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Placement stress and year-level differences in pre-service teachers' use of generative AI: a mixed-methods study in an Irish initial teacher education programme

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ABSTRACT

Generative Artificial Intelligence (GenAI) is increasingly visible in teacher education, with pre-service teachers (PSTs) using tools such as ChatGPT for lesson planning and workload management. Yet prior studies treat PSTs as a homogeneous group, overlooking how year-group context and placement stress relate to perceptions and uses of GenAI during placement. This study addresses this gap using an explanatory sequential mixed-methods design, combining survey and follow-up interviews. Quantitative data were collected from 190 PSTs across four years of a Bachelor of Education programme in Ireland, and qualitative insights were drawn from eight students, two from each year. Findings reveal cohort-level profiles, where placement stress is associated with forms of GenAI engagement, linked to caution in Year 1 and Year 2 accounts and pragmatic GenAI use in Year 3 and Year 4 accounts. The study offers a cohort-based Stress – Adoption Reconfiguration Pattern and highlights scaffolded, placement-sensitive GenAI preparation across initial teacher education.

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Pre-service teachers; Generative Artificial Intelligence; placement stress; teacher education; stress and coping theory

Introduction

The integration of Generative Artificial Intelligence (GenAI) into teacher education is accelerating worldwide (Moorhouse and Kohnke 2024), with pre-service teachers (PSTs) increasingly turning to tools such as ChatGPT not only to generate lesson plans and develop instructional materials, but also to brainstorm ideas, adapt resources to specific learner needs, and streamline administrative preparation tasks (Zhang et al. 2025). GenAI refers here to AI systems that generate new content in response to natural language prompts, producing outputs such as text, images, or code rather than simply retrieving existing information (United Nations Educational, Scientific and Cultural Organisation 2023). Recent studies have examined PSTs' perceptions of GenAI use for professional purposes during placement. In this study, professional purposes refer primarily to the use of GenAI to support lesson planning and closely related placement preparation tasks,

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such as structuring lesson plans, brainstorming instructional activities, and developing or refining teaching materials (Guan, Zhang, and Gu 2025; Hsu et al. 2024). Evidence suggests that these perceptions are shaped by multiple interrelated factors. Guan, Zhang, and Gu (2025) highlight the role of PSTs' prior experiences with digital tools and the extent to which technology integration is embedded in their teacher education programmes, whereas Sanusi, Ayanwale, and Tolorunleke (2024) emphasise the influence of PSTs' awareness of AI technologies, perceived benefits and risks, prior exposure to AI, and beliefs about its potential to enhance teaching and learning.

Although prior studies provide valuable insights into PSTs' perceptions of GenAI, they tend to treat PSTs as a relatively homogeneous group and focus primarily on individual-level factors such as attitudes, competencies, and prior experience (Collie, Martin, and Gasevic 2024; Hsu et al. 2024). Less attention has been given to how these perceptions are shaped by the contextual conditions of school placement, where workload, institutional expectations, and professional accountability intersect. In particular, placement-related stress, a pervasive and well-documented feature of student teaching (Han, Sug, and Ko 2017), remains underexamined in relation to GenAI use. Existing research has typically conceptualised stress as a barrier to engagement (Gorman and Hall 2023); however, it may also shape how PSTs evaluate and appropriate emerging technologies in practice.

Furthermore, limited research has explored how these dynamics vary across programme years, despite clear differences in placement demands and opportunities to exercise professional judgement across year groups (Gamlem et al. 2025; Hall et al. 2018; Kelly 2018). Here, opportunities for professional judgement refer to the placement-related conditions through which PSTs plan, evaluate, and adapt teaching, including how they select, interpret, and integrate tools such as GenAI in response to placement demands. These opportunities are shaped by programme-year differences in placement experience, familiarity with curriculum and pedagogy, and engagement with digital tools in classroom contexts (Feiman-Nemser 2001; McCoy and Lynam 2022; Mishra and Koehler 2006). As a result, there is a lack of understanding of how placement stress and programme year relate to PSTs' perceptions and use of GenAI.

To address this gap, the present study examines how placement stress relates to Irish pre-service primary teachers' perceptions and use of GenAI across four years of a Bachelor of Education programme. Adopting a year-sensitive lens, the study compares forms of GenAI use and perception across programme years and interprets these forms in relation to placement stress. Rather than assuming a linear developmental trajectory, this study conceptualises these forms as a cohort-based configuration, offering an interpretive account of how stress is associated with different modes of GenAI engagement across year groups within a specific teacher education programme. This study adopts a context-sensitive approach, recognising that the findings are grounded in a specific institutional setting.

The study contributes to the literature by offering a cohort-based, interpretive account of how placement stress is associated with variation in GenAI use across programme years, challenging assumptions of PSTs as a homogeneous group. It further highlights a basis for further design and evaluation of programme-year-sensitive, placement-sensitive scaffolding of GenAI use in initial teacher education. Guided by these dual objectives, the study addresses the following research questions:

RQ1: How do placement stress levels, perceptions, and uses of GenAI for professional purposes compare across different year groups of PSTs during their teaching placements?

RQ2: How do the relationships between placement stress and PSTs' perceptions and uses of GenAI for professional purposes differ across year groups within a four-year ITE programme?

The Irish school placement context is particularly relevant to this study because placement is tightly regulated by policy, and creates significant expectations around professional preparation, teaching responsibility, planning and assessment. The next section presents this context, before turning to the wider literature on placement stress and GenAI use among pre-service teachers.

School placement in Ireland

One of the most significant developments in ITE in the Republic of Ireland (RoI) has been the expansion of school placement as a central site of professional learning. Driven by policy reforms such as *Céim: Standards for Initial Teacher Education* (Teaching Council 2020) and *Guidelines on School Placement* (Teaching Council 2021), student teachers now complete increased placement periods (24–30 weeks), with an expectation of active engagement in teaching, planning, and broader school life. While these reforms are intended to strengthen practice-based learning, they also reshape the conditions under which student teachers learn, with important implications for stress. From a stress perspective, the policy intensifies both workload and evaluative pressure, as placement preparation and the curation of planning documentation are central to placement activity in the Irish context (Hall et al. 2018). In addition, student teachers must satisfy both school-based needs and HEI requirements, which can exacerbate uncertainty and stress due to dissonant expectations between the HEI and the school (Gorman and Furlong 2023, 2026).

Literature Review

Stress on school placement

Internationally, school placement has gained prominence as an essential component of ITE (Murray, Anna, and Clare 2019). While school placement is consistently regarded as the most consequential site of professional learning, it can also be a primary source of stress for many student teachers (Ngui and Lay 2020; Jue and Kim 2023; Kyriacou and Stephens 1999; Murray-Harvey 2001; Troesch, Winkler, and Bauer 2024). Common stressors include the intensity of lesson planning, curriculum preparation, and assessment documentation; the scrutiny of constant observation and evaluation by supervisors/tutors; the challenge of managing pupil behaviour and diverse learning needs; and the ambiguous status of the student teacher within the professional and blurred hierarchy of schools and HEIs (Cabaroğlu and Öz 2025; Kyriacou and Stephens 1999; Murray-Harvey 2001). Stress often begins well before the first placement, as students anticipate whether they will be accepted by pupils

and cooperating teachers, and continues as they attempt to balance the competing demands of university and school (Gray, Wright, and Pascoe 2017).

