

## Applied Research Projects as Work-Integrated Learning in Zimbabwean Teacher Education: A Conceptual Analysis

**Kudakwashe Manokore** 

Department of Art, Design and Technology,  
Faculty of Science and Technology Education,  
National University of Science and Technology, Bulawayo, Zimbabwe

**Doris Chasokela** 

Department of Technical and Engineering  
Education and Training, Faculty of Science and Technology Education,  
National University of Science and Technology, Bulawayo, Zimbabwe

*Corresponding author:* Kudakwashe Manokore (kudakwashe.manokore@nust.ac.zw)

**How to cite this chapter:** Manokore, K., & Chasokela, D. (2026). Applied Research Projects as Work-Integrated Learning in Zimbabwean Teacher Education: A Conceptual Analysis. In C. T. Tsotetsi (Ed.), *Work-Integrated Learning in the Age of Artificial Intelligence: Equity, Innovation, and Partnerships for Bridging Theory and Practice* (pp. 132-146). ERRCD Forum. <https://doi.org/10.38140/obp5-2026-08>

**Copyright:** © The Author(s) 2026. Published by [ERRCD Forum](#). This is an open access chapter distributed under Creative Commons Attribution (CC BY 4.0) licence.

**Abstract:** Worldwide, work-integrated learning (WIL) is a central component of teacher education. This is traditionally facilitated through teaching practice, which allows student teachers to apply theoretical knowledge in authentic classroom contexts. In the Zimbabwean context, universities often complement teaching practice by assigning students to individual supervised research projects at the undergraduate level. The aim is to synthesise existing knowledge to develop new conceptual insights and critically examine how applied research projects, as a form of WIL, can be effectively and ethically integrated into contemporary teacher education. This chapter employs a qualitative desk-based research design to explore applied research projects as a form of WIL in in-service teacher education within Zimbabwean universities. Drawing on the principles of experiential learning theory (ELT), the analysis argues that applied research projects provide meaningful work-integrated learning experiences by actively engaging student teachers and have the potential to enhance teacher preparation. However, the evolving integration of Generative Artificial Intelligence (GAI) into higher education introduces several new pedagogical and ethical challenges for applied research as WIL. While GAI tools can support the research processes, their misuse may lead to academic dishonesty, including the presentation of fabricated problems or findings, thereby undermining the development of professional and problem-solving skills. This situation underscores the necessity for clear institutional guidelines to promote authentic learning. The chapter contributes to ongoing debates regarding the strengthening of WIL in teacher education.

**Keywords:** Applied research projects, generative artificial intelligence, work-integrated learning, experiential learning.

### 1. Introduction

Work-Integrated Learning (WIL) is a comprehensive term encompassing various approaches aimed at the practical and experiential development of knowledge, enabling students to gain

appropriate access to work-related activities relevant to their fields of study. Stirling, Kerr, Banwell, MacPherson, and Heron (2016) observe that WIL is frequently used interchangeably with other terms, including work-based learning, practice-based learning, work-related learning, vocational learning, experiential learning, cooperative education, clinical education, internships, practicums, and field education. These approaches involve systematic training models in which apprenticeships, as the primary locus of learning, are situated within the workplace. They also incorporate formalised workplace experiences integrated into postsecondary programmes encompassing work experience, professional practice, cooperative education, internships, and on-the-job training, alongside institutional partnerships with work sites, aimed at producing broader industry or community-facing projects, such as service learning. Institutions such as the National University of Science and Technology (NUST), the University of Zimbabwe (UZ), the Zimbabwe Open University (ZOU), and Midlands State University (MSU) utilise some of these methodologies within their teacher training programmes. This expansive interpretation acknowledges the adaptability of WIL delivery modalities and their applicability across various disciplines.

