (the acceptable limit, Kaiser, 1970). Bartlett's test of sphericity (χ^2 (55) = 553.55, $p < .001$; χ^2 (55) = 319.84, $p < .001$; χ^2 (55) = 319.84, $p < .001$) indicated that correlations between items were sufficiently large for PCA. An initial analysis was run to obtain eigenvalues for each component in the data. A time 1, four components had eigenvalues over Kaiser's criterion of 1 and in combination explained 61.09% of the variance. At time 2, three components had eigenvalues over Kaiser's criterion of 1 and in combination explained 47.8% of the variance. At time 3, three components had eigenvalues over Kaiser's criterion of 1 and in combination explained 43.3% of the variance. At all times, the scree plot indicated inflections which would justify retaining all components.

The factor loadings for each component from the PCA are presented in Table 7.1. At time 1, component 1 seemed to represent aggression (with the exception of direct relational aggression) and some solitary behaviour. Component 2 represented prosocial behaviour (and some relational aggression). Component 3 represented relational aggression and sharing behaviour. Component 4 represented solitary behaviour with including behaviour, direct relational aggression, and a negative loading for verbal ringleader of aggression. There was some cross-loading, particularly between aggressive and solitary behaviours. Factor loadings were the highest at time 2 and suggested that Component 1 represented aggression (with the exception of direct relational aggression). Component 2 represented prosocial behaviour (and negative loading for direct relational aggression). Component 3 represented solitary behaviour. There was some cross-loading for indirect relational aggression, although this factor loading was higher for Component 1. At time 3, the items that had high loadings on the same components suggested that Component 1, with the

exception of direct relational, represented aggression. Component 2 represented prosocial behaviour. Component 3 represented solitary behaviour. There were no cross loadings at time 3 between the three behaviour components. Direct relational aggression did not load on to any of these components.

Throughout this PCA, Stevens' (2012) critical values of loadings with sample sizes have been used at .298 because of a sample of approximately 300. The factor loadings from the PCA are shown in Table 7.1. PCA was also run by age group but components were similar and therefore this has been presented for the whole sample.

Table 7.1. Factor loadings from PCA of self-reports at each time point

Component	Time 1				Time 2			Time 3		
	1	2	3	4	1	2	3	1	2	3
Direct relational	.375	-.427	.503	.370		-.551	.362			
Indirect relational	.542	-.355	.492		.536		.384	.346		
Verbal aggression	.652	.386			.68					
Verbal ringleader	.702			-.344	.535					
Physical aggression	.615				.615			.303		
Physical ringleader	.693	.399			.678			.373		
Sharing		.404	.542			.701			.332	
Caring	-.295	.632				.647			.365	
Including		.657		.307		.69			.509	
Solitary	.385			.603			.769			.575
Avoidance	.533			.461			.686			.560

Note: Factor loadings > .298 displayed.

7.3.2 Reliability tests

The components identified from the PCA in Section 7.3.1 indicated that self-reports of the 11 behaviours fitted into broader categories of solitary, prosocial and aggressive behaviour. Cronbach's Alpha was used to examine the reliability of this method of aggregation to further consider the first research question and understand how self-reports of the 11 different behaviours related to each other.

As there were only two items for solitary behaviour, Spearman-Brown coefficient was used due to its higher accuracy in assessing reliability (Eisinga, te Grotenhuis, Pelzer, 2012). Reliability was low at time 1 (ρsb = .322), increased slightly at time 2 (ρsb = .430) and more so at time 3 (ρsb = .641). This indicated an increased relationship between self-reports of avoidance and behavioural solitude as children became older. In order to understand this change further, these reliability tests were run for each age group separately. There was a gradual increase in reliability results, for both age groups (younger age group: P1- ρsb = .30*;* P2 - ρsb = .35*;* P3 - ρsb = .60; older age group: P1 - ρsb =.36, P2 - ρsb = .49 P3: ρsb = .66).

The results of the PCA had also indicated that self-reports of prosocial behaviour were related to each other. Cronbach's Alpha results for collapsing the three prosocial behaviour (sharing, caring, including) were acceptable (Field, 2014) based on the α = .523 at time 1, α = .531 at time 2, and α = .570 at time 3.

The highest Cronbach Alphas were found when all aggression self-reports were aggregated at time 1 (α = .624.), time 2(α = .572) and time 3 (α = .701). The results of the PCA showed a lower factor loading for direct relational aggression and cross-loading on to other components. Cronbach Alpha was carried out with direct relational aggression excluded, and high reliability was found at time 1 (α =.688), time 2 (α = .606) and time 3 (α = .713).

7.3.3 Creating 'behaviour-aggregate scores'

In order to conduct further analysis relating to research question 1 of this chapter, (how the different forms of behaviours relate to each other), forms of behaviour were collated into categories. Based on the PCA and reliability scores, behaviour-aggregate scores were created by adding together self-reported ratings of behaviour (0, 1, 2) from broader categories. As there were different numbers of behaviours within each category (see below), these aggregate scores were standardised as *z* scores so that they were directly comparable with each other.

A possible contributing factor for the lower reliability levels for collating behavioural solitude and avoidance, was that the scale was only made up of two items (Field, 2014). Based on the high factor loadings within the PCA and findings that solitary behaviours are not mutually exclusive (Coplan et al., 2014), it was decided to collate self-reports of behavioural solitude and avoidance to create a solitary behaviour-aggregate scores. This was then standardised.

The factor loadings in the PCAs and the acceptable reliability levels, led to adding together and standardising self-reported ratings of sharing, caring and including to create a prosocial behaviour-aggregate scores.

Whilst reliability scores were still acceptable with all forms of aggression included, these increased when direct relational aggression was removed and the PCAs showed lower factor loadings for this behaviour. Therefore, self-reported ratings of indirect relational aggression, verbal aggression, physical aggression, ringleader of verbal aggression and ringleader of physical aggression were added together and standardised to create an aggressive behaviour-aggregate scores.

Due to the results from the PCA, direct relational aggression was kept separate from the other aggressive behaviours but was standardised for comparison with the three behaviour-aggregate scores.

In the remainder of this chapter, 'behaviour-aggregate scores' refers to the solitary behaviour-aggregate scores, prosocial behaviour-aggregate scores, and aggressive behaviour-aggregate scores. Where specified, standardised ratings of direct relational aggression were also included in analyses using behaviour-aggregate scores.

7.3.4 Trajectories of behaviour-aggregate scores

The previous sections considered how self-reports of behaviour forms related to each other could be aggregated to form broader categories. The following sections also further consider research question 1 of this chapter, by looking at the trajectories of the different behaviour categories over a 12 month period.

7.3.4.1 General trends of behaviour-aggregate scores

The effects of time point and age group on behaviour-aggregate scores were considered in two main ways, in order to assess the general trends of behaviour-aggregate scores. First, four mixed ANOVAs were conducted with each of the three behaviour-aggregate scores (solitary, prosocial, aggressive) and the standardised rating of direct relational aggression used as the dependant variable in each mixed ANOVA[21]. Time point and age group were entered as independent variables in all four ANOVA tests[22]. This showed whether there was a significant change in behaviour-aggregate scores and the standardised rating of direct relational aggression over the three time points, and whether this varied by age group. Second, the data file was split by children who had self-reported behaviour-aggregate scores and a standardised rating of direct relational aggression above and below the mean, and repeated measures ANOVAs were conducted for each of these with only time as an independent variable. This was to enable an understanding trajectories of self-reports, dependant on whether a child's self-

[21] Unweighted means reported in order to eliminate effects of other variables

[22] In addition, sex and 'class restructure' (whether children moved to the next school year with the same peers or not) were entered as independent variables to see if there was any interaction between these and time point or age group. However, there were no statistically significant results with these variables.

report behaviour-aggregate scores at time 1 was relatively high or low. Significant results are reported below.

In the mixed ANOVA for behaviour-aggregate score of solitary behaviour, there was an independent effect of age group (F (1, 271) = 6.61, p = .03, η^2_p = 0.02) where there were higher ratings in the older age group (M = 0.10 SE= 0.06) than the younger age group (M = -0.11, SE = 0.06). There was also an independent effects of time (F (2, 146 = 33.65, p < .001, η^2_p = 0.32) when conducting the ANOVA for children who had behaviour-aggregate scores higher than the mean at time 1, (N = 77). Their behaviour-aggregate scores decreased from time 1 (M =1.32, SE = 0.08) to time 2 (M = 0.31, SE = 0.14) and time 3 (M = 0.09, SE= 0.15). There was also an independent effect of time (F (1.92, 369.40) = 17.66, p < .001, η^2_p = 0.08) when conducting the ANOVA for children where behaviour-aggregate scores were lower than the mean at time 1 (N = 196). The behaviour-aggregate scores remained low and increased slightly from time 1 (M =-0.53, SE = 0.04) to time 2 (M = -0.09, SE = 0.08) and time 3 (M = -0.06, SE= 0.07).

In the mixed ANOVA for the behaviour-aggregate score of prosocial behaviour, there were no significant effects of the independent variables on the behaviour-aggregate score. However, there was an independent effect of time point (F (1.91, 255.33) = 32.86, p < .001, η^2_p = 0.20) when conducting the ANOVA for children who had behaviour-aggregate scores higher than the mean at time 1 (N = 136). There was a decrease in the behaviour-aggregate score from time 1 (M = -0.77, SE = 0.00) to time 2 (M = 0.28, SE = 0.07) and time 3 (M = 0.24, SE = 0.07). Similarly, there was an independent effect of time point (F (2, 270) = 21.90, p < .001, η^2_p = 0.14) when conducting an ANOVA for children who had behaviour-aggregate scores lower than the mean at time 1 (N = 137). There was an increase in behaviour-aggregate scores from time 1 (M = -0.80, SE = 0.08) to time 2 (M = -0.24, SE = 0.10) and time 3 (M = -0.23, SE= 0.09).

In the mixed ANOVA for the behaviour-aggregate scores of aggressive behaviour, there was an independent effect of age group (F (1, 271) = 6.45, p = .021, η^2_p = 0.02) with higher behaviour-aggregate scores in the older age group (M =0.11, SE= 0.06) than the

younger age group (M = -0.12, SE = 0.06). For the behaviour-aggregate scores of aggressive behaviour, there was also an independent effect of time point (F (1.72, 102.91) = 22.86, $p < .001$, $\eta^2_p = 0.35$) for children who had behaviour-aggregate scores higher than the mean at time 1 (N = 61). There was a reduction in behaviour-aggregate scores from time 1 (M = 1.36, SE = 0.19), to time 2 (M = 0.388, SE = 0.153) and time 3 (M = 1.56, SE = 0.12).

In the mixed ANOVA for standardised ratings of direct relational aggression, there was a two-way interaction between time and age group (F (1, 271) = 5.67, p = .01, η^2_p = 0.02) where there was a decline in self-reports of this behaviour in the younger age group (P1*: M* = 0.09, *SE* = 0.09; P2*: M* = 0.04, *SE* = 0.09; P3*: M* = -0.18, *SE* = 0.09) and an increase in reports of direct relational aggression in the older age group (P1*: M* = -0.04, *SE* = 0.09; P2*: M* = -0.05, *SE* = 0.09; P3*: M* = 0.17, *SE* = 0.08). Because of this interaction, an independent *t*-test was also conducted to compare the point at the end of Year 1 for both age groups (time 3 for the younger age group and time 1 for the older age group) to see whether this was a result of individual differences between the two age groups. This was not significant.

A mixed ANOVA was conducted for children who had standardised ratings of direct relational aggression higher than the mean at time 1(N = 73). There was an independent effect of time point (F (2, 142) = 50.71, $p < .001$, $\eta^2_p = 0.42$). Standardised ratings of direct relational aggression decreased from time 1 (M =1.58, SE = 0.08) to time 2 (M = 0.13, SE = 0.12) and time 3 (M = 0.32, SE= 0.14). A mixed ANOVA was also conducted for children who had lower ratings of direct relational aggression than the mean at time 1 (N = 200). There was also independent effect of time point (F (1.67, 332.17) = 26.39, $p < .001$, $\eta^2_p = 0.12$). All ratings remained below the mean and increased slightly from time 1 (M =-0.55, SE = 0.0) to time 2 (M = -0.06, SE = 0.07) and decrease again at time 3 (M = 0.12, SE= 0.06).

7.3.4.2 Trajectory-clusters of behaviour-aggregate scores

The results of the mixed ANOVAs in the previous section highlighted that there were changes in the mean behaviour-aggregate scores and standardised ratings of direct

relational aggression across the time points, and compared those who had a starting point at time 1 of below or above the mean. Therefore, it provided detail of the general trends of behaviour-aggregate scores and standardised rating of direct relational aggression. However, this did not allow for an exploration of the many different trajectories of behaviour-aggregate scores and direct relational aggression rating that children's ratings may follow, particularly curvilinear trajectories. As such, there was scope to adopt a different approach to consider the first research question in this chapter, where trajectory-clusters for each behaviour-aggregate score (solitary, prosocial, aggressive) and standardised rating of direct relational aggression, were identified. In order to do this, four separate Cluster Analyses were performed.

The behaviour-aggregate scores and standardised rating of direct relational aggression, at each time point were entered using Hierarchical Clustering Analysis using Ward's method (Ward, 1963) with squared Euclidian distance. This method maximized differences between clusters while minimizing the variance within a cluster (Coplan et al., 2014). Analysis of the dendrogram, and the changes in the error sum of squares at each stage, revealed which cluster solution provided the best fit for the data and hierarchical clustering was then used further to force each case into one of these clusters for each category of behaviour.

One way to confirm the accuracy of Cluster Analysis is through the use of Discriminant Analysis, which assigns cases to categories, based on their responses. It was not possible to use Discriminant Analyses because there was heterogeneity of covariance, and non-normal distributions. Therefore, non-parametric classification methods were needed (Tabachnick & Fidell, 2014). *K* Nearest Neighbour test is a non-parametric version of discriminant analyses used to predict group membership by comparing the accuracy levels of these predictions with actual group membership. Tabachnick and Fidell's (2014) Interpretation rules of Discriminant Analysis were used where the percentage of cases correctly classified in each group, has to be substantially larger than the percentage of correct categorisation by chance alone. In all cases, this was over 70%, confirming that the cluster children were assigned for their behaviour-aggregate scores trajectory was accurate.

Means and One-way ANOVAs helped to classify each cluster in terms of children's self-reported solitary, prosocial, aggressive and direct relationally aggressive behaviour. Descriptions were given to each group based on their relative score to the other children in the sample.

For the behaviour-aggregate scores of solitary behaviour, there were four distinct trajectory clusters. The first group (26.5%) had a low and stable behaviour-aggregate scores between time 1 (*M* = -0.58, *SD* = 0.50) and time 2 (*M* = -0.50, *SD* = 0.49) which increased at time 3 (*M* = 0.63, *SD* = 0.77). These were called 'time 3 solitary' children. The second group (28.6%) had higher behaviour-aggregate scores at time 1 (*M* = 1.33, *SD* = 0.59) which reduced at time 2 (*M* = 0.28, *SD* = 1.10) and time 3 (*M* = 0.22, *SD* = 1.18). These were called 'time 1 solitary' children. The third group (28.6%) had low behaviour-aggregate scores at time 1 (*M* = -0.55, *SD* = 0.51) which reduced at time 2 (*M* = -0.61, *SD* = 0.46) and reduced even further at time 3 (*M* = -0.89, *SD* = 0.00). This group was called 'decreasing solitary'. The final and smallest group (16.5%) had low behaviour-aggregate scores at time 1 (*M* = -0.50, *SD* = 0.51) which increased at time 2 (*M* = 1.37, *SD* = 0.55) and remained stable at time 3 (*M* = 1.56. *SD* = 0.78). This group was called 'school year solitary increase'.

For the behaviour-aggregate scores of prosocial behaviour, there were three distinct trajectory clusters. The largest group (68.1%) was termed 'increasing prosocial' and behaviour-aggregate scores increased from time 1 (*M* = 0.18, *SD* = 0.82) to time 2 (*M* = 0.47, *SD* = 0.48) to time 3 (*M* = 0.49, *SD* = 0.50). The second largest group (23.8%) was termed 'decreasing prosocial' and behaviour-aggregate scores decreased from time 1 (*M* = 0.16, *SD* = 0.61) to time 2 (*M* = -0.72, *SD* = 1.00) to time 3 (*M* = -0.83, *SD* = 0.90). The smallest group (8.1%) was termed 'low-stable prosocial' and behaviour-aggregate scores were low at time 1 (*M* = -2.14, *SD* = 0.84), time 2 (*M* = -1.67, *SD* = 1.18) and time 3 (*M* = -1.66, *SD* = 1.09).

For the behaviour-aggregate scores of aggressive behaviour, there were four distinct trajectory clusters. The largest trajectory cluster (81.0%) was termed 'low-stable aggression' as behaviour-aggregate scores was lower than the mean consistently over the three times (P1 – *M* = -0.16, *SD* = 0.58*;* P2 – *M* = -0.39, *SD*= 0.23*;* P3- *M* = -0.19, *SD* = 0.50). The second largest trajectory cluster (11.7%) was termed 'time 2

aggressors' because children in this group had low behaviour-aggregate scores at time 1 (*M* = 0.08, *SD* = 0.68) and time 3 (*M* = -0.025, *SD* = 1.31) but a high behaviour-aggregate scores at time 2 only (*M* = 1.54, *SD* = 0.43). The next trajectory cluster (4.4%) was termed 'increasing aggressors' because behaviour-aggregate scores increased from time 1 (*M* = -0.25, *SD* = 0.52) to time 2 (*M* = 2.15, *SD* = 1.33) to time 3 (*M* = 3.42, *SD* = 1.73). The smallest trajectory cluster (2.9%) was termed 'high decreasing to stable aggression' because behaviour-aggregate scores were high at time 1 (*M* = 4.41, *SD* = 1.79) and then decreased at time 2 (*M* = 1.04, *SD* = 1.27) but then remained stable at time 3 (*M* = 1.02, *SD* = 1.71).

There were no age group or sex differences in trajectory clusters for solitary, prosocial and aggressive behaviour-aggregate scores.

There were four distinct trajectory clusters for standardised ratings of direct relational aggression. The largest cluster (53.1%) was termed 'low stable direct relational aggressors' because children's standardised ratings were consistently at time 1 (*M* = -0.55, *SD* = 0.00), time 2 (*M* = -0.53, *SD* = 0.00) and time 3 (*M* = -0.41, *SD* = 0.00). The three other clusters were similar sizes. One was termed 'time 3 direct relational aggressors' (15.8%) because children reported some direct relational aggression at time 1 (*M* = 0.44, *SD* = 1.18) and time 2 (*M* = -0.55, *SD* = 1.17) but standardised ratings were particularly high at time 3 (*M* = 2.22, *SD* = 0.71). Another was termed 'time 2 direct relational aggressors' (15.8%) because children had low standardised ratings of direct relational aggression at time 1 (*M* = 0.01, *SD* = 0.99) and time 3 (*M* = -0.41, *SD* = 0.00) but higher standardised ratings at time 2 (*M* = 1.78, *SD* = 0.62). The final group was termed 'decreasing direct relational aggressors' (15.4%) because children had high standardised ratings at time 1 (*M* = 1.60, *SD* = 0.73) which reduced at time 2 (*M* = -0.53, *SD* = 0.00) and time 3 (*M* = -0.41, *SD* = 0.00). There were no sex differences in these trajectory clusters. However there was an age group difference (χ^2 = 10.21, 3df, *p* = .015, *Cramer's V* = 0.19) as the 'time 3 direct relational aggressors' group had a higher proportion of children from the older age group (22.1%) than from the younger age group (9.0%).

7.4 Combining behaviour-aggregate scores into clusters

In this section, the second research question in this chapter is addressed, to look at how broader categories of children's self-report (identified in the previous section) relate to each other, and whether this varies by sex and across time points. Analysis involved exploration of the relationships between children's self-reported behaviour-aggregate scores identified in Section 7.3.3 (solitary, prosocial, aggressive) and standardised ratings of direct relational aggression. Separate Cluster Analyses were conducted across the four behaviour-aggregate scores at each time and combined behaviour-aggregate scores clusters (including standardised ratings of direct relational aggression) were created. *K* Nearest Neighbour analyses were also conducted in order to check the reliability of these clusters. Further analysis then considered how the combined behaviour-aggregate scores clusters of self-reports changed over the three time points.

7.4.1 Cluster analysis

The second research question in this chapter related to how the behaviour-aggregate scores of children's self-reports calculated in Section 0 (solitary, prosocial, aggressive) and standardised ratings of direct relational aggression were related. Cluster Analysis was conducted at each time point in order to consider this. All four behaviour-aggregate scores from each time were entered into a Hierarchical Clustering Analysis using Ward's method (Ward, 1963) with squared Euclidian distance. As before, analysis of the dendrogram, and the changes in the error sum of squares at each stage, revealed that a five-cluster solution provided the best fit for the data and hierarchical clustering was then used to force each case into one of five clusters at each time point. As explained previously, one way to confirm the accuracy of Cluster Analysis is through the use of Discriminant Analysis, which assigns cases to categories, based on their responses. As before, the *K* Nearest Neighbour test was used and found that the percentage of cases correctly classified in each group, was substantially larger than the percentage of correct categorisation by chance alone (all over 70%). This confirmed that children's group membership was accurate. Means and One-way ANOVAs for the behaviour-aggregate scores and standardised ratings of direct relational aggression helped to classify each cluster. Descriptions were given to each cluster based on their score relative to the other

children in the sample. These 'clusters' refer to combined behaviour-aggregate scores clusters (which included standardised scores of direct relational aggression).

At each of the three time points, there were five combined behaviour-aggregate scores clusters. The percentage of children in each cluster is presented in Figure 7.1.

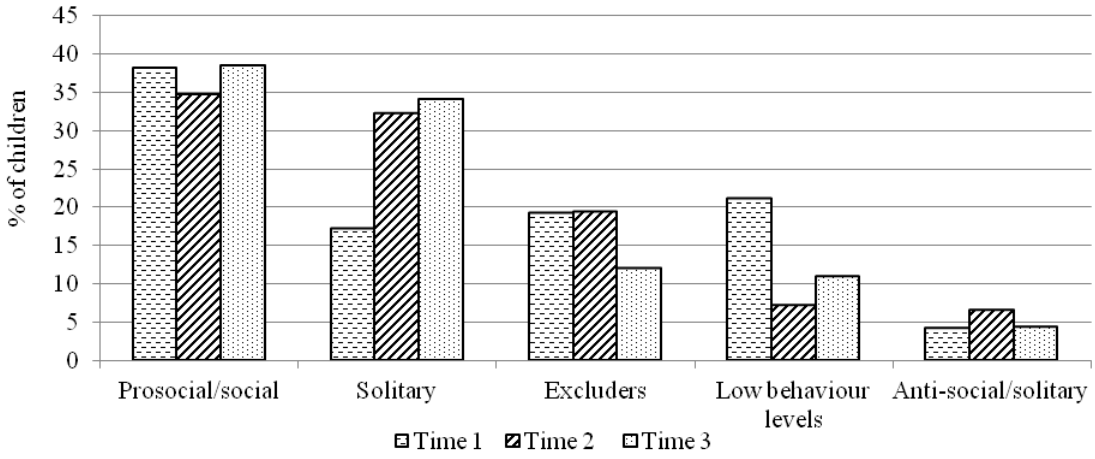

Figure 7.1. Combined behaviour-aggregate scores clusters (percentage of children)

Just over one third of children were classified as 'prosocial / social'. Children in this group had high behaviour-aggregate scores for prosocial behaviour (P1 – *M* = 0.45, *SD* =0.46; P2 – *M* = 0.20, *SD* = 0.84; P3 – *M* = 0.20 , *SD* = 0.84) but low behaviour-aggregate scores for solitary behaviour (P1 – *M* = -0.54, *SD*=.059; P2 – *M* = -0.86, *SD* = .22; P3 – *M* = -0.89, *SD* = 0.00), aggressive (P1 – *M* = -0.14, *SD* =.066;, P2 – *M* = -0.20, *SD* = .57; P3 – *M* = 0.37, *SD* = 0.00) low standardised reports of direct relational aggression (P1 – *M* = -0.55, *SD* = 0.00; P2 – *M* = -0.53, *SD* = 0.00; P3 – *M* = -0.41, *SD* = 0.00).

A second cluster was termed 'solitary' children. Children in this group had high behaviour-aggregate scores for solitary behaviour (P1 – *M* = 1.27, *SD* = 0.543, P2 – *M* = 0.73, *SD* = 0.69, P3 – *M* = 0.61, *SD* = 0.93), but behaviour-aggregate scores close to the mean for prosocial behaviour (P1 – *M* =-0.29 , *SD* =1.29 ;P2 – *M* = -0.29, *SD* = 1.29; P3 – *M* =0.024 , *SD* = 0.79), aggressive behaviour (P1 – *M* = -0.012, *SD* = 0.52; P2 – *M* = -0.26 , *SD* = 0.49; P3 – *M* = 0.05, *SD* = 0.65), and direct relational aggression (P1 – *M* = -0.19 , *SD* = 0.72, P2 – *M* =0.53 , *SD* = 0.00, P3 – *M* = -0.41 , *SD* = 0.00).

A third cluster was termed ‘excluders’. Children in this group had high standardised reports of direct relationally aggressive behaviour (P1 – *M* = 1.61, *SD* =0.74*;* P2 – *M* = 1.78, *SD* = 0.62; P3 – *M* =2.21 , *SD* = 0.70) but behaviour-aggregate scores close to the mean for solitary behaviour (P1 – *M* = 0.23, *SD* =0.89*;* P2 – *M* = 0.33, *SD* = 0.98; P3 – *M* =0.28, *SD* = 0.88), prosocial behaviour (P1 – *M* = -0.04, *SD* =0.74*;* P2 – *M* = -0.29, *SD* = 1.13; P3 – *M* =-0.42 , *SD* = 1.15) and aggressive behaviour (P1 – *M* = -0.10, *SD* =0.51*;* P2 – *M* = -0.08, *SD* = 0.63; P3 – *M* = -0.04 , *SD* = 0.55).

The fourth cluster was ‘low behavioural levels’ because children in this group had low behaviour-aggregate scores of solitary behaviour (P1 – *M* = -0.56, *SD* =0.51; P2 – *M* = -0.81, *SD* = 0.31; P3 – *M* = 0.62, *SD* = 0.59), prosocial behaviour (P1 – *M* = -0.89, *SD* = 0.88, P2 – *M* =-1.47, *SD* = 0.53, P3 – *M* = -1.29, *SD* = 0.70), aggressive behaviour (P1 – *M* = -0.25, *SD* =0.44; P2 – *M* = -0.44, *SD* = 0.00; P3 – *M* = -0.04, *SD* = 0.61*)* and low standardised reports of direct relationally aggressive behaviour (P1 – *M* = -0.89, *SD* = 0.88; P2 – *M* =-0.53, *SD* = 0.00*;* P3 – *M* = -0.41, *SD* = 0.00).