John (2006) argues that lesson planning is inherently stressful because it operates within a rationalistic and outcomes-driven paradigm that leaves little space for uncertainty, improvisation, or contextual responsiveness. For many student teachers, this produces a sense of cognitive and emotional overload. As John (2006) notes, the process of translating abstract objectives into detailed plans demands a level of foresight and pedagogical reasoning that novices have not yet developed. The expectation to predict learning outcomes, differentiate tasks, and anticipate contingencies within the rigid confines of official templates amplifies anxiety and self-doubt. Planning, in this sense, externalises the uncertainty of practice; it requires the novice to script a classroom reality that cannot be fully known until it unfolds. This disjuncture between the predictability demanded by planning formats and the fluidity of real classrooms often leads to a heightened sense of vulnerability, especially when plans are subject to scrutiny by tutors and assessors (Kyriacou and Stephens 1999; Murray-Harvey 2001; Troesch, Winkler, and Bauer 2024). The pressure to produce plans that conform to institutional templates, satisfy HEI tutors, and align with national curriculum standards transforms what might be a generative exercise into a source of continual evaluation anxiety (John 2006).

While placement and lesson planning stress are well documented in the literature (John 2006; Kyriacou and Stephens 1999; Murray-Harvey 2001; Troesch, Winkler, and Bauer 2024), these demands may also shape how PSTs engage with emerging technologies such as GenAI. Recent work on technostress highlights how the increasing presence of digital tools can both alleviate and intensify workload-related pressures, depending on users' confidence, expectations, and perceived risks (Kohnke, Zou, and Moorhouse 2024). In this sense, stress may not only act as a barrier but also play a role in shaping when and how PSTs choose to use or avoid GenAI in practice.

GenAI and pre-service teachers: efficiency, coping, and placement stress

General landscape

Building on the workload and emotional demands of placement described earlier, GenAI has entered teacher education as a tool that addresses these pressures directly. Across higher education, GenAI is reshaping everyday study and teaching practices and changing how students engage with learning (Hsu 2025; Jensen et al. 2025). Many students experience it as a double-edged resource. Fuller and Barnes (2024) found that master's students believed GenAI helped them work faster and in more personalised ways, yet they worried about fairness, academic honesty, and the erosion of professional skills. Similar ambivalence appears in teacher education, where student teachers see ChatGPT as useful for generating instructional resources but also as a potential threat to integrity, critical thinking, and independent judgement (Bae et al. 2024). These tensions suggest that, while GenAI is often valued for its efficiency, its use in teaching contexts is closely tied to how student teachers exercise judgement in planning and professional decision-making (Hsu 2026).

Workload management

Recent work indicates that PSTs increasingly turn to GenAI tools to ease the considerable workload associated with school placement. In the Irish context, Hsu et al. (2024) reported that while some pre-service teachers had used GenAI for personal and academic purposes, only academic use was associated with recognising its potential for lesson planning during placement. Similarly, Barbieri and Nhu Nguyen (2025) conceptualised ChatGPT as a 'placement buddy' for final year primary student teachers who used it to streamline planning, generate classroom resources, and manage professional communication during a five-week work-integrated placement. Combined with long-standing evidence that planning and documentation are major sources of placement stress (Hall et al. 2018; Kelly 2018), these findings suggest that GenAI may help to reduce administrative burdens and support planning efficiency. At the same time, it may foster over-reliance (United Nations Educational, Scientific and Cultural Organisation 2024) and its role in lesson planning should not be understood only in instrumental terms, as planning also involves forms of pedagogical judgement and evaluation beyond task completion (Zhou, Lavicza, and Chiu 2026).

Emotional coping

GenAI has also been linked to the emotional side of school placement. Nguyen and Barbieri (2025) showed that student teachers sometimes used ChatGPT to supplement mentor feedback and support reflective practice, which could reduce anxiety and offer reassurance. However, they stressed that GenAI cannot replace the relational and psychosocial dimensions of mentoring, particularly regarding classroom management and professional identity, meaning such support remains inherently partial. Bae et al. (2024) likewise found that some PSTs felt more confident and less uncertain when using GenAI, while others reported hesitation, anxiety, and concerns about over-reliance. Relatedly, although outside the placement context, Hsu (2025) described ChatGPT as a coping mechanism for emotional challenges related to academic demands that may provide short-term relief while risking over-reliance, potential breaches of academic integrity, and weaker independent development. Taken together, these studies suggest that GenAI may support emotional coping by making stressful placement tasks feel more manageable. Yet this support is ambivalent: it may soothe immediate uncertainty without necessarily developing the professional capacity to work through such uncertainty. Overall, GenAI may relieve immediate anxiety while reconfiguring vulnerabilities around dependency, professional judgement, and the relational forms of support that teacher learning requires.

Research gap

Although recent studies have explored PSTs' adoption and perceptions of GenAI in the context of school placement, most have concentrated on final-year students (Barbieri and Nhu Nguyen 2025; Kartal 2024; Nguyen and Barbieri 2025). Even in Bae et al. (2024), which surveyed 56 PSTs, the placement background of participants was not made explicit. Taken together, these studies provide early insights but are narrow in scope, overlooking the possibility that students in different ITE programme years may engage with GenAI in different ways. Broader work on digital technology integration shows that PSTs' knowledge and practice are not fixed but shaped by contextual and experiential factors, especially during placement (Hawk and Nelson 2024; McCoy and Lynam 2022). This indicates a need to

compare year-level contrasts in GenAI use and perceptions, rather than treating PSTs as a homogeneous group. A second gap is that previous studies (Bae et al. 2024; Barbieri and Nhu Nguyen 2025; Kartal 2024; Nguyen and Barbieri 2025) have paid little attention to the role of placement stress itself. In their review of the research literature, Kokkinos, Stavropoulos, and Davazoglou (2016, 278) identify a 'lack of empirical studies addressing the issue of student teachers' perceived practicum-related stressors, particularly among undergraduate students'. Stress is one of the most pervasive features of school placement, influencing decision-making, confidence, and willingness to take risks (Hall et al. 2018; Kelly 2018). While typically portrayed as a barrier, the stress – coping theory of Lazarus and Folkman (1984) suggests it may also function as a catalyst for adaptive strategies such as technology adoption. Yet, this dual role of stress has not been systematically examined in relation to GenAI. In summary, the present study addresses these two gaps by comparing year-level differences in stress and GenAI dynamics across a four-year teacher education programme.

Theoretical framework

We use two complementary perspectives to interpret year-level differences in PSTs' GenAI-related perceptions and uses.