In the context of teacher education, teaching practice (TP) and applied research projects represent significant WIL modalities that integrate academic literature with the practical realities of teaching. By engaging in these activities, student teachers are afforded opportunities to operate in authentic classroom and school environments, apply theoretical knowledge, develop professional competencies, and engage in reflective and inquiry-based practices. Nevertheless, the increasing incorporation of artificial intelligence (AI) within educational processes, particularly in research and assessment, introduces challenges necessitating well-defined and practical regulatory frameworks. A primary concern regarding the utilisation of AI is the potential for breaches of academic integrity, whereby students may exploit these technologies to complete assignments that are intended to foster skill development (Bala and Colvin, 2023). The Open Innovation Team and the Department for Education (2024) highlight growing apprehensions regarding generative AI (GAI)-facilitated academic malpractice, the dependency of students on AI tools, and the associated ethical, safety, and data privacy implications. Such tools may inadvertently promote cheating, excessive reliance on automation, and a potential erosion of educators' involvement, contributing to academic dishonesty (Almpanis et al., 2025; Mukwerete and Chikusvura-Matiza, 2025; Matarazzo et al., 2025; Nikolopoulou, 2025; Osunbunmi et al., 2024). Furthermore, they caution that the use of GAI tools may present risks to the integrity of assessments, potentially resulting in misleading indications of learning and exacerbating issues surrounding academic integrity. GAI may similarly undermine traditional assessment practices at higher education levels (Nyaaba and Zhai, 2024; Bala and Colvin, 2023). Additionally, GAI models are capable of generating plausible yet false academic references and other citations (Bala and Colvin, 2023).

While scholars like Matarazzo et al. (2025) highlight standardised AI integration processes, monitoring, transparency of AI models, and explainable artificial intelligence (XAI) to ensure the reliability of the content, protect data and access, and establish the credibility of AI-assessment practice, it has been well studied that the concerns about the application of GAI in higher education are many. GAI can only deepen this dilemma further by compounding existing educational disparities. The situation raises the need to critically question how the use of applied research projects as WIL could be done in a meaningful and ethical way in Zimbabwean higher education. Thus, this chapter, located within today's landscape of prevalent GAI application in both education and research, illuminates the risks and rewards associated with introducing promising technologies into the context of teacher education models developed in Zimbabwean universities.

### **1.1 Problem statement**

In the Zimbabwean teacher education context, promoting authentic learning, academic integrity, and the development of critical skills is crucial amidst growing concerns about the increase in plagiarism, the availability of GAI tools, and AI-assisted dishonesty by student teachers. These apprehensions are compounded by the potential for GAI to generate and write complete research projects that are difficult to distinguish from those created by humans. Rather than identifying real-world educational problems, investigating them, and proposing plausible solutions, some student teachers resort to plagiarism and present fictional research problems and solutions, undermining the development of critical thinking, creativity, and interpersonal skills. This overly threatens the development of essential professional competencies in student teachers. The boundaries of authorship, assessment, and inquiry-based learning experiences inherent in applied research projects are being redefined in real time. Against this background, the chapter critically examines how applied research projects, as a form of WIL, can be effectively and ethically integrated into contemporary teacher education. The following research questions guided the study:

- What is the relationship between applied research projects as WIL and experiential learning theory?
- What is the role of applied research projects as WIL in enhancing teacher preparation in contemporary context of widespread GAI use in learning and research in Zimbabwe?
- How are teacher education institutions, departments and scholars in Zimbabwe responding to the increasing accessibility and integration of generative AI technologies?

### **1.2 Conceptual framework**

The study utilises experiential learning theories and experiential education as two conceptual frameworks to examine the potential for applied research projects to function as Work-Integrated Learning (WIL) experiences. These perspectives are particularly relevant as the study focuses on the integration of academic knowledge, professional practice, and real-world

