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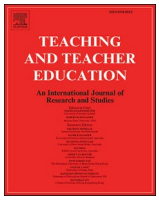

Research paper

Assessing the impact of hybrid school visits in initial teacher education: A mixed-methods randomised controlled trial and process evaluation

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ABSTRACT

Observing expert practice is an important aspect of Initial Teacher Education (ITE), yet creating meaningful opportunities for trainee teachers to observe strategies in real-life contexts can be challenging. Hybrid and virtual modalities offer potential to expand observation opportunities, although they present their own limitations. This study examined a hybrid model for observing and deconstructing live expert classroom practice within the context of the Intensive Training and Practice (ITaP) policy in ITE in England. Using a randomised-controlled trial, we found that hybrid school experience visits (combining virtual livestreamed observations and in-person tutor-led deconstruction) were not less effective than in-person visits for trainee learning and self-efficacy. Participants described the two modalities as working in different ways, suggesting differing mechanisms of effect, delivery considerations and areas to strengthen both approaches. The findings support ITE providers in making judicious and informed decisions about using hybrid visits to create classroom observation opportunities.

1. Introduction

The demand for qualified and effective teachers is on the rise globally (UNESCO, 2024) and remains a challenge in England despite targeted government initiatives (Bryan & Price, 2025, pp. 27–45). This shortage of high-quality teachers has consequences for pupils, especially as it disproportionately impacts disadvantaged areas, where qualified subject specialists are particularly scarce (Department for Education, 2019; Garcia & Weiss, 2019; Worth et al., 2018). As well as attracting and preparing more people for teaching, high-quality Initial Teacher Education (ITE) programmes can play a role in retention by equipping teachers with needed skills and confidence to succeed. However, inconsistent quality and geographic-based availability contribute to inequities in training, a pattern highlighted across different contexts—most notably in the USA (Darling-Hammond, 2017; Darling-Hammond et al., 2019), but also in the UK (Ovenden-Hope & Passy, 2019).

1.1. Linking theory to practice in ITE

One challenge to ensuring adequate supply of new high-quality teachers relates to sufficient preparation for the increasing complexities of teaching, including teaching pupils with diverse backgrounds and learning needs (Darling-Hammond, 2006; DeGraff et al., 2015; Forzani, 2014). There is a noted disconnect between taught and placement elements of ITE courses, where trainee[1] teachers are not given the opportunity to fully integrate knowledge with practice (Hamilton & Van Duinen, 2018). Many experts have called for re-conceptualising ITE curricula to better bridge this gap between theory and practice (e.g., Grossman et al., 2009; McDonald et al., 2013).

Central to this re-conceptualisation is the introduction of core practices; a repertoire of strategies and techniques that teachers can deploy

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[1] In this paper, we use the term 'trainee' to refer to individuals undertaking ITE programmes in England. While the term 'pre-service teacher' is commonly used in international literature, 'trainee' (or 'trainee teacher') is the standard terminology used in UK policy and academic work (see e.g., Department for Education, 2022).

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flexibly across different subject areas and classroom contexts (Matsumoto-Royo & Ramírez-Montoya, 2021). Several frameworks describe what these core practices should entail (e.g. Ball & Forzani, 2009; Grossman et al., 2009; McDonald et al., 2013), and their introduction has been accompanied by increasing opportunities for trainees to observe and enact such practices in low-stakes classroom settings (DeGraff et al., 2015; Forzani, 2014). Some models emphasise the importance of carefully sequenced deliberate practice in mastering specific skills (Deans for Impact, 2017).

This 'practice-based teacher education' (PBTE) approach is therefore seen as a way to bridge the gap between theory and practice, with modelling and observation as fundamental elements. Trainees can witness expert teaching first-hand, offering insights into how to apply theoretical knowledge in real classroom settings (Eick et al., 2003; Kluth & Straut, 2003; Loughran, 1995; Loughran & Berry, 2005; Saclarides & Munson, 2021; Sims et al., 2023). However, observation alone is not sufficient. 'Deconstruction' of modelled practice—i.e., breaking lessons down into constituent parts and identifying the underlying principles, decision-making processes and the specific strategies used—is also important (Grossman, 2018; Herbert et al., 2018; Horsburgh & Ippolito, 2018). With expert guidance, this deconstruction can help trainees move beyond superficial observations and develop a more profound understanding of what constitutes successful teaching (Herbert et al., 2018; Horsburgh & Ippolito, 2018).

Yet, incorporating elements of modelling and observation into teacher training programmes is challenging, often seen as too costly or complex to implement (Zeichner, 2012). Evidence from the US indicates that, despite renewed investment in practice-based teacher education, key challenges of sustainability, scalability and long-term resourcing remain unresolved, limiting the extent to which intensive modelling and guided observation can be embedded across programmes (Zeichner, 2023). In the UK context, such limitations are frequently linked to school capacity constraints (Department for Education, 2021a). Research from other countries likewise highlights the structural and resourcing challenges involved in embedding modelling and observation within initial teacher education. For example, studies from Australia document the significant time investment, workload pressures and inconsistent institutional supports faced by supervising teachers and university supervisors (Green et al., 2020; Monteleone et al., 2025), while administrative demands and competing responsibilities limit the capacity for sustained observation, feedback and guided deconstruction of practice (Du Plessis & Razmjoee, 2025). Comparable constraints are evident in the Republic of Ireland, where logistical barriers such as timetable constraints and competing professional responsibilities restrict the feasibility of intensive modelling-and-debrief approaches (Young & MacPhail, 2016). Across diverse systems, observation opportunities for ITE trainees are consequently often limited, particularly in accessing 'state-of-the-art' (Darling-Hammond, 2010) practice in diverse and under-resourced settings.

1.2. Hybrid school visits in ITE

Hybrid delivery approaches, combining in-person with online delivery, have gained attention in recent years, due to their potential to offer flexible, scalable and diverse opportunities for observation in teacher training programmes (Bates, 2015; Means et al., 2009). A recent systematic review of 36 studies spanning 18 countries across North America, Europe, Asia and Latin America identified video recordings, curated video-based content and live video conferencing as the three dominant modalities used to support observation, reflection and collaborative learning in ITE (Monginho et al., 2025). Across these diverse regional contexts, video-based content supported shared analysis of classroom practice across settings, whereas live video conferencing—although less widely studied—offered opportunities for synchronous, collaborative observation, particularly in geographically dispersed or hybrid training models.

Virtual classroom observations conducted through live video conferencing or pre-recorded videos, allow trainees to analyse classroom interactions without the logistical constraints of in-person visits (Cuthrell et al., 2016; Wang & Wiesemes, 2012). Such observations may allow trainees to observe a wider range of teaching contexts, revisit recordings and engage in guided reflection with expert tutors to deconstruct practices as they are being observed (Kinnear et al., 2002; Pickering & Walsh, 2011). For example, the Video Grand Rounds model, drawing on approaches used in medical education, enables trainees to observe live or pre-recorded classroom interactions and then participate in facilitated discussions with expert tutors or peers (Cuthrell et al., 2016; Hebert & Wright, 2003). When applied during field experiences in a US teacher education programme, this model showed that structured video-based observations can help trainees shift from superficial noticing to deeper professional understanding by providing shared, focused observation experiences. These skills then transferred effectively into live classroom settings—suggesting that well-scaffolded virtual observation, when coupled with structured reflection, can lay a strong foundation for engaging meaningfully with expert practice (Cuthrell et al., 2016).