First, Feiman-Nemser's (2001) account of teacher learning emphasises that learning to teach is shaped by preparation, practice, and structured support. In this study, this lens is used to interpret year-group differences as potentially shaped by differences in placement experience, programme supports, and opportunities to exercise professional judgement, rather than as evidence of a tracked developmental sequence. This is particularly relevant to PSTs' use of GenAI, since judging whether and how AI-generated suggestions can support teaching requires the integration of technological, pedagogical, and content knowledge (Backfisch et al. 2024; Mishra and Koehler 2006). This perspective also builds on evidence that field experience shapes pre-service teachers' technology integration knowledge and practice (McCoy and Lynam 2022).

Second, Lazarus and Folkman's (1984) stress-coping framework conceptualises stress as shaped by cognitive appraisal. In this study, it is used as an interpretive lens to frame how PSTs respond to placement stress (Gutierrez et al. 2016), rather than as a measured construct. Primary appraisal concerns what is at stake in a situation, whereas secondary appraisal concerns the resources and options perceived to be available for coping. This perspective also recognises that technology may figure in coping, sometimes for emotional relief and sometimes for task-focused work (Bamberger et al. 2025; Kwaah et al. 2022). As such, coping orientations are not directly assessed but are inferred cautiously from participants' accounts. Together, the two lenses support an interpretation of how PSTs in different year groups may configure GenAI use in response to placement stress within a specific teacher education programme.

Method

Research design, context and participants

This study employed an explanatory sequential mixed-methods design, in which a cross-sectional survey was followed by semi-structured interviews to interpret year-group

patterns. The study took place in a four-year Bachelor of Education (BEd) programme in an Irish university. School placement requirements differ by programme year. In Year 1, a pass or fail year, students attend schools on seven Mondays and then complete a short two-week block in core subjects such as Gaeilge, literacy and mathematics. In Year 2, they undertake the first graded placement, an intensive three-week block in which they plan, teach and evaluate several whole-class lessons each day. Year 3 comprises a placement semester with two four-week mainstream blocks and a two-week Inclusive or SEN block, with daily teaching moving towards most of the school day. In Year 4, students complete two further four-week placement blocks, involving full-day teaching alongside requirements for planning, evaluation, and structured reflection. Ethical approval was granted by the university's Research Ethics Committee, and all participants provided informed consent.

In total, 190 PSTs completed the survey (Year 1 = 64, Year 2 = 44, Year 3 = 44, Year 4 = 38). The study was informed by two complementary theoretical perspectives. Lazarus and Folkman's (1984) stress – coping framework informed the interpretation of this study's focus on placement stress and its relationship with GenAI-related perceptions and use, while Feiman-Nemser's (2001) account of teacher learning supported the inclusion of programme year as a key analytic dimension.

While the sample provides valuable insights into Irish pre-service primary teachers' experiences within a structured programme context, it is situated within a single institutional setting. Accordingly, the findings are intended to offer a contextually grounded and analytically informative account of year-group differences, rather than to support statistical generalisation across institutional or national contexts.

Data collection

Quantitative data were collected through an online Qualtrics survey, which included five-point Likert-type items. To avoid disrupting placements, invitations to the survey and interview were sent outside placement periods and aligned with each year group's calendar. Under programme policy, this instrument served as the single programme-wide survey in 2024, limiting fatigue. The survey covered eight variables: placement stress (PS), frequency of GenAI use during placement (FREQ), perceived effectiveness for lesson planning and related placement preparation tasks (PE), perceived opportunities (PO), perceived challenges (PC), perceived ethical concerns (EC), and perceived needs for professional development for effective (PD-Eff) and ethical use (PD-Eth). Placement stress was measured with the 10-item Perceived Stress Scale adapted to the placement context (PSS-10; Cohen, Kamarck, and Mermelstein 1983). GenAI use frequency was a single five-point item. Perception-related items included PE, PO, PC, EC, PD-Eff and PD-Eth. PE was measured using a single item assessing the perceived effectiveness of GenAI in supporting lesson planning and related placement preparation tasks. Items for PO, PC, and EC were drawn from Hsu et al. (2024). These items were used without modification and retained their original focus. In the present study, they were analysed alongside placement stress and frequency of GenAI use during placement. In the present sample, the PO scale comprised five items ($\alpha = .78$), the PC scale four items ($\alpha = .81$), and the EC scale four items ($\alpha = .74$). PD-Eff and PD-Eth were each measured using single items drawn from Hsu et al. (2024). All items were rated on five-point Likert scales. The full wording of all survey

items, including the single-item measures, response scales, scoring rules, and missing data treatment, is provided in Appendix.

Qualitative data were gathered through semi-structured interviews with volunteers recruited at the end of the survey. 12 students expressed interest, and eight were interviewed, two from each year group. Each interview lasted 60 minutes and followed a shared protocol. The interview protocol was primarily shaped by specific year-group differences observed in the survey data, including contrasts in placement stress levels, frequency of GenAI use, and key perception variables (such as effectiveness, opportunities, challenges, and ethical concerns) across years. It was also informed by Lazarus and Folkman's (1984) stress – coping framework and Feiman-Nemser's (2001) perspective on teacher learning, particularly in exploring placement-related stress, GenAI use and perceptions, and differences between year groups. Questions explored how PSTs experienced placement-related demands and stress, how they used and perceived GenAI during placement, and how these experiences differed by year group.

Data analysis

Quantitative data analysis began with examinations of normality and homogeneity using the Kolmogorov – Smirnov and Levene tests. Both showed significant departures (*ps* < .01), so nonparametric analyses were used. For RQ1 (year-group differences), Kruskal – Wallis *H* tests assessed between-group effects and eta-squared (η^2) was reported as the effect size; when significant, Dunn – Bonferroni pairwise tests were conducted. For RQ2 (year-specific relations), within each year, seven Spearman correlations were estimated between placement stress and the other variables, with Holm-adjusted *p* values; Spearman's rho (ρ) indexed effect size. All tests were two-tailed with $\alpha = .05$. For multi-item constructs, scale scores were calculated as mean scores, with higher scores indicating stronger endorsement of the construct. Single-item constructs were analysed using the original item score. No missing item-level responses were present for the variables included in the analyses.

The two theoretical perspectives also informed the interpretation of the qualitative data. Qualitative data were analysed using reflexive thematic analysis (Braun and Clarke 2012). The approach was primarily deductive and aligned with the two research questions. An a priori, survey-led coding framework was created from the eight variables (PS, FREQ, PE, PO, PC, EC, PD-Eff, PD-Eth), with an additional code for the perceived impact of placement stress. The first author coded all transcripts, kept a reflexive record of decisions and refinements, and developed themes iteratively, forming an audit trail of coding and analytic decisions. Because the study adopted reflexive thematic analysis, inter-coder agreement was not calculated; the purpose of coding was interpretive rather than to establish coding reliability (Byrne 2022). To enhance qualitative trustworthiness, peer debriefing was conducted through ongoing discussions between the authors, in which emerging codes and themes were reviewed and refined to support the coherence and credibility of interpretations. Given that only two interviewees were included from each year group, the qualitative accounts were used to contextualise and interpret the survey patterns rather than to verify, explain, or generalise year-level differences. Themes were considered across year groups to explore year-group differences in GenAI use and perceptions. Integration with the quantitative strand was achieved by relating themes to

the corresponding survey results in the Findings and Discussion. Pseudonyms were used to preserve confidentiality (for example, Y3-P1 for Year 3 Participant 1).

