CRITICAL REFLECTIONS ON TRIALLING AN AI APPLICATION IN TEACHER EDUCATION ASSESSMENT IN THE TECHNOLOGICAL AGE

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Abstract

Since as early as the 1990s, the implications of AI on the traditional role of the teacher were foreseen (Garito, 1991). It has since been argued that effective facilitation of pupil learning in the technological age necessitates the exploration of innovative approaches in equipping pre-service teachers to this end (Tungera and Chigona, 2023). Thus, the researcher embarked on a pilot project to investigate student teachers' directed use of generative AI as part of a module assessment. The module in question focuses on academic reading writing and referencing, and thus behoves critical engagement with, and reflection on, AI tools as part of professional practice. Reflections are offered on the incorporation of an Artificial Intelligence (AI) software application in an Irish undergraduate Teacher Education programme from 2023-2025. As part of this research project, 85 Bachelor of Education students evaluated an AI application as a research tool for an academic essay submitted for assessment purposes in their first year of the programme. Students were subsequently invited to offer feedback on their experience of using AI for their review of literature. The same cohort were then invited as part of a mixed methods study to complete a follow-up survey, one academic year later, with the purpose of enabling reporting on the extent to which the initial experience of such AI application for assessment has informed further use thereof in the interim. A focus group was then convened using snowball sampling. To this end, further to an account of the AI implementation process and the associated research component, analysis of personal and professional learning are shared including student teachers' identification of the value of GenAI as an assistant, while demonstrating a sense of wariness of it, and concerns relating to reliability and environmental impacts. The findings are refracted against the OECD contention that the application of GenAI can be drawn upon 'to enhance and transform teaching and learning in the classroom', with teachers 'supported but not supplanted by AI' (Pons, 2023:7).

Keywords: *Artificial intelligence/AI, academic writing, teacher education.*

1. Introduction

Academic writing in higher education can no longer be separated from generative Artificial Intelligence (GenAI), as computing online serves prompts as part of its basic functionality. As universities grapple with the freight train-like speed of GenAI development in recent years, the field of Initial Teacher Education within higher education is no different. The implications for the particular skills and competencies required for academic writing in teacher education are the focus of this Irish study, in what has been described as the 'AI Era' (Davenport and Ronanki, 2018). The nature of the 5-credit university module discussed, focuses on communication, including academic writing and referencing conventions, as well as component aspects of digital literacy through the establishment of an e-portfolio.

The overarching aim of the research presented in this paper was to gain greater insight into Y2 student teachers' experiences of using generative AI assessment as a follow-up to a first year modular assessment completed in 2024 by the BEd cohort in Maynooth University Froebel Department of Primary and Early Childhood Education. In particular, the extent to which AI applications had been used by students in support of their academic studies from Year 1 to Year 2 of the BEd programme was sought. Further to an examination of the current backdrop against which the research took place in 2025, the Irish policy landscape is referenced as a segue into examining the study design and methodology.

2. Context of the study

By their nature, teacher education programmes encompass aspects of values education, didactics and moral reasoning, from across module components such as philosophy of education, theological studies, or foundations of religious education. In the teacher education context pertaining to this study, the second year of the Bachelor of Education programme at Maynooth University Froebel Department is also informed by the ethical values set out by the Irish Teaching Council's (2016) Code of Professional Conduct. The code, by which registered qualified teachers are bound, establishes the ethical foundation for the teaching profession in Ireland. Teachers' professional responsibilities are identified by six standards: values and relationships; integrity; conduct; practice; professional development; collegiality and collaboration. Artificial Intelligence will potentially hold implications for each of these six standards as the 'AI age' progresses in teachers' daily individual and collaborative planning, assessment and reporting practices, individually, and as part of a whole-school team. This clearly holds implications for in-service as well as pre-service teachers.