Through virtual classroom observations, trainees can observe classrooms in socio-economic, cultural, specialist, or subject- and phase-specific environments different from their main placements, enriching their professional perspective and adaptability. Moreover, the remote format allows for greater opportunities for peer- and tutor-led discourse during live observations than would typically be possible on-site (Pickering & Walsh, 2011; Wang & Wiesemes, 2012). Virtual approaches can also overcome logistical challenges, such as transport or scheduling (Greene, 2009; Pickering & Walsh, 2011). The relatively unobtrusive nature of virtual observations can minimise disruption, allowing more authentic teaching and learning interactions to be observed (Kinnear et al., 2002; Liang, 2015; Mac Mahon et al., 2019; O'Connor et al., 2006; Pickering & Walsh, 2011).

The advantages of virtual observations are often tempered by challenges. Technical issues, including poor audiovisual quality and limited camera angles, can limit the richness of the observations (Pickering & Walsh, 2011). Trainees may have difficulty seeing all pupils or the teacher as the camera moves around the room and therefore struggle to accurately evaluate interactions (Burns, 2023). Even with flawless video and audio, trainees learning virtually may find it harder to maintain attention than those learning in person ('mind wandering'), leading to superficial engagement and difficulty connecting with and internalising observed practices (Greene, 2009; Perry et al., 2020; Varao-Sousa & Kingstone, 2015; Wammes & Smilek, 2017). The lack of direct interaction between trainees and teachers during virtual classroom observations can also restrict opportunities for dynamic feedback and real-time clarification, limiting understanding of the reasons behind teaching decisions, especially in the absence of expert facilitation (Mynott et al., 2024).

Hybrid approaches in teacher education typically involve a mix of online and face-to-face learning delivered separately (e.g., Mulhayatiah et al., 2021). As such, they often face similar barriers to virtual-only models—particularly technological difficulties and trainee disengagement. There is limited robust evidence on hybrid approaches (Perry et al., 2021), especially ones that combine real-time virtual classroom observations with in-person facilitation. But emerging qualitative research suggests logistical challenges are key, such as scheduling facilitators and securing suitable observation spaces (Juarez & Critchfield, 2021).

Given ongoing concerns about shortages of high-quality new teachers in England (Bryan & Price, 2025, pp. 27–45), and the potential of virtual classroom observations to better integrate theory and practice in teacher preparation, there is a clear need for more evidence on the relative effectiveness of virtual versus in-person approaches. In particular, greater understanding is needed of how hybrid models operate in practice, and how they might be optimised to harness the strengths of

both modalities.

1.3. Aims of the current study

This study evaluates the effectiveness of a hybrid approach relative to an in-person approach for delivering structured observation and deconstruction of expert classroom practice as part of 'Intensive Training and Practice' (ITaP, described below) in ITE in England (Department for Education, 2021b). In this paper, the 'hybrid' approach specifically denotes a livestreamed lesson observation accompanied by in-person expert deconstruction of the lesson by a tutor with a group of trainees. In both modalities, trainees took part in a full-day 'school experience visit'. While these visits included wider school-based activities such as tours and context briefings, the primary focus of this evaluation—and the target of the structured intervention—was the live classroom observation and subsequent tutor-led deconstruction. We refer to the intervention as 'school experience visits' throughout to reflect the contextualised nature of these activities within the wider school environment. Using a randomised controlled trial alongside a process evaluation, the study aimed not to identify a superior approach, but to assess whether the hybrid model could serve as a viable alternative—and to build theory on how each modality operates. The study addressed two research questions.

RQ1 What is the relative effectiveness of a hybrid mode of delivery for school experience visits, compared to an in-person visit conducted in school, within an ITE context?

RQ2 How do school experience visits work to achieve the aims of ITaP?

- 2.1 What are the possible mechanisms of impact for hybrid and in-person modes of delivery?
- 2.2 How does delivery of the two modalities affect how they are able to meet the aims of ITaP?

By 'mechanisms' here we refer to participants' perceptions, descriptions and theorisations of *how* the respective modes had their effects (Pawson & Tilley, 1997). The design of our process evaluation does not allow for triangulation of data for testing these causal accounts, but they can potentially provide hypotheses that can be tested in future research that builds on our findings.

2. Methods

2.1. Study context

This study took place within a national ITE provider in England. All ITE programmes in England are required as of 2023/24 to include an 'Intensive Training and Practice' [ITaP] component (Department for Education, 2021b) in which trainees experience a minimum of four weeks (postgraduate route) or six weeks (undergraduate route) of ITaP as part of their ITE curriculum, in addition to the 120 days spent on general school placements. This new policy is driven by an aim to strengthen the links between theory and practice in ITE, and focus on core practices (Matsumoto-Royo & Ramírez-Montoya, 2021) and carefully sequenced deliberate practice in these areas (Deans for Impact, 2017). To this end, ITaP is intended to provide trainees with focused and deeper exposure to foundational aspects of the curriculum, combining theory, observation, deconstruction, practice and feedback (Department for Education, 2022;Department for Education, 2025). Early research suggests that ITaP holds good promise, but questions remain about how to deliver at scale, and the potential of digital solutions to support with this (Marshall et al., 2023).

The provider implemented ITaP for the first time during the 2023/24 academic year. As part of routine programme delivery, postgraduate trainees participated in four ITaP modules throughout the year: (1) Behaviour and Routines, (2) Cognition, (3) Questioning, and (4) Scaffolding. The modules spanned a total of 20 days, interspersed with other training days and school placement practice.

2.2. The intervention: school experience visits within ITaP

This trial examined one-day 'school experience visits'—functioning as intensive, school-based lesson observation days—within two of the four ITaP modules: Questioning (ITaP 3) and Scaffolding (ITaP 4),[2] comparing the relative effectiveness of hybrid versus in-person delivery. School experience visits facilitated trainees observing and deconstructing expert practice in questioning or scaffolding, respectively. Visit days were conducted in two modalities: hybrid and in-person only. All visit days included pre-observation, observation and post-observation components, outlined in Fig. 1 below.

Both modalities trialled relied exclusively on live observation (either in-person or livestreamed) due to the programmatic timeline of the intervention. Because the trial took place during the very first year of the provider's delivery of the ITE programme (Autumn 2023), a curated library of high-quality pre-recorded classroom footage was still under development. Utilising live lesson delivery was therefore a logistical necessity for routine programme implementation at this stage.

While the aims and overall structure of the school experience visits were the same across hybrid and in-person modalities, there were several key differences, as outlined in Table 1.

As Table 1 illustrates, key differences included (for hybrid and in-person modalities, respectively): observing through live-streaming versus in-person in school; different versus similar classroom contexts; tutors being present versus not present during observations; trainees all observing the same lessons versus different lessons; and deconstructions taking place both simultaneously and subsequently versus subsequently only.

2.3. Research design

We adopted a mixed-methods design (Creswell & Plano Clark, 2017), incorporating two complementary strands: a crossover randomised control trial (RCT) followed by a mixed-methods process evaluation. The findings from the process evaluation contextualised the trial results, offering insights into interpreting the relative effectiveness of hybrid school experience visits compared to their in-person equivalent.

2.4. Randomised control trial

2.4.1. Participants

Participants were trainees from the provider's ITE programme, specialising in secondary education (ages 11-16) at campuses in the North and West (N&W) or East, South and London (ES&L) regions. While the cohort represented various subject specialisms, logistical constraints during this initial year of ITaP delivery meant that observed lessons were not necessarily aligned with trainees' specific subjects. Consequently, in line with the programme's aim to develop foundational pedagogical strategies, the school visits and assessments focused on cross-curricular core practices (i.e., questioning and scaffolding) rather than subject-specific skills. To be included in the analysis, trainees consented to participate, attended both school visit days (one per ITaP module), and completed at least one measure at each time point.

