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## **Using technology in the development of a collaborative approach to feedback and more active reflection: An exploration of trainee teachers' views**

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### **Abstract**

This study is driven by two separate but interrelated issues. First, it is driven by the desire to explore the effectiveness of technology devices in the structure of professional development of trainee teachers. Second, it seeks to explore the extent to which such technologies, as reflected in the use of digital recordings in the process of self-reflection by trainee teachers, can contribute to a shift to more collaborative feedback and active reflection. The anchor for this exploration is the desire to move away from the teacher (educator)–centred role (Copland 2010) that is prevalent in the use of feedback in contemporary teacher training programmes.

The study surveyed the views of trainee teachers in two colleges through the use of a questionnaire and through a focus group discussion in consonance with the integrative approach to action research which acknowledges the importance of the voice of the third person (Coghlan and Brannick, 2010). The findings were subjected to both qualitative and quantitative analysis, the former through the use of the SPSS statistical analysis tool and the latter through an ethno-linguistic approach (Copland 2010). The study found that in the views of trainee teachers (third person), the use of technology devices can significantly facilitate the promotion of more collaborative approaches to giving and using feedback in their professional development if certain conditions were met. The study concluded that while these approaches are highly desired by trainee teachers who see them as more helpful than the prevalent teacher-centred approach, there is the need to develop a conceptual framework for its implementation.

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## 1. Main text

### Introduction

The rapid and varied development in the field of technology in general, and audio-visual technologies in particular, in the last two decades has naturally impacted on educational practices and many studies have provided evidence of how such practices have attempted to keep pace with advances in technology (Kong, Shroff and Hung, 2009). One particular area in which technological development has impacted on education is in the introduction of visual technology in the self-assessment and reflective practice of learners with a particular focus on teacher education and development (See e.g. Fleck and Fitzpatrick, 2009, Kong, Shroff and Hung, 2009, West, Rich, Shepherd, Recesso, and Hannafin, 2009, Research for Teachers, 2007, Jackson, 2003). While many of the studies reported have demonstrated and utilised the contemporary technological development at the time of the study, moving for example, from looking at the use of videos (e.g. Jackson 2003) through web enabled video (e.g. Kong et al, 2009) to Sense Cam images (e.g. Fleck and Fitzpatrick, 2009) there remains the commonality that all of these studies are largely focused on how available assistive technologies can contribute to the process of self-reflection as a part of trainee teachers' development.

In many of the studies which are focused on the use of these technological devices in teacher education and development, much emphasis is placed on how they can contribute to the process of self reflection in particular and reflective practice in general. This is against the backdrop of recognising reflective practice as a 'key element of professional practice for teachers' and a perception by some that it is 'the main mission' of teacher training (Manouchehri, 2002, Fleck and Fitzpatrick, 2009, p. 1). As a result, many of these studies have explored the impact of the use of these technological devices purely from the view point of trainees' perceptions of their advantages when used as an aid to self reflection. Jackson (2003) explored the potentials of digital videos and photos for improving student reflections on teaching experiences, concluding that students reported a high degree of satisfaction with the approach to preparing reflective writings. Similarly, Fleck and Fitzpatrick (2009) reported that the use of Sense Cam images facilitated high quality reflections among teachers and tutors. Other studies have also reported the success of using video recordings as a basis for reflection in the teaching domain (See e.g. McDonnell et al, 2002, Sherin and van Es, 2002). A common conclusion among these studies is the assertion that the use of these technologies enabled teachers and trainee teachers to become more engaged with the process of reflection.

In spite of the seemingly overwhelming evidence of the usefulness of these technological devices in the process of reflection as illustrated by the studies cited above, there is a nagging problem about the wholesomeness of such declarations which tends to leave a sense of the incomplete. In our view, this sense of incompleteness is elicited by the feeling that a crucial part of the reflective process appears to have been left out of the equation. In his description of the crucial ingredients of reflection, Schon (1991) reminds us that in order for our reflection to fruitfully lead to development of questions and ideas about our activities and practice, the process must necessarily include consultation with and feedback from others. Echoing the principle inherent in Schon's reflective practice, many studies have highlighted the importance of the structure, process and content of feedback in the development of reflection among trainee teachers. Copland, Ma and Mann (2009) explored the extent to which the structure of some of the contemporary feedback process contribute to reflection and concluded that there is the need to explore possibilities around a more flexible construct of feedback. Brandt (2008) provided evidence of the importance of feedback in teacher education on the one hand and of its perceived inadequacy on the other. She concluded by

identifying eight issues which she suggested must be considered as crucial in the giving and receiving of feedback and which reflects the potential problem areas in the existing feedback practice.

Given the importance of feedback in the reflective process as identified by the studies cited above, this study seeks to take the exploration of the importance of utilising technological devices one step further by locating it within the context of enabling more dynamic feedback as a part of the reflective practice of trainee teachers. As a launching pad for such an engagement, we accept the recommendations of previous studies which suggested that feedback can be maximally utilised for the purpose of reflection if it is dialogic (Edge 1992, 2002 and 2006) and cooperative (Alexander, 2008). Based on the on-going, therefore, this study aims to answer three questions specifically. First, what are the perceptions of trainees on the use of a particular technological device as a tool of reflection? Second, to what extent does this tool contribute to the achievement of the desired goal of moving away from the traditional didactic, monologic mode of feedback in reflective practice and finally, what are the specific reasons for their willingness to use the particular technological tool in their reflection? In the end, our expectation is that the findings from this study will contribute towards setting the scene for developing a framework for a more dynamic, less didactic feedback practice which draws extensively from trainees' perceptions.