Teaching has been identified as one of the professions expected to be most impacted by GenAI (Pons, 2023). On entering the teaching profession, newly qualified teachers will need to be equipped with the digital knowledge, skill and values to negotiate AI use within their professional practice. Student-teachers need to become conversant in various AI applications to inform their future professional practice in engaging with different planning, assessment and reporting tools as part of their professional planning workload. One benefit of AI for classroom planning is likely to be its potential for timesaving measures for teachers, to short-circuit collating curricular links with teaching resources, for example. To this end, and on a very basic level, teachers may have fortnightly, weekly or even daily engagement with generative AI as standard. The OECD (Pons, 2023) discusses several potential benefits for GenAI and teaching including giving more regular and granular feedback, to tailoring personalised learning opportunities created based on assessment data collated on individual learners.

The hallmarks of the nature this or any AI engagement would require both knowledge and criticality in order to make sound professional educational judgments. This resonates with current educational research on the need for critical digital pedagogy in higher education (Williamson, 2022). Moreover, it speaks to the need for the teacher's role in effective facilitation of pupil learning in the exploration of innovative approaches in equipping pre-service teachers to this end (Tungera and Chigona, 2023). The children in the classroom, rather than 'end users' of technology, these 'digital natives' (Prensky, 2001) will need the guidance and support to engage consciously and judiciously with AI in turn. The OECD (Pons, 2023:5) advise of the skills that will be needed by teachers to prepare students for an unknown future, while acknowledging the impact of AI on the role of teachers and the very act of teaching and learning itself.

The Primary Curriculum Framework (2023) recognises the centrality of digital learning by virtue of naming one of its 7 competencies as 'being a digital learner' to be able to use a range of digital technology for creative outputs. This competency holds as its aim children's 'responsible, respectful, safe and ethical use of technology' (NCCA, 2023: 9). The teacher's role in facilitating digital learning must 'enable children to critically engage and contribute in a digitally connected and interdependent world' (2023: 9). In leading the learning in initial teacher education through these lenses, we can go some way to prepare the teachers of tomorrow to support children's digital learning journey.

3. Design and method

This paper features a small-scale mixed methods study which obtained institutional ethical approval at Maynooth University, Ireland. The overall purpose of the research is to inform the development and adaptation of the Year 1 BEd module discussed, to best serve its pedagogical outcomes. Following their required use of AI application, Elicit.com as a research tool in the formulation of a literature review for a Year 1 academic assignment, students were also required to evaluate the effectiveness of that tool for that purpose as part of that assignment brief.

The research design comprised an anonymous survey disseminated to all 85 students in the year group, followed by a focus group which could accommodate 5-8 students. Students had been invited to give individual feedback on their experience of using AI in assessment as part of their module evaluation in 2024. Over a year later, as BEd2 students in their second semester, students were then invited to partake in a survey to gain insight into the extent to which their use of the AI software in Year 1 had informed their use of generative AI in the intervening period from February 2024 to April 2025.

Microsoft Forms was used as the survey medium, an interface which student teachers would be familiar with owing to its widespread departmental use in module reviews. The survey was designed to take fewer than 10 minutes to complete, consisting of 3 multiple choice and 2 long answer questions presented

as requiring a response to proceed. Survey questions were designed to ascertain the extent to which AI had been used to support their studies, and to ascertain the types of applications used and the purpose for which they were accessed. The associated university policy categorizations for AI use were drawn upon to inform the phrasing of the questions regarding the purpose of student AI use. In so doing, it was envisaged that the commonality of language use from other university documents and nomenclature would support students in recognising the categories of AI use more readily. The categorisations of AI use are outlined in Table 1 below, which extend from using AI as a research assistant to source material for academic assignments, to full AI use throughout the process including Gen AI output.

Table 1. Categories of AI use in academic writing used in the survey.