Findings

RQ1: year-level differences in placement stress, GenAI use, and perceptions

Table 1 summarises the means and standard deviations for eight variables related to placement stress and GenAI use and perceptions, disaggregated by year group, along with the results of Kruskal – Wallis tests assessing whether these distributions significantly differed across year levels.

Placement stress

Significant year group differences in perceived placement stress emerged, $H(3) = 10.19$, $p = .017$, a small effect ($\eta^2 = .04$). As shown in Table 1, stress was lowest in Year 1 and highest in Year 2, with similarly high levels in Years 2–4. Dunn – Bonferroni post hoc tests indicated that only the contrast between Year 1 and Year 2 was significant (Dunn – Bonferroni-adjusted $p = .030$). This suggests a cohort-level contrast in which Year 2 students reported higher placement stress than Year 1 students, while stress levels in Years 2–4 were similarly high.

A Year-2 participant described the step to 'having your own class' as 'daunting' [Y2-P1], while a Year-3 participant recalled being 'up nearly all night' in junior years [Y3-P2]. Together, these accounts offer contextual insight into why placement may be experienced as more demanding in the Year 2 and Year 3 accounts.

Frequency of GenAI use during placement

The frequency of GenAI use differed significantly across years, $H(3) = 14.60$, $p = .002$, a small to medium effect ($\eta^2 = .06$). As shown in Table 1, use was lowest in Year 2, slightly higher in Year 1, and highest in Years 3 and 4. Dunn – Bonferroni post hoc tests showed that Years 3 and 4 reported significantly more frequent GenAI use than Year 1, and that Year 4 reported significantly more frequent use than Year 2 (all Dunn – Bonferroni-adjusted $ps < .05$). No significant differences emerged between Years 1 and 2 or between

Table 1. Descriptive statistics of placement stress and GenAI-Related perceptions and use by year group.

	PS		FREQ		PE		PO		PC		EC		PD-Eff		PD-Eth	
Year (N)	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1st (64)	3.4	0.42	2.00	1.26	2.75	1.38	3.1	0.78	3.76	0.81	3.54	0.92	3.34	1.28	3.94	1.23
2nd (44)	3.63	0.33	1.91	0.96	3.59	1.39	3.47	0.83	2.92	1.11	2.82	0.74	3.64	0.89	4.45	0.79
3rd (44)	3.59	0.25	2.68	1.44	3.91	1.01	3.72	0.55	3.17	0.82	3.03	0.85	3.95	0.83	4.45	0.66
4th (38)	3.61	0.39	2.68	1.23	3.53	1.96	3.57	0.69	2.74	0.78	2.97	0.84	3.47	1.2	4.47	0.6
Overall	3.54	0.37	2.27	1.28	3.37	1.51	3.42	0.77	3.22	0.97	3.14	0.89	3.58	1.1	4.28	0.94
Kruskal–Wallis	$p = .017$		$p = .002$		$p < .001$		$p < .001$		$p < .001$		$p < .001$		$p = .111$		$p = .064$	
η^2	0.04		0.06		0.15		0.09		0.16		0.09					

Note. PS = placement stress; FREQ = frequency of GenAI use during placement; PE = perceived effectiveness; PO = perceived opportunities; PC = perceived challenges; EC = perceived ethical concerns; PD-Eff = perceived needs for professional development for effective GenAI use; PD-Eth = perceived needs for professional development for ethical GenAI use. η^2 is reported only for statistically significant Kruskal–Wallis tests.

Years 3 and 4, indicating a cohort-level contrast between the lower-use pattern in Years 1–2 and the higher-use pattern in Years 3–4.

Year 1 and Year 2 PSTs described limited, problem-driven use, often saving ChatGPT for moments of difficulty. One first-year PST described hesitation around GenAI use in relation to its resource demands, saying she felt 'like a bad person using it … because some people don't have electricity or any basic needs' [Y1-P1]. By contrast, a Year 3 PST noted it now 'saves me hours' on schemes and resource search [Y3-P1], and a Year 4 PST called it 'just part of the day really' [Y4-P2]. These accounts illustrate how GenAI use was described differently across year groups: Year 1 and Year 2 participants presented more cautious or problem-driven use, whereas Year 3 and Year 4 participants described more regular use.

Perceived effectiveness

Perceived effectiveness of GenAI differed significantly across year groups, $H(3) = 31.10$, $p < .001$, a medium to large effect ($\eta^2 = .15$). As shown in Table 1, first-year students reported the lowest perceived effectiveness and third-year students the highest. Dunn – Bonferroni post hoc tests indicated that Year 1 students rated GenAI as significantly less effective than Years 2, 3 and 4 (all Dunn – Bonferroni-adjusted $ps \leq .005$), with no other pairwise differences.

Follow-up interviews provide contextual insight into how PSTs described the value of GenAI for placement-related planning and preparation across year groups. First-year participants often framed GenAI as a high-risk 'last resort', offering context for their lower perceived effectiveness ratings. In the Year 2 accounts, students acknowledged clear efficiency gains but also described self-limiting use to avoid over-reliance. A second-year student [Y2-P1], for instance, already acknowledged the tool's potential efficiency but consciously chose not to use it because she 'didn't want to become reliant on it'. This account suggests that some Year 2 PSTs recognised the potential usefulness of GenAI while still limiting its use during placement. Perceived effectiveness was highest in Year 3. Interview accounts from this group suggested that some PSTs valued GenAI for more complex pedagogical tasks, such as tailoring materials to specific learner needs. In the Year 4 accounts, some participants described GenAI as a more familiar support for everyday preparation.

Perceived opportunities

Perceived opportunities associated with GenAI also differed significantly across years, $H(3) = 19.12$, $p < .001$, a small to medium effect ($\eta^2 = .09$). As shown in Table 1, first-year students rated opportunities lowest and third-year students highest. Dunn – Bonferroni post hoc tests indicated that Year 1 students differed significantly from Years 3 and 4 (both Dunn – Bonferroni-adjusted $ps \leq .05$), suggesting that Years 3 and 4 reported higher perceived opportunities than Year 1 students.

Interviews offer contextual insight into how PSTs described opportunities associated with GenAI. First-year students tended to frame GenAI cautiously and described fewer concrete opportunities for placement-related work. A second-year student [Y2-P2], for instance, acknowledged GenAI's potential to 'get some ideas', even while choosing not to use it. This account suggests that some Year 2 PSTs recognised possible uses of GenAI but remained cautious about integrating it into placement practice. By contrast, Year 3

participants described more concrete pedagogical uses, such as 'planning for differentiation' [Y3-P2].