problem-solving in teacher preparation programmes. Experiential learning theory posits that learning is shaped by direct experience and reflective engagement with that experience. The Association for Experiential Education (n.d.) defines experiential learning as "a process in which learners are immersed within the concrete world to engage with it" [2]. Experiential learning is commonly understood as learning through doing or learning through experience, emphasising the active role of the learner in acquiring knowledge and making sense of information. This study is underpinned by Kolb's Experiential Learning Theory (ELT), which suggests that learning occurs in four interconnected stages: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Student teachers engage in authentic experiences, reflect on these experiences, develop conceptual understanding, and apply this understanding to new contexts. This cyclical process closely mirrors the stages involved in applied research projects. For instance, a student teacher's concrete experience may involve identifying a genuine research problem in their classroom or real educational challenges. Reflective observation occurs as the student reviews literature and reflects on their experiences to comprehend the issue. Abstract conceptualisation takes place as they collect, analyse, interpret data, and devise intervention strategies and models. Finally, active experimentation involves reflecting on findings and applying new ideas and strategies to improve practice. The integration of theory and practice is essential in education, where practice is purposefully integrated into theory through direct observation and reflection (Kolb, 2014).

TP and applied research projects in the field of teacher education are work-based learning experiences that are reflective of the principles of experiential learning. According to contemporary scholarship, experiential learning theory and experiential education continue to be relevant in universities and professional education. Green et al. (2024) assert that experiential learning is a constantly evolving field that values active participation in genuine situations and opportunities over passive knowledge. They identify the part that theory plays in the purposeful weaving together of practice, reflection and application design in a learning setting. This results in enhanced learning and integration between academia and industry practice. For example, NUST, UZ, ZOU and MSU teacher education models that reflect ELT in the form of TP or school attachment models. Student teachers practice in schools and teach real classes, reflect on their own lesson delivery, develop teaching principles to improve learner engagement and adjust future lessons using acquired ideas.

Through real classroom and school context, these WIL experiences have certain benefits. Student teachers are able to engage in meaningful academic applications, gain professional capability, and engage in reflective and inquiry learning. It is proven through research that such techniques help close the theory-practice divide through developing pedagogical knowledge, professional judgment and adaptive expertise (Bertram & Rusznyak, 2018; Ferns et al., 2021; Griffiths & Tann, 2019; Jackson & Bridgstock, 2021; Rusznyak & Bertram, 2020). ELT thus offers a coherent theoretical model guiding how applied research projects, implemented as WIL,

can contribute to teacher education. It's a model for thinking about how student teachers learn through experiences, reflection and inquiry. This is especially true in modern educational contexts influenced by technological change and the growing use of GAI.

## **2. Materials and Methods**

This chapter presents a conceptual analysis that employs a qualitative, desk-based research design. The analysis is grounded in a review of both academic and grey literature pertaining to WIL, teacher education, and GAI. Literature was selected through a transparent search strategy, which included file probing, keyword definition, and staged screening at the levels of title, abstract, and full text. Key databases, including ERIC, Scopus, and Google Scholar, were searched using terms such as 'work-integrated learning,' 'applied research,' 'teacher education in Zimbabwe,' and 'generative AI in education,' with purposive sampling utilised to retain conceptually rich sources. The authors supplemented this analysis with documentary examination of Zimbabwean education policy documents (e.g., the 2015-2022 Curriculum Framework and Education 5.0 Zimbabwe) and drew upon their professional experiences within Zimbabwean teacher and higher education to contextualise the findings. The analysis was guided by the principles of experiential learning theory, with the aim of synthesising existing knowledge to develop new conceptual insights.

## **3. Contextualising the Landscape**

### **3.1 Forms of work-integrated learning**

WIL is connected with a wide range of practices and pedagogies that aim to link scholarly learning to practice. It is informed by learning theories such as experiential learning, service learning, cooperative education, and curriculum design through internships, fieldwork, engineering sandwich courses, clinical placements, teacher practicums, work placements, simulations, case studies, project-based learning, and volunteering. While these models do not necessarily require placements in an actual work environment or community, such placements are typically assumed (Sachs et al., 2017). For example, teacher education models in Zimbabwe that align with some of these approaches include UZ's teaching practicum (a school-based model), MSU's internship or school attachment model, ZOU's service learning model, teachers' colleges' microteaching and simulation models, and project-based learning models in all teacher training institutions.