The present research

Research design

The present research is constructed as an action research. Within this context, it draws from the notion of action research offered by (Altrichter, Posch and Somekh, 2000) as requiring a starting point as the first impression and as a form of a social situation with a view to improving the quality of action within. The central focus of the study is on the element of feedback as a part of reflection by teacher trainees in two colleges of further education who are taking a university teacher education qualification. A combination of our reflection as tutors on the programme and the informal feedback given by our trainees led to the development of our first impressions which can be summarised as follows: trainee teachers' (our students) reflection and learning from reflection during the feedback process is passive and dependent on the teacher educator; there is little engagement with the reflective process; there is limited self critical engagement as there is tendency to view it through the eyes of the observer only; feedback is mainly a teacher centred activity; there is limited or no opportunity to interrogate a specific aspect as student recall may be compromised; feedback is not seen as dialogic or cooperative but as dictatorial.

These impressions compelled a response from us as tutors on the programme and therefore led to the exploration of possibilities. More importantly, our construct of action research in this study enabled us to factor in the three voices (Reason and Bradbury, 2008, Coghlan and Brannick, 2010). Unlike traditional research which tended to focus on the 'third person' (p.5), this research was designed to incorporate the voices of both the first and second persons. For us the first person is ourselves as practitioners and as Coghlan and Brannick (p.6) suggest, this research has enabled us to travel 'downstream' such that we could 'inquire into our behaviour, ways of relating and action in the world'. The second person voice reflects the ability to work with others on issues of mutual interest. This was manifested in this research through the collaboration between the researchers who are tutors on the programme and the trainees, who though seen as subjects on the surface of it, were considered as collaborators and researchers in the reality of implementing the research project. As a result, we were able to integrate all three persons with action and inquiry in an explicit way (Reason and Tobert 2001).

Research sample

The subject of this research can best be described as a convenient and typical sample. The group of respondents is made up of fourteen trainees on a teacher training programme leading to the Diploma in Teaching in the Lifelong Sector (DTLLS) in two colleges of further education. The programme itself is delivered under a franchise agreement with a university. As is usually the case with trainees on such programmes, all the subjects were practising teachers in various FE colleges who have a measure of responsibility for their own classes and learners. The element of convenience is manifested in the fact that because one of the researchers taught on the programme, access to the sample of fourteen trainees was considered to be quick, easy and available (Anderson, 1998, p124). The group was considered typical because in our view, it represented the expected 'norm' of FE teachers (Anderson, 1996, p124) in terms of career aspiration, age range and work history. In addition to the trainees, a teacher trainer contributed to the data collection as an 'inside researcher' (Robson, 1999). This, in a way, helped us to get over the issue of bias with the background awareness that the 'in-house' nature of the setting inevitably made at least one of the researchers a part of the scene (Robson, 1999).

### Research implementation and data collection processes

The implementation process was initiated with the negotiation of consent with the trainees. Consent was sought from the trainee teachers with assurance of anonymity and confidentiality (Crow and Wiles 2008). In addition, consent was gained from the trainees' employers, as they were considered to be stakeholders in the process. Following this, the trainee teachers were required to negotiate and gain consent from their own students prior to filming. Having secured all the above, the subjects were then instructed on what was required and a process for making the required digital recordings was agreed. A template for an evaluative framework was offered that supported the trainee's self evaluation by suggesting specific areas of practice to review and as a prompt to encourage trainees to consider the theoretical context of their practice. Its use was not mandatory but offered a framework in readiness for the post observation tutorial with their tutor. The final phase of the process involved a focus group discussion with the fourteen subjects. This process was again negotiated and agreed. Underpinning the entirety of the implementation process is the recognition of the relationship between researcher and the researched, particularly in situations where there is a potential issue around power relations. Given that the researchers were tutors of the subject, we were acutely aware of the need to ensure that participants were recruited only on a voluntary basis. This eliminated the issue of researcher intimidation (Hobbs and Kubanyiova 2008).

### Data collection methods

Underpinning the collection of data for this study was the acknowledgement of the importance of using a mixed-method approach in research (Cresswell 2003). Based on this recognition, data was collected from a number of sources including the use of a questionnaire, a trainee focus group and a tutor discussion/interview. Driving this desire to collect data through the use of a variety of methods is the desire to triangulate (Bell 2010, Coughlan and Brannick 2010). While the data collected through the use of a questionnaire offered the opportunity for us to engage with quantitative analysis which allowed us to offer opinions about distribution and frequency of occurrences, the data collected through the use of the other two methods enabled us to engage in fuller depth with the individual and collective reasoning behind what was presented in the quantitative form.

The questionnaire was circulated and returned by all the trainee teachers. Bearing in mind the small sample, the response rate of the questionnaire needed to be high to ensure representation of the range of opinions held (Ade-Ojo, 2011). The questions posed promoted the collection of information in relation to facts and opinions which could be used subsequently as data for analysis. Its design allowed for ease of answering, encouraging completion on the first distribution while ensuring that questions related to, and gave coverage to crucial issues of concern to the research whilst remaining brief enough for the participants to complete (Denscombe, 1998). Both open and closed questions

were used with a thoughtful sequencing to provide a richness of data whilst easily allowing for comparative analysis.

Following the collection and analysis of the questionnaires, the respondents were invited to attend a focus group. The goal of the focus group was to validate the questionnaire findings and to stimulate participants to make explicit their views, perceptions and motives (Punch, 2003). Using this facilitative approach allowed the group to lead the discussion (Denscombe, 1998) and offered opportunities for unpredictable responses to emerge. It also promoted a co-equal status between researchers and participants. The specific outcome of this was the promotion of a feeling of trust between researchers and participants which encouraged participants to disclose information thus leading to a richer source of data (Punch, 2003). The logging of field notes allowed ease of recording at the time (Denscombe, 1999). The unstructured nature of the discussion allowed a conversation to explore personal experience and feelings in the context of a reflective dialogue. This structure reflected the notion of researchers as participant observers, as it offered them the opportunity to reflect on their role and the student's approach in the post observation tutorial with a more shadowing role (Punch, 2003).