Perceived challenges

Kruskal – Wallis test showed significant differences in perceived challenges across the four year groups, $H(3) = 32.66$, $p < .001$, a medium to large effect ($\eta^2 = .16$). Dunn – Bonferroni post hoc tests indicated that Year 1 students reported significantly higher challenges than Years 2, 3 and 4 (all Dunn – Bonferroni-adjusted $ps \leq .005$). A further difference emerged between Years 3 and 4, with Year 3 students reporting higher challenges (Dunn – Bonferroni-adjusted $p = .005$). No other pairwise differences were significant.

Follow-up interview data provide contextual insight into how perceived challenges were framed differently across year groups. First-year students spoke of a persistent fear of unpredictable or flawed outputs, recalling how a peer's GenAI lesson 'was a disaster' [Y1-P1]. In Year 3, the difficulty was framed as judging what could be trusted [Y3-P1]. In Year 4, students described being 'quicker at spotting what won't work' [Y4-P2]. Taken together, these accounts illustrate differences in how perceived challenges were framed across year groups.

Perceived ethical concerns

Ethical concerns also differed significantly across years, $H(3) = 20.63$, $p < .001$, a small to medium effect ($\eta^2 = .09$). As shown in Table 1, first-year students reported the highest ethical concerns, with lower levels in Years 2–4. Dunn – Bonferroni post hoc tests revealed significant differences between Year 1 and all other years (all Dunn – Bonferroni-adjusted $ps < .05$), indicating that Year 1 students reported higher ethical concerns than students in Years 2–4.

Interview evidence provides contextual insight into how ethical concerns were framed across year groups. Rather than explaining the survey differences directly, the interview accounts suggest differences in the focus of ethical concerns. In a Year 1 account, ethical concerns were framed through general uncertainty about appropriate GenAI use, extending beyond academic integrity to broader considerations such as environmental impact. A first-year participant remarked [Y1-P1], 'I'm conscious of like … integrity still. I wouldn't get it to write my entire essay', and even avoided GenAI after hearing 'how bad it is for the environment'. In a Year 2 account, this unease was expressed as rule-oriented caution; one PST admitted being 'scared of getting in trouble for using it because the university tells us not to' [Y2-P1]. In a Year 3 account, ethical concerns were framed more closely through professional judgement, as another PST explained, 'You'd never just take it, copy and paste it … You'd always read it and think … Does this actually make sense?' [Y3-P2]. In the Year 4 accounts, participants described responsible use in more familiar and practice-oriented terms, particularly in relation to planning and classroom use. One final-year PST reflected, 'Everyone sort of knows, like, don't just copy stuff straight in' [Y4-P1], while another noted that conversations focused on 'how we'd actually teach kids to use it responsibly' [Y4-P2]. Together, these accounts sit alongside the survey finding of higher EC scores in Year 1 and lower scores in Years 2–4, while also suggesting differences in how ethical concerns were framed in the interview data.

Perceived professional development needs

No significant year group differences were found in students' desire for PD on effective or ethical GenAI use, $H(3) = 6.01$, $p = .111$ and $H(3) = 7.26$, $p = .064$, respectively. Mean ratings were consistently moderate to high for effective use (M range = 3.34 to 3.95) and high for ethical use (M range = 3.94 to 4.47). Across year groups, survey responses indicated steady interest in further training, particularly clear, usable guidance on effective and ethical GenAI use rather than general warnings.

RQ2: correlates of placement stress and GenAI use and perceptions by year

As shown in Table 2, the negative coefficient between placement stress and perceived effectiveness of GenAI among first-year PSTs did not remain statistically significant after Holm adjustment ($\rho = -.265$, Holm-adjusted $p = .240$). Therefore, the survey data did not provide robust evidence of an association between these variables in Year 1. The interview data nevertheless offer contextual insight into first-year PSTs' cautious engagement with GenAI. For example, one first-year PST reported asking ChatGPT for ideas but 'didn't use any of them at the end', describing the experience as 'a bit of a waste of time' [Y1-P2]. This account illustrates how, for some Year 1 PSTs, GenAI was not yet perceived as a reliably useful resource for placement-related planning.

Among second-year PSTs, no correlations between placement stress and GenAI-related variables remained statistically significant after Holm adjustment. The Year-2 interview accounts nevertheless provide insight into how some students approached GenAI cautiously during graded, high-stakes placements. Both Year-2 interviewees described limiting GenAI use during assessed placement planning, rather than encountering problems arising from extensive use. One student said she had used ChatGPT 'less than three times' all year and preferred to 'come up with it all myself', not wanting to be 'reliant' [Y2-P1]. She chose to 'steer clear' during assessment because she did not understand plagiarism detection and felt the programme was 'designed so we'll be able to do it without [GenAI]', aiming to cope even 'if the internet stopped working' [Y2-P1]. Another added, 'When you're being marked on your own plans, you keep your head down; I'll try AI after placement, not now' [Y2-P2].

Table 2. Spearman's rho correlations between placement stress and GenAI-related variables by year group, with Holm-adjusted p values in parentheses.

Year (*N*)	FREQ	PE	PO	PC	EC	PD-Eff	PD-Eth
1st (*64*)	.055	−.265	.101	.096	.242	.102	.150
	(1.000)	(.240)	(1.000)	(1.000)	(.324)	(1.000)	(1.000)
2nd (*44*)	−.127	−.142	.061	−.350	−.118	−.374	−.233
	(1.000)	(1.000)	(1.000)	(.119)	(1.000)	(.087)	(.639)
3rd (*44*)	**.727**	.249	**.557**	**−.445**	**−.525**	**.517**	**.702**
	(<.001)	(.103)	**(<.001)**	**(.005)**	**(.001)**	**(.001)**	**(<.001)**
4th (*38*)	**.480**	**.529**	.109	.004	.034	−.106	−.072
	(.014)	**(.004)**	(1.000)	(1.000)	(1.000)	(1.000)	(1.000)

Note. Values are Spearman's rho coefficients, with Holm-adjusted *p* values in parentheses. FREQ = frequency of GenAI use during placement; PE = perceived effectiveness; PO = perceived opportunities; PC = perceived challenges; EC = perceived ethical concerns; PD-Eff = perceived professional development needs for effective GenAI use; PD-Eth = perceived professional development needs for ethical GenAI use. The Holm adjustment was applied separately within each year group to the seven placement-stress correlations reported in this table. Statistically significant associations after Holm adjustment are shown in bold.

Together, these accounts suggest a cautious orientation towards GenAI use, in the sense that both students described deliberately limiting or postponing GenAI use under the pressures of graded placement. A key tension in the Year-2 interview accounts is that both participants described graded placement as stressful while also recognising the potential value of GenAI, even though they reported limited use. Interpreted cautiously through a stress-coping lens (Lazarus and Folkman 1984), this may reflect a cautious appraisal of whether and when GenAI could be used appropriately during graded placement. Because none of the Year-2 correlations remained statistically significant after Holm adjustment, this interpretation should be read as contextual rather than as evidence of a statistically significant Year-2 pattern.