2.4.2. Sample size

In total, 179 trainees were eligible for the trial, and data collection

[2] The Questioning module (ITaP 3) aims to equip trainees with techniques to check and extend pupils' understanding, while the Scaffolding module (ITaP 4) focuses on strategies to provide support and transfer responsibility to pupils. Both modules function within six interwoven strands of the ITE curriculum in England (Department for Education, 2011; Department for Education, 2019).

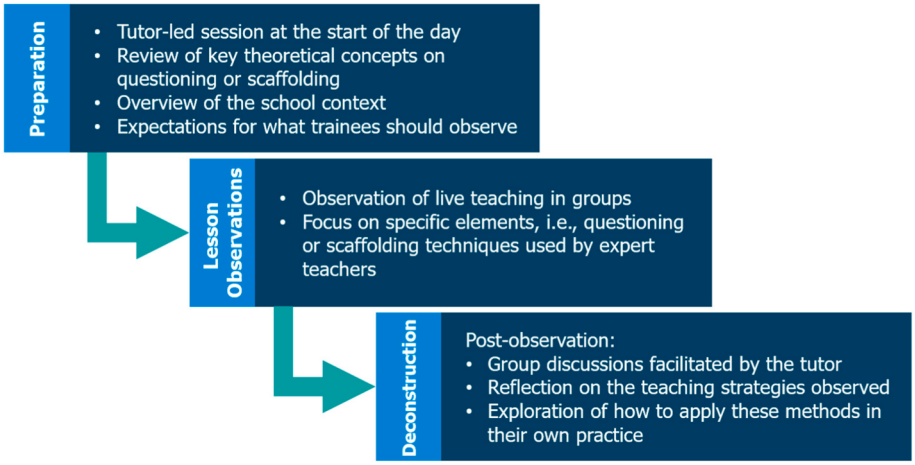

Fig. 1. Overview of ITaP school experience visits at the provider.

Table 1
Key similarities and differences between hybrid and in-person school experience visit modalities.

Hybrid (live-streamed on campus)	In-person (in school)
School leadership selected lessons for observation.	School leadership selected lessons for observation.
All trainees attended their local campus and observed a nationally live-streamed visit to a school.	All trainees attended a local school, mostly within the school trust of their placement school.[a]
Trainees observed lessons in a large group, with tutors present throughout (approx. 25 trainees per tutor).	Trainees observed lessons in person, either individually or in small groups (approx. 4–5 trainees).
Tutors had the opportunity to guide the entire group during the observation to support synchronous deconstruction.	Tutors were not present during most observations, as trainees moved between classrooms independently; however, they occasionally joined some groups.
During transitions between lessons, there were opportunities for immediate tutor-led discussions on what had just been observed.	Trainees mostly transitioned between classrooms independently, with limited opportunity for immediate debrief.
Tutor-led debrief session took place on campus.	Tutor-led debrief session took place in a school hall or meeting room.
Post-observation Q&A session with a member of the school leadership team (SLT).	Trainees could informally approach practitioners after observations, subject to availability.

[a] As part of the provider's ITE programme, all trainees teach in a placement school for four days a week. Often, but not always, these schools are part of multi-academy trusts that also manage other schools in the area, leading to similarities in school contexts.

efforts aimed to include as many participants as possible. The final sample sizes for the analyses ranged from 56 to 78 trainees.

2.4.3. Outcome measures

Outcomes were selected to align with the competencies ITaP seeks to develop (Department for Education, 2022, p. 27). To ensure alignment of the outcome measures with the specific training content, all rubrics and the scale used were developed by the research team in close consultation with ITE Faculty colleagues responsible for the design and delivery of the curriculum, including ITaP.

i) *Ability to prepare and apply knowledge*

To measure the ability to prepare for questioning and scaffolding, trainees provided lesson plans for the weekly lessons they were teaching within their specific subject specialisms as part of their training. We examined participants' lesson plans completed both immediately before and after each of their school visits, looking for evidence of their use of questioning (ITaP 3) and scaffolding (ITaP 4), respectively. A subject-neutral scoring rubric was developed with the ITE Faculty teams to assess these cross-curricular core practices. A draft rubric was tested on 10% of the sample, refined, and independently applied to 20% of the data by two coders unaware of group allocation. Cohen's κ was calculated for both ITaP 3 and ITaP 4 lesson plans ($\kappa = 0.84$ and 1.00, respectively), indicating excellent reliability. Disagreements were resolved, leading to a final rubric (Appendix A). Our analysis of the lesson plans is based on 76 participants who provided data at all four timepoints.

ii) *Self-efficacy*

Trainees' self-efficacy in effectively applying their learning was assessed using self-report scales adapted from the Teacher Self-Efficacy Scale (Bandura, 2006). The scales comprised 9 items related to questioning self-efficacy, and 8 items related to scaffolding self-efficacy which were answered on a 10-point Likert scale ranging from '*cannot do at all*' to '*highly certain can do well*' (Appendix B). For each timepoint, we calculated individual participants' mean scores across all scale items. Our analysis of self-efficacy is based on 63 participants who provided data at all four timepoints.

iii) *Excluded measures*

Participants also completed two other measures; however, due to significant data loss, we made the decision to exclude these from analysis, as any conclusions drawn from them would not have been sufficiently reliable. We therefore describe these measures here for transparency only. To assess trainees' understanding of the evidence, we used 10-item multiple-choice quizzes on questioning (ITaP 3) and scaffolding (ITaP 4). Each question presented four options from which participants were required to select one or more preferred responses. A total score was calculated for each participant. To evaluate application of knowledge and skills in real-world teaching, we used digital teaching approximations (using the Proxima[3] platform). Participants completed the same three written scenarios at baseline and endline (six in total) focused on either questioning or scaffolding. Responses included multiple-choice answers and open-text explanations with justifications.

2.4.4. Data analysis

To maximise statistical power, and in line with our protocol, we

[3] The Proxima platform provides digital approximations for trainees to respond to classroom scenarios, available at: https://proxima.education/.

chose not to include module (ITaP 3 vs. 4) as a factor in our analyses, but instead we standardised all dependent measures using the baseline mean and standard deviation for each ITaP module (unless otherwise noted below). This enabled comparability of scores from ITaP 3 and ITaP 4.

The primary analysis for each measure was a 2 x 2 (timepoint: baseline vs. endline x modality: in-person vs. hybrid) repeated measures analysis of variance (ANOVA). We focused specifically on the interaction effect, as it estimated the extent to which any change in the outcome measure between baseline and endline was different under one modality in comparison to the other. Complementary Bayesian analyses were included. Bayes factors below 0.33 were interpreted as evidence of no effect, and above 3 as evidence of an effect, with intermediate values suggesting inconclusive evidence (following Dienes, 2014). Effect sizes were calculated using Cohen's *d* (Cohen, 1988). All analyses were conducted in R (version 4.3.0; R Core Team, 2023).