The smallest cluster was termed ‘antisocial / solitary’. Children in this group had high behaviour-aggregate scores for solitary behaviour (P1- *M* = 1.43, *SD* = 0.51; P2 – *M* =0.95 , *SD* =1.17 P3 – *M* = 0.76 , *SD* = 0.88), aggressive behaviour (P1 – *M* = 3.55, *SD* =0.44, P2 – *M* =-3.08 , *SD* = 1.09; P3 – *M* = 3.84 , *SD* -0.55), and standardised reports for direct relational aggression (P1 – *M* =1.07, *SD* =0.00; P2 – *M* = 0.76, *SD* = 1.06, P3 – *M* =-1.36 , *SD* -1.15). However, they had low behaviour-aggregate scores for prosocial behaviour (P1 – *M* = -0.68, *SD* =0.88, P2 – *M* =-1.14, *SD* = 1.39; P3 – *M* = 1.79, *SD* -0.70).

The second research question in this chapter, also focused on whether these clusters varied by age group. In order to understand whether this was the case, Chi-Square analysis was used and showed that there was a significant association between age group and combined behaviour-aggregate scores clusters at time 2 (χ^2 = 12.84, 4df, *p* = .012, *Cramer’s V* = 0.22) and time 3 (χ^2 = 17.32, 4df, *p* = .002, *Cramer’s V* = 0.25). The percentage of children in each combined behaviour-aggregate scores cluster has been reported by age group in Table 7.2. Residuals indicated that, at time 2 the younger age group were more likely to have ‘low behavioural levels’ whereas those in the older

age group were more likely to be 'solitary'. At time 3, the younger age group were more likely to be 'prosocial / social' and the older age group were more likely to be 'excluders.' However, these were not consistent differences.

Table 7.2. Combined behaviour-aggregate scores clusters by age group

Time and age group		Prosocial / Social % (N)	Excluders % (N)	Anti-social / solitary % (N)	Low behaviour reports % (N)	Solitary % (N)
Younger age group	1	36.2 (51)	19.1 (27)	2.5 (5)	22.7 (32)	18.4 (26)
	2	36.5 (50)	21.2 (19)	5.1 (7)	11.7 (16)	25.5 (35)
	3	49.6 (66)	7.5 (10)	2.3 (3)	11.3 (15)	29.3 (39)
Older age group	1	40.3 (58)	19.4 (28)	4.9 (7)	19.4 (28)	16.0 (23)
	2	33.1 (47)	17.6 (25)	7.7 (11)	2.8 (4)	38.7 (55)
	3	27.9 (39)	16.4 (23)	6.4 (9)	10.7 (15)	38.6 (54)

There was a significant association between sex and combined behaviour-aggregate scores cluster for the younger age group only at time 1 ($\chi^2 = 12.42$, (4, $N = 141$), $p = .014$, *Cramer's V* = 0.30) where females were more likely than males to report being 'prosocial / social' and males were likely than females to report being 'anti-social / solitary'. There were no sex differences at any other time for either cluster.

7.4.2 Focusing on the prosocial behaviour-aggregate scores

The second research question in this chapter, focused on how children's self-reported behaviours related to each other across categories. One tentative suggestion from the literature was that some children would self-report 'bistrategic' behaviours, with prosocial and aggressive behaviours. Another tentative suggestion was that children with high reports of solitary behaviour would also have low reports of prosocial behaviours. Whilst the combined behaviour-aggregate scores clusters showed that the 'solitary' group had prosocial aggregates close to the mean, and the anti-social / solitary group had low prosocial behaviour-aggregate scores, this link required further exploration for clarity in order to specifically address these possibilities.

Therefore, the data were split by whether solitary behaviour-aggregate scores, were above or below the mean. An Independent Sample *t* test was carried out, comparing the

prosocial behaviour-aggregate scores means at each time to establish how these self-reports were related. There were no significant differences in the prosocial behaviour-aggregate scores by whether solitary behaviour-aggregate scores were above or below the mean. However, at time 3, there was a significant difference (t (270.64) = 2.66, p = .008, *Cohen's D* = .32) where those who had solitary behaviour-aggregate scores above the mean, had lower prosocial behaviour-aggregate scores (M = -0.14, SD = 1.06) and those who had solitary behaviour-aggregate scores below the mean had higher prosocial behaviour-aggregate scores (M = 0.17, SD = 0.90).

Bistrategic behaviour-reports were considered in two ways. The data were split by whether prosocial behaviour-aggregate scores were above or below the mean at each time point, and compared to aggressive behaviour-aggregate scores and direct-relational behaviour-aggregate scores using an independent sample t test. There were no significant results. In addition, the data were split for those children who had aggression behaviour-aggregate scores above or below the mean at time 2 (the start of the school year) and an independent sample t test was conducted to compare prosocial behaviour-aggregate scores means at time 3 (the end of the school year).

There was a significant difference (t (85.28) = 2.22, p = .029, *Cohen's D* = .34) where children with aggressive behaviour-aggregate scores above the mean at time 2 had lower prosocial behaviour-aggregate scores at time 3 (M = -0.27, SD = 0.96) than those who had standardised direct relational aggression below the mean at time 2 3 (M = 0.08, SD = 1.09).

Similarly, this was also carried out to compare the prosocial behaviour-aggregate scores of those who standardised ratings above or below the mean for direct relational aggression. There was a significant difference (t (92.86) = 2.51, p = .014, *Cohen's D* = .37) where children with standardised direct relational aggression above the mean at time 2 had lower prosocial behaviour-aggregate scores at time 3 (M = -0.29, SD = 1.09) than those who had standardised direct relational aggression below the mean at time 2 (M = 0.09, SD = 0.96).

7.4.3 Changes in combined behaviour-aggregate scores clusters

A key aspect of the second research question in this chapter was the effect of the school year and how children's self-reported clusters may change. Analysis was conducted to see how children's combined behaviour-aggregate scores clusters changed over the three time points, by creating a variable ('cluster-change') labelled with whether the child had changed or remained in the same cluster at a different time points. One-Way Goodness of Fit tests were used to see whether there was a significant change. Three tests were conducted looking from time 1 to time 2, time 2 to time 3 and time 1 to time 3. In addition, Chi-Square analysis was carried out to see whether there was an association between sex and cluster change, and age group and cluster change.

There was a significant result between time 1 and time 2 (χ^2 = 40.68 (1, *N* = 142*)*, *p* < .001, *Cohen's W* = 0.54) where children were less likely to remain in the same combined behaviour-aggregate scores cluster (28.0%) than change combined behaviour-aggregate scores cluster (72.0%). Examination of residuals in contingency tables highlighted that children who were 'solitary' at time 1, were less likely to be 'social' at time 2 (*p* < .05, std. residual = -1.9). There were no other significant patterns in how clusters changed. There was no significant association between age group and whether children changed cluster. However, there was an association between sex and whether children changed cluster (χ^2 = 10.01, (1, *N* = 279), *p* = .002, *Cramer's V* =- 0.19) with more females remaining in the same cluster (36.4%) than males (19.4%). This difference did not occur when looking by sex within each age group.

There was also a significantly higher proportion of children (χ^2 = 12.75 (1, *N* = 273*)*, *p* < .001, *Cohen's W* = 0.22) who changed combined behaviour-aggregate scores cluster between time 2 and time 3 (60.8%) compared to those who remained in the same combined behaviour-aggregate scores cluster (39.2%). Examination of residuals in contingency tables highlighted that children who were 'anti-social / solitary' at time 2, were less likely to be 'social' at time 3 (*p* < .05, std. residual = -2.2). In contrast, those with 'low behaviour reports' at time 2 (*p* < .05. std. residual = 2.1) were more likely to be 'social' at time 3. There were no other significant patterns in how clusters changed. Similar to the previous finding, there was no association between age group and

whether children changed cluster. However, there was an association between sex and whether they changed cluster (χ^2 = 6.53, (1, *N* = 273), *p* = .011, *Cramer's V* = 0.155) where residuals showed that females were more likely to remain in the same cluster (46.7%) compared to males (31.6%). This difference did not occur when looking by sex within each age group. In order to understand the change for males identified contingency tables and standardised residuals were inspected. There were no clear patterns in how males' clusters changed.

There was also a significant finding when looking from time 1 to time 3 (χ^2 = 43.52, (1, *N* = 273), *p* < .001, *Cohen's W* = 0.34). A smaller percentage of children remained in the same combined behaviour-aggregate scores cluster (30.0%) than who changed combined behaviour-aggregate scores cluster (70.0%). Examination of residuals in contingency tables highlighted that children with 'low behaviour reports' at time 2 (*p* < .05. std. residual = -1.9) were less likely to be an 'excluder' at time 3. There were no other significant patterns in how clusters changed. There was no significant association between sex and cluster change or age group and cluster change.

7.5 Children's explanations for exhibiting and not exhibiting behaviours with peers

The third research question in this chapter focused on how children's explanations for exhibiting and not exhibiting different behaviours related to each other, across the main categories identified in the previous sections. Analysis was conducted separately on the explanations children provided for exhibiting or not exhibiting behaviour. The reason for this was because results in Chapters 4, 5 and 6 showed that self-reported ratings were sometimes related to differences in explanations. These analysis were not compared by age group or sex. This was because findings from the previous chapters showed no significant differences in explanations by age group or sex. This analysis was carried out in two ways. The first considered consistency of explanations within behaviour-aggregates (solitary, prosocial and aggressive) and the second considered overlap in explanations between behaviour-aggregates. This is described in more depth in the following sections.

7.5.1 Consistency of behaviour-explanations within behaviour-aggregates

In order to consider how children's explanations related to each other across the various forms of behaviour (research question 3 in this chapter), exploratory analysis is presented which assessed whether there was consistency in explanations different forms of behaviour within each behaviour-aggregate (solitary, prosocial, aggressive). Explanations for direct relational aggression have not been considered in this section as this was not collated with any other behaviour forms.

Explanations where a child had reported exhibiting more than one behaviour within each aggregate were considered separately to explanations where a child had reported not exhibiting more than one behaviour within each aggregate. For example, a child may have reported that they exhibit (either 'lots' or 'sometimes') physical and verbal aggression. Therefore their explanations for exhibiting these two forms of aggressive behaviour would be compared for consistency. If their explanation focus was causal for both explanations, then this would be 'consistent'. Similarly, if their focus was consequential in both explanations, this would also be 'consistent'. Likewise, if their focus was mixed (both causal and consequential) across both explanations, this would also be 'consistent'. However, if their explanation focus varied between the two behaviours, such as causal for verbal aggression but mixed for physical aggression, then this would be 'inconsistent'.

Furthermore, a child may have also reported that they did not exhibit indirect relational aggression or ringleader behaviours. Their explanations for not exhibiting ('sometimes' or 'never') these three behaviours would be compared for consistency in the same way detailed above.

The same was applied for agency and outcome focus, separately for both exhibiting and not exhibiting the forms of behaviour within each behaviour-aggregate scores.

7.5.1.1 Explanation focus

As part of the third research question in this chapter, consistency in explanation focus was considered within each category. There were 18 possible significant results when considering consistency in explanation focus as this was analysed at each time point (1, 2, 3), for each behaviour-aggregate scores (solitary, prosocial, aggressive) and separately for exhibiting and not exhibiting these. One-way Chi-Square Goodness of Fit tests were conducted to determine whether there was a significant difference between consistent and inconsistent explanations.

For the solitary behaviour-aggregate scores (behaviour solitude and avoidance), consistent explanation focus (64.4%) was more common than inconsistent focus (36.6%) for explanations of exhibiting the behaviours in the behaviour-aggregate scores, (χ^2 = 6.041 (1, *N* = 73*), p* = .014, *Cohen's W* = 0.29) at time 1. At time 2 (χ^2 = 12.06 (1, *N* = 233*), p* < .001, *Cohen's W* = 0.23) and time 3 (χ^2 = 6.067 (1, *N* = 238*), p* = .014, *Cohen's W* = 0.16), explanations for not exhibiting the behaviours in the solitary behaviour-aggregate scores were also more consistent (P2 – 61.4%, P3 – 58.4%) than inconsistent (P2 – 38.6%, P3 – 41.6%).

For behaviours in the prosocial behaviour-aggregate scores (sharing, caring, including), there was no significant result for whether explanations were consistent or inconsistent for exhibiting these behaviours. For not exhibiting these behaviours, across all time points, children were more likely to provide consistent explanation focus (P1- 87.5%, P2 – 83.0%, P3 – 77.0%) than inconsistent explanation focus (P1 – 12.5%, P2 – 17.0%, P3 – 23.0%). This was the case at time 1 (χ^2 = 22.50 (1, *N* = 40*), p* < .001, *Cohen's W* = 0.75), time 2 (χ^2 = 20.45 (1, *N* = 47*), p* < .001, *Cohen's W* = 0.66) and time 3, (χ^2 = 14.083 (2, *N* = 48*), p* < .001, *Cohen's W* = 0.54).

For the aggressive behaviour-aggregate scores (indirect relational aggression, verbal aggression, physical aggression, ringleader of verbal aggression, ringleader of physical aggression) there were significant findings for the explanation focus for exhibiting these behaviours at time 1 (χ^2 = 5.56 (1, *N* = 18*), p* = .018, *Cohen's W* = 0.56), time 2 (χ^2 = 7.20 (1, *N* = 20*), p* = .007, *Cohen's W* = 0.50), and time 3(χ^2 = 3.64 (2, *N* = 19*), p* =

.012, *Cohen's W* = 0.44). In each case, consistent explanations (P1 – 77.8%, P2 – 80.0%, P3 – 78.9%) were more common than inconsistent explanations (P1 – 22.1%, P2 – 20.0%, P3 – 21.1%). The opposite pattern was true for explanation-focus of not exhibiting these behaviours. There were significant results at time 1 (χ^2 = 15.06 (1, *N* = 272), *p* < .001, *Cohen's W* = 0.24), time 2 (χ^2 = 4.978 (1, *N* = 275), *p* = .026, *Cohen's W* = 0.13), and time 3 (χ^2 = 13.73 (1, *N* = 271, *p* = .012, *Cohen's W* = 0.22) where consistent focus was less common (P1 – 38.2%, P2 – 43.2%, P3 – 38.7%) than inconsistent focus (P1 – 61.8%, P2 – 56.8%, P3 – 61.3%).

7.5.1.2 Agency

As part of the third research question in this chapter, consistency in agency was also considered within each category. As with explanation focus, there were 18 possible significant results when considering consistency in agency as this was analysed at each time point (1, 2, 3), for each behaviour-aggregate scores (solitary, prosocial, aggressive) and separately for exhibiting and not exhibiting these. One-way Chi-Square Goodness of Fit tests were conducted to establish whether there was a significant difference between consistent and inconsistent agency.

The agency in explanations for exhibiting the behaviours in the solitary behaviour-aggregate scores (behavioural solitude and avoidance), were more likely to be consistent (63.0%) than inconsistent (37.0%) at time 1 only (χ^2 = 4.95 (1, *N* = 73), *p* = .026, *Cohen's W* = 0.26). The agency in explanations for not exhibiting the behaviours in the solitary behaviour-aggregate scores, were more likely to be consistent (57.7%) than inconsistent (42.3%), at time 2 only (χ^2 = 4.28 (1, *N* = 158), *p* = 0.039, *Cohen's W* = 0.17).

At time 1 (χ^2 = 7.69 (1, *N* = 208), *p* = .006, *Cohen's W* = 0.19) and time 2 (χ^2 = 5.35 (1, *N* = 216), *p* = .021, *Cohen's W* = 0.16), the agency in explanations for exhibiting the behaviours in the prosocial behaviour-aggregate scores (sharing, caring, including), was more likely to be consistent (P1 – 59.6%, P2 – 57.9%) than inconsistent (P1 – 40.4%, P2 – 42.1%). This was not significant at time 3. The same pattern was also present in explanations for not exhibiting these behaviours at time 1 (χ^2 = 4.33 (1, *N* = 39), *p* =

.037, *Cohen's W* = 0.33), time 2 (χ^2 = 6.75 (1, *N* = 48*), p* = .009, *Cohen's W* = 0.38) and time 3, (χ^2 = 13.00 (1, *N* = 52*), p* < .001, *Cohen's W* = 0.50). In all cases, consistent agency (P1 – 66.6%, P2 – 68.8%, P3 – 75.0%) was more common than inconsistent agency (P1 – 33.4%, P2 – 31.2%, P3 – 25.0%).

The agency in explanations for exhibiting the behaviours in the aggressive behaviour-aggregate scores (indirect relational, verbal, physical, ringleader of verbal aggression, ringleader of physical aggression) was more likely to be consistent (77.7%) than inconsistent (22.3%) at time 1 only (χ^2 = 5.56 (1, *N* = 18*), p* = .018, *Cohen's W* = 0.56). There was also a significant result in the agency for not exhibiting these behaviours at time 3 only (χ^2 = 11.85 (1, *N* = 237*), p* = .001, *Cohen's W* = 0.22) where consistent agency (61.2%) was also more common than inconsistent agency (38.8%).

7.5.1.3 Outcome focus

When addressing the third research question in this chapter, it was also necessary to look at the consistency of outcome focus in children's explanations of behaviour. As with explanation focus and agency, there were 18 possible significant results when considering consistency in outcome focus as this was analysed at each time point (1, 2, 3), for each behaviour-aggregate scores (solitary, prosocial, aggressive) and separately for exhibiting and not exhibiting these. One-way Chi-Square Goodness of Fit analyses were conducted to see whether there was a significant difference between consistent and inconsistent explanations.

At time 1 (χ^2 = 8.53 (1, *N* = 38*), p* = .004, *Cohen's W* = 0.47), time 2 (χ^2 = 13.36 (1, *N* = 33*), p* < .001, *Cohen's W* = 0.63) and time 3 (χ^2 = 2.44 (1, *N* = 41*), p* < .001, *Cohen's W* = 0.24), explanation outcome focus for exhibiting the behaviours in the solitary behaviour-aggregate scores (behavioural solitude and avoidance) were more likely to be consistent (P1 – 73.7%, P2 – 81.8%, P3 – 87.8%) than inconsistent (P1 – 26.3%, P2 – 18.2%, P3 – 12.2%). At time 2 (χ^2 = 9.64 (1, *N* = 166*), p* = 0.002, *Cohen's W* = 0.24) and time 3 (χ^2 = 25.31 (1, *N* = 147*), p* < .001, *Cohen's W* = 0.41), outcome focus for not exhibiting these behaviours was more likely to be consistent (P2 - 62.0%, P3 – 70.7%) than inconsistent (P2 – 38.0%, P3 – 29.3%).

At time 1 (χ^2 = 59.51 (1, *N* = 71*)*, *p* < .001, *Cohen's W* = 0.92), and time 2 (χ^2 = 57.07 (1, *N* = 61*)*, *p* < .001, *Cohen's W* = 0.97), outcome focus in explanations for exhibiting behaviours in the prosocial behaviour-aggregate scores (sharing, caring, including) were more consistent (P1 – 95.8%, P2 – 98.4%) than inconsistent (P1 – 4.2%, P2 – 2.2%). At time 3, all outcome focus in explanations for exhibiting these behaviours was consistent and therefore it was not possible to run analysis on this (*N* = 48). A small number of children reported not exhibiting prosocial behaviour and identified outcome focus for this (*N* < 5), and therefore, it was not possible to run analysis for this.

There was no significant difference between the number of children providing consistent outcome focus and inconsistent outcome focus in explanations for exhibiting behaviours in the aggressive behaviour-aggregate scores (indirect relational, verbal, physical, ringleader of verbal aggression, ringleader of physical aggression). However, at time 1 (χ^2 = 30.98 (1, *N* = 250*)*, *p* < .001, *Cohen's W* = 0.35), time 2 (χ^2 = 54.82 (1, *N* = 254*)*, *p* < .001, *Cohen's W* = 0.46) and time 3 (χ^2 = 14.94 (1, *N* = 249*)*, *p* < .001, *Cohen's W* = 0.24) consistent outcome focus for not exhibiting these behaviours was less common (P1 - 32.4%, P2 – 26.8%, P3 – 37.8%) than consistent outcome focus (P1 – 67.6%, P2 – 73.2%, P3 – 62.2%).

7.5.2 Explanations between behaviour-aggregate scores

In the final section of this chapter, analysis was carried out to consider whether children's explanations for exhibiting behaviours in each behaviour-aggregate scores (solitary, prosocial, aggressive, direct relationally aggressive) were related to each other. This analysis was run in order to address the third research question in this chapter, as to how children's explanations relate to each other across the different forms of behaviour. Consideration has also been given to whether children's explanations for exhibiting the behaviours in each behaviour-aggregate scores were related to each other. Furthermore, analysis considered whether explanations for exhibiting behaviours were related to each other. Finally, analysis also considered whether explanations for exhibiting behaviours were related to explanations for not exhibiting behaviours.

This section has focused on agency and outcome focus, as findings relating to explanation focus were more complex within categories and therefore the adopted approach may have been misleading in results.

Explanations for each form of behaviour (i.e. the 11 behaviour forms researched in this thesis) within each behaviour-aggregate scores were collapsed. For instance, explanations for exhibiting behavioural solitude and avoidance were collapsed, as part of the solitary behaviour-aggregate scores. If children's agency / outcome focus was consistent for each of the forms in each behaviour-aggregate scores, then the corresponding code was assigned (internal, external, mixed). However, if their agency / outcome focus was inconsistent, they were coded in this way.

In each case, these were collapsed by children's explanations for exhibiting these behaviours ('lots' or 'sometimes') separately to children's explanations for not exhibiting these behaviours ('sometimes' or 'never'). Therefore, a child who said that they 'sometimes' behaved in a certain way, had explanations coded in the exhibiting *and* not exhibiting variables. Collapsing the explanations in this way resulted in a different number of variables being collated for each child dependant on two things. First, on whether they had reported exhibiting or not exhibiting the behaviour in question, and second, if they had, whether there was agency and outcome focus in these explanations. For example, in the case of aggressive behaviour, some children may have provided explanations for two behaviours, whereas others may have done so for five. However, due to the exploratory nature of this research, this is the clearest way of understanding children's explanations across a range of 11 behaviours.

7.5.2.1 Agency

A series of Chi-Square tests were carried out at each time to see whether there were associations between the agency of explanations across the four behaviour-aggregate scores (solitary, prosocial, aggression, direct relational aggression) and for exhibiting and not exhibiting behaviours within each. For ease, all associations analysed using Chi-Square analysis have been listed in Table 7.3. As can be seen in Table 7.3, there were 22 possible significant associations. As explained in Chapter 3, Bonferroni

corrections were not applied due to the exploratory nature of this analysis. Results showed a total of nine significant associations. There were three significant associations at time 1, four significant associations at time 2 and two significant associations at time 3. These are shown by time in Table 7.3 and discussed further below. Three associations occurred at more than one time.

Table 7.3. Chi-Square Association tests across behaviour-aggregate scores

	T1	T2	T3
Exhibiting solitary * Exhibiting prosocial			
Exhibiting solitary * Exhibiting aggressive			
Exhibiting solitary * Exhibiting direct relational	✓	✓	
Exhibiting prosocial * Exhibiting aggressive			
Exhibiting prosocial * Exhibiting direct relational			
Exhibiting aggression * Exhibiting direct relational			
Not exhibiting solitary * Not exhibiting prosocial			
Not exhibiting solitary * Not exhibiting aggressive		✓	
Not exhibiting solitary * Not exhibiting direct relational			
Not exhibiting prosocial * Not exhibiting aggressive			
Not exhibiting prosocial * Not exhibiting direct relational			
Not exhibiting aggression * Not exhibiting direct relational			
Exhibiting solitary * Not exhibiting solitary			
Exhibiting solitary * Not exhibiting prosocial		✓	✓
Exhibiting solitary * Not exhibiting aggressive			
Exhibiting solitary * Not exhibiting direct relational aggressive			
Exhibiting prosocial * Not exhibiting prosocial		✓	
Exhibiting prosocial * Not exhibiting aggressive		✓	
Exhibiting prosocial * Not exhibiting direct relationally aggressive			✓
Exhibiting aggressive * Not exhibiting aggressive			
Exhibiting aggressive * Not exhibiting direct relationally aggressive			
Exhibiting direct relational * Not exhibiting direct relational	✓	✓	

At time 1, there was an association (χ^2 = 3.15, (4, *N* = 225) p < .001, *Cramer's V* = 0.22) between agency for exhibiting direct relational aggression behaviour and not exhibiting direct relational aggression, with residuals indicating that an overlap for external agency. This was also the case at time 2 (χ^2 = 19.65, (4, *N* = 227), *p* < .001, *Cramer's V* = 0.21).

At time 1, there was also an association (χ^2 = 9.67, (2, *N* = 55(, *p* = .009, *Cramer's V* = 0.42) between agency for exhibiting direct relational aggression and agency for exhibiting solitary behaviour with residuals indicating an overlap for mixed agency. There was also an association at time 2 (χ^2 = 11.16, (4, *N* = 48) .*p* = 0.027, *Cramer's V*

= 0.34) between agency for exhibiting direct relational aggression and exhibiting solitary behaviour, with residuals indicating an association between mixed agency for solitary behaviour and internal agency for direct relational aggression.

Furthermore, at time 2, there was an association (χ^2 = 12.07, (4, *N* = 239) *p* = .017, *Cramer's V* = 0.16) between internal agency for exhibiting prosocial behaviour and external agency for not exhibiting aggressive behaviour. Similarly, at time 3, there was an association (χ^2 = 34.47.09, (4, *N* = 197), *p* < .001, *Cramer's V* = 0.30) between agency for not exhibiting direct relational aggression and exhibiting prosocial behaviour, with residuals indicating consistency between external agency.

At time 2 (χ^2 = 10.16, (4, *N* = 134), *p* = .038, *Cramer's V* = 0.20) and time 3 (χ^2 = 9.75, (4, *N* =116) *p* = .045, *Cramer's V* = 0.21) there were associations between agency for exhibiting and not exhibiting solitary behaviour. At time 2, residuals indicated consistency in external agency whereas at time 3, residuals indicated consistency in internal agency.

At time 2, there was also an association (χ^2 = 13.09, (4, *N* = 245), *p* = .011, *Cramer's V* = 0.16) between agency for not exhibiting aggressive behaviour and exhibiting solitary behaviour with residuals indicating consistency between external agency.

Therefore, whilst there were some associations across explanations, these were not consistent across the three time points.

7.5.2.2 Outcome focus

A series of Chi-Square tests were carried out at each time to see whether there were associations between the outcome focus of explanations across three of the behaviour-aggregate scores (solitary, aggression, direct relational aggression) and the three prosocial behaviours (sharing, caring, including). The rationale for keeping the prosocial behaviours separate was because the present study showed differences in the pattern of outcome focus for each behaviour whereas there were similarities in these for the behaviours in the other aggregates. For ease, all associations analysed using Chi-

Square analysis have been listed in Table 7.4, and those which were significant have been marked with a tick. As can be seen in Table 7.4 there were 51 possible significant associations. As explained in Chapter 4, Bonferroni corrections were not applied due to the exploratory nature of this analysis. At time 1, there were four significant associations. At time 2, there were six significant associations. At time 3, there were four significant associations. There was little consistency across times in significant associations.