In Year 3, placement stress showed the most pronounced correlation profile among the four year groups. PSTs reporting higher placement stress also reported more frequent GenAI use ($\rho = .727$, Holm-adjusted $p < .001$, large effect), greater perceived opportunity ($\rho = .557$, Holm-adjusted $p < .001$, large effect), and higher perceived needs for PD in both effective ($\rho = .517$, Holm-adjusted $p = .001$, large effect) and ethical GenAI use ($\rho = .702$, Holm-adjusted $p < .001$, large effect). At the same time, stress was negatively correlated with ethical concerns ($\rho = -.525$, Holm-adjusted $p = .001$, large effect) and perceived challenges ($\rho = -.445$, Holm-adjusted $p = .005$, medium to large effect). The Year 3 interviews provide contextual insight into this pronounced correlation profile, particularly around time pressure, planning efficiency, and the perceived usefulness of GenAI. Y3-P1 noted that the 'time saving aspect is the biggest thing' and that he would 'use it . . . more than . . . Google' during placement, while Y3-P2 described it as 'handy for differentiation and tidying a scheme' and felt it could surface resources 'that would take hours and hours to look through'. On PD for effective and ethical use, Y3-P1 argued, 'It should [be taught] because they're going to use it anyway . . . You still need to put in work into understanding it', and called for 'a clear conversation with students', while Y3-P2 wanted 'a clear set of do's and don'ts'. In terms of challenges and ethical concerns, Y3-P1 reported mainly light friction around 'creativity' and having to 'refine the question', then summed up, 'I definitely found way more use for it than drawbacks', and Y3-P2 described simple practices that kept concerns low under pressure: 'If a [lesson] plan is from AI, I don't paste chunks, I check sources, and make it my own . . . I never upload pupil details'. In summary, Year 3 PSTs reporting higher placement stress also reported more frequent GenAI use, greater perceived opportunities, and stronger perceived needs for support in effective and ethical use, while reporting lower perceived challenges and ethical concerns. Given the cross-sectional design and small year-group sample, this profile should be interpreted as a cohort-level association rather than evidence of within-person developmental change.

In Year 4, placement stress remained positively associated with GenAI use frequency ($\rho = .480$, Holm-adjusted $p = .014$), a medium to large effect, and with perceived effectiveness ($\rho = .529$, Holm-adjusted $p = .004$), a large effect. All other correlations did not remain statistically significant after Holm adjustment. Follow-up interviews suggest that some Year 4 PSTs described a more settled and pragmatic orientation towards GenAI use, particularly as a support for managing planning workload. Y4-P1 noted that GenAI 'helps you get through the pile quicker', using it for 'a quick checklist' and tidying end-of-day reflections so work 'keeps things ticking over'. Y4-P2 described a settled view that 'now in fourth year, it's just part of the day really', giving 'a decent first pass I can shape to my

class' and, on busy weeks, 'it streamlines lesson planning, not replaces it'. These accounts sit alongside the Year 4 quantitative findings, in which PSTs reporting higher placement stress also reported more frequent GenAI use and higher perceived effectiveness, while perceptions of opportunity, challenge, ethical concern, and PD needs did not show statistically significant stress-related associations. However, this interpretation should be treated cautiously, as it is based on a small number of interview accounts and should not be read as evidence that GenAI use was routinised across the Year 4 cohort.

Discussion

The findings indicate that placement stress relates to GenAI perceptions and use in different ways across programme years (see Figure 1). This Stress-Adoption Reconfiguration Pattern is derived from quantitative findings, including year-group differences (Table 1) and year-specific correlation profiles (Table 2), and further informed by interpretive integration of interview themes. We interpret these year-specific forms as a cohort-based Stress – Adoption Reconfiguration pattern, serving as an interpretive summary of cohort profiles rather than a tracked developmental trajectory. In Years 1–2, a cautious stance is visible: in Year 1, the negative association between placement stress and perceived effectiveness did not remain statistically significant after Holm adjustment, although overall use remained low and the interview accounts suggested cautious engagement. In Year 2, no stress – GenAI associations remained statistically significant after Holm adjustment, although the interview accounts suggested cautious and limited engagement during graded placement. In the Year 3 profile, the findings suggest a more pragmatic orientation: higher stress co-occurs with more frequent use, greater perceived opportunity and stronger perceived professional development needs, alongside lower ethical concerns and challenges. In the Year 4 profile, placement stress was associated with more frequent use and higher perceived effectiveness, while other associations are

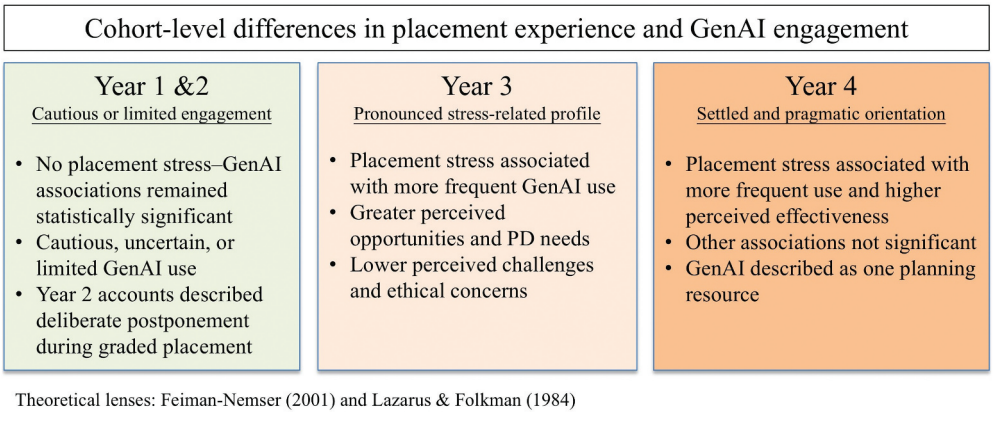

Figure 1. The stress-adoption reconfiguration pattern. ***Note.*** This cohort-based pattern is derived from the year-group differences reported in Table 1, the year-specific correlation profiles reported in Table 2, and the interpretive integration of interview themes. It should be read as an interpretive summary of cohort profiles rather than evidence of within-person developmental change.

not evident. As the study is based on cross-sectional data, these findings should not be interpreted as reflecting within-person developmental change over time.