#### Methods of data analysis:

The different sets of data collected for this study were subjected to different forms of analysis. However, central to all of the methods of analysis was a process of recording and codification. The element of codification was facilitated through a simple system of semantic denotation and connotation. Responses, both in the questionnaires and during the focus group discussion and interviews, were classified in accordance with their semantic denotations and connotations. With the data from the questionnaires, codified responses enabled us to feed in responses to the SPSS spreadsheet leading to the exploration of a number of functions in order to capture information about distribution and frequency of occurrence.

With the focus group discussion and interview, recordings (manual) were made of the sessions. The recordings were then subjected to a second order transcription which enabled us to eliminate as much of human errors as we possibly could. Following this, the transcription was analysed and codified under simple semantic connotations. Significant responses were identified and recorded as these were seen as having the potential to further enrich the analysis of data. The semantic groupings then formed the bases from which the various themes presented in the discussion emerged. This approach was informed by an inclination towards a linguistic ethnography approach (Creese, 2007, Tusting and Maybin 2007, and Copland (2010). This converges with our desire to employ a reflexive approach to data collection and analysis by 'bringing together tools of ethno-methodological and interactionist sociolinguistics with tools of ethnography' (Copland 2010: 179). The ethnographic component was promoted through the engagement of the researchers as tutors of the participants and their involvement in the feedback observation and review process. As a result, we were able to accomplish what Heller and Martin-Jones (2001:12) describe as the production of 'detailed and nuanced descriptions of talk in the context in which it occurs'.

#### *Findings and discussion of data from questionnaire*

Participants' disposition to the use of digital recording in self reflection feedback

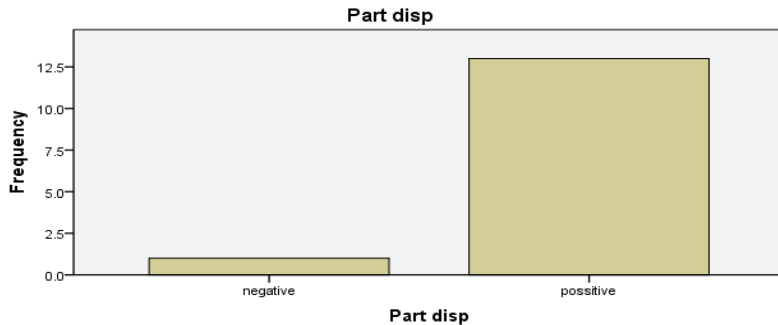
The questionnaire sought to find out the disposition of participants towards the use of digital recording in their self-reflection process. This centred on their perceptions following the use of the instrument. The specific aim of this component of the questionnaire was to confirm if, following their use of digital recording in their self-reflection process, they were positively or negatively disposed towards its use. The responses provided by participants were codified in input into an SPSS data base using the value; 1= "negative" and 2= "positive". The distribution pattern is presented in the table and chart below

**Table 1: Participant disposition**

		Frequency	Percent	Valid Percent	Cumulative Percent
<i>Valid</i>	<i>negative</i>	1	7.1	7.1	7.1
	<i>positive</i>	13	92.9	92.9	100.0
	<i>Total</i>	14	100.0	100.0	

**Chart 1:**

**Participant disposition**



As indicated in both the table and the chart above, only one participant, representing 7.1% was negatively disposed towards the use of digital recording as a facilitator of feedback in self reflection. 13 participants, representing 92.9% were positively disposed towards using the tool. This suggests that for this group of participants, the vast majority were quite happy to utilise the tool. While this sample is rather limited, it might be assumed that given the fact that they significantly represent the trainee group on teacher training programmes, there is an indication that many trainees on such a programme are likely to be positively disposed towards using the instrument. The crucial question that follows naturally is why the participant who was negatively disposed towards its use did so. While this is an issue to be explored in the focus group component of the research, it also signals the need to explore potential factors that might impede the use of such a tool amongst trainee teachers.

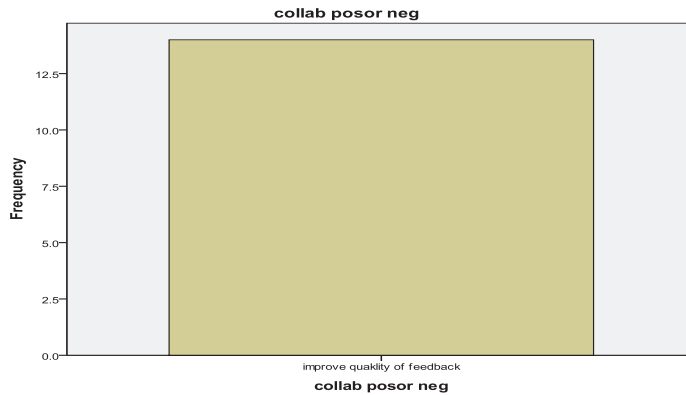
**Participants’ views on promotion of collaboration**

One component of the research aim was to find out if participants felt that the use of the tool promoted a shift away from the traditional didactic and often monologic feedback environment to a more co-operative framework for feedback similar to what Edge (2005) refers to as co-operative development with more dialogic characteristics as identified by Alexander (2008) on dialogic feedback. Codified questionnaire responses that were input into the SPSS database provided the chart and table below.

**Table 2: Views on collaboration - positive or negative**

		Frequency	Percent	Valid Percent	Cumulative Percent
<i>Valid</i>	<i>improve quality of feedback</i>	14	100.0	100.0	100.0

**Chart 2: Views on collaboration - positive or negative**



In both the chart and the table above, the distribution pattern indicates that all participants (100%) felt that the use of the tool promoted the element of collaboration in the feedback process. While this is encouraging in terms of finding ways of encouraging and developing a collaborative approach to and use of feedback in the self reflection process, it is important to explore the specific reasons why participants held this view. Finding out the drivers for this view should help in developing collaborative approaches to the use of feedback. In this context, it should become a useful rationale for developing this and similar approaches by teacher educators. In the spirit of triangulation, these reasons will be explored in fuller depth during the focus group discussions.