2.5. Process evaluation (PE)

2.5.1. Aims and design

The process evaluation addressed the second research question by examining how school experience visits support ITaP's aims. Adhering to principles of realist evaluation, it focused on participants' understandings of mechanisms of impact (Bonell et al., 2024; Pawson & Tilley, 1997) comparing in-person and hybrid modalities, and exploring how these visits were delivered in practice. This approach draws on the Education Endowment Foundation's guidance for implementation and process evaluation in education (Education Endowment Foundation [EEF], 2022). The resulting design used mixed-methods, although data were predominantly qualitative, and did not include robust monitoring data.

2.5.2. Participants and data collection

Participants for the process evaluation were trainees and provider staff who participated in and delivered the ITaP programme. Data collection included: (1) one quantitative survey for trainees; (2) qualitative interviews with trainees, tutors and course leaders; (3) focus group discussions (FGDs) with trainees; and (4) observations of school experience visits.

Quantitative data involved all trainees who participated in the trial. A short 2-item survey was shared with all participating trainees shortly after each of the two school experience visits. This survey used 5-point Likert scales ranging from 1 (*not at all useful*) to 5 (*extremely useful*) to rate perceived usefulness of the visits, and of ITaP as part of trainees' overall training.

Trainees were eligible for interviews and FGDs if they attended at least one school visit day for ITaP 3 or 4, and for FGDs, the in-person campus day. Provider staff involved in designing or delivering school visits were also eligible. PE data were collected alongside the trial across the North and West (N&W) and East, South and London (ES&L) campuses. Additional interviews included one tutor from the North and East (N&E) campus and two nationally based course leaders, offering further valuable insights.

Trainee recruitment aimed for a diverse range of participants in relation to gender, subject, region, training route and overall programme experiences.[4] Recruitment was iterative, beginning with voluntary responses, followed by regional programme teams inviting further trainees (albeit still on a voluntary basis) to ensure varied perspectives. Trainees were female (N = 5), male (N = 2), non-binary (N = 1), or did not share gender information (N = 2). Trainees' subjects included Chemistry, Mathematics, Modern Foreign Languages (MFL), Religious Education (RE), Biology, Design and Technology & Art, and Computer Science.

Qualitative data were collected during- and post-visit, scheduled according to participant availability, where necessary.

1. **Field observations:** We observed three in-person and two hybrid visits to capture delivery insights, which informed subsequent interview topics and supported data triangulation.
2. **Trainees:** We conducted online semi-structured interviews with 10 trainees (7 from ES&L; 3 from N&W). We also held two on-campus focus groups (one per site; 5–6 participants each) to examine how trainees made meaning collaboratively.
3. **Course leaders and tutors:** Semi-structured interviews with staff involved in the design and delivery of the visits across different regions explored design decisions, delivery experiences and perceptions of trainee learning.

2.5.3. Data analysis

The quantitative survey data were analysed using descriptive statistics and a Wilcoxon signed-rank test, which was used to assess evidence of a difference in perceived usefulness between in-person and hybrid visits. The qualitative data were analysed using thematic analysis (Braun & Clarke, 2006), which was conducted by members of the research team (ET and VJ) who were not involved in the delivery of the school experience visits. Transcripts were coded using NVivo software, and emerging themes were shared with the study team, an independent Research Advisory Group for the study, and other colleagues with key roles in ITE content design or delivery, for refinement.

In keeping with principles of realist evaluation (Pawson & Tilley, 1997), participants (including ITE staff who designed and implemented the school experience visits, as well as the trainees who experienced them in both modalities) have been considered 'expert stakeholders' in that their experiences, motivations and intentions provide a privileged insight into how the programme works. Interviews and accompanying thematic analysis therefore focused on eliciting participants' more or less latent theories about mechanisms underpinning the achievement of the programme's outcomes. Because these theories have not been tested in our research beyond triangulation with the overall programme outcomes they seek to explain, what we refer to in the following discussion as 'mechanisms of impact' should be treated as explanatory hypotheses that might provide guidance or insight for the design and further evaluation of similar programmes.

3. Ethical considerations

The study received ethical approval through the provider's internal research ethics procedures, adhering to the British Educational Research Association (2018) Ethical Guidelines for Educational Research. Written informed consent was obtained for the use of existing data and the collection of new participant data.

4. Results

Of an estimated 180 eligible trainees, 179 were randomised into two groups (stratified by campus) in a parallel crossover design, with one group experiencing in-person delivery and the other hybrid delivery for ITaP 3, then switching for ITaP 4. A total of 146 trainees consented to their data being used for the trial, comprising 99 from ES&L and 47 from N&W; however, not all of these trainees were present or otherwise provided data at all four timepoints (see Fig. 2).

[4] The sample included trainees who were excelling, struggling, or on support plans; those representing the trainee student body in public-facing groups and those identifying as shy (a characteristic highlighted during the ITaP pilot research; see Marshall et al., 2023); trainees with English as a first or additional language; trainees with and without prior teaching experience; and both salaried (an employment-based pathway where trainees are employed by a school and receive a salary while undertaking training) and non-salaried routes. Data on Special Educational Needs and Disability (SEND) status of the trainees were not recorded.