Table 7.4. Chi-Square association tests across behaviour-aggregate scores by time point

	T1	T2	T3
Exhibiting solitary * Exhibiting sharing		✓	
Exhibiting solitary * Exhibiting caring			
Exhibiting solitary * Exhibiting including			
Exhibiting solitary * Exhibiting aggressive			
Exhibiting solitary * Exhibiting direct relationally aggressive			
Exhibiting sharing * Exhibiting caring			
Exhibiting sharing * Exhibiting including			
Exhibiting sharing * Exhibiting aggressive			
Exhibiting sharing * Exhibiting direct relationally aggressive			✓
Exhibiting caring * Exhibiting including			✓
Exhibiting caring * Exhibiting aggressive			
Exhibiting caring * Exhibiting direct relationally aggressive			
Exhibiting including * Exhibiting aggressive			
Exhibiting including * Exhibiting direct relationally aggressive			
Exhibiting aggression * Exhibiting direct relationally aggressive			
Not exhibiting solitary * Not exhibiting sharing			
Not exhibiting solitary * Not exhibiting caring			
Not exhibiting solitary * Not exhibiting including			
Not exhibiting solitary * Not exhibiting aggressive		✓	
Not exhibiting solitary * Not exhibiting direct relationally aggressive			
Not exhibiting sharing * Not exhibiting caring			
Not exhibiting sharing * Not exhibiting including			
Not exhibiting sharing * Not exhibiting aggressive			
Not exhibiting sharing * Not exhibiting direct relationally aggressive			
Not exhibiting caring * Not exhibiting including			
Not exhibiting caring * Not exhibiting aggressive			
Not exhibiting caring * Not exhibiting direct relationally aggressive			
Not exhibiting including * Not exhibiting aggressive	✓		
Not exhibiting including * Not exhibiting direct relationally aggressive			
Not exhibiting aggression * Not exhibiting direct relationally aggressive	✓		
Exhibiting solitary * Not exhibiting solitary			
Exhibiting solitary * Not exhibiting sharing			
Exhibiting solitary * Not exhibiting caring			
Exhibiting solitary * Not exhibiting including			
Exhibiting solitary * Not exhibiting aggressive		✓	
Exhibiting solitary * Not exhibiting direct relational aggressive			✓

	T1	T2	T3
Exhibiting sharing * Not exhibiting sharing			
Exhibiting sharing * Not exhibiting caring			
Exhibiting sharing * Not exhibiting including			
Exhibiting sharing * Not exhibiting aggressive			
Exhibiting sharing * Not exhibiting direct relationally aggressive			✓
Exhibiting caring * Not exhibiting caring			
Exhibiting caring * Not exhibiting including			
Exhibiting caring * Not exhibiting aggressive			
Exhibiting caring * Not exhibiting direct relationally aggressive	✓	✓	
Exhibiting including * Not exhibiting including			
Exhibiting including * Not exhibiting aggressive		✓	
Exhibiting including * Not exhibiting direct relationally aggressive	✓	✓	
Exhibiting aggressive * Not exhibiting aggressive			
Exhibiting aggressive * Not exhibiting direct relationally aggressive			
Exhibiting direct relationally * Not exhibiting direct relationally aggressive			

At time 1, there was an association (χ^2 = 14.22, (6, *N* = 202), *p* = .026, *Cramer's V* = 0.19) between the outcome focus in for not exhibiting aggression and not exhibiting direct relational aggression. Residuals showed that those children, who had external outcome focus for one of these behaviours, were also likely to do so for the other.

At time 1, there was also an association (χ^2 = 18.70, (6, *N* = 207), *p* = .002, *Cramer's V* = 0.21) between outcome focus for not exhibiting aggression and exhibiting caring behaviour. There was consistency in external outcome focus for both behaviours. In addition, children with external outcome focus for not exhibiting aggressive behaviour were also much less likely to provide internal outcome focus for caring. Similarly, there was an association (χ^2 = 12.42, (4, *N* = 150), *p* = .013, *Cramer's V* = 0.20) between internal outcome focus for not exhibiting direct relational aggression and their external outcome focus in their explanations for exhibiting including behaviour.

Furthermore, at time 1, there was an association (χ^2 = 11.73, (4, *N* = 22), p = .013, Cramer's *V* = 0.52) between children's outcome focus for not exhibiting direct relational aggression, and not exhibiting including behaviour (*N* = 22), with residuals showing consistency in external outcome focus.

At time 2, there was an association (χ^2 = 10.35, (4, *N* = 181), *p* = .035, *p* = .049, *Cramer's V* = 0.17) between outcome focus for not exhibiting aggression and exhibiting

including behaviour, with residuals indicating that those children who had mixed outcome focus for including were more likely to have internal outcome focus for not exhibiting aggressive behaviour.

Also at time 2, there was an association ($\chi^2 = 17.79$, (6, $N = 251$) $p = .018$, *Cramer's V* = 0.19) between outcome focus for not exhibiting solitary behaviour and not exhibiting aggressive behaviour, with consistency in external outcome focus. There was an association in outcome focus for exhibiting solitary behaviour and not exhibiting aggression ($\chi^2 = 16.79$, (6, $N = 124$), $p = .007$, *Cramer's V* = 0.26) with varied outcomes for solitary behaviour being associated with external outcomes for not exhibiting aggressive behaviours.

At time 2, there was also an association ($\chi^2 = 11.35$, (4, $N = 150$), $p = .023$, *Cramer's V* = 0.20) between children's outcome focus in their explanations for not exhibiting direct relational aggression and exhibiting including behaviour, with consistency between the two behaviours, for all types of outcome focus.

In addition, there was an association ($\chi^2 = 21.82$, (4, $N = 142$), $p < .001$, *Cramer's V* = 0.28) between outcome focus in their explanations for not exhibiting direct relational aggression and exhibiting caring behaviour with residuals particularly showing consistency between internal outcome focus.

Furthermore, there was an association ($\chi^2 = 12.92$, (6, $N = 96$), $p = .029$, *Cramer's V* = 0.26) between outcome focus for exhibiting solitary behaviour and for exhibiting sharing behaviour with an external focus for solitary behaviour associated with mixed outcome focus for sharing behaviour.

At time 3, there was an association ($\chi^2 = 10.00$, (2, $N = 10$), $p < .022$, *Cramer's V* = 1.00) between outcome focus for exhibiting sharing and exhibiting direct relational aggression with standardised residuals indicating consistency between internal and external focus.

There was also an association (χ^2 = 18.48, (4, *N* = 115, *p* = .0021, *Cramer's V* = 0.28) between outcome focus for not exhibiting direct relational aggression and exhibiting sharing, with standardised residuals indicating that internal focus non-reported direct relational aggression were mostly associated with mixed focus in sharing and less likely to be external.

There was an association (χ^2 = 15.50, (6, *N* = 94), *p* = .012, *Cramer's V* = 0.29) between outcome focus for not exhibiting direct relational aggression and exhibiting solitary behaviour with standardised residuals indicating consistency between mixed outcome focus.

There was an association (χ^2 = 11.83, (4, *N* = 133), *p* = .01.6, *Cramer's V* = 0.21) between outcome focus for exhibiting caring and exhibiting including behaviour, with standardised residuals indicating consistency between mixed focus.

Therefore, whilst there were some associations across explanations, these were not consistent across the three time points.

7.6 Discussion of findings relating to all categories of behaviour

In this section, there is a discussion of findings was based on the fourth and fifth research questions (see Chapter 3) relating to children's self-reports and explanations across the different forms of behaviours. These research questions were addressed by considering three more specific research questions in this chapter. These considered how self-reports across the 11 behaviours were related and trajectories of these categories; how these broader categories related to each other at each time point; and how children's explanations were related to each other within and across behaviour categories.

7.6.1 Behaviour-aggregate scores

When addressing the first research question in this chapter, Principal Component Analyses (PCAs) and reliability analyses confirmed that there were distinct components within children's behaviour self-reports and that these could be categorised as aggression, prosocial and solitary behaviour. This overlaps with previous findings which make use of these categories (e.g. Ladd & Profilet, 1996) and supports the idea that children are able to distinguish between different behaviour categories when providing self-reports.

For solitary behaviour, the findings from the PCAs and reliability analysis were mixed. On one hand, it suggested that these were distinct behaviours and so therefore should be treated separately (Nelson, 2013). However, the factor loadings also confirmed Coplan's et al.'s (2014) findings that solitary behaviours are not mutually exclusive, particularly at time 3. The low factor loadings at time 1 and time 2, may relate to the inclusion of only two items. Spearman-Brown test of reliability showed that self-reports of avoidance and behavioural solitude became more related over time. This was also higher in the older age group when compared to the younger age group. As these findings suggested an increasing overlap between the two behaviours, it was decided to merge these two forms of behaviour into the solitary category in order to understand this change.

The PCAs also showed that self-reports of prosocial behaviours were related, which supports Ladd and Profilet's (1996) findings of an overlap between these behaviours. However, this coefficient was moderate and therefore, it may be that prosocial behaviours should be considered separately as proposed by Dunfield and Kuhlmeier (2013). In particular, when considering the prosocial component of the PCAs, including behaviour had a lower factor loading than sharing or caring which further supports the findings from Chapter 5 that this is a behaviour with which younger children are less familiar, or that they do not see it as being the same as sharing or caring, and may explain the moderate coefficient.

The PCAs also found that direct relational aggression was not included in the 'aggression' component, supporting ideas of Crick et al., (1999), that relational

aggression (in this case direct only), should be kept a separate category. Indirect relational aggression, received similar reports from children as the other forms of verbal, physical and both ringleader aggression. This supports findings such as those by Xie, et al., (2003), that physical and verbal aggression are highly correlated, but contradicts Xie et al.'s findings that this is also the case for direct relational and indirect relational aggression. However, Monks et al., (2003) showed that peers reported direct relational aggression as occurring the most frequently at school, and indirect relational aggression as occurring the least. Therefore, this shows a lesser overlap between these behaviours than Xie et al.'s work which can also be seen in the current study.

7.6.2 Trajectories of behaviour-aggregate scores

The first research question in this chapter was also focused on the trajectories of children's self-reports based on the behaviour categories from the previous section. 'Behaviour-aggregate scores' were formed by collating the related behaviours from the PCAs. The overall trajectories of these aggregates were considered over the three time points of this study, through the use of ANOVAs and Cluster Analysis.

The solitary behaviour-aggregate scores were generally higher in the older age group than the younger age group but there was no clear trend in these ratings over the three times. This finding was further supported when considering the different solitary trajectory clusters. There was no dominant trajectory: approximately half the children showed decreasing frequency in their aggregate self-reports and approximately half showed increasing frequency. There were no trajectory-clusters who remained stable in their self-reports, as would be expected based on previous research (Rubin et al., 1995) and findings in the present study from separate analyses of behavioural solitude and avoidance, that self-reports were consistent over the three times (Chapter 4). There are three main reasons that this may be.

The first relates to the methods of analyses. The ICCs from Chapter 4 considered self-reports across all three times, rather than between each time point. Two of the trajectory clusters in this chapter, involved some stability between two of the times and therefore

it is possible that the method of analysis used in Chapter 4 was not sensitive enough to pick up on the increasing and decreasing also occurring.

Secondly, all previous work into solitary behaviour has made use of ratings from other reporters. This is one of the first pieces of research to consider self-reports of a behaviour which is much less salient than other forms of behaviour such as aggression or prosocial (Younger & Boyko, 1987). Therefore, it may be that children's own perceptions of this behaviour differ from those of others and that these are not as stable as others' may report. It is possible that this is because others are less aware of this subtle behaviour, where as children themselves may be particulary sensitive to their own solitary behaviours.

Furthermore, previous research has concentrated on the stability of those children identified as 'withdrawn'. It is possible that children do not choose to withdraw, but are solitary for other reasons, such as rejection (Rubin et al., 1989). Therefore this highlights the potential to consider the stability of other underlying reasons such as unsociability. In addition, the majority of previous research has concentrated on the display of behaviours, rather than both exhibiting and not exhibiting. One potential explanation for these different trajectories may be that the current research also considered those children who described themselves as not exhibiting solitary at the beginning of the longitudinal study. When considering those children who had a higher (above average) 'starting point' of self-reported solitary behaviour, reduced across the three time points. For those who had behaviour-aggregate scores lower than the mean, self-reports of solitary behaviour increased over the three times points.

There is a limitation to the method used to analyse solitary behaviours in this chapter. The self-reports of behavioural solitude and avoidance were aggregated, for exploratory purposes despite low reliability of doing so at time 1 and time 2. Therefore, it may be that the increases or decreases is self-reports of solitary behaviour is due to the emergence or decline of one of the behaviours in particular, but the collapsing of these behaviour forms prevents an understanding of this.

For behaviour-aggregate scores of prosocial behaviour, findings showed that there was some importance in the self-reported 'starting point' at time 1. The overall trend showed a decrease in ratings for those who had behaviour-aggregate scores higher than the mean at time 1, and an increase in ratings for those who had behaviour-aggregate scores lower than the mean at time 1, suggesting that children's self-reports tended to move towards the mean over the three time points. That said, when Cluster Analysis was used to consider which children followed which trajectories in their prosocial behaviour-aggregate scores, the largest group (approximately two thirds) was made up of children with self-reports of 'increasing prosocial behaviour' following this trend. However, only half the children's behaviour-aggregate scores were below the mean at time 1, and therefore this further analysis indicates that it is not only children with a lower 'starting point' who increase in their reports of prosocial behaviour. These findings therefore correspond with the general research consensus that prosocial behaviour tends to increase with age (Eisenberg et al., 2007). That said the finding that some children do decrease in their reports of prosocial behaviour are also important. There was also a minority of children (a quarter of children) whose behaviour-aggregate scores of prosocial behaviour decreased over time, which supports other findings (Hay et al., 1994). In addition, a very small group of children (approximately 8%) had lower behaviour-aggregate scores for prosocial behaviour and were stable in this lower level. This relates back to the discussions in Chapter 5 about reasons why some children may rate themselves as displaying lower levels of prosocial behaviour than their peers.

There was an age group difference in the behaviour-aggregate scores for aggressive behaviour and the standardised ratings of direct relational aggression. In both cases, there were higher ratings in the older group. However, as discussed in Chapter 6, higher ratings of aggressive behaviour was a consistent finding across the present study, suggesting that there were individual differences in the two groups. There was no dominant trend in behaviour-aggregate scores of aggressive behaviour, although those who had a higher starting point at time 1 (above the mean) decreased over the three times. This is likely related to the finding that most children provided very low ratings of their own aggressive behaviours. Furthermore, trajectory Cluster Analysis demonstrated that most children were in the 'low stable aggression' group (81%). The three other trajectory clusters consisted of children who only reported aggression at time 2 (11.7%); children whose reports increased over the three times (4.4%); and children

who had high reports of aggression that were stable over the course of the school year from time 2 to time 3 (2.9%).

These findings suggest a number of things. Firstly, there seems to be a high level of stability in children reporting that they do not exhibit aggressive behaviour. This can be seen as overlapping with research that aggressive behaviour is stable, (Ladd & Burgess, 1999; Monks et al., 2003; Olweus, 1979), as this would also be expected for its counterpart. The small group of children, who were stable over the course of the school year in reporting higher levels of aggressive behaviour, also support this research. However, there was also a group of children who reported higher aggression at the start of the school year. This finding is similar to those that have found that aggressive behaviour peaks at the start of the school year as this is when children may be trying to establish dominance and their place within the peer group (Pellegrini & Long, 2002). Finally, there was a group of children who's aggression behaviour-aggregate scores increased over the three times, indicating that for a small group of children, there is a change in their understanding or perception of aggressive behaviour changes as they become older.

The findings for standardised ratings of direct relational aggression differed from those of the behaviour-aggregate scores aggression. There was a dominant trend of decreasing ratings overall, although for those children who's reports were below the mean at time 1, there was a slight increase in ratings (although these remained low.) Analysis of trajectory clusters showed that the 'low stable' group was the most common (approximately half of children), suggesting, similar to the discussion relating to the aggression behaviour-aggregate scores, that reports of not exhibiting direct relational aggression, were stable. However, there were similar numbers of children in the other three groups' trajectory-clusters, including 'decreasing', 'time 2 direct relational aggressor' and 'time 3 direct relational aggressor'. Therefore, this further supports the concept that direct relational aggression may differ from other forms of aggression and extends to its trajectory and it may be appropriate to examine it separately to other forms of aggression. Some aspects of these trajectories overlap with previous literature, such as Roseth et al.'s (2011) coercive behaviour at the start of the school year. However, some of the findings do not clearly fit with previous literature. For instance the children who were higher in their report of direct relational aggression at the end of

the school year at time 3, partly supports Little et al.'s (2003) suggestion that this increases at the end of the school year. However, this did not occur at time 1, which was also the last term of the school year and therefore these findings need further exploration through replication. It is possible that the higher reports at time 3, for one group, is a result of relational aggression increasing with age (Côté al., 2007), although there was also a trajectory cluster of children who's reports decreased over the three times. There were also different findings in trajectory by age group, with the younger age group reducing their reports of direct relational aggression, and the older age group increasing their reports of direct relational aggression. This indicates that further research is needed to see whether this is a result of individual differences or is replicable as an important finding in the trajectories of children's self-reports of this behaviour.

These differences in trajectories, across all three behaviour-aggregate scores and standardised reports of direct relational aggression, highlight that caution should be taken when trying to apply one trajectory to children's behaviours. It may be that individual differences play a role, and that there are different 'starting points' across children. Therefore, other factors play a role in the trajectories of behaviour development, or at least children's perceptions of their behaviour development and there is scope for future research to determine what these factors are.

7.6.3 Combined behaviour-aggregate scores clusters

The second research question in this chapter, was focused on how children's self-reports were related to each other across the broader categories of behaviour. Therefore, Cluster Analysis was used to consider how children's self-reports related to each other across behaviour-aggregate scores. At each time point, children's behaviour-aggregate scores (prosocial, aggressive and direct relational aggression) could be categorised into the same five distinct combined behaviour-aggregate scores clusters. Findings showed that approximately a third of children were categorised as 'prosocial / social' children who reported relatively high levels of prosocial behaviour but low levels of solitary, aggressive and direct relationally aggressive behaviour. Based on previous research, this group is likely to be at lowest risks of negative outcomes, and most likely to have positive outcomes (Caprara et al., 2012).

Secondly, there was a cluster of participants made up of children reporting that they showed relatively high levels of direct relational aggression relative to others. This accounted for just fewer than 20% of children at time 1 and time 2, and just over 10% at time 3. Interestingly, there was no group of children who were exclusively 'aggressors' and therefore this finding supports previous ideas about direct relational aggression being the most frequent amongst this age group (Monks et al., 2003), without high levels of any other behaviours. The current research clearly shows that children do self-report this behaviour as being displayed within this young sample.

The group of children among which aggressive behaviour was high, was also made up of children with high self-reports of direct relational aggression and solitary behaviour and therefore this group was termed 'anti-social / solitary.' This was the smallest cluster of children (approximately 5% of children), but overlaps with Ladd and Burgess' (1999) 'aggressive-withdrawn' group of children, who they found to be at higher risk of difficulties in outcomes. One possible explanation for the combined self-reports may be a desire to be alone (unsociability) and therefore the child behaves aggressively to maintain this. Another possible explanation for this is that a child becomes alone through rejection and isolation because they display aggression towards their peers (this idea overlaps with some research into 'bully-victims', e.g. Vlachou et al., 2011).

There was also a cluster made up of children who scored low on all self-reports of all behaviour-aggregate scores and direct relational aggression. This group was made up of just over 20% at time 1 and approximately 10% at times 2 and 3. This may be because some children have less awareness of their own behaviour. Alternatively, it may relate to a lesser understanding of the behaviours (although their explanations would suggest this was not the case). Interestingly, this accounted for a higher number of children in the younger age group. Possible explanations for this is that awareness of behaviours, or understanding of behaviours, improves with age.

Finally, there was a group where most behaviour-aggregate scores were close to the mean, with the exception of solitary behaviour, which was higher than others. This accounted for approximately a fifth of children at time 1, and a third of children at time 2 and time 3. Whilst there are several confounding aspects of comparing the results of

the present study with work by Harrist (1997) (see Chapter 5), there is some overlap here as he showed that approximately a quarter of children in a free play setting could be categorised as withdrawn by observers.

Whilst these clusters were similar sizes at each time point, analysis suggested that children were more likely to change cluster between time points, than remain in the same cluster, particularly for males. However, there were no consistent patterns about which cluster children moved into.

Based on Hawley's (2003) work, attempts were made to consider bistrategic children by looking at whether those who had reported higher levels of aggression or direct relational aggression at the start of the school year would have higher reports of prosocial behaviour at the end of the school year. The opposite pattern was found, with children reporting higher levels of aggression at the start of the school year, reporting lower levels of prosocial behaviour at the end of the school year. It was also considered whether they had high reports of both at one time point. There were no significant findings relating to this. These findings suggest that children do not self-report using bistrategic methods with their peers. However, this is a small subset even in research using reports from others and therefore the high levels of self-reports of prosocial behaviour in the current research may have led to the absence of this group.

In addition, analysis considered whether there was an overlap between high reports of solitary behaviour and lower prosocial behaviour (Coplan et al., 2014). Findings at time 3 only supported this relationship. The reason for this difference may be that Coplan considered preference for solitude rather than actual reports of this behaviour as well as teacher reports of prosocial behaviours rather than self-reports. Therefore, the relationship between these variables may be less prominent in self-reports, but become more so as children grow older (as this was significant at time 3).

There was one sex difference in these clusters, which occurred at the end of reception for the younger age group (age 4 to 5 years). As expected, females were more likely to report being 'prosocial / social' and males were more likely to report being 'antisocial / solitary.' However, this sex difference was not maintained across all three time points.

This may indicate two things. Firstly, perceptions relating to child's sex and self-reports of behaviour may become less pronounced with age. On the other hand, it may also suggest that whilst females have higher reported prosocial behaviour and males have higher reported aggression, that this is when these behaviour categories are studied independently and when considered in direct comparison to each other, there are no clear differences in the assignment to different categories of behaviours.

7.6.4 Children's behaviour explanations

The third research question in this chapter focused on children's explanations of their behaviour within and between the broader behaviour categories identified in earlier sections. This contributed to addressing the final research question of the study (see Chapter 3).

Exploratory analysis considered the consistency of children's explanations within one behaviour component. This showed that, in most cases, children showed consistency in their explanation focus, agency and outcome focus, across behaviours within one behaviour-aggregate scores. Therefore, it may be that children adopt an individual style across similar behaviour forms when discussing behaviour components. However, explanations for not exhibiting behaviours in the aggressive behaviour-aggregate scores were more likely to be inconsistent. This may be a result of this behaviour-aggregate scores being made up of a larger number of behaviours (up to five) compared with the other behaviour-aggregate scores (solitary, prosocial). In addition a relatively high number of children reported that they did not exhibit the behaviours in the aggressive behaviour-aggregate scores, which may have also affected this finding.

Exploratory analysis also considered whether the agency and outcome focus in children's explanations for exhibiting or not exhibiting behaviours overlapped across the different behaviour-aggregate scores. Children's agency for exhibiting direct relational aggression was associated with those not exhibiting behaviours in the aggressive behaviour-aggregate scores, supporting ideas by Crick et al. (1999) that these behaviours correlate. Similarly, there was an association between agency for solitary behaviour and direct relational aggression. This extends the previous link found between direct relational aggression, and solitary behaviour. Furthermore, there were

overlaps in children's agency for exhibiting prosocial behaviour and not exhibiting aggressive behaviour suggesting that children may see non-aggressive acts as similar to acting in prosocial ways and that opposing behaviours amongst children do have similar agency meaning that they see these as being related. This overlaps with ideas relating to the use of the benign attribution bias (Nelson & Crick, 1999) and the hostile attribution bias (Orobio de Castro et al., 2004) which are both based on how children interpret provocations and actions of others. The benign focus suggests that children recognise other actions as being non-confrontational and accidental and this has been found to be a style adopted by prosocial children. Similarly, the hostile attribution bias is related to children assuming that others meant to behave in a hostile way, thus resulting in their aggressive response. Therefore, it is unsurprising that there were links between children's different explanations for these two groups of behaviours. These findings are particularly interesting in terms of understanding how children perceive behaviours, and the relationships between these.

Whilst there were some associations between children's outcome focus, across behaviour-aggregate scores and the individual forms of prosocial behaviour (these were not collated because of the difference in findings), these were not consistent across times. There were two findings which occurred at both time 1 and time 2. These were explanations for exhibiting caring behaviour and not exhibiting direct relational aggression; and exhibiting including and not exhibiting direct relational aggression. Therefore there seems to be some overlap between children's perceived reasons for exhibiting prosocial behaviours, but not direct relational aggression. There was also an association between solitary behaviour in which external outcome focus was more common whereas mixed outcome focuses were more common for prosocial behaviour. These findings suggest that views towards prosocial and solitary behaviour are not as similar as may have been previously suggested by Goossens, Bokhorst, Bruinsma & van Boxtel (2002).

The differences between some of the explanations for behavioural forms, supports research by Fountaine and Dodge (2006) that there are more differences in explanations for different behaviours among older compared with younger children, such as aggression and non-aggression. Whilst this research indicated some differences and

some similarities, it is likely that more distinct patterns will form between these, as children become older still.

The analysis considering explanations is not without limitations. It is duly acknowledged that different numbers of variables have been collapsed for different children (based on their self-reports). Furthermore, not all children provided explanations including agency or outcome focus, thus eliminating some cluster members from these analyses which reduced sample size. However, this exploratory study indicates that there is some overlap between children's explanations, and therefore highlights the need for future research to investigate this further, potentially with more detail such as content analysis.

7.7 Chapter summary

In summary, this chapter contained three sub-research questions which were used to address research questions 4 and 5 of this study. Findings have shown that that there are clear patterns in children's self-reports of solitary, prosocial, and aggressive behaviours. However, findings have also demonstrated that there are several differences in children's self-reports and trajectories of these which warrant further investigation. Furthermore, this chapter has shown that children's self-reports are an incredibly useful form of behaviour reports and that even from this perspective, behaviours overlap. In addition, it showed an association between children's explanations of certain behaviours demonstrating that they often see these behaviours as being related to each other.

In Chapter 8, there is a general discussion of findings from across this thesis.

8 GENERAL DISCUSSION

8.1 Introduction to chapter

The argument developed in this thesis is that the study of children's behaviour is important because of the potential associated outcomes, which may be positive or negative. The current research focussed on children aged between four and seven years. This is an important age on which to focus as it is during this period when children undergo social and cognitive changes. Most researchers have made use of reports from adults and peers, whilst young children's self-reports and explanations for their behaviour have been largely neglected, despite the unique and important insights they may provide. The research presented in this thesis addressed this deficit and is original in that it considered four to seven year olds' self-reports and self-perceptions of their behaviour with peers, by employing an innovative method using stick figure animations as prompts. In addition and, in contrast to much research on children's behaviour, which has focussed on one or two categories of behaviour, the current research explored three broad categories of behaviour (solitary, prosocial and aggressive behaviours) together. Further originality came from the study being conducted at three time points over a longitudinal period of one school year, for two age groups (one school year apart) enabling comparisons to be made between age groups and over time within participant groups.