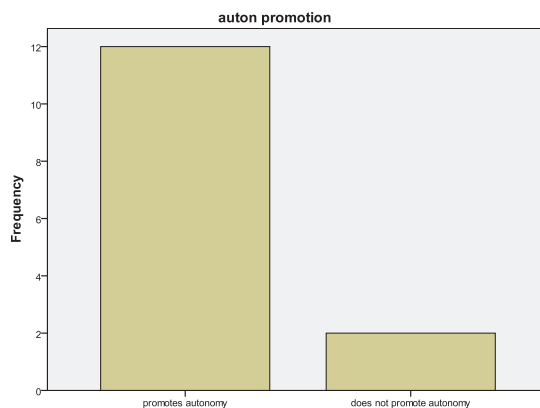
**Promotion of autonomy**

Another theme explored by the questionnaire is the extent to which the use of digital recording promoted autonomy. The desire to explore this possibility was informed by the findings of previous studies (See eg Copland, 2010) which have highlighted the desire to progress towards autonomy of trainees, rather than the existing top-down approach that contemporary feedback practice tended to indicate. Participants’ responses were codified using the values 1 = “promotes autonomy” and 2 = “did not promote autonomy”. The distribution and frequency patterns are presented in the table and chart below.

**Table 3: Promotion of Autonomy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid promotes autonomy	12	85.7	85.7	85.7
does not promote autonomy	2	14.3	14.3	100.0
Total	14	100.0	100.0	

**Chart 3: Promotion**



**of Autonomy**

As indicated in both the table and chart above, there is clear evidence that the majority of participants, 12 out of 14, representing 85.7% held the view that the use of digital recordings promoted a sense of autonomy in their feedback process. On the surface of it, this appears to be a commendation of the use of the tool as a facilitator in the development of collaborative and non didactic approaches towards the use of feedback in the self reflection process. 2 participants, representing 14.3% indicated that they did not feel that it promoted any sense of autonomy for them. Given that one of the rationales for the call for the development of a collaborative approach towards giving feedback is the need to promote trainee teacher autonomy in the self reflection process, it is crucial that we investigate why some participants, though a minority, felt that it did not promote autonomy for them. But these two markers on their own neither provide the ultimate evidence to reinforce and justify the clamour for a move towards a more collaborative approach to feedback on the one hand nor a need to advocate caution on the other. Such evidence can only be comprehensively provided through a more detailed qualitative exploration of data. These, therefore, will constitute a focus of group discussions.

**Useful with / without teacher educator**

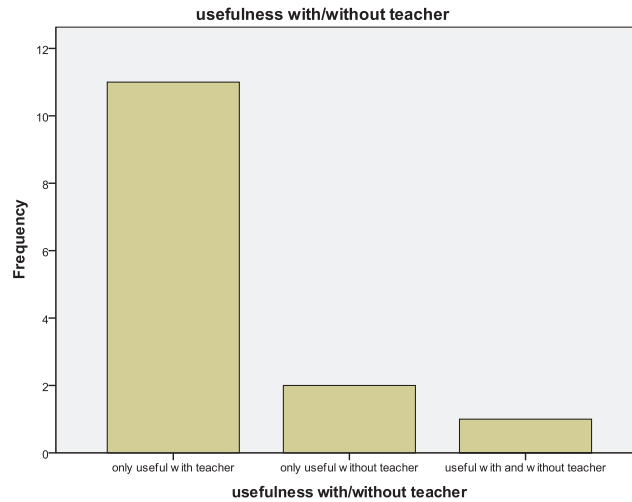
The questionnaire further sought to find out if participants felt that the instrument was useful only when used with their tutors or when used by trainees alone. It also left the opportunity for participants to indicate if it was useful in both contexts. This is particularly important given the fact that the element of autonomy as discussed above is crucial to the argument about the need for the development of a collaborative approach to feedback. The crucial question is whether the acknowledgement of the positive ambience of autonomy in the use of the tool would indicate a preference for excluding teacher educators’ input in its use. Participants’ responses were codified using the values; 1= “only useful with teachers”, 2 = “only useful without teachers” and 3= “useful with and without teachers”. Presented below are the frequency and distribution patterns of the views held by participants in this context in a chart and a table.

**Table 4: Usefulness with/without teacher**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	only useful with teacher	11	78.6	78.6	78.6
	only useful without teacher	2	14.3	14.3	92.9
	useful with and without teacher	1	7.1	7.1	100.0
Total		14	100.0	100.0	