A rival interpretation is that some year-group differences may reflect cohort effects as well as differences in placement demands and programme-year context. ChatGPT became publicly available in late 2022 (OpenAI 2022), and the survey was conducted in 2024. Students in different year groups therefore encountered GenAI at different points in their programme. For example, Year 4 PSTs were already in the final year of the programme when GenAI became widely available, whereas Year 1 PSTs entered the programme in a context where GenAI was already more visible in higher education. Existing research suggests that PSTs' AI-related perceptions and intentions may be shaped by individual, social, and programme-level factors, including basic AI knowledge, subjective norms, AI literacy, and opportunities for teacher training (Guan, Zhang, and Gu 2025; Hsu 2026; Sanusi, Ayanwale, and Tolorunleke 2024). The observed differences may therefore reflect not only placement intensity and programme experience, consistent with work showing that field experiences and field observations can shape PSTs' technology-related beliefs, knowledge, and practice (Hawk and Nelson 2024; McCoy and Lynam 2022), but also cohort-specific histories of exposure, institutional messaging, and peer norms around GenAI. For this reason, the Stress – Adoption Reconfiguration Pattern should be interpreted as a cohort-level configuration rather than as evidence that individual PSTs necessarily move through these forms over time.

Drawing on Feiman-Nemser's (2001) account of teacher learning as shaped by preparation and practice, these year-group differences may reflect differences in the placement experiences available to each cohort, rather than a tracked developmental sequence. In this programme, Year 3 PSTs undertake a placement semester comprising two four-week mainstream blocks and a two-week Inclusive or SEN block, with daily teaching moving towards most of the school day. Year 4 PSTs complete two further four-week placement blocks involving full-day teaching alongside requirements for planning, evaluation, and structured reflection. These placement conditions may give Year 3 and Year 4 PSTs more opportunities than Year 1 and Year 2 PSTs to plan sequences of lessons, adapt resources for learners with different needs, manage longer periods of classroom teaching, and evaluate their teaching. They may also provide more opportunities to judge whether AI-generated suggestions are pedagogically appropriate, a form of technology-related professional judgement that requires the integration of technological, pedagogical, and content knowledge (Backfisch et al. 2024; Mishra and Koehler 2006). This is consistent with work showing that field experiences and field observations can shape PSTs' technology-related beliefs, knowledge, and practice (Hawk and Nelson 2024; McCoy and Lynam 2022). This offers one possible interpretation of why GenAI was described in the Year 3 and Year 4 accounts less as a risky or uncertain tool and more as one resource for managing planning demands.

Viewed through a stress – coping lens (Lazarus and Folkman 1984), these findings may be interpreted as cohort-level differences in how PSTs respond to placement-related pressures and engage with GenAI across programme years. In the Year 1 and Year 2 accounts, the interview narratives suggested forms of avoidance or moral hesitation, as some students described limiting or avoiding GenAI because of ethical uncertainty, fear of misuse, or reluctance to rely on it in assessed placement contexts. In the Year 3 accounts, students described using GenAI more pragmatically to manage

planning demands and workload stress. This aligns with the Year 3 correlation profile, where higher placement stress was associated with more frequent GenAI use, greater perceived opportunity, and stronger perceived needs for professional development. In the Year 4 profile, placement stress was associated with more frequent GenAI use and higher perceived effectiveness, while links with opportunities, challenges, ethics, and professional-development interest were not evident. This may indicate a more task-oriented form of engagement in this cohort, where GenAI was described as one resource for managing placement-related planning demands. Among the Year 3 and Year 4 accounts, GenAI was framed less as a site of ethical hesitation and more as one resource for handling placement demands.

Taken together, the two lenses help interpret the cohort-level differences across four year groups, while avoiding a linear developmental reading. These findings do not represent linear progression but rather context-sensitive reconfigurations across cohorts, shaped by differences in placement experience, coping orientation, and cohort-specific exposure to GenAI. The stress-adoption reconfiguration pattern adds a cohort-sensitive account of year-group differences to a literature that often treats PSTs as a homogeneous group. Recent studies note both value and risk in GenAI use but typically focus on single cohorts or short placements. Our results suggest that stress does not have a uniform dampening effect. Rather, the findings suggest cohort-level differences in how PSTs described and reported GenAI use under placement-related demands. Year 1 and Year 2 accounts were marked by caution and uncertainty, Year 3 showed the most pronounced stress-related correlation profile, and Year 4 accounts suggested a more pragmatic orientation towards GenAI as one planning resource among others. These differences may reflect the influence of differing placement experiences and opportunities to exercise professional judgement during teacher learning (Hawk and Nelson 2024). However, this should be interpreted as a cohort-level pattern rather than evidence of a linear developmental progression or routine GenAI use across the cohort.

These findings invite reflection on the underlying logic of placement as a pedagogical construct. Placement has long been idealised as the site where theory meets practice, yet the structural realities often position it as a site of compliance rather than inquiry (Cochran-Smith et al. 2015). Irish ITE policy, particularly *Guidelines on School Placement* (Teaching Council 2021), explicitly promotes a model of graduated, incremental responsibility, in which student teachers are expected to assume increasing levels of autonomy and professional decision-making over time. In principle, this reflects a programme design logic of graduated responsibility aligned with professional learning. However, in practice, this model of graduated responsibility can also intensify pressure, particularly in programme years with more extensive placement demands, where expectations for planning and preparation increase as placement activity increases. When student teachers plan lessons under pressure to meet HEI expectations, planning becomes, as John (2006) warns, an act of performance rather than a space for learning. In such a performative environment, technologies like GenAI may amplify existing tensions. While they can lighten the administrative burdens of placement, they also risk reinforcing surface-level preparation if students use them to reproduce rather than critically examine the lesson content. The challenge, therefore, is not to reject technological support but to embed it within a pedagogical culture within ITE that values reflection, criticality, and adaptive professional learning.

However, the presence of GenAI also provides a basis for propositions that require further design and evaluation within ITE and preparation for school placement. Programme-year-sensitive scaffolding could introduce Year 1 and Year 2 PSTs to ethical awareness, responsible use, confidence-building, and sustainability-oriented concerns. For Year 3 and Year 4 PSTs, further design work could examine how GenAI is used to support, critique, and revise placement planning, including its strengths and shortcomings for lesson design, adaptation, and evaluation. Such scaffolding would need to acknowledge placement pressures without treating GenAI as a solution to them. As the findings suggest, placement stress is associated with GenAI use in different ways across cohorts. Recognising this reconfiguration may help inform targeted supports, but these supports should be treated as propositions for future design and evaluation rather than as directly evidence-based recommendations.

Limitations

This study has several limitations. It is based on a cross-sectional design within a single initial teacher education programme, which limits the ability to infer individual developmental change over time. In addition, because GenAI became widely available during different points in the participants' programmes, programme-year differences cannot be fully separated from cohort-specific exposure histories. The use of self-reported survey data may introduce bias, including self-selection and non-response effects. Some GenAI-related constructs were measured using single items, namely frequency of GenAI use during placement, perceived effectiveness, and perceived professional development needs for effective and ethical use. This limits reliability estimation for these specific constructs and means that findings involving these variables should be interpreted cautiously. In addition, the qualitative component involved a relatively small, volunteer-based interview sample, which may not fully represent the diversity of experiences across the cohort. As such, the findings should be interpreted as reflecting cohort-level reconfiguration within a specific institutional context rather than generalisable trends.