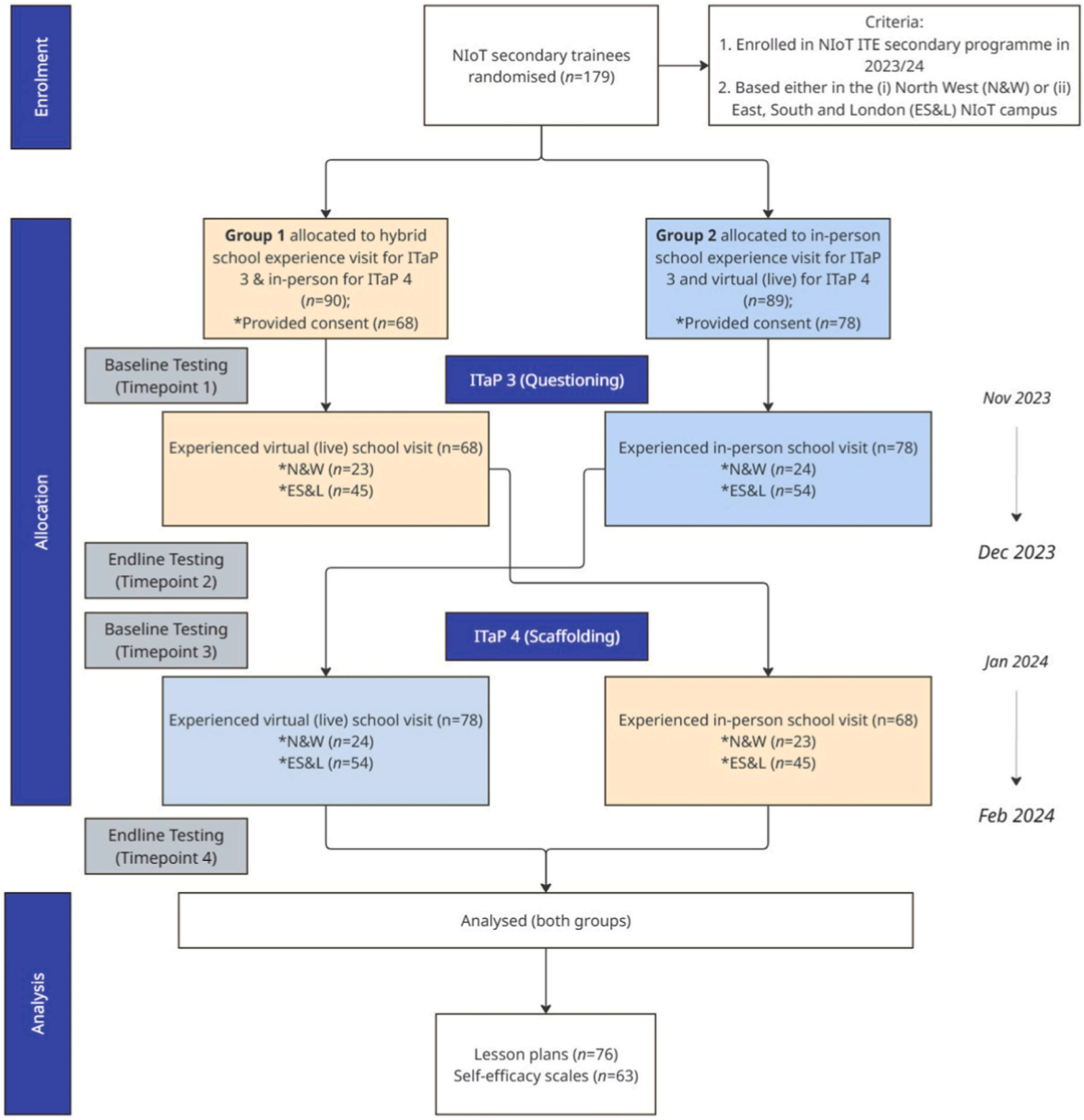

Fig. 2. CONSORT diagram showing the number of participants assessed for eligibility, randomised and included in the final analysis.

4.1. Trial results

Table 2 reports the samples used in the estimation of the models for each outcome, which is also shown in the CONSORT diagram (Fig. 2). In response to RQ1, for both outcome measures the interaction terms from the 2 x 2 ANOVAs were our primary focus of analysis. As Table 2 shows, for lesson plans this interaction was statistically significant, although the Bayes factor was inconclusive (see Fig. 2 for a visualisation). Post-hoc comparisons using paired two-tailed t-tests showed higher lesson plan scores at endline for the hybrid ($M = 0.26$; SD = 1.00) compared to the in-person modality ($M = -0.03$; SD = 0.88; $t(75) = 2.37$, $p = .020$, 95% CI [0.05, 0.53]), however, this contrast did not reach statistical significance after Bonferroni correction for multiple comparisons (adjusted $\alpha = .0125$).

For self-efficacy there was no evidence of an interaction (see Table 2 and Fig. 3). Rather, there was strong evidence of a medium-sized increase in self-efficacy over time, and this increase was statistically similar in both modalities.

Table 2 below provides an overview of the results from the frequentist and Bayesian analyses for each trainee outcome.

4.2. Perceived mechanisms: how hybrid and in-person school experience visits work to achieve the aims of ITaP

In response to RQ2, the process evaluation examined, first, participants' understandings of key mechanisms of impact, and second, the delivery of the visits and how this influenced their ability to meet intended aims.

Whereas our trial found little evidence of different effectiveness between the two modalities, the process evaluation found that they were perceived by participants as working in very different ways. In qualitative data, trainees reported enjoying and feeling more engaged during in-person visits; in the quantitative survey they also rated them as somewhat, but not significantly, more useful than the hybrid visits ($V = 263$, $p = .107$). Out of 74 trainees who rated both visits, 59% rated in-person visits as very useful or extremely useful, compared to 49% who said the same of hybrid visits, with a median rating of '*very useful*', and '*moderately useful*' for in-person and hybrid visits, respectively. A

Table 2
Summary of statistical tests computed to assess whether the in-person visits were significantly better than the hybrid visits.

Outcome measure	*N*	*F*	*t*	*p*	*d [95% CI]*	BF_{10}
Lesson Plans	76					
Modality		1.45	-	0.232	−0.14 [-0.36, 0.09][a]	0.26
Timepoint		0.88	-	0.351	0.10 [-0.11, 0.32][b]	0.19
Modality*Timepoint		4.12	-	0.046	−0.33 [-0.65, −0.01][c]	1.09
Self-Efficacy Scales	63					
Modality		0.30	-	0.588	0.05 [-0.12, 0.22][a]	0.15
Timepoint		37.18	-	<0.001	0.63 [0.41, 0.86][b]	39,505,552
Modality*Timepoint		0.23	-	0.635	−0.08 [-0.42, 0.25][c]	0.22

[a] Positive values are interpreted as in-person modality being directionally better than hybrid modality.
[b] Positive values are interpreted as endline being directionally better than baseline.
[c] Positive values are interpreted as the improvement over time being directionally greater for in-person modality than for hybrid modality.

preference for the in-person modality emerged consistently in the qualitative data, too. One trainee described:

> Just being in the room with the teacher and the trainees and just seeing that was very, very, very helpful. Comparing it with the other thing we saw online, this was like 100, 200% […] So much to take away, so much to discuss. It was easy for us, and we all had a very fruitful time. (Chemistry trainee; ES&L)

These findings resonate with previous studies highlighting that trainees often prefer in-person experiences (Greene, 2009; McDevitt, 1996). Interestingly, however, while in qualitative data trainees tended to initially describe in-person days as more engaging and useful, they often went on to outline some clear areas in which hybrid visits were more meaningful for their learning, specifically for ITaP. The following sections explore these findings in relation to perceived mechanisms of impact, and delivery considerations.

4.2.1. *Perceived mechanisms of impact*

Five key mechanisms were identified through the qualitative data that were important to participants' accounts of *how* the visits achieved the aims of ITaP. Importantly, explanations differed across the two modalities, and a mechanism that was identified as activated in one modality might not be identified, or might be identified as being hindered, in the other modality. In Table 3, below, we have represented this as 'relative strength', where a shaded box indicates that the mechanism was perceived as being activated in the relevant modality.

Mechanism 1 observations feel like 'real-life' classroom environment

Tutors and trainees described the importance of observing practice that felt recognisable and like 'real-life', both in terms of realistic practice and feeling present in the classroom:

> "It's just seeing it in action, and seeing it in the most natural way possible […] so it's not the best practice version, it is literally how it is done on a day-to-day basis" (Tutor 1; ES&L).

This was described by trainees as a strength of in-person visits, and a key reason why in-person was preferred:

> In-person it's much easier to see things like: why teachers are asking certain [students], the dynamics, if the student looks uncomfortable then they repeat the question differently […] but you can't see that on a screen in the same way and you can't see the atmosphere in the classroom. (Interview trainee 1; Mathematics; N&W campus)

Mechanism 2 trainees connect with and feel motivated by observed practice

Trainees being able to personally connect with classroom contexts was seen as important for their motivation. This mechanism was described more strongly in relation to the in-person modality, which appeared to

Table 3
Perceived mechanisms, and relative strengths of each modality.