**Chart 4: Usefulness with/without teacher**



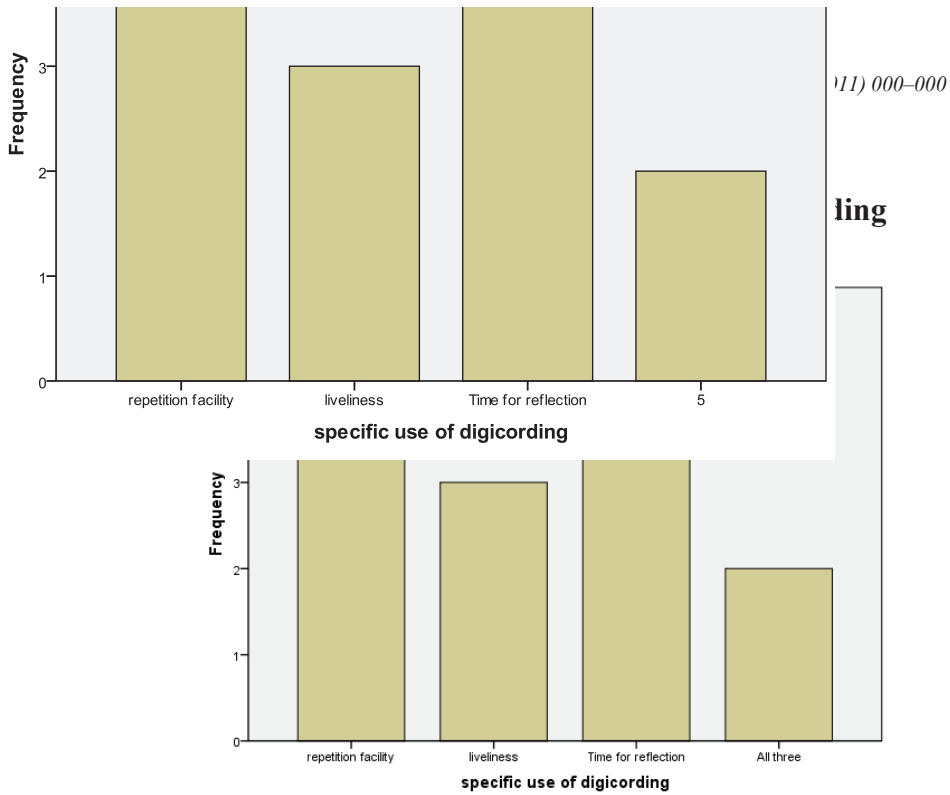
Both the table and the chart above show that the majority of participants, 11, representing 78.6% felt that the instrument was useful to them when they had input from their tutors. There are two key issues that emanate from this. First, the acknowledgement of the need for tutors’ input highlights the element of collaboration. In a way, it might be argued that the majority of participants felt that the instrument was particularly useful in a collaborative setting. The second issue revolves around autonomy. With the majority of participants welcoming their tutors’ input in spite of the fact that they had earlier acknowledge the autonomy promoting attribute of the tool, we can deduce that the promotion of autonomy does not in their view necessarily exclude inputs from tutors. Also interesting is the fact that one participant (7.1%) felt that the instrument can be useful both with and without teacher. In a way, this could be seen as a manifestation of this participant’s autonomy. On another level, it reinforces the notion that the promotion of autonomy does not necessarily exclude tutor input. 2 participants, representing 14.3% indicated that the instrument was not useful for them when their tutors were involved. This raises crucial questions about why. There are a range of possibilities which could relate to historical and psychological factors. For example, could a history of the didactic nature of teacher input in the feedback process in their historical reality be responsible for a psychological apathy towards the involvement of tutors in the process? This is an issue that will be further explored in the focus group discussion.

**Specific usefulness of the use of Digital recordings in the feedback process**

Another focus of the questionnaire was to explore the specific usefulness of the tool from the perception of participants. In this regard, the expectation was that responses to this question would shed more light on such issues as preference for teacher input, autonomy and views about collaboration. Participants’ responses were codified using the values; 1= “repetition facility”, 2 = “Liveliness of events/activities”, 3 = “Time for proper reflection” and 4 = “All three”. The distribution and frequency patterns of responses are presented in the table and chart below.

**Table 5: Specific use of digital recording**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid repetition facility	5	35.7	35.7	35.7
liveliness	3	21.4	21.4	57.1
Time for reflection	4	28.6	28.6	85.7
All three	2	14.3	14.3	100.0
Total	14	100.0	100.0	



The table and chart above show that there were four categories of specific usefulness of the use of digital recording in the self reflection feedback process identified by participants. The most common reason given was the fact that it offered the opportunity to repeatedly engage with the activity on which the reflection was taking place. 5 respondents representing 35.7% held this view. Another view was that the instrument was particularly useful because it makes events live in the course of reflection. This, in our view relates to the element of having the opportunity to repeatedly view performance. This position was held by 3 participants representing 21.4%. A third view was that the existence of recordings offered time for quality reflection as the pressure of recall from memory is eliminated from both trainees and tutors. This was a view held by four participants representing 28.4% of participants. Finally, 2 participants, representing 14.3% felt that all three were useful for them in the review of the use of digital recordings. The crucial issue about the range of specific usefulness of the use of digital recording as offered by the participants in this study is that they all focused on the element of reflection. In essence, there was a suggestion that the important issue was the quality of reflection. This raises the question of the role of assessment in the use and development of reflective practice. The responses from participants in this study suggested that the most useful attribute of using the instrument was its ability to contribute to the self reflection process rather than providing evidence for assessment. While quantitative data as presented here is not particularly capable of exploring this further, it has highlighted the need to take a fuller look at it and this will be explored further in the course of the focus group discussion.

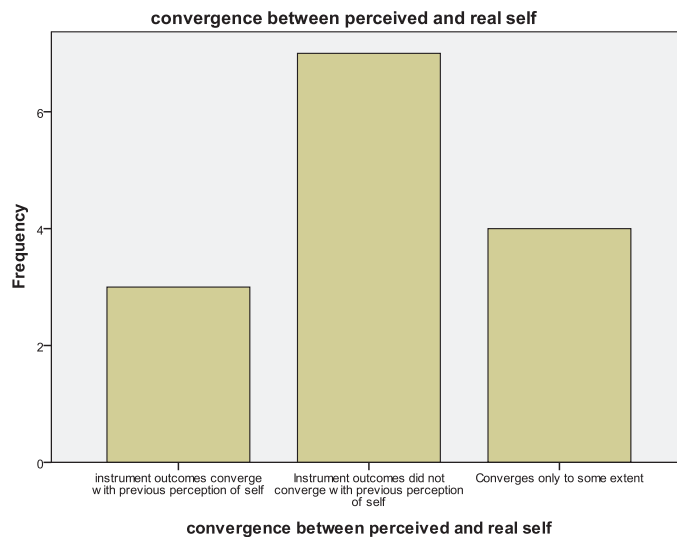
**Convergence of outcomes of digital recording with previous perception of self.**

A final focus of the questionnaire was to explore the extent to which the outcomes of using the digital recording tool converge with the participants’ original perception of self in practice prior to the use of the tool. The goal here was to establish the extent to which the use of the instrument has contributed towards a more authentic evaluation of practice. Responses were codified using the following values. 1 = “instrument outputs converged with previous perception of self”, 2 = “instrument outputs did not converge with previous perception of self” and 3= “instrument outputs converged with previous perception of self only to some extent”. The pattern of responses is presented below.