In the South African context, WIL has been further defined in terms of workplace-based learning, work-based experience, experiential learning, and cooperative education (Mesuwini et al., 2023). According to Universities Australia (2019), while work placements remain the predominant model of WIL, institutions in higher education increasingly incorporate components not found in placement models, including projects, simulations, and fieldwork. These may take the form of volunteering, live performances, mentoring, case-based learning, or

hands-on work specifically conducted in workplace settings. Collectively, these approaches reflect a shift towards more flexible and representative models of theory and practice within higher education. For example, Zimbabwean teacher education models that embody WIL in the form of cooperative education, fieldwork and community engagement, and mentoring-based models are employed by GZU, ZOU, and various Zimbabwean schools, respectively.

### **3.2 Zimbabwe's university teacher education system**

Bachelor of Education (B.Ed.) and postgraduate-level teacher education qualifications are offered by universities throughout Zimbabwe. Programmes include core educational theory and foundations, professional studies (such as ethical education, educational management, and reflective practice), subject-specific pedagogy, assessment, research methods, information and communication technologies, supervised TP, and a research project. In this context, school-based TP is a significant aspect of teacher education in Zimbabwe, where student teachers spend time primarily in actual classrooms (Mukeredzi & Manwa, 2019). This involves training student teachers to teach through experiential learning in real school settings, allowing them to transfer theoretical ideas to practical situations. Matsa and Chikunda (2024) argue that TP is a necessary component of teacher education, as it familiarises student teachers with actual classroom practice. During this time, student teachers receive assistance in their learning experiences, develop their teaching practices concerning instructional methods, classroom management, and professional dispositions, and engage in reflective practices regarding their interactions and self-assessment. Students are required to compile portfolios of their teaching, which include documentation files and logbooks that track their professional work. Both pre-service and in-service teachers, as well as those involved in professional development programmes, are formally assessed during this period.

In current teacher training curricula, TP is also aligned with applied research projects or dissertations that provide students with the opportunity to apply educational theory in real-world contexts. These applied research engagements motivate teaching practice through inquiry and reflection, promote critical thinking, and enable student teachers to seek improvement in their teaching and learning practices as part of their professional development. Research on teacher education, therefore, functions not only as an application of theoretical knowledge but also as the development of a reflective and inquiry-oriented professional disposition aimed at continually enhancing educational practice (Al-Thani & Ahmad, 2025; Tsafos, 2025). While TP is of great importance, it is most often practised in the classroom, where teaching is largely assessed through observations of lessons. This can hinder the development of broader skills, including competence-based education, education for sustainable development, and other 21st-century skills that are relevant both inside and outside the classroom (Matsa & Chikunda, 2024). Current TP must move beyond mere content teaching to address the significant challenges facing society today. Therefore, student teachers are encouraged to employ diverse methods,

strategies, and skills from their prior knowledge to create meaningful, relevant, and context-responsive learning experiences.

### **3.3 Applied research projects delivered through WIL**

The applied research projects are a major feature of WIL, merging scholarship with practical application. Unlike pure theorisation, this literature addresses the application of existing knowledge, specifically the study of particular procedures and methods for knowledge transfer. The student teacher identifies educational problems and researches them scientifically to develop a logical investigation that leads to applied and practical solutions. Sachs et al. (2017) state that students in WIL-based projects achieve this by working productively and collaboratively, critically analysing the data and information they gather, writing papers, and expressing their findings in structured texts. These projects train students to be resourceful and creative, from the idea generation and proof-of-concept phase to prototyping and testing, ultimately providing solutions to contemporary problems.

In certain types of applied research and learning, end-users and researchers are connected to organisations early in their product or service development process, allowing for the exploration of new ideas and the study of their influence. Sometimes, in teacher education, an applied project will be used to bring together student teams from various fields, including education, business, design, engineering, and information technology, to address externally funded problems. Such initiatives already exist within working environments or at local universities and are becoming increasingly interdisciplinary and collaborative. They foster cooperation among academic institutions, host schools or organisations, teachers, and students, contributing to a high level of educational attainment. Evidence suggests that there are associations between these applied research projects and enhanced collaborative abilities, improved metacognitive tendencies, self-concept, self-efficacy, and learner initiative among both teachers and students (International Development Research Centre, 2024; Johari et al., 2022; Ryan & Deci, 2020).