Mechanisms	Modality (Relative strengths)	
	Hybrid	In-person
Mechanism 1. Observed practice feels like 'real-life' classroom environment		✔
Mechanism 2. Trainees connect with, and feel motivated by, observed practice		✔
Mechanism 3. Experts support trainees to observe effectively	✔	
Mechanism 4. Trainees understand why decisions are made	✔	✔
Mechanism 5. Trainees see impact of observed practice on pupil learning		✔

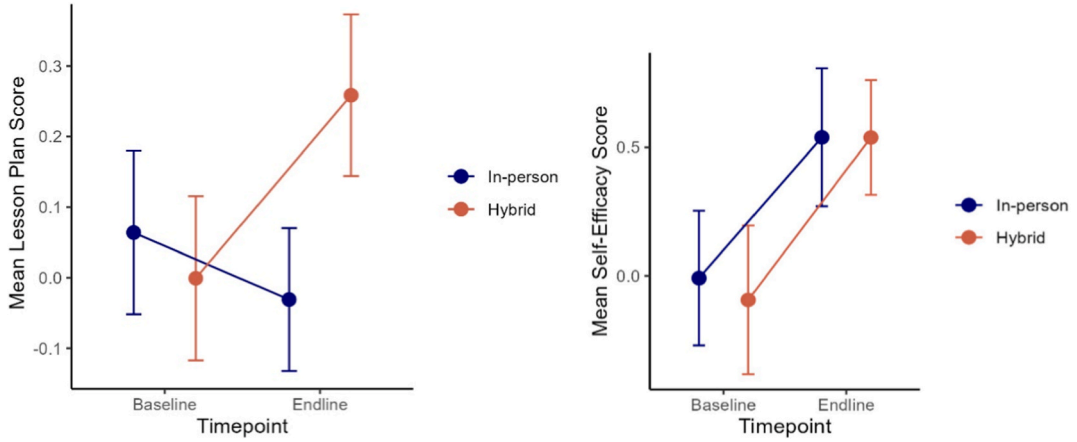

Fig. 3. Left Panel shows mean standardised lesson plan scores at baseline and endline for each modality (in-person and hybrid; N = 76). Right Panel shows mean standardised self-efficacy scores at baseline and endline for each modality (in-person and hybrid; N = 63). *Note.* Error bars represent 95% confidence intervals.

afford greater opportunities for contextual resonance and a sense of transferability to trainees' own placements. Some tutors discussed the value in trainees observing similar classroom contexts to their own, particularly early on in their learning:

> Which is why when we go into our schools that resonates because they're the policies they're used to, they're the words that they would say. […] So I think the video content and the live visits all need to be contextualised for where they are, so it resonates with them that this is happening. (Tutor 2, N&E)

Further, trainees at times described disengaging or losing focus when practice was seen as 'too perfect':

> I think online videos can look very idealistic […] A lot of trainees were commenting, 'that looks nothing like what I do'. And the tutors were really: 'no guys, this is a very experienced teacher.' But I think you can't help thinking that […] I think people were more focused on the behaviour than the questioning. (Interview trainee 2; MFL; ES&L campus)

Despite all practice here being observed live, trainees could find it harder to believe and connect with virtual observations:

> "The downside of the virtual, for me, is that it doesn't seem as realistic an experience" (Trainee; FGD; N&W).

Preference for in-person immersions resonates with prior research (Greene, 2009; McDevitt, 1996), as does the risk of video formats making trainees feel disconnected from practice that seems 'too perfect' (Hodgson & Wilkie, 2022).

Mechanism 3 experts support trainees to observe effectively

Tutors' essential role during observations was discussed frequently and highlighted as among the most important of the mechanisms. Teacher educators explained that without guidance, trainees could miss key elements of practice:

> [You] might be directing and saying: "Did you see this? Are you watching for that? Make sure you watch for this," that sort of thing. But without that scaffolding, the trainees are not definitely focusing on anything specifically when they're conducting their own observation. (Tutor 3; N&W)

Here, tutors had two roles: First, highlighting key elements of practice during observations, and second, teaching trainees the skill of observing it for themselves. This importance of experts identifying key elements of practice is well documented (Gamoran Sherin & Van Es, 2009; Grossman, 2018; Herbert et al., 2018; Horsburgh & Ippolito, 2018; Sims et al., 2023), as well as observation being a skill requiring development (Young & Bender-Slack, 2011).

In this study, tutors were more present in hybrid visits, and some trainees described experiencing less specificity in in-person visits without the presence of tutors:

> "It felt more like a general lesson observation, and as much as I was trying to focus on questioning, I thought that different things were kind of going over my head" (Trainee; FGD; ES&L).

> "… with the virtual there was more understanding of what we're looking for … the tutor said, 'pay attention to exactly how they do this.'" (Interview trainee 3; Computer Science; N&W)

Tutors and course leaders also saw this as a core mechanism for the trainees' learning:

> "[With in-person] … because there wasn't anybody guiding them in situ, they end up missing the things that they were supposed to see." (Course leader 1; ES&L)

> You're there as a tutor to guide the discussion, you come back together, you're there. If it's virtual, that lands really well because you can pause at certain points and you can give them key questions as you're watching […] when you're in schools, you are walking around, but they kind of go off and then they'll come back and go: "I've seen this", but you're obviously not in there … (Tutor 2; N&E)

Tutors noted that the combination of virtual classroom observations with in-person facilitation, allowed them to 'pause' (i.e., mute the volume of the live footage), provide prompts and direct attention without disrupting the flow of the lesson, and this was essential for trainee learning. They also discussed the importance of addressing misconceptions, and ensuring that trainees took away the intended learning from observations. Tutors supporting trainees to observe effectively was therefore a key perceived strength of the hybrid modality.

Mechanism 4 trainees understand why decisions are made

After key elements of practice had been identified (Mechanism 3), it was then described as important that trainees understood *why* these elements had been used. Both tutors and teachers played an important role here: tutors linked classroom decisions with theory and trainees' prior learning, and teachers connected decisions to the classroom context and pupils' needs. Trainees emphasised this discussion with teachers:

> 'That immediate conversation [with the teacher] gives us better insight [into] why they did what they did. I think that was probably the best." (Trainee; FGD; N&W).

> "Each teacher had to say what were the challenges with that group and it was very, very enlightening." (Interview trainee 4; MFL; ES&L).

This form of deconstruction has been highlighted as essential for trainee teachers in both understanding the practice, and in retaining learning (Boerst et al., 2011; Herbert et al., 2018; Horsburgh & Ippolito, 2018; Loughran & Berry, 2005). Both hybrid and in-person modalities offered trainees ways to access teachers' rationale, through different approaches (livestreamed Q + A vs. in-person discussions, respectively). However, for tutors, linking classroom decision-making to theory was easier in the hybrid modality due to their presence during the observation itself (Mechanism 3).

Mechanism 5 trainees see impact of observed practice on pupil learning

Participants also widely discussed the importance of trainees observing pupils responding to teachers' practice, and the impact on their learning:

> "As a trainee you really want to focus on […] the type of question they're asking … the way in which they ask that question, and the pupils' responses [to] that question." (Course Leader 2, ES&L).

Trainees similarly expressed that observing pupils' reactions was key for motivation to take on board the practice they were observing. Pupil learning is a central motivation for many trainee teachers, with research suggesting it often outweighs self-improvement as a driver for professional development (Bronkhorst et al., 2014; Dunn & Shriner, 1999).

This visible impact was described as a limitation of hybrid visits, as trainees were less able to access pupils' work and responses to the teacher:

> [With in-person] I had a much better understanding of the context around the things they did, I could see how children were reacting to the things the teacher said. I could see who in the room understood, I could see who was focused, I had a better understanding of the context. (Interview trainee 1; Mathematics; N&W)

4.2.2. Key delivery considerations for each modality

Qualitative data also highlighted key aspects of delivery that could

enable or hinder each modality in meeting the aims of the visits. Here we present key delivery challenges and considerations for each modality.