**Table 6: Convergence between perceived and real self**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	instrument outcomes converge with previous perception of self	3	21.4	21.4	21.4
	Instrument outcomes did not converge with previous perception of self	7	50.0	50.0	71.4
	Converges only to some extent	4	28.6	28.6	100.0
	Total	14	100.0	100.0	

**Chart 6: Convergence between perceived and real self**



As indicated in the table and chart above, 7 participants representing 50% felt that there was no convergence between their previous views of self as a practitioner and their views after the use of the instrument. This number was further complemented by another 4 participants representing 28.6% who felt that such a convergence was only to some extent. This is highly significant in the context of exploring the accuracy and effectiveness of self-reflection from memory and from teacher feedback. It would seem that based on the responses of participants in this research, a significant part of learner perception of self in their reflection is likely to be inaccurate. This recommends the use of an instrument such as digital recording. 3 participants, representing 21.4% felt that the outputs from the instrument converged with their perception of self as a practitioner. What is perhaps more important is to find out whether the instrument output shows trainees as better or as worse than their original perception of self. This would enable us to make a commentary on whether the instrument has effectively helped in getting trainees to develop themselves through a true critical reflection of self and if this is done in a better way than the memory recall for both teachers and trainees. Most importantly, it should enable us to engage with the issue of the role that teacher educators play in the entire process. With this, we would be able to address questions around what the teacher educator and the trainee put into the feedback in reflection process and how these inputs can be recorded. These are issues that would be explored in the discussion group

The data presented above have presented a pattern of the distribution and frequency of attitudes and perception. As we have indicated, this is not an end in itself, but merely provides guidance in terms of some of the issues to be explored in the course of the focus group discussion.

#### Findings from the Focus Group

Discussion within the focus group provided a general overview in addition to the identification of a number of emerging themes. Overall, participants' views suggested that the experience proved invaluable as reflected in some participants' comments that; "I could have done this every week" (R1), "think all teachers should do it"(R1), "Amazing opportunity – very rarely do teachers get that opportunity (R4).

In more specific terms, trainee feedback yielded a number of strong themes in relation to:

1. *The sense of autonomy, professionalism and more active reflection experienced by the trainees*
2. *The matching by the trainee of their perceived or ideal self to their actual self in a real context*
3. *The impact on learning with the absence of assessment of teaching practice*
4. *The continuing need for tutor dialogue post observation within a more collaborative environment with more problem solving learning and dialogic teaching*

#### Theme 1:

One of the central themes that emerged from the focus group was the promotion of autonomy through the use of digital recording. The view that the use of digital recording promoted the empowerment of the individual and a sense of autonomy among participants was significantly amplified in participants' contributions. Typifying this theme was a contribution from one of the respondents that; 'you go through it from your own perception and can talk yourself through a good mark. Otherwise you have a situation of being dependent on someone else' (R5). This notion of empowerment and promotion of autonomy was linked to a number of other sub-themes. For example, one participant linked the notion of independence to professionalism stating, 'It let's us have control as a professional' (R2). This is an interesting point in the context of the participants, as the participants had previously on their course considered professionalism in relation to responsibility, autonomy and knowledge (Robson, 2006). It is, therefore very significant that some participants were able to make a clear and personal link between autonomy and professionalism and emphasised the notion of feedback as a learning process in the context of self-reflection. The concept of the heightened 'self' aspect was also amplified. One participant commented that, "the process of self evaluation was what I found useful..."(R8) In terms of triangulation, this clearly validates the data collected via the questionnaire with 12 out of 14 trainees responding that it promoted autonomy.

Taking into consideration the learning stage of the participants who were all second (final) year students, this possible desire for autonomy in the self evaluation aspect of observation can be seen as timely in their development. As has been noted in the literature, teachers go through developmental phases in their careers (Edge, 2005, Freeman, 1998) and latterly may need, in relation to observation, an observer who will 'understand' what they are doing in their (the trainees) own terms (Edge, 2005). The desire for such independent and autonomous space was captured by one participant in the questionnaire response who declared that, 'I was able to identify my own strengths and weaknesses'. The essence of the timeliness that the use of digital recording provided in the promotion of autonomous development was further capture in participants' comments: 'I would have still noticed things but having had an observation with my tutor, I knew what to look for' (R10) and 'it is informed by comparisons (with previous observations). Best in the second year' (R2). It could be argued that this sense of autonomy reinforces the notion that the best person to reflect on their practice is the practitioner themselves (Edge, 2005, Schon, 1983, Burns, 1999 and Freeman, 1998). Furthermore, It validates the argument imbued in problem solving learning that the more autonomous learner moves from being a dependent learner to being an independent learner (Basile, Olson, Mejia , 2003). The essence of this transition from the dependent to the more autonomous and self-directed learner was encapsulated in the comment that, "What has happened to me a couple of times when I have done my feedback with my tutor straight away, I have reverted to parent and child. This promotes adult to adult" (R1). The implication here is that in the participants' views, the feedback practice in which trainers will often take dominance during this interaction (Copland, 2010), with trainers/ teacher educators taking the pedagogical high ground (Copland, Ma and Mann 2009) was reversed. In essence, there is an indication that using digital recording in the process of viewing their practice and self evaluating in readiness for the post observation feedback promotes a shift away from a teacher-centred to a learner-centred process.