In order to provide an overview of how young children may perceive their own behaviours, five main research questions were addressed. The first research question related to the prevalence of behaviours with peers based on ratings from self-reports, peer-reports, Class Teacher-reports and Teaching Assistant-reports. The second research question focused on how self-reports differed from other reporters (Class Teachers, Teaching Assistants and peers). The third research question considered children's explanations for exhibiting and not exhibiting behaviours and how these related to self-reports. The fourth research question focused on how self-reports related to each other across all three categories of behaviour (solitary, prosocial and aggressive behaviour). Finally, the fifth research question looked at how children's explanations for behaviour related to each other across all three categories of behaviour. The first three research questions were developed in Chapters 4, 5 and 6, and specifically applied to solitary

(Chapter 4), prosocial (Chapter 5), and aggressive (Chapter 6) behaviours. Research questions 4 and 5 were addressed in Chapter 7. Findings were presented and discussed in the relevant chapters. This chapter includes an overview of these findings across all behaviours, in relation to previous research and provides a discussion of how these findings make a unique contribution to the literature, and might inform future research.

Following this, there is a discussion of how the findings may apply to developmental theories highlighted in Chapter 2, namely: Piaget's Theory of Cognitive Development (1951); Theory of Mind (e.g. Wellman et al., 2001) and empathy (Hoffman, 1992; 2000); and Theories of Moral Development (Kohlberg & Kramer, 1969; Nucci, 2001; Piaget, 1999; Turiel, 1998). There is also a discussion of how findings might inform future work with children in schools. The chapter concludes with a discussion of strengths and limitations of the current study, and how this may inform future research.

8.2 Summary of main research questions and findings

Each of the main five research questions from this study are addressed in the following sections in order to draw together the main findings from the research in this thesis. Whilst some of the points below were noted in previous chapters, this general discussion has been informed by findings from the thesis as a whole in order to address the main five research questions. In order to gain a developmental understanding of how children report on their behaviour, each research question was considered over the three time points of the study and across the two age groups (one year apart). Where relevant, findings were also compared by sex.

8.2.1 Prevalence of four to seven year olds' solitary, prosocial and aggressive behaviours according to self-reports and reports from peers, Class Teachers and Teaching Assistants

Addressing the first research question provided an understanding of prevalence levels of self-reports compared to other reporters across three categories of behaviour (solitary, prosocial and aggressive). Specifically, the first research question related to the

prevalence of the 11 forms of behaviour examined in this study (behavioural solitude, avoidance, sharing, caring, including, direct relational aggression, indirect relational aggression, verbal aggression, physical aggression, ringleader of verbal aggression, ringleader of physical aggression), based on ratings from self-reports, and reports from peers, Class Teachers and Teaching Assistants. In addressing the first research question, the stability of reports, as well as age group and sex differences were examined in order to provide a further overview of how self-reports compared with reports from others.

Previous research has indicated that a fifth to a quarter of children can be observed as displaying 'withdrawn' behaviour (Coplan & Ooi, 2014; Harrist et al., 1997). The current study was one of the first to consider prevalence ratings of solitary behaviour in young children by collecting ratings from a range of reporters. In the current study, reports of solitary behaviour occurring either 'sometimes' or 'lots' from self-reports (30%-50%), Class Teacher-reports (30-40%) and Teaching Assistant-reports (30-40%) were higher than found in previous research using observations. This suggests that observers may have less awareness of solitary behaviour than teaching staff and self-reports. However, it is also possible that the difference in prevalence levels is because the forms of behaviour in the current study did not limit the reasons for being alone to withdrawn behaviour (shyness and unsociability) and so reports may have included children who spend time alone for other reasons. In contrast to reports from teaching staff and self-reports, peer-reports (5%-20%) of solitary behaviour were lower than reports from others, and more similar to findings from previous research relating to the prevalence of withdrawn behaviour. This supports previous suggestions that peers may have less awareness of these behaviours or experience challenges in recalling occurrences of others behaving in this way (Bukowski, 1990).

In contrast to solitary behaviour, ratings of prosocial behaviour in the current study were more in line with expected findings. Based on literature showing that prosocial behaviour occurs frequently (Eisenberg-Berg & Hand, 1979), 'lots' and 'sometimes' ratings of prosocial behaviour were generally high, particularly so from self-reports (90-99%). Reports from peers (50%-82%), Class Teachers (62%-98%) and Teaching Assistants (39%-95%) were also generally high although these had a wider distribution than self-reports. Sharing and caring received the highest ratings across all reporters and may relate

to findings suggesting that more traditionally assessed behaviours such as sharing and caring are stressed more highly by parents and teachers of younger children (Greener & Crick, 1999). This may influence both reports from peers and teaching staff, as well as self-reports or the display of these behaviours.

Whilst reports of aggressive behaviour were generally low compared to reports of solitary and prosocial behaviours, ratings were similar to those expected, based on Monks et al. (2003), with direct relational aggression rated as most prevalent (2%-25% from self-reports and peer-reports and 37%-53% from Class Teachers and Teaching Assistants). Ringleader behaviours were least prevalent (3%-7% from self- and peer-reports and 4%-35% from Class Teachers and Teaching Assistants) which overlaps with Monks et al.'s findings that ratings of peripheral roles in peer-victimisation were generally low. The current study differed from other studies of aggressive behaviour in young children, by making use of a three-point scale, and including ringleader behaviours. The findings demonstrated that, even with these alterations to methodology and use of self-reports, there were similar findings to those from previous aggression research with young children (e.g. Monks et al., 2003).

Across each category, forms of behaviour were included which have been previously understudied in research with younger children. For instance, avoidance (Coplan et al., 2014), including (Greener & Crick, 1999) and ringleader (Belacchi & Farina, 2012) behaviours were included. Ratings suggested that each of these were distinct behaviours from the other forms of behaviour in each category, and therefore shows usefulness to the inclusion of these. However, ratings of these behaviours were generally lower than the other forms of behaviour in each category, suggesting that these behaviours may occur less amongst young children. This is an important contribution to behaviour research. It is possible that lower reports of avoidance and including occurred because peers are less aware of children being alone and so do not approach others to invite them to play. Similarly, it is possible that ringleader behaviours are less common because behaviour is mostly dyadic in young children, rather than group based (Monks et al., 2003).

In summary, findings showed that reports of prosocial were highest and reports of aggressive behaviour were lowest across all reporters. Whilst solitary behaviour was

higher than expected, ratings of prosocial and aggressive behaviour were more aligned with previous research using a range of methods (e.g. teacher-reports, peer-reports). These findings make an important contribution to behaviour research, as the relative order of ratings for each form of behaviour followed was similar for all reporters, despite differences in prevalence levels. Ratings were also lower for some forms of behaviour that have previously been understudied with young children (avoidance, including and ringleading).

Whilst many researchers have considered sex differences in reports of children's behaviour, few have considered sex differences in young children's behaviour, across a wide range of reporters, including children's self-reports. This was considered when addressing the first research question, and compared with previous research mostly conducted with older children or using other methods. As expected (e.g. Coplan & Rubin, 2001), there were no sex differences in the ratings of solitary behaviour from any reporters. Findings from the current study were also similar to previous research (e.g. Malti et al., 2009a) in showing that females were more likely to be identified as showing prosocial behaviour, although this finding was less marked for self-reports, with some non-significant results across behaviours and time points. This is an important finding, as researchers have not explored sex differences in self-reports of prosocial behaviour amongst children this young and shows that they differ from other reporters and previous findings. Findings were also less consistent for aggressive behaviours as males were rated as more aggressive by some reporters but not others. Sex differences were evident across all forms of aggressive behaviour for peer-reports, but this was only the case for physical aggression in ratings from Class Teachers and Teaching Assistants. This is mostly consistent with Monks et al., (2003) where there were sex differences in peer-reports of aggressive behaviour but not in teacher-reports in five to six year olds. However, there were few sex differences in children's self-reports of aggressive behaviour in the current study, which differs from Monks et al.'s findings. It is possible that this relates to a difference in methodology where Monks et al., asked children whether they were or were not aggressive. The current study made use of a three-point scale to collect self-reports. The use of 'lots', 'sometimes' and 'never' means that there is a more fine grained distinction of behaviour, and more females may be more inclined to report aggressive behaviour, as they have the option to report that they 'sometimes' behave aggressively.

An important finding in respect of the first research question is that children's self-reports did not consistently differ by sex for any forms of behaviour. This suggests that young children's self-reports are similar across males and females. This may be because of social desirability biases that males and females are similarly affected by. However, it is also possible that other reporters are influenced by gender stereotypes relating to behaviour, which is not the case amongst children's self-reports. Alternatively, it is possible that sex differences in children's self-reports may develop as they grow older, and the use of additional time points would allow this to be detected.

Researchers are also interested in the trajectories of children's behaviours (e.g. Camodeca et al., 2002; Eisenberg et al., 2007). In order to develop a further understanding of children's self-reports, the first research question in this thesis was also related to trajectories of children's own ratings over the three time points of the study, alongside ratings from Class Teacher-, Teaching Assistant- and peer-reports for comparison. Across all behaviours, findings showed stability for all reporters' ratings suggesting that there was little change in young children's peer-directed behaviour over the course of one year. This supports previous findings showing stability in solitary (Rubin et al., 1995; Schneider et al., 2000) and aggressive behaviours (Camodeca et al., 2002; Ladd & Burgess, 1999; Monks et al., 2003; Vaillancourt et al., 2003). However, these findings are contradictory of previous research considering the trajectories of prosocial behaviour which have been found to be mostly increasing (e.g. Eisenberg et al., 2007) and in some cases, decreasing (Kokko et al., 2006). This difference in findings may relate to ceiling effects in the current study. There was a high proportion of 'lots' ratings across all reporters at the first time point, and therefore it is possible that prosocial behaviour did increase amongst children but that the three-point scale used did not enable reporting of this. This idea of a ceiling effect in ratings of prosocial behaviour is supported by findings that the older age group consistently received higher ratings from peers, Class Teachers and Teaching Assistants and in some cases, self-reports. Therefore, these findings make an important contribution, suggesting that children's self-reports of behaviour may also follow similar trajectories of stability for solitary and aggressive behaviours, and increasing prosocial behaviour, as found in previous research.

In summary, the findings of analysis that addressed the first research question showed some support for previous research findings relating to the prevalence and stability of children's behaviour amongst four to seven year olds, across several reporters, including children's self-reports. Where there were differences in findings, these were mostly explained by differences in methodology which shows that there is a need to combine several reporters and methodologies when studying children's behaviour. However, self-reports were found to provide a unique perspective in behaviour reports in relation to sex differences. Whilst there were similarities to previous research in reports from peers and adults, there were no consistent sex difference in self-reports, suggesting that four to seven year old males and females report their own behaviour in similar ways to each other.

8.2.2 Differences between self-reports of solitary, prosocial and aggressive behaviours, and reports from peers, Class Teachers and Teaching Assistants

Whilst the analysis related to the first research question provided an overview of how frequently young children self-report their behaviour compared to other reporters, the examination of the second research question offered more detail. This considered the differences between individual self-reports and corresponding reports from peers, Class Teachers and Teaching Assistants across the 11 forms of solitary, prosocial and aggressive behaviours. Focusing on how four to seven year olds' individual self-reports compared to each other reporter provided a unique insight to young children's reported perceptions of their own behaviour, which has not previously been studied across this broad spectrum of behaviours. This was addressed by considering both the size and direction of the differences between self-reports and reports from others, and how this changed over time, and varied across sex, age group, behaviour and reporter.

The current research was unique in comparing children's self-reports with a wide number of reporters. The findings were complex for different forms of behaviour and did not directly support findings from other studies which have compared concordance rates for the wider categories of behaviour (e.g. Spangler & Gazelle, 2000). Instead, the findings showed that difference scores for individual behaviours varied across reporters and for

forms of behaviour within the same category. In some cases, self-reports were more similar to peer-reports than Class Teachers or Teaching Assistants (i.e. behavioural solitude, including, and most aggressive behaviours for females) and in other cases the opposite pattern was detected (e.g. avoidance, sharing, caring, and most aggressive behaviours for males). In most cases, the difference scores between self-reports and Class Teachers and Teaching Assistants were similar, showing that both members of teaching staff can offer similar views on children's behaviour, but are distinct from peer-reports.

An important feature of the current research was the consideration of the nature of the difference between young children's self-reports and other-reporters ratings of behaviour. Where there were differences in ratings, these were consistent with previous research with older children which has found that self-reports of solitary behaviour are higher than reports from others (Spangler & Gazelle, 2009); that children's self-reports of prosocial behaviour are higher than reports from others (Greener, 2000); and children's self-reports of aggressive behaviour are lower than reports from others (Kupersmidt & Patterson, 1991). Typically, this was the case for 20% to 40% of children and therefore the current research showed that these patterns can be extrapolated to a younger sample. An important focus of the current research was instances of agreement between self-reports and reports from others. There were some distinct patterns. In most cases there was up to 85% agreement between the children's self-reports and reports from their peers, Class Teachers and Teaching Assistants, that they were prosocial. This was the case for a larger number of children than the number who self-reported higher levels of prosocial behaviour than other reporters. Therefore, whilst some children may report higher levels of prosocial behaviour, the current findings suggested that a large number of children are like others in these reports. There were similar findings for solitary and aggressive behaviour. Most children agreed that they did not exhibit solitary (up to 60% of children) or aggressive behaviour (up to 95% of children). Therefore, whilst researchers have found that children may report higher or lower levels of these behaviours than other reporters, little attention has been given to the views of those children who report not displaying these behaviours. As this was the case for a large number of children, they are also important to study when understanding children's behaviour. In addition, researchers rarely consider children whose agreement about their behaviour follows other patterns. The current research found that a small number of children in each instance either agreed

with other reporters that they were solitary or aggressive, or not prosocial. There was also a small group who self-reported lower levels of solitary and prosocial behaviour, and higher levels of aggressive behaviour than other reporters. There is scope to consider what factors may lead to these different types of agreement such as ethnic background (Heyman et al., 2010) or cognitive factors (Carol et al., 2003).

The research in the current thesis particularly focused on children's development and how self-reports might change. This was considered as part of investigation of the second research question. Findings showed that there was no consistent trajectory in how self-reports compared to reports from others, but that this varied by behaviour category (solitary, prosocial, aggressive), and in some cases different forms of behaviours within these categories. For some behaviours, the trajectories of differences with self-reports also varied by reporter (peers, Class Teachers, Teaching Assistants). This is discussed below.

Some difference scores remained stable over the three time points in the current study. This was the case for difference scores between self-reports and all other reporters for avoidant behaviour, and for difference scores between self-reports and peer-reports for prosocial behaviours. There are two possible explanations for these stable difference scores. It may be that the stability arose from a consistent increase or decrease in ratings across all reporters. Alternatively, it could be that reporters were similar in providing consistent ratings of behaviour across the three time points. Given the stability found across ratings from all reporters (Section 8.2.1) this is more likely to be the case.

However, the most common trajectory detected when comparing self-reports of behaviour with reports from others was a reduction in differences scores. This was the case for difference scores between self-reports and all other reporters for most forms of aggressive behaviour and behavioural solitude (in the younger age group). This was also the case for difference scores between self- and Class Teacher-reports for all forms of prosocial behaviour. This is similar to findings from Ladd and Kochenderfer's (2002) study of peer-victimisation, and shows that increasing agreement between young children and others can be extended to a wider number of behaviours. In addition, this finding supports theories and associated research (Caputi et al., 2012; Frick et al., 2014; Piaget,

1951) showing that children have improved perspective taking with age, and suggests that they may utilise this when reporting on their behaviour (discussed in more depth later in this chapter). However, it is possible that children are selective in applying their perspective taking skills, as findings also detected some increase in differences. For instance, difference scores of prosocial behaviour between self-reports and reports from Teaching Assistants, increased over the three time points. This may relate to the unique role of Teaching Assistants (Dunne et al., 2008) in the classroom who have different perceptions of prosocial behaviour to other reporters.

An important aspect of the methodological design of this research was the consideration of children's self-reports over the course of the school year, as researchers have found that this may be important for children's behaviour and peer-related experiences (Lohaus et al., 2011 Pellegrini et al., 2010; Roseth et al., 2011). Therefore, the first time point in the current study was the last term of one school year, the second time point was the first term of the next school year and the third time point was the last term of that school year. Findings in the current study showed that any decline in difference scores mostly occurred between the first and second time points. As such, these findings are important in suggesting that the school year change may also be important for changing perceptions of behaviour. However, whilst there may be a shift between these two time points, there was little change between time point 2 and time point 3 suggesting that the level of agreement between self-reports and reports from others remained the same over the course of the school year. In order to understand these changes further, future research should include a fourth time point at the start of the next academic year to assess whether the same change in difference scores can be detected. However, it is important to note that this pattern only occurred for some behaviours and reporters and future research could help to understand the reasons for this.

This variation in trajectories of difference scores shows that the behaviour ratings provided by reporters are complex and several factors may be involved. This is further is supported by current findings that the nature of differences between self-reports and other-reports tended to vary across the three time points. Therefore, children were not consistently identified as 'higher reporters'; or 'lower reporters'; or agreeing that they did or did not exhibit each form of behaviour. There were no clear patterns related to this

change and it was unrelated to age group or sex. This finding requires further investigation to assess what may affect the nature of children's reports compared with others. For instance, there is scope to consider the type of difference across different forms of behaviour, and whether the nature of this difference becomes more stable as children's friendship groups and peer-relations increase in stability (Bagwell & Schmidt, 2011). The findings also showed that the trajectories of difference scores sometimes varied in direction across reporters. Therefore, it is possible that, in addition to changing self-reports, ratings from other reporters also change over time. These findings highlight the importance of studying forms of behaviour separately, and reemphasise the need to include several reporters.

Sex differences were also considered in relation to the second research question and how self-reports differed from peer- and adult-reports. These were mostly as expected for solitary behaviours where there were no sex differences, and prosocial behaviours where there were higher difference scores for males. These higher difference scores can be explained by current findings that both males and females provided higher self-reports of prosocial behaviour than other reporters; but the other reporters provided lower ratings for males than females. However, for aggressive behaviour, findings were complex and differed across males and females and reporters. For females, the size of difference scores for each aggressive behaviour followed the same order across comparisons with all reporters. For instance, the largest difference scores between self-reports and all other reporters occurred for both forms of relational aggression, and the smallest difference scores with all reporters were for physical ringleader. It is possible that females show more direct relational aggression than other forms of aggression (e.g. Card et al., 2008) and so these difference scores could be explained by females receiving higher ratings from peers and teaching staff, but self-reporting lower levels of this. In contrast, females are likely both receive and provide low ratings of physical ringleader. However, for males, the relative order of difference scores for each aggressive behaviour form varied, with a different pattern between self-peer reports than self-reports with Class Teachers and Teaching Assistants. This makes an important contribution to the literature in suggesting that peers and teaching staff have different perceptions of males' aggressive behaviour and may explain some of the contrasting findings shown across previous research papers where different methodologies have been used (e.g. Card et al., 2008).

Therefore, the variation in difference scores for males and females, were closely linked to the sex differences in ratings, and were mostly evident for prosocial and aggressive forms of behaviour.

To summarise, analysis of data in respect of the second research question identified complex findings from direct comparison of children's self-reports to reports from others, which vary over time, by form of behaviour, and sex of child. These findings support the importance of using self-reports to provide additional detail to the study of behaviour, as they show that reporters vary in their ratings and that self-reports vary by individuals. This demonstrates that there is a need to take an individual approach to assessing how children's self-reports vary from the reports of others rather than adopting one developmental approach

8.2.3 Four to seven year olds' explanations for exhibiting and / or not exhibiting solitary, prosocial and aggressive behaviours

The third research question in this study was focused on how children explain their behaviour. This was informed by research showing that reasons for behaviour may impact upon children's individual outcomes (e.g. Hughes, 2009; Price & Dodge, 1989; White, Jarrett, & Ollendick, 2013); that attribution theorists have found specific patterns in how individuals explain behaviour (e.g. Weiner, 2010); and that Dodge (1986) has applied a social information processing model to children's social competence and behaviour in order to understand children's associated cognitive processes further. Investigation of the third research question addressed a specific research need in speaking to young children directly about the reasons for their own behaviour, rather than using hypothetical scenarios; and comparing these to their own self-reports, rather than reports from others. Furthermore, a coding system was adopted across all behaviours in order to allow comparisons. Findings showed some distinct patterns, which are discussed below.

Attribution theories and Dodge's (1986) work have both considered underlying causes and outcomes. The current research was unique in considering whether young children focused more on one of these or referred to both within their explanations. Classical theories of moral development (Kohlberg & Kramer, 1969; Piaget, 1999) were applied in

Chapter 2 to suggest that younger children may focus more on consequences when explaining their behaviour (discussed in more depth later in this chapter). However, the current findings showed that, for prosocial and solitary behaviours, children were more likely to make reference to underlying causes than to the consequences of their behaviour. For aggressive behaviours, whilst consequential explanations were more common than causal or mixed focus, a high proportion of children also provided causal explanations. This suggests that generally young children place more importance on the causes rather than the consequences of their own behaviour. However, findings also showed that some children were more likely to focus on consequences than other children. For instance, consequential explanations were more common amongst children who said they did not display solitary or aggressive behaviour, than those who said they did. The opposite pattern was true for prosocial behaviour. Therefore, how far children focus on the consequences of their behaviour, may relate to whether they do or do not exhibit these. That said, other findings suggested that this might not be the case. Explanations became more consequential over the three time points for all behaviours, regardless of whether children self-reported exhibiting these. As discussed above, behaviour ratings remained stable over the three time points, and therefore, this suggests that any changes in explanation focus is likely to be unrelated to changes in behaviour. It is possible that this relates to Atance and O'Neil's (2001) concept of increasing future episodic thinking, whereby children have increasing capabilities to think about the future as they grow older. These findings suggest that children make increasing use of these abilities and start to focus more on the consequences of their behaviour as they become older, in order to explain why they do or do not exhibit different behaviours.

In addition to explanation focus, the research in this thesis also focused on the agency (who or what is identified as causing a behaviour or outcome) and outcome focus (who or what is affected by a behaviour or behaviour cue). The approach adopted in this thesis was novel in considering both agency and outcome focus across a wide spectrum of behaviours. In particular, the study of outcomes and consequences has mostly focused on aggressive behaviours, whereas the current study also included prosocial and solitary behaviours. The approach taken in this thesis was to consider whether agency and outcome focus was internal (reference to themselves); external (reference to other people or things); or mixed (internal and external). This was informed by attribution theories

(e.g. Heider, 1958; Jones & Davies, 1965; Munton et al., 1999; Rotter, 1966; Weiner, 2010) and behaviour research considering proactivity and reactivity in children's behaviour (e.g. Crapanzano et al., 2009; Findlay et al, 2006; Hay et al., 1999). Importantly, findings in the current study showed that where children's explanations included external agency or external outcome focus, this mostly referred to other children rather than adults or others.

The approach taken in this thesis was to consider children's explanations for each form of behaviour separately to each other. However, some researchers have found specific patterns in children's attributions. For instance, Miller and Aloise (1989) found that children's attributions tended to be more external when they were younger. Findings from the current research lend some support to this, as children's explanations were more external, than internal or mixed across all prosocial and aggressive behaviours. However, the findings for solitary behaviour were different, as children's agency was equally distributed between internal, external and mixed. Therefore, the current research highlights that caution should be applied in assuming that the same patterns apply to all behaviour, as children's cognitive processes for solitary behaviours are much more varied than other the other behaviours in this study. Assuming that children adopt one 'style' when thinking about their behaviour would therefore be misleading and this shows the importance of applying a social information processing approach to explanations for children's behaviour, which supports Dodge's (1986) work. This suggestion was further emphasised from findings relating to outcome focus, which varied across different forms of behaviour. Children's explanations mostly referred to internal outcomes for both solitary behaviours and sharing behaviour. For aggressive behaviours, mixed outcome focus was the most common where children considered the effects of their behaviour on both themselves and others. In contrast, outcome focus was mostly external for caring and including behaviours. This further highlights the need to consider children's behaviour separately by form, rather than assume children's cognitive processes apply in the same way across all behaviours.

Furthermore, findings from analysis in respect to the third research suggested that patterns in agency and outcome focus apply similarly to explanations relating to solitary and prosocial behaviour regardless of whether children report exhibiting or not exhibiting

the behaviour. This is because agency and outcome focus did not consistently vary by whether children reported exhibiting or not exhibiting these behaviours. This is an important contribution of new knowledge, as it suggests that children's agency and outcome focus are similar, regardless of the decision they make about their solitary and prosocial behaviour. In contrast, the children's focus on agency and outcomes for aggressive behaviour, consistently varied by children's self-reported ratings. As such, it is possible that the results in the current study reflect previous research looking at Dodge's (1986) social information processing model in terms of children's aggressive behaviour (e.g. Nelson & Crick, 1999). Previous researchers found a Hostile Attribution Bias (Orobio de Castro et al., 2004) in those children who behave aggressively where they judge that another person is being provocative and a Benign Attribution Bias (Nelson & Crick, 1999) in those who do not behave aggressively where a child perceives others' actions as non-provocative. In the current study, children who reported displaying aggressive behaviour were more likely to provide explanations with external agency than those who said they did not display aggressive behaviour. Therefore, it is possible that they refer to other children as the reason for being aggressive because they interpret others' actions as provocative. In contrast, those who did not report being aggressive may have made less reference to other children because they do not interpret their behaviour in this way. It is also possible that children who self-reported aggression were demonstrating moral disengagement (Bandura, 2002) where aggressive individuals minimise their own agentive role and distort any consequences of their actions (Gini, Pozzoli, & Hymel, 2013). In addition, children who self-reported that they were aggressive were consistently more likely to provide internal outcome focus than children who reported not behaving aggressively. This supports the body of research relating to findings that aggressive children are more concerned about personal consequences (Malti et al., 2009c) and it is possible that these children were displaying egocentric reasoning (Menesini et al., 2003) where children aim to reduce negative consequences and increase positive consequences for themselves from behaving aggressively. However, whilst these were the most common findings amongst children, there were also children who reported that they displayed aggressive behaviour, who provided internal or mixed agency, or external or mixed outcome focus. Therefore, the same patterns and biases cannot be assumed across all children as some may behave aggressively because of proactive reasons, and think about negative consequences on other individuals.

The longitudinal analysis in this thesis, also enabled exploratory work to consider whether children's explanations could predict children's later self-reports or differences between self-reports and reports from others. There were no consistent significant results, showing that children provided these independently of each other, and whilst these may relate to each other for some forms of behaviour at each time point, this is not a clear indicator of later behaviour reports.

Developmental theories (discussed in more depth in Section 0) suggest that children have an increasing ability to take perspectives of others as they become older (e.g. Frick et al., 2014). Findings in the current research found little evidence of this in children's explanations. For instance, there was little change in children's agency over the three time points and it remained mostly external. This suggests that children aged four to seven years tend to attribute responsibility for their behaviour to other children but do not become more external (as suggested by theories researching perspective taking), or more internal, (as suggested by Miller & Aloise's [1989] work into the development of children's attributions) across this period. This was also the case for outcome focus, where there was little change over the three time points, across most of the forms of behaviour. However, there was an increase in external outcome focus in explanations relating to caring and including, suggesting that children may increase their consideration of others' in some behaviours, but not others. It is possible that these patterns do not become evident until children are older, and therefore, a study with an extended timeframe may detect this. However, there was an increase in internal outcome focus for solitary behaviour, suggesting that this may not be the case for all behaviours.