Future Research

Future research should examine the proposed Stress – Adoption Reconfiguration Pattern using multi-site and longitudinal designs that follow the same PSTs over time and help distinguish programme-year differences from cohort effects linked to different histories of exposure to GenAI. Such studies could clarify whether the cohort-level patterns observed here are associated with placement experience, cohort-specific exposure to GenAI, institutional messaging, peer norms, or a combination of these factors. Further work should also validate the GenAI-related measures using multi-item scales, particularly for frequency of GenAI use, perceived effectiveness, and perceived professional development needs for effective and ethical use. Finally, intervention-based studies could explore how structured, programme-year-sensitive GenAI supports can be implemented and evaluated across different teacher education contexts, particularly in relation to ethical, critical, and context-sensitive engagement with GenAI during placement.

Conclusion

This study examined placement stress and PSTs' perceptions and uses of GenAI across the four years of a primary ITE programme, comparing year groups and exploring how these differences relate to adoption. Using a survey with follow-up interviews, it identified a Stress – Adoption Reconfiguration Pattern in which the association between placement stress and GenAI use differed across year groups. Year 1 and Year 2 accounts were characterised by more cautious engagement, whereas Year 3 and Year 4 accounts suggested more regular and pragmatic uses of GenAI for managing placement-related planning demands.

Theoretically, the study combines a stress and coping perspective with Feiman-Nemser's account of teacher learning as shaped by preparation and practice. This framing shows how placement-related stress, programme-year context, and opportunities for professional judgement may shape PSTs' engagement with GenAI in different ways. Rather than presenting year of study as evidence of linear development, the study makes visible year-group differences as an important cohort-level line of analysis in understanding PSTs' GenAI use.

Given the exploratory and context-specific nature of the present study, we offer propositions for further development and design within ITE programmes. First, the findings suggest that GenAI-related preparation could be more systematically scaffolded across ITE programmes and embedded within school placement modules. This would require coordinated implementation beyond the programme itself, extending to HEI placement tutors and classroom teachers, each of whom plays a distinct role in supporting student teachers during placement. However, the feasibility of this work is shaped by several constraints. These include the relative absence of explicit policy guidance on GenAI within current ITE curricula (Mishra et al. 2025), variability in digital infrastructure across schools (Moynihan et al. 2023), and limited professional learning opportunities for classroom teachers (Gorman and Furlong 2026). Without addressing these structural conditions, efforts to integrate GenAI risk remaining ad hoc or unevenly enacted.

Within these parameters, programme-year-sensitive scaffolding may provide a useful basis for further design and evaluation. For Year 1 PSTs, this could involve ethical awareness, academic integrity, and foundational capacities to interpret and critically engage with AI-generated outputs. For Year 2 PSTs, this could extend to assessment-aligned guidance, supporting students to use GenAI in ways that are transparent, appropriate, and consistent with programme expectations. For Year 3 PSTs, further design work could examine how GenAI can support planning efficiency while maintaining professional judgement, so that AI use does not displace pedagogical reasoning. For Year 4 PSTs, scaffolding could focus on self-regulation, critical evaluation, and sustained dialogue with mentors, including explicit engagement with responsible classroom use and the broader implications of GenAI for teaching and learning.

A critical enabling condition for this work is clear and consistent communication from ITE programmes to partner schools, HEI placement tutors, and cooperating teachers. Without shared understandings of expectations regarding GenAI use, there is a risk of fragmented enactment, in which student teachers receive mixed or contradictory messages across contexts. Clear guidance that articulates what constitutes appropriate, ethical, and pedagogically sound use can support greater coherence between policy

intentions and practice while reducing uncertainty for all stakeholders involved in placement.

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Appendix. Survey items, response scales, and scoring rules

Response scale key

Scale A: 1 = never; 2 = almost never; 3 = sometimes; 4 = fairly often; 5 = very often.
Scale B: 1 = very ineffective; 2 = ineffective; 3 = neither effective nor ineffective; 4 = effective; 5 = very effective.
Scale C: 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree.

Scoring rules

Multi-item variables were scored as mean scores, with higher scores indicating stronger endorsement of the construct. Single-item variables were analysed using the original item score. For the placement stress variable, the positively worded items Q4, Q5, Q7, and Q8 were reverse-coded before calculating the mean score, so that higher scores indicate higher placement stress. No missing item-level responses were present for the variables included in the analyses.

Variable	Items	Response scale
PS	***Common stem:*** *Thinking about your current or most recent professional placement, how often have you. . .* PS1. been upset because of something that happened unexpectedly? PS2. felt that you were unable to control the important things in your life? PS3. felt nervous and stressed? PS4. felt confident about your ability to handle your personal problems? PS5. felt that things were going your way? PS6. found that you could not cope with all the things that you had to do? PS7. been able to control irritations in your life? PS8. felt that you were on top of things? PS9. been angered because of things that happened that were outside of your control? PS10. felt difficulties were piling up so high that you could not overcome them?	Scale A
FREQ	How often did you use GenAI, such as ChatGPT, during your current or most recent professional placement?	Scale A
PE	How effective do you find GenAI tools in supporting your lesson planning and related placement preparation tasks?	Scale B
PO	PO1. I believe the use of GenAI can save me time in planning lessons PO2. I believe using GenAI like ChatGPT to write lesson plans can lead to originality and creativity in my lesson plans PO3. I am confident in the accuracy and reliability of lesson plans generated by GenAI PO4. I believe the use of GenAI can help me produce a better lesson plan PO5. I foresee a long-term adoption of GenAI tools in the primary education sector for lesson planning	Scale C
PC	PC1. GenAI tools undermine the quality of lesson planning PC2. Teachers may become overly reliant on GenAI for lesson planning PC3. GenAI tools diminish the role of teachers in the future in terms of lesson planning PC4. I am concerned that using GenAI tools for lesson planning could have a negative impact on children's learning outcomes	Scale C
EC	EC1. I am concerned that the application of GenAI in lesson planning may cause the issue of educational inequity EC2. I am concerned that the use of GenAI may pose a risk to user data privacy EC3. Pre-service teachers need to proactively disclose their use of GenAI in lesson planning in professional placement EC4. Unauthorised use of GenAI tools to complete lesson planning in professional placement is cheating	Scale C

(*Continued*)

Variable	Items	Response scale
PD-Eff	I feel the need for professional development programmes to effectively integrate GenAI into lesson planning	Scale C
PD-Eth	Pre-service teachers must learn how to use GenAI tools ethically in their professional practices	Scale C

Note. PS = placement stress; FREQ = frequency of GenAI use during placement; PE = perceived effectiveness; PO = perceived opportunities; PC = perceived challenges; EC = perceived ethical concerns; PD-Eff = perceived professional development needs for effective GenAI use; PD-Eth = perceived professional development needs for ethical GenAI use; GenAI = Generative Artificial Intelligence.