The theme of autonomy was also linked to that of more active reflection. One participant claimed; ‘being involved in own evaluation make you more active in reflection afterwards’ (R6). Drawing from the role of the researchers as participants, it became obvious that this view has a root in a previous class discussion about the active nature of reflection (Reid, 1993) and it would seem that this ‘came to life’ for this trainee here. The link between actually viewing one’s practice and more active reflection is repeated with a trainee suggesting “it helped as reflection is difficult when you can’t remember what you have done” (R2). This explicit vision of active reflection lead trainees to link with their theoretical input on their programme on reflection with a trainee offering “My thinking is taken out of what Schon says on reflection on and in action”(R7). Overall, the participants’ views in relation to autonomy and independence reinforced arguments about the development of a more co-operative development (Edge, 2005) and of the role of active reflection in the development of a greater non judgemental dialogue post observation while at the same time highlighting the notion of espoused theory and theory in action (Prodait, 2011 and Argyris et al, 1985).

#### Theme 2:

Another emergent theme from the focus group was the opportunity to match previous perception of self to that of the outcomes provided by the tool of viewing oneself in a real context. This ‘realness’ of the context was reflected in several comments including ‘less intrusive for students and teacher as not so aware of camera and get a truer picture’ (R1), ‘Camera lens offers a presence in the room more so than an observer is more likely to get a real version of what is happening and how you deal with behaviour and how they (students) respond to it’ (R9). Copland, Ma and Mann (2009) describe the use of technological devices as the ‘objectifying lens’ providing trainees the opportunity to identify critical incidents for later discussion. The realness of seeing oneself was further emphasised through comments such as, ‘...I can question if I am speaking to just part of the whole class and using proxemics effectively’ (R4) and ‘Just observing the behaviour management is good. You might think it takes times to get quietness but you can see that you quickly get it’ (R6). This again can be linked to the tenets of problem based learning which advocates the use of real life context for discussion and self directed learning (Berkel and Schmidt, 2000).

Another strand of the emerging argument in relation to the opportunity to link reality to perception is the confidence it offers in terms of eliminating undue negativity. One participant noted; “we tend, maybe just me, particularly when observed to focus on the negative and come away with an impression of what was bad. Whereas you look and see bits that are good. In that way it builds confidence” (R2). Drawing from this, we can see the essence of the claim that a process such as using digital recording in feedback can engender the development of an internal dialogue between the ideal self and the actual self (as viewed) (Prodait, 2011, Rulla, Imoda and Rideck, 1978), allowing the trainee to sort out and clarify an aspect of practice which Produit (2011) suggests is a feature of the non-judgemental space created in more co-operative development (Edge, 1992).

This link validates one of the emerging claims from the quantitative data typified by a response that, “I was able to identify my own strengths and weaknesses’ and ‘It improved my confidence and made me realise that my teaching techniques have improved since last year’. In our view, the significant issue here is the fact that the use of digital recording provided an anchor or a base for trainees from which they can take a leap into the realm of confidently comparing perceptions with reality. As indicated in the qualitative data, many trainees were able to accomplish this and could confidently declare that there were significant differences between their previous perception of ‘self’ and the reality offered by the use of digital recording. More importantly, it enabled them to confidently engage in dialogues with their tutors, as they now have a verifiable source from which they can confidently draw.

#### Theme 3:

A further key theme to emerge from the group was the impact on learning with the absence of summative assessment that is traditionally embodied in teaching practice observations. As established in the literature, problems often associated with feedback following observation include the time pressure and the conglomerate of assessment and development talk (Copland and Mann 2010). Participants’ contribution suggested that the conception of the use of digital recording enabled them to overcome the traditional pressure that was usually associated with observation and feedback. Some of the responses that gave this impression included, ‘When my tutor identified areas for development, he was able to take me back to the exact period in the lesson without the threat of being assessed for pass/fail. I really got the message from this’, and “I enjoyed the fact that it was more a discussion around my professional development rather than ticking boxes indicating that I had passed or failed. It took the stress away’. Based on this, we might argue that using this tool offers more opportunity for the mutual contribution in feedback advocated in Edge (2005) to promote a far greater co-operation (Edge, 2005) and to facilitate a dialogic environment (Alexander, 2008) which the challenge of assessment would have negated. In the views of participants, such

collaboration is less achievable when testing performance against a set of predetermined criteria (Alexander and Wolfe, 2008). The tension that assessment has the potential of imposing on the feedback process was highlighted by a participant. The comment suggested that here is the possibility that trainees might not take readily to the use of the tool because there is an underlying fear of the role it might play in terms of being used as a tool for assessment; “It has two purposes though- one for self-evaluation and one for judgement (assessment)” (R7). This reinforces the claim that observation feedback can be considered an area of tension (Copland, 2010, Holland, 2005) where the assessment and development role do not sit easily together.