To summarise, analysis in relation to the third research question involved the unique focus on young children's behaviour explanations, based on their own real life behaviour across several categories. Explanations for solitary and prosocial behaviour were mostly causal, and explanations for aggressive behaviour were mostly consequential (although a high proportion were also causal). All explanations became more consequential over the three time points. Agency was mostly external, with the exception of solitary behaviour, but outcome focus varied across behaviour forms. There was little change in agency and outcome focus over the three time points in the current study. Whilst there were some

general patterns in findings, this variation across behaviours shows the importance of adopting an information processing approach which acknowledges that children make use of different cognitive processes depending on different behaviours. However, findings showed that explanations may not always vary by whether children report that they do or do not exhibit each form of behaviour.

8.2.4 Four to seven year olds' self-reported ratings across the three categories of solitary, prosocial and aggressive behaviour

As explained in Chapter 2, much previous research has tended to focus on a single category of behaviour in isolation, despite findings that there may be overlap across categories (e.g. Ladd & Burgess, 1999). The fourth research question in this study was related to this overlap, and analysis was used to consider children's self-reported ratings and how these related to each other across the three categories of solitary, prosocial and aggressive behaviours. Furthermore, there was a strong focus on how these changed over time. Chapter 7 contained a detailed discussion of the findings from this research question, and therefore the discussion below considers how this relates to the broader findings in this thesis.

As expected, analysis indicated that children's self-reports of the 11 forms of behaviour in this study could be categorised as solitary, prosocial and aggressive. This suggests that children have a general idea of how behaviours relate to each other, which was demonstrated in their self-reports. This also suggests that, if children report that they show form of behaviour within each of these categories, they are also likely to do so for other forms from these categories. However, children's reports of direct relational aggression did not align with their reports of other aggressive behaviours. This is not an unexpected finding, as direct relational aggression has been found to be the most frequent form of aggressive behaviour amongst young children in previous research (Monks et al., 2003) and in the current study. Therefore, it followed that children's self-reports of this varied from their reports of the other aggressive behaviours. It is possible that children consider this behaviour differently to other forms of aggression. Direct relational aggression (or social exclusion), may be considered to be 'less aggressive' than other forms of aggression such as hitting, name calling and rumour spreading. Children may

feel that in some cases they have a 'justifiable' reason for excluding someone; they do not fit the gender stereotype for the game or there are already sufficient players for instance. This is worth further exploration in future research.

Several researchers have tried to understand trajectories of general behaviour categories (e.g. Rubin, 1995). Therefore, this was also considered with analysis relating to the fourth research question, with specific application to children's self-reports. Interestingly, when behaviours were collated into these categories (solitary, prosocial, aggressive and direct relational aggression), there were different trajectories (increasing, decreasing and stable) of self-reports across the three time points, than the stability found when considering these separately for each of the 11 forms of behaviour (see Section 8.2.1). In addition, as expected, the start of the new school year was important for children (Lohaus et al., 2011; Pellegrini & Long, 2000). Between 10% and 20% of children self-reports peaked at time 2 for solitary, aggressive and direct relational aggressive behaviour. Therefore, for at least three children in a UK school class, the beginning of a new school year did seem to influence their self-reports of behaviour. The current chapter has not included a detailed discussion of these trajectories (see Chapter 7 discussion for more detail), but has provided an overview of the possible reasons for these in order to demonstrate the important contribution this makes to the literature and future research.

The differences in the findings, relating to trajectories of children's self-reports, may suggest that there are complex associations between different forms of behaviour within each category. For instance, the display of one form of behaviour may lead to an increase or reduction in another form of the same category, and vice versa. As a result, these findings make an important contribution to the literature, as it highlights the importance of studying forms of behaviour both separately and within categories. Furthermore, the findings that there were several different trajectories shows the importance of exploring each one of these trajectories further rather than applying one developmental approach to all children. This is an important finding to take forward when studying children's behaviours and their perceptions of this in the future. Alternatively, the methods of analyses used in the current study may have led to differences in findings (see Chapter 7 discussion for more detail). When addressing stability as part of the first research question (see Section 8.2.1), Intraclass Correlations were used to consider stability across

the three time points rather than looking at the stability between each time point, as was the approach taken for the fourth research question. Therefore, different methods of analysis may result in different patterns, and researchers should apply caution when reporting findings and look across statistical methods to make reliable conclusions. It is also possible that the stability in the individual forms of behaviour can be accounted for by the high ratings of prosocial behaviour and low ratings of solitary and aggressive behaviours. It may be that ceiling and basal effects led to findings of stability which may have been less pronounced with a larger scale. However, a larger scale would have been challenging with four to seven year olds and therefore a possible way to consider this in future would be to ask children how they think their behaviour may have changed.

Previous research has also shown associations between different categories of children's behaviour, and that particular 'profiles' of their behaviour may relate to individual outcomes for those children (e.g. Ladd & Burgess, 1999). Analysis in respect of the fourth research question also considered whether there were specific profiles in children's self-reports of different behaviour categories and how these may overlap with previous research findings. Cluster analysis and investigation of the children's ratings found that there were five distinct groups of children, containing similar proportions of children at each time point. In some cases these overlapped with previous research. For instance, the current research found that there was an anti-social / solitary group, which overlapped with Ladd and Burgess' (1999) 'aggressive-withdrawn' group of children. Ladd and Burgess found that this group of children were at higher risk of negative outcomes than other children, and therefore the finding that some children report their own behaviour in this way, highlights the need to try and reduce this combination of behaviour in children. The current research also found a group of children who self-reported solitary behaviour but low levels of prosocial behaviour. This was consistent with previous research by Coplan et al., (2014), and highlights a research need to consider the individual outcomes for their children. The current research was also unique in finding three other groups of children, based on their self reports. This included a group of children who self-reported being prosocial / social; a group of children who self-reported high levels of excluding behaviours; and a group of children who provided low ratings across all categories of behaviour. However, as explained in Chapter 7, no children self-reported bistrategic controller profiles (Hawley et al., 2002; Roseth et al., 2001). Whilst this may have been

difficult to identify because all self-reports of prosocial behaviour were generally high, these findings make an original contribution in showing that the profiles identified by children's self-reports vary from other reporters' and previous research, particularly since the five groups could be detected at all three time points in the current study. However, analysis across the three time points showed that children were more likely to change group than remain in the same one, and there were no consistent findings as to how these changed. Therefore, whilst each group was made up of a similar proportion of children at each time point these were mostly different individuals. The low stability of these profiles may relate to the fact that the children in the current study were relatively young, and it might not be until later, when there is increased stability in their peer group (Bagwell & Schmidt, 2011) that these profiles become more stable. It is possible that that children's self-reports are relative to other children and their peers, and that children's profile of behaviour varies according to the other children in their peer group.

In summary, findings in relation to the fourth research question provided an overview as to how children's self-reports relate to each other across categories. These findings showed that children's self-reports mostly fall into the three main categories of behaviour, but that it is not possible to apply one developmental trajectory to these or behaviour profiles across categories and further research is needed to understand these in greater depth.

8.2.5 Explanations for exhibiting or not exhibiting behaviours across solitary, prosocial and aggressive behaviours

Findings from the fourth research question showed that children's self-reports of different forms of behaviour, related to each other across three broader categories of solitary, prosocial and aggressive behaviour (with the exception of direct relational aggression). When studying children's cognitive processes, researchers have mostly concentrated on these broader categories of behaviour (e.g. Crick & Dodge, 1994), but there has been little exploration into whether explanations for individual forms of behaviour relate to each other in the same way as reports. In addition, researchers have shown overlapping profiles of behaviour (e.g. Ladd & Burgess, 1999), which were also evident in children's self-reports (Section 8.2.4). However, studies have mostly focused on children's

cognitive processes for individual categories of children's behaviour, such as aggressive behaviour (e.g. Crick & Dodge, 1994; Ziv, 2012) without exploring how explanations relate to each other across categories.

The final research question addressed this research need by focusing on how children's explanations for exhibiting or not exhibiting each form of behaviour related to each other within and across the behaviour categories (which were identified when considering the fourth research question). This was discussed in depth in Chapter 7, and therefore the findings of discussion here particularly relate to the wider thesis.

As explained earlier, there were distinct patterns of explanations for different forms of behaviour. The fifth research question involved a comparison of these within one category. Findings showed that children were generally consistent in their explanations for exhibiting different forms of behaviours within one category (solitary, prosocial, aggression) in terms of their explanation focus, agency and outcome focus. This was also the case in their explanations for not exhibiting these behaviours. These findings suggest that children apply the similar cognitive processes to their explanations of different forms of behaviour within one category and provide further evidence to the findings that children's ratings of the different forms of behaviour in one category relate to each other. This suggests that children have a similar perception of different forms of behaviour within one category, despite researchers stressing the need to keep these separate in study (e.g. Dunfield et al., 2011). This makes an important contribution to future research, as it may be possible to study children's cognitive processes by behaviour category, rather than needing a detailed analysis of several forms of behaviour.

However, despite clear findings of behaviour profiles in analysis relating to the fourth research question, there was little association in explanations across behaviour categories. Where there were associations, these were not consistent and did not correspond with existing research looking at explanations for peers' behaviours (e.g. Goossens et al., 2002). These findings provide further support for two important arguments contained within this discussion. Firstly, an information processing approach should be adopted to study of children's behaviour, which considers each category of behaviour separately within different social settings (e.g. Brewer, 1977; Dodge, 1986), rather than attempting to apply one style of thinking to all of children's behaviour. Secondly, researchers should

adopt an individual approach to the study of children's behaviour, as these findings show that not all children's behaviours relate in the same way or follow the same trajectory.

8.2.6 General conclusions

Findings from research reported in this thesis show that children's self-reports provide an important contribution to the study of children's behaviour. Whilst there were similarities with other reporters in prevalence levels, there were unique findings relating to sex differences in reports, and complex differences between individual self-reports and reports from peers, Class Teachers and Teaching Assistants. Furthermore, there were some distinct patterns in children's explanations for their behaviours, which are useful in understanding how children may think about their own behaviour. The previous sections have contained a discussion of these findings in relation to existing literature, and demonstrated the several important contributions these findings can make to the study of children's behaviour. The next section relates these findings to developmental theories in order to show how these findings may apply to these theories, and how this may directly relate to the study of children's behaviour and their reported perceptions of these.

8.3 Application of findings to developmental theories

In Chapter 2, Piaget's Theory of Cognitive Development (1951), Theory of Mind, empathy, and Theories of Moral Development were presented to provide a background for the importance of the current research and make tentative suggestions about findings. This section focuses on the application of these findings to each of these theories as the findings discussed in the previous section can be used to further understand theories of children's development and how these theories may apply to children's reported perceptions of their behaviour. The following discussions show that some aspects of these developmental theories are evident in the current findings. However, there are also some contradictory findings. These are discussed below.

8.3.1 Piaget's Theory of Cognitive Development (focus on egocentrism)

As explained in Chapter 2, Piaget's Theory of Cognitive Development (1951) proposes that children of the focal age group in the current study (aged four to seven years) undergo several cognitive changes. The most relevant aspect of Piaget's theory to this thesis is the concept of egocentrism, which proposes that young children are less able to see things from the perspective of others, and that egocentrism decreases as children become older (Frick et al., 2014).

Findings from the current research can be applied to Piaget's (1951) concept of egocentrism, in relation to both reports of behaviour and children's explanations. In Chapter 2, research findings considering the different trajectories of children's behaviour were presented to suggest that children may apply their increasing perspective taking skills to each form of behaviour in different ways. The current study found several different trajectories of children's self-reports (when collated into categories). This supports the suggestions made in Chapter 2 that children apply their perspective taking skills in different ways. Furthermore, it is possible that some children displayed examples of egocentrism. For instance, some children reported lower levels of solitary and aggressive behaviour, and higher levels of prosocial behaviour than other reporters. Whilst it is possible that these reports are due a self-serving bias, it may also be the case that children do not realise how others see their behaviour. However, there were also many children who agreed with other reporters about their display of solitary, prosocial and aggressive behaviour. It is possible that these children were displaying more advanced perspective taking skills, particularly those reporting the behaviours considered to be less socially desirable. Therefore, this suggests that some children of this age may not be inherently egocentric as proposed by Piaget. This idea is supported by peer-reports in the current study. In some cases (e.g. avoidance and aggressive behaviour) peer-reports were more similar to children's self-reports than reports from Class Teachers or Teaching Assistants. Therefore, this suggests that, for some forms of behaviour, young children do have awareness of their peers' behaviours and self-perceptions of these.

Children's explanations within the current study may also be useful for understanding the concept of egocentrism in Piaget's Theory of Cognitive Development (1951). As explained in previous sections, children mostly provided explanations with external

agency. This shows that young children do have an awareness of other children in relation to their own behaviour. Whilst it is possible that this external agency involves blaming other children for their behaviour, or attributing responsibility to others, the acknowledgement of others' involvement in their behaviour may indicate that children within this sample are able to consider the perspectives of others. However, it is also possible that children were referring to their own perspective of what other children had done to cause their behaviour. For instance "they were mean to me" would have been coded with external agency, but shows egocentric views. Therefore, it is also useful to consider children's outcome focus in their explanations for behaviour, as this can also be used to understand references to other children. There were mixed findings relating to outcome focus. Whilst children mostly identified external outcome focus for caring and including, this was more internal for solitary behaviours, and mixed for aggressive behaviours. Therefore, children may apply their egocentrism and increasing perspective taking skills in various ways to different behaviours, when deciding how to behave.

In summary, these findings show that some aspects of Piaget's (1951) concept of egocentrism may be applicable when trying to understand why children behave as they do. However, this may not be a process that is universal across behaviours and children and should be considered separately in its application to both of these.

8.3.2 Theory of Mind and empathy

Similar to egocentrism, the concept of Theory of Mind (ToM) refers to children's ability to reason about what other people know or believe. As discussed in Chapter 2, researchers have found different associations between ToM and behaviours, with some suggesting that a superior ToM can lead to the display of solitary (LaBounty & Olson, 2011), aggressive (Sutton et al., 2009) and prosocial (Carlo et al., 2003) behaviours. However, others have suggested that an inferior ToM is related to solitary (Walker, 2005) and aggressive behaviours (Randal, 1997), and unrelated to prosocial behaviour (Ruffman et al., 2006). Closely linked to the concept of ToM is the development of children's empathy. Whilst 'cognitive empathy' considers the perspective-taking capabilities of individuals, 'affective empathy' refers to the emotional reactions of individuals (Davis, 1980). Specifically, Hoffman's Theory of Empathy (1986, 2000)

proposed that children become capable of understanding how others want to be supported and treated between the ages of three years and eight years. However, other research applying empathy to children's behaviours (Eisenberg et al., 1987), suggested that children do not make use of this until adolescence. As such, they may tend to focus on personal outcomes and goals when younger.

The findings from the current study can be used to understand the application of ToM and empathy to children's behaviour further by specifically looking at the relationship between self-reports and references to others within children's explanations. As with the application to egocentrism, the findings that most children make external attributions may indicate that young children have an awareness of others. However, it is necessary to consider how this relates to self-reports of different behaviours in order to develop a further understanding of how ToM and empathy may apply.

Firstly, there were no clear patterns relating to the children's self-reported agency and their reports that they did or did not exhibit solitary behaviours. Furthermore, outcome focus was mostly internal across all self-reports of solitary behaviour. This may indicate that there is no clear association between ToM and empathy and remaining solitary. There were more references to other children in explanations for exhibiting or not exhibiting aggressive behaviour. External agency was more common amongst those who reported displaying aggressive behaviour, and outcome focus was mostly mixed across discussions of aggressive behaviour. This shows that some children did consider other children in their explanations in conjunction with impacts upon themselves. Therefore, it is likely some children utilise their ToM and empathy skills when deciding whether to behave aggressively, but that this is not the case for all children. There is scope to consider this further by coding children's explanations specifically for ToM and empathy.

In contrast to solitary and aggressive behaviours, children provided more external agency across all three forms of prosocial behaviour, although this did not vary by whether they did or did not display the prosocial behaviour. Therefore, this may suggest that children make use of their ToM and empathy skills when thinking about prosocial behaviour regardless of whether they do or do not exhibit this. However, the extent of this may vary across forms of prosocial behaviour, as external outcome focus was more common across

caring and including, but not sharing. It is possible that in these scenarios, children give consideration to others' thoughts and feelings and as such, exhibit these prosocial behaviours towards them. Importantly, children were asked about both caring and including behaviours in response to a specific situation such as a child crying or being alone, whereas this was not the case with sharing behaviours or solitary and aggressive behaviours. Therefore, it may be that children show more consideration of other children's thoughts and feelings when reacting to a situation where other children are distressed, but that this is used less spontaneously in cognitive processes relating to other behaviours.

These discussions support the ideas posed in Chapter 2, that there are different patterns regarding ToM, empathy and children's behaviour. Whilst this study did not test these cognitive abilities, elements of this can be detected within the explanations collected, and this has shown that this may vary across children, across categories of behaviour, and even within categories of behaviour (in particular prosocial). Therefore, when studying the association between ToM, empathy and children's behaviour, it is necessary to consider forms of behaviour separately without collating into categories, as there may be different patterns for different forms of behaviour.

Findings from the current study also support the developing complexity of children's ToM and empathy. The findings from aggressive ringleader behaviours particularly inform this. It was expected that many young children may not have the second order ToM or advanced empathy abilities required to report on this behaviour. The low ratings from both self-reports and peer-reports confirmed this. However, there were also very few instances of ringleader behaviours reported by teaching staff. Therefore, it may be that young children do not have the cognitive skills to actually engage in these behaviours, as opposed to not only lacking the cognitive skills to report on them.

Chapter 2 also contained a discussion of sex differences in empathy, where females tend to self-report higher levels of empathy. As a result, it was expected that they may show higher levels of prosocial behaviour. Whilst this was the case in ratings provide by peers and teaching staff, this was less evident for self-reports. Therefore, it may be that these cognitive skills impact upon how others interpret and report children's behaviour, but

they are not evident in reports from children themselves. One possible reason for this may be because both males and females self-reported high levels of prosocial behaviour, and therefore sex differences were not evident because children had reached the ceiling at the top of the three-point scale ('lots'). There is scope to explore this further with a larger scale.

These discussions above relating to Piaget's Theory of Cognitive Development (1951), Theory of Mind, and empathy, have considered children's ability to take the perspectives of others. However, these do not explain how children judge these acts and behaviours. This is considered within theories of moral reasoning which is discussed in the next section.

8.3.3 Theories of moral development

In Chapter 2, there was an overview of theories of moral development. These theories were used to make several suggestions about findings in the current research. Theories of moral reasoning focus on how children decide whether something is right or wrong. The consideration of moral reasoning is important as it may play a role in children's behaviour. Although, it is worth noting that an individual may know a behaviour is morally wrong, they may still go ahead and behave in this way.

The presentation of theories of moral development included classical theories by Piaget (1999) and Kohlberg and Kramer (1969), where it was suggested that children's explanations may focus more on the consequences of their behaviour and become more focused on intentions with age, when judging whether a behaviour is 'right' or 'wrong'. As consequential explanations were more common amongst children who said they did not display solitary or aggressive behaviour and did display prosocial behaviour, it is possible that this reflects children's moral reasoning where they may reason that these behaviours are 'right.' However, this was not consistent across all children, and explanations mostly became more consequential over time (regardless of whether children reported exhibiting or not exhibiting each behaviour). In addition, with the exception of solitary behaviour, children's outcome focus was external or mixed, suggesting that children are less hedonistic (self-focused) than proposed by these classical

theories. This may be because the mental operations involved in classical moral reasoning are more concerned with a child's understanding and knowledge of behaviour, whereas the study of children's social cognitions is concerned with the processes leading to an overt social behaviour (Dodge & Rabiner, 2004).

As such, the variation in children's explanations in the current research can be used to propose that domain theories of morality should be applied when studying children's moral reasoning and behaviour. The findings suggest that the application of the classical theories of moral development to the study of children's understanding of their own behaviour may be too simplistic, as they were developed with hypothetical stories and scenarios. Children's cognitive processes relating to their behaviours seem to be much more complex than this. Therefore, domain theories (Nucci, 1981, 2001; Turiel, 1998, 2008) may be best suited to explain children's behaviour, as findings indicated that they made use of different domains for different behaviours. For instance, for prosocial and aggressive behaviours, children's explanations were more likely to have external or mixed outcome focus. This shows a greater consideration of others and more general reasons relating to whether behaviour is right or wrong. This may relate to Turiel and Nucci's moral domain, where children consider the intrinsic outcomes for other individuals; or conventional reasons, where children focus on social rules. In contrast, for solitary behaviours, there was much greater internal outcome focus, showing that children seem to have a greater focus on themselves when thinking about this behaviour. As such, this may relate to Nucci's personal domain, rather than moral or conventional reasons. Therefore, when speaking with children about their behaviours, domain theories may help to understand the application of moral reasoning.

In addition to the current research contributing to the application of developmental theories to children's behaviour and their reported perceptions of these, the findings in this thesis may have some useful implications for working with children in schools. This is discussed in the next section.

8.4 Implications for working with children in schools

Four to seven years of age is a time period when children first start formal schooling in most countries and when they may first come into contact with a wider group of peers. Therefore, this may be an optimum time to intervene and prevent problematic peer-related behaviours from continuing and resulting in further problems. It may also be the most effective point at which to help to promote behaviours associated with positive outcomes. The findings in the current study offer some possible implications for this type of work with children in schools.

First, research into children's behaviour and their explanations may have implications for the future design and implementations of behaviour interventions (Georgiou & Starvindies, 2008). Several interventions have focussed on encouraging children to make appropriate choices relating to shyness in six to seven year olds (Dolan et al., 1993), aggression in six to seven year olds (Dolan et al., 1993) and eight to nine year olds (Conner & Fraser, 2011; Fraser, 2005) and prosocial behaviour in nine to 13 year olds (Schonert-Reichl, Smith, Zaidman-Zait, & Hertzman, 2012). The present findings have shown that there may be scope to use children's reported self-perceptions to assist behaviour change. 'Self-monitoring' refers to the systematic observation and recording of one's own behaviour (Davis et al., 2014). Researchers (Carter et al., 2011) have argued that encouraging self-monitoring amongst can lead to more positive outcomes and changes in behaviour and these findings are evident in research with children with Attention Deficit Hyperactivity Disorder (Ardoin & Martens, 2004); children with learning difficulties (Rhode, Morgan, & Young, 1983); and older children without specific needs (Davis et al., 2014). Therefore, children's self-perceptions and interactive comparisons of these with others can be used in school settings to discuss and improve behaviour and behaviour outcomes. The use of self-monitoring and evaluation with children has mostly focused on the reduction of disruptive behaviours (Briesch & Chafouleas, 2009), but the present findings suggest that there is potential to make use of children's self evaluations to increase positive outcomes and reduce negative outcomes across a broader spectrum of behaviours.

It may be helpful to make specific use of the findings from children's explanations in order to do this. However, the findings that explanations may vary across behaviours, particularly for outcome focus, highlight the need to ensure that the appropriate approach is adopted dependent on the behaviour in question. One particular example of this was the findings relating to aggressive behaviour. Children who self-reported exhibiting aggressive behaviours were more likely to and report explanations with external agency (e.g. 'they hit me first'). It is possible that these children are displaying aggressive behaviour as a reaction to their interpretation of another child's actions or situational cue. Alternatively, they may blame others in order to avoid taking responsibility for their aggressive behaviour. Therefore, interventions relating to aggressive behaviour may focus on increasing internal agency and responsibility to reduce aggressive behaviour amongst children.

Interventions such as these rely on an awareness of children's behaviours (and how children may understand these) from others, in particular teaching staff and their peers. The findings in this thesis have also suggested there may be scope to increase this awareness. The present research showed that there were differences in self-reports of behaviour, compared with teaching staff and peers. The author of this thesis is not arguing that any of the reporters in this study were more accurate than others, but that there is scope to develop a more mutual understanding of individual children's behaviour between different reporters. This could make it possible to design specific interventions to improve outcomes for children related to their peer-directed behaviour.

Firstly, there may be scope to change how teaching staff respond to children's behaviours. Researchers have been successful in training teachers to avoid negative talk and encourage reflection with five to seven year olds (Fernandez et al., 2015); and to change children's interactions at school (Reinke, Lewis-Palmer, Merrell, 2008). As discussed in Chapter 2, teachers may have limited awareness (Henricsson & Rydell, 2004) or access (Zumerbrunn et al, 2013) to some forms of children's behaviour and therefore are unable to intervene to help change the behaviour. For instance, Yoon, Sulkowski, and Bauman (2014), showed that teachers were less aware of occurrences of exclusion by children and so were less likely to intervene when this behaviour occurred than for instances of verbal or physical aggression. Furthermore, teachers have also

reported that they are not comfortable rating all behaviours (Greener, 2000) showing that they may lack awareness of children's behaviours. Teaching staff may also interpret behaviours differently to children, which may impact upon whether they intervene. For instance, whilst a child may interpret a behaviour as 'rough and tumble,' a different reporter (e.g. Class Teacher) could interpret this as aggressive or be unsure whether this is an example of play or real fighting (Schäfer & Smith, 1996). Therefore, there is scope to encourage a dialogue between children and their teachers about their behaviour, to encourage mutual understanding. The current research has shown that, with appropriate materials, children are able to discuss their behaviour, and therefore this would be a useful approach to adopt in schools. Similarly, raising awareness amongst teaching staff may also encourage intervention from them. This is important because if teaching staff do not intervene in children's behaviour, not only will the behaviours continue, but it may result in children (including peers) thinking that their teachers are condoning the behaviour.

In addition, there is scope to increase peers' awareness of other children's behaviours. Interventions have made use of peer-feedback for improving children's behaviour with children as young as four years (Benish & Bramlett, 2011) and there is a growing interest in using peers to help to promote change in children's behaviours (Smith, Sutton, & Bramlett, 2009). The findings from the current study showed that there were differing levels of agreement between self- and peer-reports dependent on the behaviour. This may be because peers may have lower awareness of behaviours when they are not the direct recipient.

In particular, children's self-reports of solitary behaviour were higher than reports from peers. This finding, combined with the finding that a relatively low number of children self-reported 'including' behaviour (inviting someone who is alone to join in), suggests potential to both increase their awareness of others' solitary behaviour and promote 'including' at school. Increasing peers' awareness of children's solitary behaviour may lead to them inviting solitary children to join in, and increasing awareness of teaching staff may increase their encouragement to do so. There have been some attempts by schools in the UK to provide solitary children with the opportunity to wait at a 'buddy-

bench' or 'friendship-stop'[23] where children can go in the playground if they would like peer-support if they are feeling lonely (Cowie, Boardman, Dawkins, & Jennifer, 2004). This highlights to other children that they are alone any would like someone to play with them. However, there is also the possibility that not all children, such as those who are shy will feel comfortable using this and if they are not invited to join anybody, this could exacerbate feelings of solitude for children. The 'buddy-bench' or 'friendship-stop' has mostly been implemented as part of anti-bullying policies and there is a potential for evaluation of this method to assess its effectiveness and whether other methods may be more appropriate from some children who are alone for other reasons.

This section has presented how the findings from the current research could be applied to work with children in schools. The next section includes a discussion of how the findings may inform future research, based on an overview of the strengths and limitations in the current study.

8.5 Strengths, limitations and future research directions

There were numerous strengths to this research, which are discussed below. As a result of the real-life nature of this study, there were also some limitations that arose during the research. However, several approaches were taken to try and reduce these limitations. This section includes a discussion of the strengths and limitations of the research in the current thesis and how these are important for future research.