4.2.2.1. In-person visits: specificity of observed practice. A fundamental aspect of delivery involved observed practice actually showcasing the specific strategies under focus (e.g., questioning or scaffolding, for ITaP 3 & 4, respectively). This was at times discussed to be more challenging for the in-person visits. Tutors described working with schools to ensure this specificity, which involved balancing competing priorities:

> Tutor
>
> Timings of the school day are absolutely essential to work because if you get the wrong period, wrong time within a lesson, you will gain nothing from within that lesson. If you're trying to look at something specific.
>
> […]
>
> Interviewer
>
> That's a lot of planning to make sure it all lines up.
>
> Tutor
>
> Yeah, it takes a lot. […] simultaneously, you're trying to keep it as consistent as possible for the students that are in the classes being observed (Tutor 1; ES&L)

Where pupils' needs in the classroom contrasted with the specific strategies trainees were intended to observe, it became a risk that observed practice was not entirely relevant for trainees. Trainees described this in some in-person visits, with their experiences varying according to their visit school. One course leader described:

> I think one of the school visits didn't seem to be very well planned or go very well. And that's I think the one slight issue of [in-person] school visits that we don't have the control over […] they can go into school and some schools will be really welcoming and make sure they see lots of different practice. And other schools will be a bit more, obviously less … So the quality of the school really I think … (Course leader 2, ESL)

The hybrid modality, by contrast, was described to support this level of specificity more easily:

> "Everyone was just doing their normal lessons [for in-person], whereas in the online visits the camera literally went in, and they were doing the questioning." (Interview trainee 2; MFL; ES&L).

The quality and specificity of virtual observations therefore appeared more consistent, and more easily overseen by tutors and course leaders, than for in-person visits.

4.2.2.2. Hybrid visits: audiovisual quality and set-up. Conversely, facilitating a 'real-life' classroom environment was more challenging for hybrid visits than in-person. Audiovisual quality was described as crucial for virtual observations effectively creating closeness to the classroom (Mechanism 1), and trainees reported that even small difficulties in audiovisual quality affected their concentration:

> Trainee 5
>
> Because you're looking at [a] screen. It was laggy at points and I didn't get anywhere near as much as I did in person.
>
> Trainee 2
>
> Yeah. I think also just being in the [auditorium].
>
> It just is really tiring after a few minutes, let alone hours. (Trainees; FGD; ES&L)

The camera's focus and location were also important. Capturing enough of the lesson was critical for facilitating a sense of immersion (Mechanism 1) and demonstrating the impact of practice on pupils' learning (Mechanism 5). However, this was not always easy to achieve. Some trainees felt frustrated that they could not see enough pupil work, while others reported that camera set-up was a real strength. Trainees' mixed responses, and the frequency with which it was discussed, pointed to the complexity, and also the centrality of this, for success of the hybrid modality.

4.2.2.3. Both visits: Tutor skill, careful sequencing and planning for different stages of trainee learning. For both in-person and hybrid modalities, deconstruction discussions took place following observations and were a key enabler for supporting trainees to observe effectively (Mechanism 3) and understand why decisions were made (Mechanism 4). Sufficient time and careful sequencing were seen as important to facilitate meaningful discussions. Some trainees appreciated discussions taking place shortly after observations:

> It was coming out of a lesson and then straight into having a discussion about, "OK, what did we just see?" I think it was quite good because it just really pinpointed to what we'd just seen before. (Interview trainee 7; Biology; ES&L).

Course leaders and tutors described the importance of time for deconstruction, and the risk of overburdening trainees without careful sequencing or spacing:

> It was an incredible opportunity, it was really cool to do, but for the trainees I kind of got the sense it was a tiny bit overwhelming just because of the amount of stuff that they were observing, […] and not much time had been built in to have a conversation and have that opportunity to process what they've just seen. (Tutor 1; ES&L)

Carefully planning the sequence and timing of observations and discussions for trainees to meaningfully digest and reflect on observed practice was therefore seen as crucial to both modalities.

An additional consideration that was important for both modalities related to tutor skill. Due to the importance of experts supporting trainees to observe effectively (Mechanism 3), there was an implicit but fundamental reliance on tutors' skill in participants' discussions:

> You obviously have less control and it's less personalised […] some of the issues that they may be facing [in that location] may not be particularly relevant […] You lose control over what kind of lessons they go into and … even if you want to comment as you go along, if you don't have an awareness of what's exactly going to happen, you have to just sort of improvise on the spot. And again, if you're not from that particular subject, that may be really hard because you don't understand the context (Course leader 1, ES&L)

The discussion highlights the often implicit expertise tutors need to play their vital role effectively.

Finally, and relevant to both visits, some course leaders and tutors discussed that delivery decisions could be made differently, at different stages of trainee learning. For example, while tutor involvement was seen as essential earlier in the year (Mechanism 3), greater autonomy was discussed as possibly more important later in the training year:

> "That's the beauty of the [in-person] observation […] They're left to their own devices. They're left independently and I think that's easier for them to be able to understand what they're seeing later in the year." (Course leader 1; ES&L).

Some trainees discussed that the specificity and tutor involvement in hybrid visits, while a strength, could also feel repetitive when they were confident in the topic (Mechanisms 2 & 3):

> When we were doing it in person, we all saw different classes. […] So I ended up hearing ideas from all these different lessons that I hadn't seen. While in the virtual … Yeah, of course, we all saw the same

thing. We had a nice big discussion, but I think within like two or three minutes, everyone had said the [same] ideas. (Interview trainee 8; Mathematics; ES&L)

While accessibility was key early on (Mechanism 1), one tutor noted that varied school contexts could deepen trainee learning as their confidence grows:

When we go into our [trust] schools, that resonates because they're the policies they're used to; they're the words that they would say […] I know they need to see out of the region, which would be great, but I don't think they need that early on. […] As time's gone on throughout the course, they gain the experience … they've got a solid basis of where they are and then the comparison can come later. (Tutor 2, N&E)

Hybrid and in-person strengths could therefore be harnessed differently at different stages of training, to support key mechanisms in trainee learning.

5. Discussion

This study aimed to compare the effectiveness of hybrid school experience visits to in-person visits, and build explanatory theory to support the design and delivery of both modalities within the ITE curriculum. The results of the trial indicate that hybrid school experience visits were not less effective than in-person visits in supporting trainees' self-efficacy and their ability to prepare and apply evidence-based questioning and scaffolding techniques, as measured through self-efficacy scales and lesson plans.

The process evaluation found that the two modalities were perceived to work in different ways. It is likely that the relative strengths balanced out overall to deliver comparable outcomes for trainee learning. Through qualitative data, five key mechanisms for impact were identified, reflecting different perceived strengths and limitations of in-person and hybrid modalities. In-person visits were generally described by participants as having greater strengths in: ensuring observed practice felt like a 'real-life' environment; supporting trainees to connect with and feel motivated by observed practice, reflecting the well-documented link between engagement and achievement (see e.g., Lei et al., 2018); and facilitating trainees seeing the impact of observed practice on pupil learning. This final point reflects how seeing the impact of behaviour is important for motivation within social learning theory (Bandura, 1977; Horsburgh & Ippolito, 2018), and that pupil learning is a salient driver of teachers' professional development (Bronkhorst et al., 2014; Dunn & Shriner, 1999). Conversely, hybrid visits appeared stronger in two distinct ways: they more easily facilitated the specificity and relevance of observed practice, and they better enabled expert (i.e., tutor) presence to guide trainees to observe effectively—a mechanism that emerged as particularly important in participants' understandings. Both modalities entailed challenges and key considerations for effective delivery that need to be accounted for in planning and delivering school experience visits.