Theme 4:

Another theme emerging from the focus group can be considered as being an embodiment of a paradoxical relationship. Although there was a strong emphasis in the focus group talk on development of autonomy and more active reflection as discussed under theme 1, there was equally a strong sense for the need for tutor dialogue and the provision of some sort of evaluative framework. This validated the opinion represented in the questionnaire with 11 out of 14 students offering this viewpoint. One participant commented; ‘Definitely still needs tutor input as that takes it to a different level’ (R8). This recognition of the need for a dialogue can be related to Edge’s view of co-operative development (Prodait, 2011) where another person is needed to help one see themselves clearly in order to make their own evaluation. Alexander (2008) reminds us of the Vygotskian view that learning requires the need for dialogic interactions with others to critically reflect on alternatives (Alexander and Wolfe, 2008). A participant further emphasised the importance of tutor input noting that; ‘When discussing with my tutor, we had a common source for identifying what he saw and to crosscheck with what I was doing’. It can be argued that he tutor in this situation is able to offer a perspective more so than a prescription (Wang and Seth, 1998) taking on a far more facilitative role. Another participant’s comment echoes the view of Wang and Seth (1998) stating “Felt there were elements that I didn’t like when viewing it, but didn’t know what to do differently. The tutor can give ideas that I wouldn’t have thought of” (R4). It appears that students when faced with finding solutions are likely to find that they need someone else to provide alternatives (Edge, 2005, Freeman 1998). In essence therefore, there is an indication that the use of digital recording can only fulfil its optimum potential if it accommodates the role of a teacher educator.

Other issues:

Though not specifically focused on the practical aspects of using digital recording, there were other emergent issues that are worth noting. For example, there were views about the use of the evaluative framework which was developed as part of the scheme. For some participants, the framework was viewed positively with one participant noting; ‘the evaluation framework took me to a particular point and gave me the courage to do the job and analyse’ (R3). Another participant commented that “the evaluative framework was quite useful as didn’t know what to look for but looked at checklist” (R4). Another participant highlighted the importance of the evaluation document in helping to shape participants’ analysis noting that; ‘When doing it, it was a continuous process....from constant discussion with my tutor about the programme and what’s expected, when it came to it, it was clear’ (R1).

However, there was an indication that some participants were concerned about the process. One participant noted; ‘Too much information on the form. I didn’t feel that the observer in the follow up tutorial got the whole picture of the whole lesson’ (R8). While the ongoing may not be directly related to the practicalities of using digital recording, it is important to be aware of them, as they are likely to impact on trainees’ willingness to use the tool

## Summary and Conclusions

This study set out to firstly consider the effectiveness of technological devices in the structure of professional development of trainee teachers and secondly to how this approach can contribute to the shift away from the teacher-centred, monologic and more instructional than collaborative feedback post observation of teaching practice. This study viewed the experience from the perspective of the trainees with the aim of answering three questions; trainees’ general perspective on using digital recordings, the extent it promoted a shift from a monologic teacher-centred feedback; and lastly, trainees’ specific reasons for their willingness to use it.

Evidence from both the quantitative and qualitative data supported existing claims that the use of technology is viewed positively amongst the trainee teachers. In particular, it was found that a sense of ownership and autonomy is central to this positive view. The absence of assessment criteria induced pressure allowed trainees the freedom to explore their practice in a non threatening or assessment compliant way. This freedom may be seen as a foundation for a richer context for self critical reflection without judgement. This in turn leads to a shift in the tutor:trainee

relationship with trainers becoming more facilitative in their approach with feedback between trainers and trainees shifting from the banking model of education (Freire, 1970, Copland and Mann, 2010) and its attendant features of instructional advice giving and critical monologue to that of a more collaborative interaction with equal contribution of trainee and trainer. The need for this collaborative exchange with reciprocal, supportive and meaningful talk (Alexander, 2008, Copland and Mann, 2010) with their tutor was considered vital in the trainees view giving a richness and contribution to the development of their own reflection. The greater sense of autonomy and ownership experienced by the trainees tends to support climate for this co-equal dialogue. Trainees overwhelmingly asserted that there remained a need for tutor involvement.

The development of the trainees reflection and growth is achieved by what Edge (2005) suggests as the trainer becoming more of the ‘understander’, allowing the trainee to have as much space as possible (Edge, 2005) to express themselves and be understood. The space in this activity was encouraged by the use of the evaluative framework document and the initial self evaluation by the trainee prior to the observation feedback session. The opportunity provided through the use of the tool for trainees to secure time for reflection was a point of value for the students. It allowed the trainees to safely view practice without fear of judgement and come to the meeting with the greater sense of ownership of actions. The more accurate opportunity to critically reflect on practice was achieved by the technological device allowing revisits to points of practice in the lesson with trainees expressing that this strengthened the experience.

What this study has shown is that by promoting a less monologic process of providing feedback through what can be compared to what Copland, Ma, Mann, (2009) describe as a more objectifying lens, trainees could examine their real self in a real context which as this study has shown, may have differed from that of their perceived sense. This occurrence links to the sense of ownership that the trainees experienced in contrast with the usual occurrence of the teacher trainer ‘telling them’ what they saw. This explicit viewing of self allows trainees to have confidence in their practice as it not only reinforced points for development but also gave real evidence of the strengths they possess in their role as teachers. By actually seeing it makes it more believable particularly when supported by more collaborative input from the trainer.

A number of issues appear critical to the facilitation of the type of environment that will promote this concept of more active trainee critical reflection and collaborative feedback. The use of technology appears to support this as it allows for a real-life context for self evaluation with the opportunity for shared recall of a specific point. The presence of assessment appears to distort the co-equal status of the trainer and trainee and will present a challenge if it is a mandatory aspect of feedback. As the trainer’s involvement appears a vital component, it appears natural that there should be a framework to support a more facilitative and co-operative environment. Drawing from this study and others before it, it is evident that there are many facets to the success of such an environment. In order to incorporate and accommodate these varying and sometimes conflicting facets, it becomes inevitable that a new and explicit framework to support its inherent complexities be developed. While many existing studies have acknowledged this complexity (See e.g Edge, 2005, Alexander, 2008 and Copland, 2010), there remains a need to develop a convincing framework for accommodating it. In particular, there has been little indication of how the various tensions that they have identified (Brandt 2008) can be accommodated or eliminated within one viable framework. That, in our view, is the challenge for those like ourselves who are intent on facilitating a more productive use of feedback as a component of self-reflection and development process.

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