A particular strength of the current study was the use of an innovative research method where children were shown moving animations as prompts to speak to them about their own behaviour. This extended on previous research with children using static cartoons (Monks et al., 2003). This method was found to be reliable, valid and engaging for children. There is scope to conduct future research, into children's reported perceptions of their own behaviour, using this method, particularly since some of the behaviours were

[23] Data was not collected on this in the present study

complex interactions which would have been difficult to display in static cartoon form (e.g. ringleader behaviours).

A further methodological strength was the use of a cohort sequential design, which combined longitudinal and cross-sectional analysis, across two age groups and over three time points. These three time points took place over the course of 12 months, across one school year, and there was a high retention rate of child participants. Therefore, it was possible to conduct a detailed analysis over the course of a school year and comparison of different age groups. In addition, the use of three time points, allowed greater comparisons than previous research (Reijntjes et al., 2010) and the use of both longitudinal and cross-section comparisons was unique as most researchers make use of only one of these methods (e.g. Caputi et al., 2012; Trach et al., 2010). This meant that it was possible to detect any changes in children's reported behaviour and explanations over the course of the school year. As discussed in Section 8.2.2 and Section 8.2.4, there were specific findings at the start of the school year. This highlights the importance of studying children's behaviour over the course of a school year, and demonstrates the strength of this method. There is scope for future research to include a fourth time point at the start of the next school year, to detect whether any changes in behaviour perceptions continue to follow the same pattern and scope to include more time points to understand the changes in more detail.

However, a possible limitation of the longitudinal approach was the effect of conducting repeated measures with children where they become used to answering the questions and try to work out what they think the researcher wants to know. Vierhaus, Lohaus, and Shah (2010), showed that there was an influence of measurement repetition, in their research on internalising behaviours with children aged eight years and over, when compared to cross-sectional findings. However, the children in Vierhaus et al.'s (2010) research were older than those in the current study. It is likely that children in the current study were less likely to remember the detail of the previous time point, particularly since there were considerable time gaps between these. In addition, in the current study, children were asked to specifically focus on their behaviour at the current time point and time was spent talking to the children about this in order to reduce the effect of retesting. There may be scope in future research to ask children about how they think their behaviour may have changed, in order to provide further comparisons, although this may

be challenging with very young children (e.g. age four years), and an innovative design would be necessary.

Other factors may have also impacted upon children's self-reports. For instance, the present study did not attempt to consider or comment on the 'accuracy' of reports from children, and it likely that biases played a role, such as social desirability, or demand characteristics. However, attempts were made to ensure that children understood that they should report what they really thought, and felt comfortable to do so. The researcher spent time with participating children for approximately half a day prior to data collection at each time point in order to build rapport with the children. In addition, the researcher spent time at the beginning of each time point explaining that children should feel comfortable to say what they really thought, and children were reminded of this prior to providing their self- and peer-reports of each form of behaviour. Furthermore, the current study employed a three-point scale for the collection of behaviour reports. The option for children to respond that they 'sometimes' displayed behaviour forms was more sensitive than the use of a binary scale and enabled children to report that they displayed behaviours to some extent, reducing effects of social desirability. It is also possible that children's self-reports and explanations were influenced by an underlying individual difference of personality, rather than specific behaviours. This may relate to underlying temperaments, such as a desire to be alone, or more confrontational nature. Therefore, children's behaviour may be closely linked to variations in personality and there may be scope to consider this in future research, particularly since research has shown children are capable of self-reporting on their personality (Measelle et al., 2005).

Central to the research in this thesis was the comparison between self- and peer-reports of behaviour. An unforeseen and unavoidable limitation with the current study was that seven out of 10 classes were restructured into mixed classes with other children in the year group when they moved up a school year (at time 2). This resulted in a change in the method used to collect peer-reports at time 2 and time 3, where children were asked about peers who were in their class at time point 1 using a list of names. In order to minimise the effects of this limitation, some additional work took place including reviewing literature, conducting research, and undertaking analyses. Statistical analysis highlighted that, in most cases, this did not affect the peer-reports provided. This limitation was

caused by real life changes in school settings and highlighted class restructuring as a future area of study, as this may impact upon the prevalence of children's behaviours with peers and peer-relations. Research has shown that children's dominance increases when they make their way into new social groups (Pellegrini, & Long, 2002), which may be the case when being mixed with other classes. In addition, Pryce and Frederickson's (2011) showed that the sense of belonging in a class and the classroom climate can affect eight to 11 year olds' behaviour. If children are changing peer groups, their sense of belonging may alter when this first happens, and therefore there is scope to explore how this affects their behaviour and reported perceptions of this.

Also central to the research in this thesis was the comparison of self-reports of behaviour with reports from teaching staff. This was not without limitations. Firstly, there may be personal biases in reports as these are reliant on one individual per 30 children. Secondly, different Class Teachers were used across children and time points, meaning there may have been inconsistencies in ratings. However, a unique feature of the current research was the inclusion of reports from Teaching Assistants, for comparison with the children's self-reports. This meant that more than one adult report was collected and so helped to counteract the limitations described above. Many studies have used reports from Class Teachers (e.g. Coplan et al., 2014; Monks et al., 2003) but the author of this thesis was unaware of any published research, which also collected behaviour reports from Teaching Assistants. As explained in Chapter 2, The Teaching Assistant role has become increasingly important over the past few years (Rose & Groom, 2002) and in many schools, Teaching Assistants have different interactions with children than Class Teachers. The current study showed that, when comparing self-reports with each other reporter, there were mostly similarities between how these compared with Class Teachers and Teaching Assistants. However, in some cases, there were differences in ratings between Class Teachers and Teaching Assistants. Therefore the current study has shown the usefulness of collecting Teaching Assistant reports, and proposes that this method is taken forward either via a multi-informant method, or to be considered separately to other reporters, to increase reliability.

The current research was unique in its comparison of young children's self-reports with reports from peers and adults. One way to develop this research would be to include

researcher observations, which may provide a more objective measure with which to compare reports from others. This was not feasible in the scope of this doctoral research but including observations alongside reports from others, and measures of individual outcomes would help to develop an understanding of the variation of difference types and how these may impact upon children's behaviour or outcomes. However, it is important that these observations are used as an additional source of behaviour reports and not to replace the reports collected by others as observations are not without limitations, such as observer bias (Pellegrini & Smith, 1993), gender bias (Ostrov et al., 2005) and lower validity as observers only see children for limited periods (Spangler & Gazelle, 2009). There may be scope to integrate the use of observations with children's explanations. For instance, specific incidents of behaviour could be highlighted to children and children asked about the behaviour at that time.

Several references have been made throughout this discussion to the strength of including 11 different forms of behaviours. Many researchers' study of children's behaviour tends to focus on forms of behaviour within one category, whereas the current study considered children's self-reports across three different categories. Whilst this was a strength of this study, as with any research, there were time constraints, both in terms of the length of the study itself, and in terms of how much participants could be asked to do. As explained in Chapter 2, comforting and helping were merged to create 'caring' for the current study whereas it may have been useful to consider them separately. The current findings supported this, as conversations with children illustrated that these may be more different than previously realised. As children this age do not seem to engage in peripheral aggression roles, there is scope to remove the ringleader behaviours from future research and consider the use of more prosocial behaviours.

A main strength of the present research was the standardised coding system employed across explanations relating to all 11 forms of behaviour, which allowed for comparison across these. However, the literature presented in Chapter 2 showed that researchers have attempted to assign different reasons to children's behaviours, which varies across the different categories of behaviour (solitary, prosocial, aggressive). As such, it may be useful to conduct further analysis (e.g. content analysis) on children's explanations within different categories, in order to ascertain whether children's specific reported reasons

could be categorised in the same ways as researchers have proposed. The use of open-ended explanations from children in the current study, means that this development is possible and their explanations can be used in a variety of ways in future studies, to not only consider different categories of behaviour more closely, but also application of theories such as Theory of Mind and Moral Reasoning.

This section has contained a discussion of strengths and limitations of the research in this thesis, and how this may relate to future developments. There are numerous future research directions from the research in this thesis. For instance, there are several additional variables that could be considered in the study of children's self-reports and explanations of their behaviour. There may be scope to explore how children's self-reports vary across different education settings in the UK, such as academies, schools run by the local authority and public and private schools. Education settings may have different class sizes and resources related to different scopes of financial control. Aspects such as this are likely to impact upon the child's school environment and in turn their peer-related behaviour. It is also possible that children's experiences prior to school impact upon their self-reports and explanations, such as different childcare settings where they may have had varied experiences with peers. Furthermore, self-reports and explanations may vary across different family settings (e.g. number of siblings), and backgrounds (e.g. ethnicity). This could be considered in future research, making use of the innovative method employed in this thesis, but collecting additional variables to allow comparison. There is also potential to directly compare children's self-reports and explanations with their individual outcomes, to see whether this association is similar to those found in previous research using reports from others.

There is also scope to conduct similar research cross-culturally for comparison with data collected in the UK. There are several unique features of the UK schooling system. A review by the Department for Education (2011) compared class sizes across the Organisation for Economic Cooperation and Development and found average larger class sizes in primary schools than 18 other countries and only smaller class sizes than six countries. In addition, the average class size of 30 children identified in the report by the Department for Education is noticeably higher than class sizes in other cultures. Furthermore, children in the UK start school when they are aged four to five years. This

is younger than most countries both in Europe (nfer, 2013) and outside of Europe (UNESCO, 2014) where most children start at age six or seven years. As such, a future direction from the current research could be to compare self-reports and explanations of children in the UK with those of children in other cultures, to see how these cultural differences impact upon young children's reported perceptions of their own behaviour.

8.6 Conclusions

To conclude, the research in the current thesis has made an original contribution by showing that it is possible to collect young children's self-reports and explanations of a wide range of behaviours and that these provide a unique insight and perspective that cannot be gained from any other reporters. Specifically, the current study has provided an overview of how four to seven year olds report and explain their own solitary, prosocial and aggressive behaviours over the course of a school year, compared to peers, Class Teachers and Teaching Assistants. The research in this thesis was original in the use of innovative methods where moving animations were used prompts for asking young children direct questions about their own behaviour. As a result, this study has enabled an understanding of how four to seven year olds report and explain their own behaviour. Furthermore, the combination of a longitudinal and cross-sectional design, enabled a detailed analysis of how children's reported perceptions of their behaviour may change as they become older and over the course of the school year. The current research can be used to guide researchers in their study of children's behaviour in the future, as well as inform how schools approach some behaviours with children. Furthermore, the research in this thesis has highlighted several areas of future research directions, which can be used to both develop and further understand this important body of research as to how children report and understand their own behaviour.

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A.3 Script for interviews with children

INTRODUCTION

I am doing some work looking at what children think about different behaviours at school, like playing with other children or shouting at another child. I'm interested in what you think of what you do and what you think about what other people in your class do.

Your parents know I'm going to talk to you and said it is okay. We're going to watch some stick people doing some different things. Once we've watched them, I am going to ask you some questions which I would be very grateful if you could answer for me. You can stop at any time and if you have any questions or there is anything you don't understand just let me know. I won't tell anyone anything that you say and no one will know what answers you give. I will be recording some of the things you say on my laptop, just because I am not quick enough to write them all down but you don't need to worry about that.

Your parents have said you can take part, but **you don't have to if you don't want to**. It is up to you and like me, teachers and other staff don't mind what you decide to do.

Are you happy to take part?

****Time 2 and Time 3 ONLY**** Do you remember last time we met, that I asked you about the other children in your class? Well, I'm going to do that again, but this time I have a list of the children who were in class X with you. Can you read the names on this list? (Help given where needed). Do you still see these children? Where is that? When I ask you about what other children do, I need you to try and think about the children on the list, when you see them in Year 1/Year 2. It's not a reading test so if you cannot remember who is on the list or are struggling to read names just let me know.

Before we start, it is really important that you tell me what you *really* think during this research. I'm not going to be telling anyone your reply so please don't worry about looking good or being worried you will get into trouble, as I am really interested in what you *really* think! Also, when I ask you about the other people in your class, I won't be telling anyone your answers – no one will get into any trouble or get any prizes so it's really important you tell me what you really think. There are no right or wrong answers.

Do you understand? Do you have any questions?

ACTVITY INSTRUCTIONS

Can you see the laptop in front of you okay? In front of you there are some buttons. It's really important you only press these when I say.

Sharing

Can you press the yellow button for me please?

Think about the stick person with the arrow over their head – what do you think they are doing in this video?

That's right / nearly – **they are sharing their toys, or things they are using with another child.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read **who shares their toys or things they are using with other children at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever share their toys or things you are using with other children at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Behavioural solitude

Can you press the yellow button for me please?

Think about the stickperson with the arrow over their head– what do you think they are doing in this video?

That's right / nearly – they are **staying on their own and not trying to join in with others.**

Please can you press the yellow button for me so we can watch it again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read who **stays on their own and does not try to join in with others at school?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever stay on your own and do not try to join in with others at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons **.

Caring

Can you press the yellow button for me please?

Think about the stick person with the arrow over their head– what do you think they are doing in this video?

That's right / nearly **– they are caring for another child who is sad or has hurt themselves.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read, **who ever cares for children who are sad or have hurt themselves at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever care for children who are sad or have hurt themselves at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, do you ever push, hit, pinch or kick any other children at school – please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons **.

Direct relational aggression

Can you press the yellow button for me please?

Think about the stick person with the arrow over their head – what do you think they are doing in this video?

That's right / nearly – **they are playing with a child and telling another child that they cannot join in with them when they ask to.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read **who plays with other children but tells some children that they cannot join in with them and the children they are playing with at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever play with other children but tell some children that they cannot join in with you and the children you are playing with at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, do you ever push, hit, pinch or kick any other children at school – please can you tell me whether you do this a lot, sometimes or never?

Once told me answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Indirect relational aggression

Can you press the yellow button for me please?

Think about the person with the arrow over the head stickperson – what do you think they are doing in this video?

That's right / nearly – they are whispering and saying nasty things about other children.

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your

class / on the list we read **who whispers and says nasty things about other children at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever whisper and say nasty things about other children at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Including

Can you press the yellow button for me please?

Think about the stickperson with the arrow over their head– what do you think they are doing in this video?

That's right / nearly – they are **asking a child who is on their own to come and join in with them and the other children they are with.**

Please can you press the yellow button for me so we can watch the video again?
<Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read who **asks children who are on their own to come and join in with them and the other children they are with at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever ask children who are on their own to come and join in with you and the other children you are with at school?** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, do you ever push, hit, pinch or kick any other children at school – please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? *Continue to ask until they provide the same answer or say there are no other reasons *.

Verbal aggression

Can you press the yellow button for me please?

Think about the stick person with the arrow over their head– what do you think they are doing in this video?

That's right / nearly – **they are shouting at another child and saying nasty things to them.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read, **who ever shouts or says nasty things to other children at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? *Continue to ask until they provide the same answer or say there are no other children*

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever shout or say nasty things to other children at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? *Continue to ask until they provide the same answer or say there are no other reasons *.

Ringleader of verbal aggression

Can you press the yellow button for me please?

Think about the stickperson with the arrow over their head – what do you think they are doing in this video?

That's right / nearly – **they are telling someone to go and say nasty things to another child.**

Please can you press the yellow button for me so we can watch the video again?<Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read **who tells others to go and say nasty to things to other children at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever tell others to go and say nasty things to other children at school?** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Physical aggression

Can you press the yellow button for me please?

Think about the person with the arrow over the head stickperson – what do you think they are doing in this video?

That's right / nearly – **they are pushing another person. In this one they are pushing them but sometimes they might kick, hit or pinch.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read, **who ever pushes, hits, pinches or kicks any other children when they are at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you

really think as I won't be telling anyone your answers. Do they do this sometimes or a lot? Anyone else? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever push, hit, pinch or kick any other children at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, please can you tell me whether you do this a lot, sometimes or never?
Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Ringleader of physical aggression

Can you press the yellow button for me please?

Think about the stickperson with the arrow over their head– what do you think they are doing in this video

That's right / nearly – **they are telling someone to go and kick another child by kicking them. In this one they have used kicking but they might tell people to go and pinch, push or hit someone else.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read **who tells someone to go and hurt other children at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot?

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever tell children to go and hurt other children at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

Avoidance

Can you press the yellow button for me please?

Think about the person with the arrow over the head stickperson – what do you think they are doing in this video?

That's right / nearly – **they are saying no when other people ask them if they would like to play with them and they are staying on their own.**

Please can you press the yellow button for me so we can watch the video again? <Animation is shown again>

1. Thinking about what we just saw the stick person do, can you think of anyone in your class / on the list we read, **who ever says no when other people ask them if they would like to play with them and stay on their own instead, when they are at school (at time 2/3 emphasise in Year 1/Year 2)?** Remember to tell me what you *really* think as I won't be telling anyone your answers. Do they do this sometimes or a lot? **Continue to ask until they provide the same answer or say there are no other children**

Okay now press the yellow button for me please.

2. So, now I'm interested in whether **you ever say no when other people ask you if you would like to play with them and stay on your own instead at school.** Remember I am interested in what you *really think* of what you do and I won't be telling anyone your answer. So, please can you tell me whether you do this a lot, sometimes or never?

Once given answer - In front of you there are three buttons with different sized circles on. If you think you do it a lot, press the one with biggest circle on. If you think you never do it, press the one with the smallest circle on. If you think you do it sometimes, press the middle sized circle.

Okay great, so that went really well, good job!

3. Now I'm interested in why that is and I'm going to ask you a few questions. Again, there is no right or wrong answer I just want to make sure that you've told me all the reasons why and so when I ask the questions it is okay if you don't have anything more to say.

So, can you tell me why you never/sometimes/always do that? Are there any other reasons? **Continue to ask until they provide the same answer or say there are no other reasons *.*

A.4 Peer ratings tally sheet

PEER RATINGS

School: Year group: Date:

	Sharing		Behavioural solitude		Caring		Direct relational aggression		Indirect verbal aggression	
	L	S	L	S	L	S	L	S	L	S

	Including		Direct verbal aggression		Ringleader verbal		Physical aggression		Ringleader physical		Avoidance	
	L	S	L	S	L	S	L	S	L	S	L	S

A.5 Teacher and Teaching Assistant response sheet

Exploring children's understanding of their own behaviour: Katie Rix PhD
L: Lots, S: Sometimes, N: Never

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Child	Shares their toys / things they are using with other children.			Stays on their own and does not approach other children to join in with them			Cares for other children who are sad or have hurt themselves			Plays with other children but tells some children they cannot join in with the group			Whispers about and says nasty things about other children			Actively asks children who are on their own to come and play with them and their group and includes them in the group			Shouts at/ is nasty to other children			Tells children to go and shout at / say nasty things to other children			Pushes, hits, pinches or kicks other children at school.			Tells children to go and hurt other children, e.g. hit, kick, pinch, push			Refuses / rejects offers to join in with other children and plays/stays on their own		
	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N	L	S	N

A.6 Peer methodology change at time 2 and time 3

As explained in Chapter 4, classes were restructured at time 2 (and therefore time 3) in seven out of the 10 school classes. Therefore, it was necessary to adapt the approach of collecting peer-reports for time 2 and 3, from the procedure used at time 1. It was no longer possible to ask about the other children in their class, as the other children in their class were not all taking part in the study, and some of the children who were taking part were in other classes. This section outlines a rationale for the selected adaptation with a discussion of the advantages and disadvantages of each method.

One idea included providing children with a list of the 29 (approximate) children in their year taking part who used to be in their class. However, this was somewhat reliant on children being able to read these names and moves away from the idea of children naming the most salient children. There was also the risk that children would no longer know all of these children. However, it still allowed for up to 29

peer-reports (depending on the number of children in the class) to be captured increasing the reliability of these reports.

An alternative idea was to have a list of the children who were in their class in the previous academic year as well as this academic year. Whilst this shared some of the same problems, it meant that children would know all the children on the list. However, it also meant cutting the number of peer-reports by a third. This was also an issue with another idea which was to ask children about everyone in their class and dismiss information on those not taking part. Similarly, this was accompanied by ethical issues, as many of these children were not taking part in the study.

Similarly, there were ethical issues with another idea which was to ask children about everyone in their year group and dismiss information on those not taking part. This would have also been very time consuming.

An additional idea was to ask children to think about the children who were in their class the previous year and report on them, but this was very much reliant on memory and could have resulted in children reporting on what they saw in terms of behaviour in the previous year, rather than the current one.

Finally, one idea was to use photos to show who was in their class the previous year but this would have raised further issues and the use of photographs is often not accepted by schools. Furthermore, it diverged greatly from the initial method used.

Informal conversations with teaching staff during time 1 suggested that young children are able to recognise the names of the children who have been in their class; can often remember children who were in their class in the previous academic year; and still engage and interact with children from other classes in their year group, through break times, lunch breaks and some lessons. Therefore, a review of these potential methodologies, combined with information from teaching staff, resulted in choosing the method in which a list of names is provided to participants, combined with supporting them to read the names and speaking to them about where they see the children around school who were in their class last year, ensuring that they

concentrate on current behaviours. It was noted both whether each child had changed class, and when peer-reports were provided by others in their class or from other classes. This was important as it may be that children find it difficult to report on current behaviours if they do not see it in a class setting. An extensive review of the literature was unable to highlight this challenge being noted or identified within other research. The most relevant was research conducted by Bellmore, Jiang and Juvonen (2010) who highlighted the problem of collecting peer-reports in senior schools when classes no longer spend all their time together for all lessons. They found that using randomly generated lists of peer students from their year group (but not necessarily in their classes) were able to generate reports which were similar to those gained from students as an entire class in their first year. Whilst this research took place in a much larger school setting in the United States and with children aged 11 years and over, it recognised a challenge which occurred in the current research, - conducting longitudinal research in which peer-reports need to be collected, with students who change classes. It supports the idea that children do know other children in their year group and provided scope to explore adapted peer-report methodologies for time 2 and 3. In addition, work by Marks et al., (2013) discussed reliability for peer-reports of aggression and prosocial behaviour and that there is considerable variability in reliability findings, showing that participation rate alone is not sufficient to indicate the reliability of a peer nomination measure. As a result, in the current study, children were asked to report on people who used to be in their class at times 2 and 3, and analysis conducted to see whether this had an effect on peer reports.

In addition, a small pilot was run to test this method through discussing peers with five children in both the younger and older cohort. They were asked to think of people from their class in the previous academic year, and it was found that they could not simply remember the names of people from their class in the previous year. When a list was provided for them, of their classmates from the previous academic year and discussions about whether they still see them, it was found that, with support, children were able to both read the names on the list and talk about where they still see these other children at school. Whilst some younger children had some difficulty in recognising the names of the children on the list, leaving the list out enabled more clarification around who the experimenter was interested in rather than

trying to ask children in different temporal senses (i.e. about last year's class and how they behave now). Importantly, children were able to remember people who had been in their class the previous year which also supported them to focus on this group in conjunction with the list. In addition, when asking these five children general questions about their previous classmates, children did not attempt to go through the names one by one on the list but either pointed to or said the most salient names which ensured a similar procedure to that used at time 1.

A.7 Focus groups with children about proposed methods

This section outlines the focus groups with children, in order to test the suitability of the methodological ideas generated from reviewing previous research in terms of subcategories of behaviour and procedural design.

A.7.1 Aims, participants, materials and procedure.

Exploratory discussions took place with children in two schools across four sessions which included: 12 Year 1 Students; three Year 2 students; and seven Year 6 students who worked with younger children at lunch-time.

Children were asked a series of questions in small groups of mixed gender with children of the same age. Each session lasted approximately twenty minutes and children were asked the following questions, accompanied with examples as prompts where necessary:

1. Think about behaviours you see other children at school do, and the ways they act. Think of as many as you can - what are they?
2. What do children aged four to seven like doing? Are there any big differences for boys and girls? Are there any things that both boys and girls like?
3. How do you think these fun things could be used to ask someone your age and a little bit younger how they behave and what they are like?
4. Thinking about the ideas we've talked about, do you think children will always say what they really think? Why/why not?

5. How could I try my best to make sure that they tell me what they really think and are not worried about 'looking good' or getting in to trouble?
6. Thinking about our ideas, how do you think I can make my questions really clear so that children understand that I am asking them about what they are like at school?

A.7.2 Outcomes - behaviour categories

After being asked to think of as many school behaviours as they could, children's responses were cross-referenced with nine behaviour scales (Behar & Stringfield, (1974); Rutter (1967); Reynolds (1992); Achenbach (1983); Ladd & Profilet (1996); Goodman (1997); Burks (1996); Crick et al. (1997); Tremblay et al. (1992). A total of 49 different words or phrases were provided by children, which related to both behaviours and emotions. 22 of these referred to emotions (45%) and the remaining words referred to behaviours (55%). 18 (62%) of these words/phrases overlapped with behaviours reviewed in the three categories of aggression, prosocial and solitary behaviour from the behaviour scales. Aggressive behaviours included words such as 'bad temper'; 'naughty'; 'smacks other children'; 'mean'; 'bully'; 'rude about' 'laughs at; 'talking about others'; 'unsharing'; 'bad'. Prosocial behaviours included 'kind'; 'shares'; 'nice'; 'good'; 'friendly'. Asocial behaviours included 'shy'; 'quiet'; 'lonely'. Whilst the children's descriptions were less defined than those in the literature, these findings support the idea that these three behaviour categories are present at school, and that children are capable of identifying them. Other behaviours provided by children mostly referred to teacher-directed behaviours. Children identified a low number of asocial behaviours, or ringleader behaviours, but this is likely to be due to their low saliency as discussed previously.

A.7.3. Outcomes - methodological design

The first question related to things that children enjoy doing. More than one of the five groups reported that they liked playing on a computer (5); playing (5); building / art (4); watching television (2). They were also asked about gender differences

related to the most common responses were that girls preferred games associated with dolls whereas boys preferred games associated with sport. All groups said that the enjoyment children experience when playing on a computer was equal across boys and girls. When children were directly asked what they thought about watching videos and using response pads, 100% of participants said that they thought that this was a good idea. However, children had mixed views about the use of stick figures within moving images. Some thought that videos of actors would be better, but 100% of children agreed that the characters needed to be portrayed in a way where children would not identify with factors such as gender or hair colour. In many cases the idea of a puppet or cartoon was a popular method with children.

Children were also asked about how to reduce social desirability of answers. Most children said that the reasons why children might not tell the researcher what they really thought about their behaviour because of fear over repercussions or a desire to impress the experimenter. More than one of the groups reported that social desirability could be reduced through: filming on observing the children (4); asking for behavioural explanations (3); asking them to say what they really think (3); becoming familiar with the researcher (3); emphasising the importance of research (2); saying that they will not get into trouble (2). Their main idea was to use filming or observations of the children in order to see how they usually behave, but this was outside the realms of the current research. However, the other ideas they provided were similar to the methods used in previous research (e.g. Monks & Smith, 2010).

Appendix B: Solitary behaviour (Chapter 4)

B.1 Preliminary analysis

Intraclass Correlations (ICCs) were run in order to see how far reports of solitary behaviour differed from each other.