Category of Gen AI use and example:
As a research assistant e.g., sourcing reading materials, but no Gen AI output, including paraphrased, in the final submission
Brainstorming e.g., topic aspects (no Gen AI output)
Creating structures e.g., outlines, but no Gen AI output including paraphrased, in the final submission
As an editing tool (to improve the clarity or quality of assessment but not used to create new content)
Full Gen AI use throughout the process including Gen AI output

At the briefing on the survey, further to the information sheet dissemination, students were facilitated in seeking clarifications regarding the purpose or use of the research. At the briefing the purpose of the methods was outlined as a survey followed by a focus group. Students who had 'something to say' about AI in any regard, were encouraged to come forward for the focus group by indicating their desire to do so by email to the researcher. A focus group was designed to explore specific aspects of student AI use which might better suits a focus group than a survey. The focus group questions tended to be more discursive questions in nature, for example, *How can generative AI develop skills for your future profession of teaching?* Due to the low numbers of participants present, the focus group readily followed the order of the questions set while students declared where they considered that they had already spoken to a question when it was posed. Both students spoke to each question to a greater or lesser extent, sometimes addressing question aspects ahead of their introduction.

4. Findings and discussion

There were 21 respondents from a cohort of 85, representing a response rate of 24.7%. The overall responses(n=21) are interpreted, beginning with an overview of the regularity with which this small cohort are using GenAI, followed by a reporting of its ability to help or assist and examples thereof, and a summary of issues raised in relation to wariness regarding GenAI use based on its reliability and environmental impact.

Survey responses to the question of how regularly students had used AI to support their studies in the past academic year yielded a mixed result. While only 3 students (14%) reported using AI 'regularly' since, 7 students (33%) reported using it 'rarely' while 1 had used it 'once' and 2 students had 'not used it at all'. 8 Students (37%) reported using generative AI 'several times' in the intervening period. The most popular application used was ChatGPT used by just over half of this small cohort (16 of 21 students or 52%), with www.Elicit.com next in popularity with 7 students (23%), followed closely by Grammarly (6 students or 19%). The fact that one third of the group reported using Elicit again since its required use, may indicate that their familiarity with its interface may have drawn them to use it again. However, only two respondents used Elicit alone, with others using one or two other applications in addition to Elicit. The reported use was lower than expected and raises the question of whether an element of underreporting may have factored in student responses.

Student reported varying use of generative AI in the intervening time period of 14 months. Almost a quarter of respondents (5 of 21) described it as 'helpful' or 'useful' and enabling students to 'work smarter not harder'. Two students reported a more open disposition to generative AI use since its required use as part of Year One Assessment, 'being less wary' of AI use since their use of Elicit as part of Year One assessment:

> '*I had never used AI before coursework last year. However, after using eleicit.com I saw how AI can be helpful in generating ideas rather than searching endlessly on Google and is easy to use and not scary and I am now more open to using it*'.

These responses indicate a benefit of having familiarity with an AI software and having experience of negotiating its interface. This affirms its use as part of a university module assessment, it can be argued. Further benefits mentioned in the focus group include how 'it will read out articles from Chat GPT– it spits

them out'. Its use to save time to find generic resources such as a sample of 'a boring story' for demonstration purposes in teaching was given as an example.

3 of 21 reported not having used AI at all, with two students declaring they did not like it, and one acknowledging a 'bias' towards it. Two more students said that it had not greatly influenced their use of AI without attributing a reason. Both focus group participants commented on GenAI as not being something to fear. One commented that 'there shouldn't be an overreliance [of students] on it', with the other cautioning against its 'lazy use' as an alternative to Google, where Google would suffice. This points to the focus group participants' observations of the ubiquitous use of GenAI, one that is commented on anecdotally by faculty members. Again, it invites the question of whether underreporting of GenAI use is likely.

An equal number of survey respondents, 4 of 21, cited 'brainstorming' as their reason for its use as students who referenced its use in sourcing reading material or 'researching' for academic work. One student referred to its application in 'generating ideas' for assessment, with another clarifying that it 'helped to brainstorm ideas for a topic but not used to academically write about the topic'. Another clarified, their use of it as a brainstorming tool 'rather than to generate a response as I feel it would not be authentic to do so'. This indicates a sense of savviness of approach amongst the student cohort. A sense of moral awareness of generative AI is also communicated in this response. Furthermore, one student cited the environmental impact in trying to 'avoid its use due to the high water usage', which was reiterated by a focus group member who noted, 'it does have an environmental impact'. A focus group respondent shared a moral concern of a different nature in stating that 'AI is taking jobs away from artists', due to its instant imaging functionality. Two students referred to the efficiency of AI in sourcing material, helping them 'work smarter not harder'. However, the same respondent cautioned in relation to the trustworthiness of GenAI:

> '*It has made me more familiar with the dangers of using AI because it can be inaccurate at times when providing information*'.