These findings align with previous research that showed that structured video-based observations alongside facilitated discussions with expert tutors or peers, can enhance trainees' ability to focus on critical aspects of classroom interactions, understand their complexity and apply these insights in practical settings (Cuthrell et al., 2016). While trainees often express a preference for face-to-face observations, virtual formats can sometimes be more effective—especially when they are carefully structured and well supported (Greene, 2009). Research consistently highlights the importance of expert facilitation in helping trainees notice, interpret and reflect on key elements of observed practice (Gamoran Sherin & Van Es, 2009; Grossman, 2018; Herbert et al., 2018; Horsburgh & Ippolito, 2018; Sims et al., 2023). By design, hybrid visits allowed for greater tutor involvement during live observations, which likely enhanced their overall effectiveness.

Virtual observations allow for greater flexibility and scalability, making it easier to provide trainees with exposure to a wider range of teaching contexts, including classrooms in various socio-economic, cultural or subject- and phase-specific environments which are often difficult to access (Wang & Wiesemes, 2012). This, in turn, can significantly enrich their professional perspective and adaptability (Pickering & Walsh, 2011; Wang & Wiesemes, 2012). The scalability of virtual observations can help alleviate pressure on schools to host multiple trainees while ensuring high-quality exposure to expert teaching (Department for Education, 2021a). These findings are especially important in light of calls for innovative solutions to expand access to 'state-of-the-art' practice (Darling-Hammond, 2010), ensuring that trainees—irrespective of geographical or logistical barriers—can deepen the link between theory and practice.

5.1. Implications for practice

Overall, rather than positioning one modality as superior, the findings suggest the importance of deliberately selecting the most appropriate approach—taking into account the distinct advantages and limitations of each, alongside trainees' specific learning needs. Several practical considerations emerged to guide the design and delivery of school visits within ITE programmes to ensure observation opportunities are purposeful and impactful.

First, in-person visits carry the risk that observations may be less focused than those conducted virtually, and they often require more extensive preparation and coordination with schools. Second, the success of virtual observations depends heavily on audiovisual quality and technical set-up—an issue also identified in previous research (Burns, 2023; Pickering & Walsh, 2011). Across both modalities, tutor expertise proved critical, highlighting the need for appropriate training and support, as well as careful sequencing and sufficient time for both observation and structured deconstruction.

Finally, findings suggested that the relative strengths and limitations of both approaches may be harnessed differently to support trainees at different stages of their learning. While the expert-led specificity of hybrid visits is crucial for scaffolding early observations, the greater autonomy afforded by in-person visits may be more appropriate later in the learning journey as trainees develop the independence to navigate complex, 'real-life' environments. ITE providers should therefore treat modality as a strategic choice that can be adapted to align with trainees' evolving developmental needs throughout the programme.

5.2. Limitations and future research

This study has several important limitations. First, ITaP is a new element of ITE in England and has not yet been rigorously evaluated. While we found no evidence that hybrid visits were less effective than in-person visits for ITaP's aims, we cannot determine their contribution to overall trainee learning or compare their effectiveness to other ITE components.

Second, the trial aspect of our study was constrained by a small sample size due to its implementation alongside the first year of programme delivery. Although the crossover design strengthened internal validity, limited statistical power reduced our ability to detect modest interaction effects or conduct meaningful subgroup analyses (e.g., by subject or prior experience).

Third, there were missing data for both outcomes tested. Although we treated missingness as random, this assumption may not hold; attrition or incomplete submission of materials may have been correlated with outcomes or mode of delivery. If so, estimates of relative effectiveness may be biased and should therefore be treated with caution. Additionally, outcome measures were developed to align with training content rather than extensively validated scales, which may limit generalisability. Nonetheless, inter-rater reliability for lesson plan coding was high, supporting the robustness of that analysis.

Fourth, we were unable to analyse some planned measures due to substantial data loss. Knowledge quizzes and digital teaching approximations were intended to assess trainees' evidence-informed reasoning and applied pedagogical judgement more directly. However, incomplete matched data meant these measures could not be included reliably in the final analysis. As a result, we were not able to test whether the two modalities differentially influenced conceptual understanding or in-the-moment decision-making. Future research should prioritise robust collection of these forms of performance-based data, potentially embedding them within programme requirements to reduce attrition and ensure adequate statistical power.

In addition, the study focused only on two topics—questioning and scaffolding—so findings may not generalise to other teaching strategies. The two models trialled also relied exclusively on live observation (either in-person or livestreamed) and did not include structured use of recorded classroom footage. Recorded observations may afford different opportunities for pausing, replaying, annotating and revisiting practice over time, and could therefore activate mechanisms differently from live formats. Future research should examine how recorded, live-streamed and in-person observation models compare, and how they might be sequenced or combined across different phases of trainee development.

Finally, while the study used mixed methods, the process evaluation relied primarily on qualitative data. Although it generated useful theory about the distinct pedagogical roles of in-person versus scaffolded hybrid observations within the context of intensive training and practice, limited monitoring data and quantitative analysis mean we cannot assess the effectiveness of hypothesised mechanisms. Future research should incorporate robust monitoring data within experimental designs—such as 2x2 factorial trials—to isolate and test the individual and interactive causal impacts of specific mechanisms such as tutor-led scaffolding and physical classroom 'immersion.' This could provide a more precise evaluation of which delivery components most effectively drive learning outcomes at different stages of the learning journey. The voluntary nature of participation in the process evaluation also meant that we were not able to gain the perspectives of trainees with registered SEND, despite prior evidence suggesting this would be valuable (Marshall et al., 2023). Including more varied participant groups could offer further insight.

6. Conclusion

Our findings suggest that virtual observations as part of a hybrid model can be an equally effective alternative to in-person visits, offering flexibility, scalability and access to diverse school settings. Providers can strategically select or combine these approaches based on specific training goals, using hybrid models for structured deconstruction of practice and accessibility, while leveraging in-person visits for immersive, real-world engagement. Crucially, expert facilitation is essential for the success of both modalities. Hybrid visits relied on ways to meaningfully support trainees to access and connect with practice observed virtually, particularly guidance on observation. For in-person visits, success is contingent on providing intentional scaffolding and ensuring strong school preparation to help trainees navigate the inherent complexity of the live classroom environment. Both modalities demand investment in tutor training and host school support to maximise impact. Further research is needed to test the relative strengths of hypothesised mechanisms, as well as to explore how to best sequence these approaches, the training required for effective facilitation, and how schools can be better supported in hosting impactful visits.

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CRediT authorship contribution statement

Lydia Lymperis: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Ellen Turner:** Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **David Aldridge:** Writing – review & editing. **Emily Beach:** Conceptualization, Methodology, Resources, Supervision, Writing – review & editing. **Mudabira Fayaz:** Writing – review & editing. **Viktoria Jakcsiova:** Data curation, Formal analysis, Investigation, Resources, Writing – review & editing. **Sophie Marshall:** Data curation, Formal analysis, Software, Validation, Visualization, Writing – original draft, Writing – review & editing. **Brontë McKeown:** Data curation, Formal analysis, Software, Validation, Writing – review & editing. **Robert A. Nash:** Conceptualization, Formal analysis, Investigation, Methodology, Resources, Writing – review & editing. **Calum Davey:** Conceptualization, Funding acquisition, Investigation, Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

All authors declare that they have no conflicts of interest.

While researchers at NIoT work independently from the design and delivery of the ITE programmes, we acknowledge that the evaluation was conducted within the same organisation, and therefore cannot be considered fully independent.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tate.2026.105731.

Data availability

Anonymised trial data and statistical codes are publicly available via Harvard Dataverse.

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