Initially, ICCs were run between self-reported ratings and ratings from other reporters ('lots' (2), 'sometimes' (1), 'never' (0)). Of 18 possible ICCs, only three were significant with weak strength, all of which were for behavioural solitude. These included ICCs between peer- and self-reports at time 2 (ICC = .15, p = .002) and time 3 (ICC = .10, p = .002). It also included ICCs between Class Teacher- and self-reports at time 3 (ICC = .19, p < .001).

In contrast, there was more agreement amongst the other reporters. All ICCs between Class Teachers and Teaching Assistants were significant (all p < .001) of moderate strength at time 1, but weak at times 2 and 3. This can be seen in Table 1 below.

Table 1. ICCs between Class Teachers and Teaching Assistants for solitary ratings

Form		Class Teachers		
		Time 1	Time 2	Time 3
Behavioural solitude	Teaching Assistants	.69***	.37***	.48***
Avoidance		.57***	.42***	.42***

There were two weak significant ICCs between Teaching Assistants and peer-reports for behavioural solitude at time 2 (ICC = .13, p = .01) and time 3 (ICC = .22, p = .001) There was one weak significant ICC between Class Teachers and peer-reports at time 3 (ICC = 17, p = .001) for behavioural solitude and at time 2 for avoidance (ICC = .12, p < .001). All other ICCs between peers and teaching staff were non-significant.

B.2 Statistical results for ratings

Table 2. One way Goodness of Fit results (Section 4.4.1)

Reporter /	Time	Behavioural solitude	Avoidance
Self	1	$\chi^2 = 83.56^{***}(2, N = 285)$, *Cohen's W* = 0.55	$\chi^2 = 158.30^{***}(2, N = 285)$, *Cohen's W* = 0.75
	2	$\chi^2 = 93.74^{***}(2, N = 279)$, *Cohen's W* = 0.58	$\chi^2 = 154.90^{***}(2, N = 279)$, *Cohen's W* = 0.75
	3	$\chi^2 = 115.54^{***}(2, N = 273)$, *Cohen's W* = 0.65	$\chi^2 = 112.51^{***}(2, N = 273)$, *Cohen's W* = 0.64
Peer	1	$\chi^2 = 286.06^{***}(2, N = 285)$, *Cohen's W* = 1.00	$\chi^2 = 461.75^{***}(2, N = 285)$, *Cohen's W* = 1.27
	2	$\chi^2 = 343.89^{***}(2, N = 279)$, *Cohen's W* = 1.11	$\chi^2 = 439.38^{***}(2, N = 279)$, *Cohen's W* = 1.25
	3	$\chi^2 = 333.16^{***}(2, N = 273)$, *Cohen's W* = 1.10	$\chi^2 = 456.51^{***}(2, N = 273)$, *Cohen's W* = 1.29
Class Teacher	1	$\chi^2 = 126.64^{***}(2, N = 284)$, *Cohen's W* = 0.67	$\chi^2 = 230.42^{***}(2, N = 284)$, *Cohen's W* = 0.90
	2	$\chi^2 = 151.40^{***}(2, N = 270)$, *Cohen's W* = 0.75	$\chi^2 = 271.16^{***}(2, N = 270)$, *Cohen's W* = 1.01
	3	$\chi^2 = 194.13^{***}(2, N = 273)$, *Cohen's W* = 0.84	$\chi^2 = 374.04^{***}(2, N = 273)$, *Cohen's W* = 1.17
Teaching Assistant	1	$\chi^2 = 117.07^{***}(2, N = 284)$, *Cohen's W* = 0.64	$\chi^2 = 187.13^{***}(2, N = 284)$, *Cohen's W* = 0.81
	2	$\chi^2 = 162.84^{***}(2, N = 279)$, *Cohen's W* = 0.76	$\chi^2 = 245.25^{***}(2, N = 279)$, *Cohen's W* = 0.94
	3	$\chi^2 = 271.85^{***}(2, N = 273)$, *Cohen's W* = 0.99	$\chi^2 = 373.08^{***}(2, N = 273)$, *Cohen's W* = 1.17

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 3. Paired-sample t-test results (Section 4.4.1)

Reporter / Time point		Behavioural solitude		Avoidance		*t-test* result
		M	SD	M	SD	
Self	1	0.59	0.64	0.41	0.65	t (284) = 3.63***, d = 0.28
	2	0.53	0.67	0.40	0.60	t (278) = 2.81**, d = 0.20
	3	0.47	0.62	0.48	0.62	t (272) = -.19, d = -0.01
Peer	1	0.26	0.56	0.11	0.41	t (284) = 4.05**, d = 0.31
	2	0.21	0.54	0.13	0.46	t (278) = 2.05*, d = 0.16
	3	0.26	0.64	0.12	0.44	t (282) = 4.47***, d = 0.25
Class Teacher	1	0.46	0.58	0.29	0.52	t (283) = 4.84***, d = 0.31
	2	0.39	0.55	0.22	0.45	t (284) = 5.03***, d = 0.34
	3	0.32	0.49	0.13	0.38	t (284) =7.00***, d = 0.43
Teaching Assistant	1	0.48	0.60	0.35	0.55	t (283) = 3.98***, d = 0.23
	2	0.38	0.53	0.25	0.46	t (278) = 3.95***, d = 0.26
	3	0.22	0.44	0.14	0.41	t (272) = 2.88**, d = 0.19

Note. ***p< .001; **p < .01, * p < .05

B.3 Age group differences in stability

When running ICCs for each age group in order to assess stability over the three time points, the only differences occurred for ICCs of peer-reports for behavioural solitude, with these being stronger in the older age group (ICC = .45, $p < .001$) compared to the younger age group (ICC= .32, $p < .01$). For avoidance, there was no significant ICC in the older age group when looking at consistency over the three times but this was significant in the younger age group (ICC = .23, $p < .05$). There were no other differences in ratings from other reporters by age group

B.4 Difference types

Table 4. Difference types for solitary behaviour (Section 4.5.2)

Type /time [a]		Behavioural solitude	Avoidance
Peers	1	$\chi^2 = 118.94^{***}(3, N = 285)$, *Cohen's W* = 0.65	$\chi^2 = 271.34^{***}(3, N = 285)$, *Cohen's W* = 0.98
	2	$\chi^2 = 160.01^{***}(3, N = 279)$, *Cohen's W* = 0.76	$\chi^2 = 248.36^{***}(3, N = 279)$, *Cohen's W* = 0.94
	3	$\chi^2 = 189.52^{***}(3, N = 273)$, *Cohen's W* = 0.83	$\chi^2 = 256.01^{***}(3, N = 273)$, *Cohen's W* = 0.97
Class Teachers	1	$\chi^2 = 22.73^{***}(3, N = 284)$, *Cohen's W* = 0.28	$\chi^2 = 124.51^{***}(3, N = 284)$, *Cohen's W* = 0.66
	2	$\chi^2 = 50.92^{***}(3, N = 270)$, *Cohen's W* = 0.43	$\chi^2 = 140.52^{***}(3, N = 270)$, *Cohen's W* = 0.72
	3	$\chi^2 = 72.80^{***}(3, N = 273)$, *Cohen's W* = 0.52	$\chi^2 = 178.94^{***}(3, N = 273)$, *Cohen's W* = 0.81
Teaching Assistants	1	$\chi^2 = 28.48^{***}(3, N = 284)$, *Cohen's W* = 0.29	$\chi^2 = 94.23^{***}(3, N = 284)$, *Cohen's W* = 0.58
	2	$\chi^2 = 50.02^{***}(3, N = 279)$, *Cohen's W* = 0.42	$\chi^2 = 115.02^{***}(3, N = 279)$, *Cohen's W* = 0.64
	3	$\chi^2 = 112.47^{***}(3, N = 273)$, *Cohen's W* = 0.64	$\chi^2 = 179.18^{***}(3, N = 273)$, *Cohen's W* = 0.81

Notes. [a] Difference types between self-reports and each reporter; $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

B.5 Explanations and difference types

Table. 5. Explanations and difference type for behavioural solitudes (Section 4.7)

Difference type	Time	Explanation focus	Higher self-report	No difference-reported	No difference – non-reported	Lower self-report	Chi-Square result
Self-peers	T1	Ca	51.4	7.7	29.8	11.0	$\chi^2 = 23.63^{**}(6, N = 276)$ *Cramer's V* = 0.20
		Co	20.0	4.4	51.1	24.4	
		M	44.0	0.0	46.0	10.0	
	T2	Ca	45.5	5.8	40.3	8.4	$\chi^2 = 25.07^{***}(6, N = 273)$ *Cramer's V* = 0.25
		Co	12.7	1.3	72.2	13.9	
		M	47.5	0.0	47.5	5.0	
	T3	Ca	46.7	5.1	42.3	5.8	$\chi^2 = 40.75^{***}(6, N = 270)$ *Cramer's V* = 0.28
		Co	12.5	2.9	78.8	5.8	
		M	44.8	10.3	37.9	6.9	
Self-Class Teachers	T1	Ca	40.0	20.6	23.3	16.1	$\chi^2 = 22.46^{**}(6, N = 275)$ *Cramer's V* = 0.20
		Co	15.6	8.9	42.2	33.3	
		M	28.0	14.0	40.0	18.0	
	T2	Ca	16.9	37.2	29.1	37.2	$\chi^2 = 38.62^{***}(6, N = 264)$ *Cramer's V* = 0.27
		Co	6.5	7.8	67.5	7.8	
		M	15.4	30.8	35.9	30.8	
	T3	Ca	35.8	17.5	35.8	10.9	$\chi^2 = 38.66^{***}(6, N = 270)$ *Cramer's V* = 0.27
		Co	13.5	3.8	62.5	20.2	
		M	27.6	27.6	31.0	13.8	

Difference type	Time	Explanation focus	Higher self-report	No difference-reported	No difference – non-reported	Lower self-report	Chi-Square result
Self-Teaching Assistants	T1	Ca	40.0	17.2	23.3	19.4	$\chi^2 = 21.34^{***}(6, N = 275)$ *Cramer's V* = 0.20
		Co	17.8	6.7	55.6	20.0	
		M	28.0	14.0	36.0	22.0	
	T2	Ca	37.7	15.6	31.8	14.9	$\chi^2 = 34.11^{***}(6, N = 273)$ *Cramer's V* = 0.25
		Co	13.9	1.3	59.5	25.3	
		M	30.0	17.5	32.5	20.0	
	T3	Ca	43.8	9.5	37.2	9.5	$\chi^2 = 43.44^{***}(6, N = 270)$ *Cramer's V* = 0.28
		Co	12.5	3.8	71.2	12.5	
		M	37.9	20.7	31.0	10.3	

Notes. T1: Time 1, T2: Time 2, T3: Time 3. Ca: Causal explanation focus, Co: Consequential explanation focus, M: Mixed explanation focus, $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$

Table 6. Explanations and difference type for avoidance (Section 4.7) (only significant at time 2 and time 3)

Difference type	Time	Explanation focus	Higher self-report	No difference-reported	No difference – non-reported	Lower self-report	Chi-Square result
Self-peers	T2	Ca	47.5	4.0	41.6	6.9	$\chi^2 = 34.53^{***}(6, N = 274)$ *Cramer's V* = 0.25
		Co	16.5	0.0	77.2	6.3	
		M	32.6	2.2	60.9	4.3	
	T3	Ca	50.0	2.0	45.9	2.0	$\chi^2 = 28.26^{***}(6, N = 272)$ *Cramer's V* = 0.23
		Co	25.6	0.0	72.2	2.3	
		M	56.1	4.9	39.0	0.0	
Self-Class Teachers	T2	Ca	45.8	7.3	36.5	10.4	$\chi^2 = 31.78^{***}(6, N = 265)$ *Cramer's V* = 0.25
		Co	14.4	3.2	64.8	17.6	
		M	31.8	2.3	52.3	13.6	
	T3	Ca	45.9	5.1	39.8	9.2	$\chi^2 = 29.06^{***}(6, N = 272)$ *Cramer's V* = 0.23
		Co	22.6	3.0	69.2	5.3	
		M	53.7	7.3	31.7	7.3	
Self-Teaching Assistants	T2	Ca	42.6	10.9	33.7	12.9	$\chi^2 = 36.44^{***}(6, N = 274)$ *Cramer's V* = 0.26
		Co	12.6	4.7	60.6	22.0	
		M	30.4	4.3	56.5	8.7	
	T3	Ca	44.9	7.1	40.8	7.1	$\chi^2 = 30.72^{***}(6, N = 272)$ *Cramer's V* = 0.24
		Co	21.8	2.3	66.9	9.0	
		M	58.5	2.4	36.6	2.4	

Notes. T1: Time 1, T2: Time 2, T3: Time 3. Ca: Causal explanation focus, Co: Consequential explanation focus, M: Mixed explanation focus, $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$

Appendix C: Prosocial behaviour (Chapter 5)

C.1 Preliminary analysis

Preliminary analysis, using Intraclass Correlations (ICCs) were run in order to compare ratings of prosocial behaviour across reporters. ICCs were run between self-reported ratings and ratings from other reporters ('lots' (2), 'sometimes' (1), 'never' (0)). Of 27 possible ICCs, only three were significant with weak associations, all of which were for caring. These included ICCs between peer- and self-reports at time 2 (ICC = .09, N = 285, p = .043) and ICCs between Class Teacher- and self-reports at time 1 (ICC = 0.14, N= 285, p = .001) and time 3 (ICC = 0.20, N= 285, p = .033). Overall, the results of these ICCs showed little agreement between self- and other reporters' ratings of solitary behaviour.

There was more agreement amongst the other reporters. ICC calculations were used to also compare reports of peers, Class Teachers and Teaching Assistants with each other (Table 7). This showed that there were 23 out of 27 significant ICCs between reports from peers, Class Teachers and Teaching Assistants. However, these ICCs were weak to moderate with the strongest correlations between Teaching Assistants and Class Teachers.

Table 7. ICC co-efficient across reporters for prosocial behaviours

		Peers			Class Teachers		
Reporter	Behaviour	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Teaching Assistants	Sharing	.10*	.23**	.19**	.53***	.30**	.43**
	Caring	.18**	.19**	.22**	.38***	.18**	.21**
	Including	.13**	.02	.11**	.43***	.18**	-.13
Class Teachers	Sharing	-.08	.17*	.15**			
	Caring	.25**	.19*	.19**			
	Including	.15**	.20**	.08			

Note. Results present ICC; *** p < .001, ** p < .01, * p < .05. All other results were non-significant.

C.2 Statistical results for ratings

Table 8. One way Goodness of Fit results (Section 5.4.1 – sharing)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 235.39^{***}$ (2, 285), *Cohen's W* = 0.91
	T2	$\chi^2 = 244.93^{***}$ (2, 279), *Cohen's W* = 0.94
	T3	$\chi^2 = 166.68^{***}$ (2, 273), *Cohen's W* = 0.78
Peers	T1	$\chi^2 = 108.79^{***}$ (2, 285), *Cohen's W* = 0.62
	T2	$\chi^2 = 60.99^{***}$ (2, 279), *Cohen's W* = 0.47
	T3	$\chi^2 = 95.94^{***}$ (2, 273), *Cohen's W* = 0.59
Class-Teachers	T1	$\chi^2 = 135.94^{***}$ (2, 284), *Cohen's W* = 0.69
	T2	$\chi^2 = 137.29^{***}$ (2, 279), *Cohen's W* = 0.70
	T3	$\chi^2 = 174.68^{***}$ (2, 273), *Cohen's W* = 0.80
Teaching Assistants	T1	$\chi^2 = 116.42^{***}$ (2, 284), *Cohen's W* = 0.64
	T2	$\chi^2 = 83.67^{***}$ (2, 279), *Cohen's W* = 0.55
	T3	$\chi^2 = 151.58^{***}$ (2, 273), *Cohen's W* = 0.75

Note: $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 9: One way Goodness of Fit results (Section 5.4.1 – caring)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 230.04$ (2, 285), $p < .001$, *Cohen's W* = 0.89
	T2	$\chi^2 = 211.63$ (2, 279), $p < .001$, *Cohen's W* = 0.87
	T3	$\chi^2 = 192.86$ (2, 273), $p < .001$, *Cohen's W* = 0.84
Peers	T1	$\chi^2 = 57.12$ (2, 285), $p < .001$, *Cohen's W* = 0.45
	T2	$\chi^2 = 69.53$ (2, 279), $p < .001$, *Cohen's W* = 0.50
	T3	$\chi^2 = 99.18$ (2, 273), $p < .001$, *Cohen's W* = 0.60
Class-Teachers	T1	$\chi^2 = 43.82$ (2, 284), $p < .001$, *Cohen's W* = 0.39
	T2	$\chi^2 = 119.37$ (2, 279), $p < .001$, *Cohen's W* = 0.65
	T3	$\chi^2 = 134.00$ (2, 273), $p < .001$, *Cohen's W* = 0.70
Teaching Assistants	T1	$\chi^2 = 56.99$ (2, 284), $p < .001$, *Cohen's W* = 0.45
	T2	$\chi^2 = 68.67$ (2, 279), $p < .001$, *Cohen's W* = 0.50
	T3	$\chi^2 = 30.92$ (2, 273), $p < .001$, *Cohen's W* = 0.34

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 10: One way Goodness of Fit results (Section 5.4.1 – including)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 202.80$ (2, 285), $p < .001$, *Cohen's W* = 0.84
	T2	$\chi^2 = 238.00$ (2, 279), $p < .001$, *Cohen's W* = 0.92
	T3	$\chi^2 = 201.23$ (2, 273), $p < .001$, *Cohen's W* = 0.86
Peers	T1	$\chi^2 = 108.65$ (2, 285), $p < .001$, *Cohen's W* = 0.62
	T2	$\chi^2 = 90.34$ (2, 279), $p < .001$, *Cohen's W* = 0.75
	T3	$\chi^2 = 151.60$ (2, 273), $p < .001$, *Cohen's W* = 0.75
Class-Teachers	T1	$\chi^2 = 56.33$ (2, 284), $p < .001$, *Cohen's W* = 0.45
	T2	$\chi^2 = 92.19$ (2, 279), $p < .001$, *Cohen's W* = 0.57
	T3	$\chi^2 = 68.92$ (2, 273), $p < .001$, *Cohen's W* = 0.50
Teaching Assistants	T1	$\chi^2 = 55.66$ (2, 284), $p < .001$, *Cohen's W* = 0.44
	T2	$\chi^2 = 130.84$ (2, 279), $p < .001$, *Cohen's W* = 0.68
	T3	$\chi^2 = 56.59$ (2, 273), $p < .001$, *Cohen's W* = 0.45

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 11: ANOVA results from Section 5.4.1

Reporter / Time		Sharing		Caring		Including		*ANOVA* result
		M	SD	M	SD	M	SD	
Peer	1	1.44	0.79	0.87	0.92	1.11	0.97	$F(2, 568) = 45.53^{***}$ $\eta^2_p = .14$
	2	1.22	0.89	1.00	0.95	1.15	0.95	$F(2, 556) = 7.13^{**}$, $\eta^2_p = .04$
	3	1.35	0.86	1.27	0.91	1.44	0.84	$F(2, 568) = 5.73^{**}$, $\eta^2_p = .02$
Class Teachers	1	1.52	0.52	1.24	0.70	0.77	0.67	$F(1.89, 535.81) = 155.80^{***}$, $\eta^2_p = .35$
	2	1.55	0.53	1.50	0.56	0.70	0.61	$F(1.74, 483.78) = 227.61^{***}$, $\eta^2_p = .50$
	3	1.65	0.51	1.57	0.55	0.94	0.66	$F(1.88, 510.43) = 192.38^{***}$, $\eta^2_p = .41$
Teaching Assistant	1	1.44	0.56	1.36	0.71	0.86	0.68	$F(2, 566) = 132.53^{***}$, $\eta^2_p = .32$
	2	1.34	0.62	1.08	0.66	0.44	0.60	$F(2, 556) = 253.81^{***}$, $\eta^2_p = .48$
	3	1.60	0.59	1.13	0.82	0.76	0.67	$F(1.93, 523.74) = 195.74^{***}$, $\eta^2_p = .42$

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 12: Sex differences in ratings – sharing (Section 5.4.2)

Reporter	Time	Sex	Lots	Sometimes	Never	Chi-Square result
Peers	T1	M	55.2	23.1	21.7	$\chi^2 = 6.44^{*}(2, N = 285)$ *Cramer's V* = 0.15
		F	69.7	14.8	15.5	
	T2	M	47.5	12.2	40.3	$\chi^2 = 11.00^{**}(2, N = 279)$ *Cramer's V* = 0.20
		F	49.3	18.6	22.1	
	T3	M	51.0	14.0	35.0	$\chi^2 = 14.64^{***}(2, N = 273)$ *Cramer's V* = 0.23
		F	69.0	15.5	15.5	
Class Teachers	T1	M	46.2	52.4	1.4	$\chi^2 = 6.37^{*}(2, N = 283)$ *Cramer's V* = 0.15
		F	61.0	38.3	0.7	
	T2	M	45.3	51.8	2.9	$\chi^2 = 17.91^{***}(2, N = 279)$ *Cramer's V* = 0.25
		F	70.0	29.3	0.7	
	T3	M	55.8	41.3	2.9	$\chi^2 = 16.26^{***}(6, N = 273)$ *Cramer's V* = 0.24
		F	78.5	20.7	0.7	
Teaching Assistants	T1	M	43.4	51.7	4.9	$\chi^2 = 4.12$ (2, $N = 284$) *Cramer's V* = 0.12
		F	51.8	46.8	1.4	
	T2	M	30.9	60.4	8.6	$\chi^2 = 14.91^{**}(2, N = 279)$ *Cramer's V* = 0.23
		F	7.1	39.3	53.6	
	T3	M	59.4	33.3	7.2	$\chi^2 = 5.60$ (2, $N = 273$) *Cramer's V* = 0.14
		F	71.9	25.2	3.0	

Note. M: Male, F: Female. T; Time. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 13: Sex differences in ratings – caring (Section 5.4.2)

Reporter	Time	Sex	Lots	Sometimes	Never	Chi-Square result
Peers	T1	M	30.1	11.2	58.7	$\chi^2 = 9.13^{**}(2, N = 285)$ *Cramer's V* = 0.18
		F	43.0	16.2	40.8	
	T2	M	36.4	7.9	55.7	$\chi^2 = 11.97^{**}(2, N = 279)$ *Cramer's V* = 0.21
		F	52.8	12.0	35.2	
	T3	M	50.3	9.1	40.6	$\chi^2 = 10.73^{**}(2, N = 273)$ *Cramer's V* = 0.28
		F	66.2	11.3	22.5	
Class Teachers	T1	M	27.3	49.7	23.1	$\chi^2 = 23.92^{***}(2, N = 284)$ *Cramer's V* = 0.29
		F	51.8	41.1	7.1	
	T2	M	35.3	61.2	3.6	$\chi^2 = 33.90^{***}(2, N = 279)$ *Cramer's V* = 0.35
		F	70.0	27.9	2.1	
	T3	M	44.2	50.0	5.8	$\chi^2 = 30.99^{***}(2, N = 273)$ *Cramer's V* = 0.34
		F	75.6	24.4		
Teaching Assistants	T1	M	39.2	40.6	20.3	$\chi^2 = 17.06^{***}(2, N = 284)$ *Cramer's V* = 0.25
		F	59.6	34.0	60.0	
	T2	M	19.4	58.3	22.3	$\chi^2 = 7.54^{*}(2, N = 279)$ *Cramer's V* = 0.16
		F	32.1	54.3	13.6	
	T3	M	26.8	45.7	27.5	$\chi^2 = 11.85^{**}(2, N = 273)$ *Cramer's V* = 0.21
		F	39.3	48.9	11.9	

Note. M: Male, F: Female. T; Time point. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 14: Sex differences in ratings – including (Section 5.4.2)

Reporter	Time	Sex	Lots	Sometimes	Never	Chi-Square result
Peers	T1	M	51.7	3.5	44.8	$\chi^2 = 1.73(2, N = 285)$ *Cramer's V* = 0.08
		F	54.2	6.3	39.4	
	T2	M	46.8	8.6	44.6	$\chi^2 = 4.97(2, N = 279)$ *Cramer's V* = 0.13
		F	60.0	7.1	32.9	
	T3	M	58.7	12.6	28.7	$\chi^2 = 9.03^{*}(2, N = 273)$ *Cramer's V* = 0.18
		F	75.4	8.5	16.2	
Class Teachers	T1	M	9.1	44.8	46.2	$\chi^2 = 13.06^{**}(2, N = 284)$ *Cramer's V* = 0.21
		F	18.4	54.6	27.0	
	T2	M	3.6	54.0	42.4	$\chi^2 = 7.91^{*}(2, N = 279)$ *Cramer's V* = 0.17
		F	12.1	54.3	33.6	
	T3	M	12.3	58.0	29.7	$\chi^2 = 9.15^{*}(2, N = 273)$ *Cramer's V* = 0.18
		F	25.2	55.6	19.3	
Teaching Assistants	T1	M	13.3	50.3	36.4	$\chi^2 = 4.79(2, N = 284)$ *Cramer's V* = 0.13
		F	19.9	54.6	25.5	
	T2	M	5.8	29.5	64.7	$\chi^2 = 1.84(2, N = 279)$ *Cramer's V* = 0.08
		F	5.0	37.1	57.9	
	T3	M	8.7	48.6	42.8	$\chi^2 = 6.86^{*}(2, N = 273)$ *Cramer's V* = 0.16
		F	17.8	51.1	31.1	

Note. M: Male, F: Female. T; Time point. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 15: Age group differences in peer-ratings of prosocial behaviour (Section 5.4.3)

Behaviour / Time		Age group	L	S	N	Chi-Square result
Sharing	T1	Y	68.8	7.1	24.1	$\chi^2 = 27.06^{***}$ (2, N = 285) *Cramer's V* = 0.31
		O	56.2	30.6	13.2	
	T2	Y	42.3	19.0	38.7	$\chi^2 = 13.26^{**}$ (2, N = 279) *Cramer's V* = 0.22
		O	64.1	12.0	23.9	
	T3	Y	39.1	16.5	44.4	$\chi^2 = 48.36^{***}$ (2, N = 273) *Cramer's V* = 0.42
		O	76.4	14.3	9.3	
Caring	T1	Y	22.7	12.1	65.2	$\chi^2 = 28.42^{***}$ (2, N = 285) *Cramer's V* = 0.32
		O	50.0	15.3	34.7	
	T2	Y	31.7	12.9	55.4	$\chi^2 = 18.97^{***}$ (2, N = 279) *Cramer's V* = 0.26
		O	57.3	7.0	35.7	
	T3	Y	42.9	9.8	47.4	$\chi^2 = 24.94^{***}$ (2, N = 273) *Cramer's V* = 0.30
		O	69.3	11.4	19.3	
Including	T1	Y	40.4	5.0	54.6	$\chi^2 = 18.67^{***}$ (2, N = 285) *Cramer's V* = 0.26
		O	65.3	4.9	29.9	
	T2	Y	46.7	6.6	46.7	$\chi^2 = 7.30^{*}$ (2, N = 279) *Cramer's V* = 0.16
		O	59.9	9.2	31.0	
	T3	Y	57.9	7.5	34.6	$\chi^2 = 18.91^{***}$ (2, N = 273) *Cramer's V* = 0.26
		O	72.9	14.3	12.9	

Note. Y: Younger age group, O: Older age group. T; Time point. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

C.3 Difference types

Table 16. Difference types for prosocial behaviour (Section 5.4.2)

Type /time [a]		Sharing	Caring	Including
Peers	1	$\chi^2 = 90.25^{***}$(2, *N* = 285), *Cohen's W* = 0.56	$\chi^2 = 3.98$, (2, *N* = 285), *Cohen's W* = 0.12	$\chi^2 = 19.52^{***}$(2, *N* = 285), *Cohen's W* = 0.26
	2	$\chi^2 = 25.44^{***}$(2, *N* = 279), *Cohen's W* = 0.30	$\chi^2 = 8.02^{*}$(2, *N* = 279), *Cohen's W* = 0.17	$\chi^2 = 29.96^{***}$(2, *N* = 279), *Cohen's W* = 0.33
	3	$\chi^2 = 25.00^{***}$(2, *N* = 273), *Cohen's W* = 0.30	$\chi^2 = 15.98^{***}$(2, *N* = 273), *Cohen's W* = 0.24	$\chi^2 = 36.68^{***}$(2, *N* = 273), *Cohen's W* = 0.37
Class Teachers	1	$\chi^2 = 133.40^{***}$(2, *N* = 284), *Cohen's W* = 0.69	$\chi^2 = 66.35^{***}$(2, *N* = 284), *Cohen's W* = 0.48	$\chi^2 = 26.20^{***}$(2, *N* = 285), *Cohen's W* = 0.30
	2	$\chi^2 = 127.94^{***}$(2, *N* = 279), *Cohen's W* = 0.68	$\chi^2 = 121.57^{***}$(2, *N* = 279), *Cohen's W* = 0.66	$\chi^2 = 66.84^{***}$(2, *N* = 279), *Cohen's W* = 0.49
	3	$\chi^2 = 134.53^{***}$(2, *N* = 273), *Cohen's W* = 0.70	$\chi^2 = 132.68^{***}$(2, *N* = 273), *Cohen's W* = 0.70	$\chi^2 = 44.20^{***}$(2, *N* = 273), *Cohen's W* = 0.40
Teaching Assistant	1	$\chi^2 = 113.61^{***}$(2, *N* = 285), *Cohen's W* = 0.63	$\chi^2 = 64.49^{***}$(2, *N* = 285), *Cohen's W* = 0.48	$\chi^2 = 50.29^{***}$(2, *N* = 285), *Cohen's W* = 0.42
	2	$\chi^2 = 90.93^{***}$(2, *N* = 279), *Cohen's W* = 0.57	$\chi^2 = 59.10^{***}$(2, *N* = 279), *Cohen's W* = 0.46	$\chi^2 = 64.02^{***}$(2, *N* = 279), *Cohen's W* = 0.48
	3	$\chi^2 = 95.63^{***}$(2, *N* = 273), *Cohen's W* = 0.59	$\chi^2 = 39.63^{***}$(2, *N* = 273), *Cohen's W* = 0.38	$\chi^2 = 24.59^{***}$(2, *N* = 273), *Cohen's W* = 0.30

Notes. [a] Difference types between self-reports and each reporter; $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Appendix D: Aggressive behaviour (Chapter 6)

D.1 Preliminary analysis

Preliminary analysis was run using Intraclass Correlations (ICCs) in order to compare the ratings of aggressive behaviour across all reporters. In this section, results are presented relating to differences of aggressive and ringleader behaviour between self-reported ratings and ratings from other reporters in order to indicate the level of consistency between different reports. Initially, ICCs were run between self-reported ratings and ratings from other reporters. There were 20 significant ICCs out of a possible 54 between self- and other-reporters. All of these ICCs were weak. The significant results are presented below.