Another survey respondent noted the importance of 'checking their reliability before using them'. Overall, the responses gathered indicate a limited or what might be considered a conservative use of generative AI in academic writing practices, if an accurate portrayal of use. One respondent identified the use of AI as anxiety-inducing vis a vis academic demands regarding plagiarism:

> '*The popularity of Generative AI has caused me some anxiety in relation to my studies – the fear of being accused of plagiarism or misuse of AI has led me to avoid many research websites, online databases, etc. as I was unsure if they were AI or not*'.

This quote points to a sense of confusion for students regarding plagiarism and the potential for the misuse of AI, wittingly or unwittingly. A lack of clarity for students as to what might constitute a text generated by AI, as distinct from an original one of their own creations, is telling. In the focus group, both participants agreed that more input and guidance were needed at a university level, with suggestions that the library holds a role in this work. One student noted that 'each department should have its own stance on it', seeking a university policy interpretation at departmental level, which has been encouraged by university management. This raises the question of where the responsibility for education and training about ethical AI use lays, and how this ethical use of AI is even defined. Furthermore, it raises the question about addressing the varying levels of comfort and competency with digital literacy individual students have.

5. Conclusion and recommendations

The data presented demonstrates the reporting of a cautious approach to the use of generative AI by this small student teacher cohort, overall. While student use of particular AI software applications is clear, this is tempered by student concerns about how they use it. Brainstorming being cited as the main purpose for AI use, has been distinguished from the potential for use of AI in writing assignments. Concerns regarding the reliability of the data presented are also raised, with an acknowledgement of the need to 'check' the information presented. Critically, the need for education and guidance around ethical and judicious use of AI is sought. This puts the spotlight firmly on the nature and extent of digital literacy learning as part of initial teacher education.

The constitution of professional degrees and taught programmes in teacher education are defined by professional knowledge and practice or practicum, in addition to professional skills and competences, of which digital literacy skills are part. This raises the question of how digital, or more precisely, AI literacy might be defined. One such definition is that of Wang et al. (2022) which measures a person's AI literacy using a tool developed based on four components of awareness, use, evaluation and ethics. Wang et al. (2022:3) define AI literacy as:

> '*The ability to be aware of and comprehend AI technology in practical applications; to be able to apply and exploit AI technology tasks proficiently; and to be able to analyse, select and critically evaluate the data and information provided by AL, while fostering awareness of one own personal responsibilities and respect for reciprocal rights and obligations.*'

It is proposed that this definition be used as a starting point by this author to examine the potential for further opportunities to incorporate individual and collaborative exercises using and critiquing GenAI as part of the associated undergraduate module of the study, which holds professional communication as its focus. From this small study, it is clear that student teachers not only need opportunities to use GenAI with guidance, but also need to reflect and consider their experiences of same through facilitated dialogue. This may assist students to trust their instincts as they increase their experience and familiarity with different types of applications and help them to be more decisive in their continued critical use of GenAI as part of teaching and learning experiences. In so doing, we can better prepare them for the classrooms of tomorrow, which, by their time of graduation, are likely to reflect greatly developed practice in GenAI from where it is currently positioned.

The development of the student teacher's academic writing skill and proficiency in communication holds career as well as degree-wide ramifications, as discussed.

The potential for generative AI to save teachers time and repetition in generic tasks, to free up their time for more creative one merits closer examination. Guidelines and training for teachers to inform their use and choices in GenAI use is critical to the profession. Investment in training and education opportunities for teachers to learn about the potential for innovation through AI is clearly needed, from the pre-service to in-service stages in the continuum of practice.

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