When considering comparisons between self-reports and peer-reports, four ICCs were significant including verbal aggression at time 2 (ICC = .29, p = .003), physical aggression at time 1 and time 2 (ICC = .37, p < .001; ICC = .41, p < .001) and verbal ringleader at time 1 (ICC = .34, p < .001).

Comparing Class Teacher- and self-reports showed eight out of 18 significant ICCs. This included indirect relational aggression at time 2 (ICC = .22, p = .019), verbal aggression at time 1 and time 2 (ICC = .28, p = .003; ICC = .27, p =.005) and physical aggression at all three times (ICC = .21, p = .021; ICC = .30, p = .002; ICC = .41, p < .001), verbal ringleader at time 3 (ICC = .23, p =.015) and physical ringleader at time 3 (ICC = .23, p = .018).

There were also eight out of 18 significant ICCs when comparing self-reports with Teaching Assistants. This included direct relational at time 3 (ICC = .27, p = .005), indirect relational at time 2 (ICC = .23, p = .017), verbal aggression at time 2 (ICC = .24, p = .013) physical aggression at all three times (ICC = .20, p = .028; ICC = .29, p = .002; ICC = .46, p < .001) and verbal ringleader at time 3 (ICC = .18, p = .043).

In contrast, there were significant correlations (p < .001) between all other reporters (peers, Class Teachers, Teaching Assistants) for all behaviours, at all times. Correlations were of moderate strength, and can be seen in Table 17.

Table 17: ICC coefficient across reporters for aggressive behaviours

Reporter	Behaviour	Peers			Class Teachers		
		T1	T2	T3	T1	T2	T3
Teaching Assistants	Direct relational	.35	.25	.39	.40	.63	.57
	Indirect relational	.44	.44	.55	.73	.53	.61
	Verbal	.53	.50	.38	.72	.53	.64
	Physical	.57	.66	.71	.75	.57	.69
	Ringleader verbal	.34	.60	.42	.70	.40	.49
	Ringleader physical	.25	.53	.36	.58	.38	.47
Class Teachers	Direct relational	.24	.27	.28			
	Indirect relational	.44	.44	.45			
	Verbal	.50	.60	.52			
	Physical	.55	.69	.47			
	Ringleader verbal	.38	.44	.37			
	Ringleader physical	.31	.36	.40			

Notes. All ICCs significant at $p < .001$. T: Time point.

D.2 Statistical results for ratings

Table 18: One way Goodness of Fit results (Section 6.4.1 – direct relational)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 225.87^{***}$ (2, 285), *Cohen's W* = 0.89
	T2	$\chi^2 = 252.41^{***}$ (2, 279), *Cohen's W* = 0.95
	T3	$\chi^2 = 325.21^{***}$ (2, 273), *Cohen's W* = 1.09
Peers	T1	$\chi^2 = 279.23^{***}$ (2, 285), *Cohen's W* = 0.99
	T2	$\chi^2 = 204.54^{***}$ (2, 279), *Cohen's W* = 0.86
	T3	$\chi^2 = 249.77^{***}$ (2, 273), *Cohen's W* = 0.96
Class-Teachers	T1	$\chi^2 = 49.52^{***}$ (2, 284), *Cohen's W* = 0.42
	T2	$\chi^2 = 98.00^{***}$ (2, 279), *Cohen's W* = 0.59
	T3	$\chi^2 = 135.89^{***}$ (2, 273), *Cohen's W* = 0.71
Teaching Assistants	T1	$\chi^2 = 49.53^{***}$ (2, 284), *Cohen's W* = 0.42
	T2	$\chi^2 = 136.32^{***}$ (2, 279), *Cohen's W* = 0.70
	T3	$\chi^2 = 140.66^{***}$ (2, 273), *Cohen's W* = 0.72

Note: $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 19: One way Goodness of Fit results (Section 6.4.1 – indirect relational)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 367.83^{***}$ (2, 285), *Cohen's W* = 1.14
	T2	$\chi^2 = 439.89^{***}$ (2, 279), *Cohen's W* = 0.77
	T3	$\chi^2 = 435.12^{***}$ (2, 273), *Cohen's W* = 1.26
Peers	T1	$\chi^2 = 353.33^{***}$ (2, 285), *Cohen's W* = 1.12
	T2	$\chi^2 = 248.54^{***}$ (2, 279), *Cohen's W* = 0.94
	T3	$\chi^2 = 360.53^{***}$ (2, 273), *Cohen's W* = 1.15
Class-Teachers	T1	$\chi^2 = 138.76^{***}$ (2, 284), *Cohen's W* = 0.57
	T2	$\chi^2 = 193.36^{***}$ (2, 279), *Cohen's W* = 0.83
	T3	$\chi^2 = 227.89^{***}$ (2, 273), *Cohen's W* = 0.91
Teaching Assistants	T1	$\chi^2 = 90.68^{***}$ (2, 284), *Cohen's W* = 0.57
	T2	$\chi^2 = 208.80^{***}$ (2, 279), *Cohen's W* = 0.86
	T3	$\chi^2 = 217.93^{***}$ (2, 273), *Cohen's W* = 0.87

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table.20: One way Goodness of Fit results (Section 5.4.1 – verbal)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 441.87^{***}$ (2, 285), *Cohen's W* = 1.25
	T2	$\chi^2 = 425.03^{***}$ (2, 279), *Cohen's W* = 1.13
	T3	$\chi^2 = 182.16^{***}$ (2, 273), *Cohen's W* = 0.82
Peers	T1	$\chi^2 = 359.39^{***}$ (2, 285), *Cohen's W* = 1.12
	T2	$\chi^2 = 314.30^{***}$ (2, 279), *Cohen's W* = 1.06
	T3	$\chi^2 = 330.53^{***}$ (2, 273), *Cohen's W* = 1.10
Class-Teachers	T1	$\chi^2 = 123.22^{***}$ (2, 284), *Cohen's W* = 0.66
	T2	$\chi^2 = 178.09^{***}$ (2, 279), *Cohen's W* = 0.80
	T3	$\chi^2 = 210.53^{***}$ (2, 273), *Cohen's W* = 0.88
Teaching Assistants	T1	$\chi^2 = 89.61^{***}$ (2, 284), *Cohen's W* = 0.56
	T2	$\chi^2 = 207.89^{***}$ (2, 279), *Cohen's W* = 0.86
	T3	$\chi^2 = 220.95^{***}$ (2, 273), *Cohen's W* = 0.90

Note: $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 21: One way Goodness of Fit results (Section 6.4.1 – physical)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 440.99^{***}$ (2, 285), *Cohen's W* = 1.24
	T2	$\chi^2 = 367.12^{***}$ (2, 279), *Cohen's W* = 1.15
	T3	$\chi^2 = 398.00^{***}$ (2, 273), *Cohen's W* = 1.21
Peers	T1	$\chi^2 = 359.39^{***}$ (2, 285), *Cohen's W* = 1.12
	T2	$\chi^2 = 360.02^{***}$ (2, 279), *Cohen's W* = 1.14
	T3	$\chi^2 = 319.95^{***}$ (2, 273), *Cohen's W* = 1.08
Class-Teachers	T1	$\chi^2 = 203.12^{**}$ (2, 284), *Cohen's W* = 0.85
	T2	$\chi^2 = 285.83^{**}$ (2, 279), *Cohen's W* = 1.01
	T3	$\chi^2 = 325.21^{***}$ (2, 273), *Cohen's W* = 1.09
Teaching Assistants	T1	$\chi^2 = 185.12^{***}$ (2, 284), *Cohen's W* = 0.81
	T2	$\chi^2 = 274.26^{***}$ (2, 279), *Cohen's W* = 0.99
	T3	$\chi^2 = 278.00^{***}$ (2, 273), *Cohen's W* = 1.01

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 22: One way Goodness of Fit results (Section 6.4.1 – ringleader verbal)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 505.96^{***}$ (2, 285), *Cohen's W* = 1.33
	T2	$\chi^2 = 466.90^{***}$ (2, 279), *Cohen's W* = 1.29
	T3	$\chi^2 = 499.25^{***}$ (2, 273), *Cohen's W* = 1.35
Peers	T1	$\chi^2 = 478.13^{***}$ (2, 285), *Cohen's W* = 1.29
	T2	$\chi^2 = 403.70^{***}$ (2, 279), *Cohen's W* = 1.20
	T3	$\chi^2 = 478.72^{***}$ (2, 273), *Cohen's W* = 1.32
Class-Teachers	T1	$\chi^2 = 230.75^{**}$ (2, 284), *Cohen's W* = 0.90
	T2	$\chi^2 = 358.13^{**}$ (2, 279), *Cohen's W* = 1.13
	T3	$\chi^2 = 370.50^{***}$ (2, 273), *Cohen's W* = 1.16
Teaching Assistants	T1	$\chi^2 = 152.31^{***}$ (2, 284), *Cohen's W* = 0.73
	T2	$\chi^2 = 325.18^{***}$ (2, 279), *Cohen's W* = 1.08
	T3	$\chi^2 = 345.13^{***}$ (2, 273), *Cohen's W* = 1.12

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 23: One way Goodness of Fit results (Section 6.4.1 – ringleader physical)

Reporter / time		One Way Goodness of Fit
Self	T1	$\chi^2 = 517.33^{***}$ (2, 285), *Cohen's W* = 1.35
	T2	$\chi^2 = 528.45^{***}$ (2, 279), *Cohen's W* = 1.38
	T3	$\chi^2 = 488.00^{***}$ (2, 273), *Cohen's W* = 1.34
Peers	T1	$\chi^2 = 436.44^{***}$ (2, 285), *Cohen's W* = 1.24
	T2	$\chi^2 = 445.23^{***}$ (2, 279), *Cohen's W* = 1.26
	T3	$\chi^2 = 433.67^{***}$ (2, 273), *Cohen's W* = 1.26
Class-Teachers	T1	$\chi^2 = 408.82^{**}$ (2, 284), *Cohen's W* = 1.20
	T2	$\chi^2 = 451.38^{**}$ (2, 279), *Cohen's W* = 1.27
	T3	$\chi^2 = 227.11^{***}$ (2, 273), *Cohen's W* = 0.91
Teaching Assistants	T1	$\chi^2 = 278.92^{***}$ (2, 284), *Cohen's W* = 0.99
	T2	$\chi^2 = 384.26^{***}$ (2, 279), *Cohen's W* = 1.17
	T3	$\chi^2 = 379.28^{***}$ (2, 273), *Cohen's W* = 1.18

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 24: ANOVA results (Section 6.4.1)

Reporter / Time		Direct relational		Indirect relational		Verbal		Physical		Ringleader verbal		Ringleader physical		*ANOVA* result
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	
Self	1	0.31	0.57	0.16	0.43	0.09	0.32	0.10	0.37	0.05	0.28	0.04	0.29	F (3.07, 872.38) = 24.11*** η^2_p = 0.08
	2	0.26	0.47	0.08	0.29	0.10	0.33	0.14	0.39	0.06	0.27	0.02	0.17	F (3.75, 1041.86) = 19.35*** η^2_p = 0.07
	3	0.17	0.42	0.09	0.35	0.09	0.29	0.11	0.36	0.03	0.20	0.04	0.21	F (4.05, 1101.23) = 10.25*** η^2_p = 0.04
Peer	1	0.32	0.67	0.26	0.65	0.26	0.66	0.26	0.66	0.09	0.39	0.15	0.52	F (4.33, 1230.22) = 11.20*** η^2_p = 0.04
	2	0.50	0.84	0.39	0.76	0.31	0.70	0.23	0.62	0.18	0.55	0.13	0.48	F (4.04, 1118.42) = 23.69*** η^2_p = 0.08
	3	0.37	0.73	0.23	0.62	0.25	0.62	0.29	0.67	0.08	0.38	0.14	0.49	F (4.33, 1177.11) = 14.54*** η^2_p = 0.05
Class Teachers	1	0.69	0.70	0.44	0.65	0.46	0.64	0.33	0.55	0.30	0.56	0.12	0.37	F (4.09, 1156.52) = 58.33*** η^2_p = 0.17
	2	0.55	0.60	0.32	0.49	0.36	0.57	0.22	0.47	0.15	0.40	0.07	0.27	F (3.94, 1094.68) = 67.94*** η^2_p = 0.20
	3	0.44	0.53	0.27	0.48	0.30	0.50	0.13	0.35	0.17	0.42	0.04	0.21	F (4.19, 1139.47) = 51.13*** η^2_p = 0.16
Teaching Assistant	1	0.69	0.70	0.54	0.68	0.54	0.68	0.37	0.62	0.42	0.63	0.24	0.49	F (4.04, 1143.01) = 51.97*** η^2_p = 0.16
	2	0.43	0.57	0.30	0.51	0.32	0.54	0.25	0.52	0.19	0.46	0.14	0.41	F (4.18, 1162.45) = 30.4*** η^2_p = 0.10
	3	0.41	0.57	0.29	0.51	0.29	0.51	0.23	0.48	0.15	0.38	0.12	0.36	F (3.76, 1023.69) = 31.47*** η^2_p = 0.10

Note. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 25: Age group differences in Class Teacher-ratings of aggressive behaviour at time 1 only (time 2 and 3 not significant) (Section 6.4.3)

Form / Age group		L	S	N	Chi-Square result
Direct relational	Y	9.2	32.9	57.9	$\chi^2 = 19.66^{***}$ (2, N = 284) *Cramer's V* = 0.26
	O	18.1	50.0	31.9	
Indirect relational	Y	6.4	18.4	75.2	$\chi^2 = 13.77^{**}$ (2, N = 284) *Cramer's V* = 0.22
	O	11.1	34.7	54.2	
Verbal	Y	5.7	21.4	72.9	$\chi^2 = 14.74^{***}$ (2, N = 284) *Cramer's V* = 0.23
	O	10.4	38.9	50.7	
Physical	Y	3.6	15.0	81.4	$\chi^2 = 13.92^{**}$ (2, N = 284) *Cramer's V* = 0.22
	O	4.9	33.3	61.8	
Ringleader verbal	Y	2.1	12.1	85.7	$\chi^2 = 17.41^{***}$ (2, N = 284) *Cramer's V* = 0.25
	O	8.3	27.1	64.6	
Ringleader physical	Y	2.1	4.3	93.6	$\chi^2 = 8.74^{*}$ (2, N = 284) *Cramer's V* = 0.18
	O	0.7	13.9	85.4	

Note. Y: Younger age group, O: Older age group. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$

Table 26. Age group and Teaching Assistant-ratings of aggressive behaviour (Section 6.4.3)

	Form / Age group		L	S	N	Chi-Square result
Time 1	Direct relational	Y	11.4	46.4	42.1	$\chi^2 = 3.06$ (2, $N = 284$) *Cramer's V* = 0.10
		O	16.0	36.8	47.2	
	Indirect relational	Y	7.1	27.9	65.0	$\chi^2 = 8.44^{*}$ (2, $N = 284$) *Cramer's V* = 0.17
		O	13.9	37.5	48.6	
	Verbal	Y	8.6	26.4	65.0	$\chi^2 = 7.26^{*}$ (2, $N = 284$) *Cramer's V* = 0.16
		O	13.9	36.8	49.3	
	Physical	Y	7.1	20.8	72.1	$\chi^2 = 0.40$ (2, $N = 284$) *Cramer's V* = 0.04
		O	7.6	23.6	68.8	
	Ringleader verbal	Y	5.0	19.3	75.7	$\chi^2 = 11.32^{**}$ (2, $N = 284$) *Cramer's V* = 0.20
		O	10.4	32.6	56.9	
	Ringleader physical	Y	3.6	13.6	82.9	$\chi^2 = 3.98$ (2, $N = 284$) *Cramer's V* = 0.12
		O	2.1	22.2	75.7	
Time 2	Direct relational	Y	0.0	29.9	70.1	$\chi^2 = 16.34$ (2, $N = 279$) *Cramer's V* = 0.24
		O	7.7	40.1	52.1	
	Indirect relational	Y	0.0	16.8	83.2	$\chi^2 = 19.82^{***}$ (2, $N = 279$) *Cramer's V* = 0.27
		O	4.2	35.2	60.6	
	Verbal	Y	0.0	18.2	81.8	$\chi^2 = 17.19^{***}$ (2, $N = 279$) *Cramer's V* = 0.25
		O	7.7	28.9	63.4	
	Physical	Y	0.7	13.1	86.2	$\chi^2 = 10.93^{**}$ (2, $N = 279$) *Cramer's V* = 0.20
		O	7.7	19.0	73.2	
	Ringleader verbal	Y	0.0	7.3	92.7	$\chi^2 = 17.44^{***}$ (2, $N = 279$) *Cramer's V* = 0.25
		O	5.6	19.0	75.4	
	Ringleader physical	Y	0.0	2.9	97.1	$\chi^2 = 19.94^{***}$ (2, $N = 279$) *Cramer's V* = 0.27
		O	4.9	14.8	80.3	
Time 3	Direct relational	Y	0.8	32.3	66.9	$\chi^2 = 7.75^{*}$ (2, $N = 273$) *Cramer's V* = 0.17
		O	7.1	34.3	58.6	
	Indirect relational	Y	0.8	21.8	77.4	$\chi^2 = 4.27$ (2, $N = 273$) *Cramer's V* = 0.13
		O	4.3	25.7	70.0	
	Verbal	Y	0.0	18.0	82.0	$\chi^2 = 12.10^{**}$ (2, $N = 273$) *Cramer's V* = 0.21
		O	5.0	28.6	66.4	
	Physical	Y	1.5	13.5	85.0	$\chi^2 = 4.22$ (2, $N = 273$) *Cramer's V* = 0.12
		O	4.3	20.0	75.7	
	Ringleader verbal	Y	0.0	5.9	94.1	$\chi^2 = 16.38^{**}$ (2, $N = 273$) *Cramer's V* = 0.24
		O	1.4	21.4	77.1	
	Ringleader physical	Y	0.0	6.0	94.0	$\chi^2 = 8.23^{*}$ (2, $N = 273$) *Cramer's V* = 0.17
		O	2.1	14.3	83.6	

Note. Y: Younger age group, O: Older age group. $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .0$

D.3. Difference types

Table 27. Difference types for aggressive behaviour (Section 6.5.3)

Type /time [a]		Self - Peers	Self - Class Teachers	Self - Teaching Assistants
Direct relational	1	$\chi^2 = 68.39^{***}(3, N = 285)$, *Cohen's W* = 0.49	$\chi^2 = 76.96^{***}(3, N = 284)$, *Cohen's W* = 0.52	$\chi^2 = 83.10^{***}(3, N = 284)$, *Cohen's W* = 0.54
	2	$\chi^2 = 63.50^{***}(3, N = 279)$, *Cohen's W* = 0.48	$\chi^2 = 81.85^{***}(3, N = 279)$, *Cohen's W* = 0.54	$\chi^2 = 52.71^{***}(3, N = 279)$, *Cohen's W* = 0.43
	3	$\chi^2 = 191.86^{***}(3, N = 273)$, *Cohen's W* = 0.84	$\chi^2 = 105.77^{***}(3, N = 273)$, *Cohen's W* = 0.62	$\chi^2 = 136.83^{***}(3, N = 273)$, *Cohen's W* = 0.71
Indirect relational	1	$\chi^2 = 287.28^{***}(3, N = 285)$, *Cohen's W* = 1.00	$\chi^2 = 157.09^{***}(3, N = 284)$, *Cohen's W* = 0.74	$\chi^2 = 131.44^{***}(3, N = 284)$, *Cohen's W* = 0.68
	2	$\chi^2 = 281.30^{***}(3, N = 279)$, *Cohen's W* = 1.00	$\chi^2 = 231.38^{***}(3, N = 279)$, *Cohen's W* = 0.91	$\chi^2 = 274.68^{***}(3, N = 279)$, *Cohen's W* = 0.99
	3	$\chi^2 = 399.58^{***}(3, N = 273)$, *Cohen's W* = 1.21	$\chi^2 = 271.07^{***}(3, N = 273)$, *Cohen's W* = 1.00	$\chi^2 = 287.66^{***}(3, N = 273)$, *Cohen's W* = 1.02
Verbal	1	$\chi^2 = 374.72^{***}(3, N = 285)$, *Cohen's W* = 1.15	$\chi^2 = 268.99^{***}(3, N = 284)$, *Cohen's W* = 0.97	$\chi^2 = 245.49^{***}(3, N = 284)$, *Cohen's W* = 0.93
	2	$\chi^2 = 375.64^{***}(3, N = 279)$, *Cohen's W* = 1.16	$\chi^2 = 264.41^{***}(3, N = 279)$, *Cohen's W* = 0.97	$\chi^2 = 276.37^{***}(3, N = 279)$, *Cohen's W* = 1.00
	3	$\chi^2 = 316.58^{***}(3, N = 273)$, *Cohen's W* = 1.08	$\chi^2 = 237.84^{***}(3, N = 273)$, *Cohen's W* = 0.93	$\chi^2 = 235.03^{***}(3, N = 273)$, *Cohen's W* = 0.93
Physical	1	$\chi^2 = 402.73^{***}(3, N = 285)$, *Cohen's W* = 1.19	$\chi^2 = 300.99^{***}(3, N = 284)$, *Cohen's W* = 1.03	$\chi^2 = 294.28^{***}(3, N = 284)$, *Cohen's W* = 1.02
	2	$\chi^2 = 310.23^{***}(3, N = 279)$, *Cohen's W* = 1.05	$\chi^2 = 266.88^{***}(3, N = 279)$, *Cohen's W* = 0.98	$\chi^2 = 247.93^{***}(3, N = 279)$, *Cohen's W* = 0.94
	3	$\chi^2 = 339.41^{***}(3, N = 273)$, *Cohen's W* = 1.12	$\chi^2 = 341.17^{***}(3, N = 273)$, *Cohen's W* = 1.12	$\chi^2 = 340.03^{***}(3, N = 273)$, *Cohen's W* = 1.12
Verbal ringleader	1	$\chi^2 = 639.20^{***}(3, N = 285)$, *Cohen's W* = 1.50	$\chi^2 = 351.80^{***}(3, N = 284)$, *Cohen's W* = 1.11	$\chi^2 = 295.10^{***}(3, N = 284)$, *Cohen's W* = 1.02
	2	$\chi^2 = 469.00^{***}(3, N = 279)$, *Cohen's W* = 1.30	$\chi^2 = 437.34^{***}(3, N = 279)$, *Cohen's W* = 1.25	$\chi^2 = 390.29^{***}(3, N = 279)$, *Cohen's W* = 1.18
	3	$\chi^2 = 638.46^{***}(3, N = 273)$, *Cohen's W* = 1.53	$\chi^2 = 523.82^{***}(3, N = 273)$, *Cohen's W* = 1.39	$\chi^2 = 489.71^{***}(3, N = 273)$, *Cohen's W* = 1.34
Physical ringleader	1	$\chi^2 = 607.56^{***}(3, N = 285)$, *Cohen's W* = 1.46	$\chi^2 = 560.56^{***}(3, N = 284)$, *Cohen's W* = 1.40	$\chi^2 = 446.96^{***}(3, N = 284)$, *Cohen's W* = 1.25
	2	$\chi^2 = 637.09^{***}(3, N = 279)$, *Cohen's W* = 1.51	$\chi^2 = 630.00^{***}(3, N = 279)$, *Cohen's W* = 1.50	$\chi^2 = 554.31^{***}(3, N = 279)$, *Cohen's W* = 1.41
	3	$\chi^2 = 561.21^{***}(3, N = 273)$, *Cohen's W* = 1.43	$\chi^2 = 624.25^{***}(3, N = 273)$, *Cohen's W* = 1.50	$\chi^2 = 503.51^{***}(3, N = 273)$, *Cohen's W* = 1.36

Notes. [a] Difference types between self-reports and each reporter; $^{***}p < .001$; $^{**}p < .01$, $^{*}p < .05$