### **3.4 Teacher professional development and applied research**

Teacher education research, however, is unequivocal that the most effective strategies for enhancing student outcomes rely on teachers' ability to implement a pedagogy that emphasises learning (International Development Research Centre, 2024). This indicates that traditional learning approaches require a paradigm shift towards a more student-centred approach, necessitating that teachers acquire relevant competencies to better meet the needs of new-age classrooms, which are increasingly heterogeneous. Consequently, recent teacher professional development (TPD) programmes have emerged as the most effective response to modern educational challenges. Unlike traditional workshop-based approaches, these programmes focus on interactive, cross-professional, collaborative, technology-rich, and context-bound learning experiences (Darling-Hammond, 2025; Fütterer & Runge, 2025; International Development Research Centre, 2024). In Zimbabwe, TPD has developed in response to curriculum reform,

limited resources, and the need for professional learning in this domain. It advocates for an emphasis on building practice-based, collaborative, school-based, and practice-oriented approaches without relying on externally provided workshops (Ministry of Primary and Secondary Education [MoPSE], 2015; Mtetwa, 2014; Mukeredzi & Manwa, 2019). In this context, continuous applied research is emphasised within WIL frameworks.

### **3.5 Generative artificial intelligence (GAI)**

GAI has emerged as a transformative force in education, offering opportunities to personalise learning, enhance accessibility, and support iterative feedback processes. Bala and Colvin (2023) argue that GAI provides tailored learning environments for users with diverse needs, assisting with tasks such as coding and creative composition. In higher education, GAI systems have the potential to alleviate the substantial workload of educators by incorporating various instructional methods, including traditional techniques and innovative formats; the current assessment processes are supportive of these approaches (Gravino et al., 2024). Simultaneously, GAI introduces numerous new features, such as AI-enabled quizzes and dynamic feedback mechanisms, which are indispensable for personalised teaching. Kumar et al. (2024) point out that GAI can analyse vast amounts of educational data, providing valuable insights to inform instruction, curricular design, and institutional policy. For learners, GAI can function as a tailored tutor, assisting students with course comprehension, exam preparation, and skill development, thereby promoting greater equality in learning opportunities (Gravino et al., 2024). Matarazzo et al. (2025) further suggest that while AI and GAI present significant potential for personalised and inclusive education, they also raise critical ethical, pedagogical, and equity issues that must be addressed.

In applied research, GAI tools facilitate the writing process for students, encompassing planning, outlining, editing, and personalised feedback. However, when GAI is employed to generate text, issues of attribution, academic integrity, and the consideration of independent academic skills also arise. The use of reference-management applications such as Zotero, Mendeley, and EndNote to collect research materials and generate citations is becoming increasingly prevalent. According to the Open Innovation Team and the Department for Education (2024), GAI is being utilised by students for various tasks, including researching topics, summarising materials, transcribing, translating, and proofreading. Nevertheless, while GAI offers considerable advantages, academics caution against its uncritical adoption. Fodouop, Kouam, and Muchowe (2025) issue a warning regarding the risks associated with academic integrity, the displacement of academic labour, and the reinforcement of existing biases due to GAI. Similarly, Kumar et al. (2024) emphasise the necessity for human supervision, data privacy, and ethical considerations. The Open Innovation Team and the Department for Education (2024) note that AI text-detection tools are unreliable, with systems such as OpenAI's text classifier being withdrawn due to low accuracy. As Kahn et al. (2025) contend, distinguishing between AI-generated and human-authored text is increasingly challenging, and educators are

being tasked with designing assessment practices that prioritise learning processes over product-based evaluation.

## **4. Discussion of Findings**

### **4.1 Applied research projects, WIL and ELT**

In Kolb's (1977) ELT, which forms the basis of numerous empirical studies, it is argued that learning occurs in a loop comprising concrete experience, reflective observation, abstract conceptualisation, and active experimentation. At its most elementary level, the research process involves identifying the underlying problem that connects research to the actual environment, reviewing relevant literature, designing a research method (i.e., a practical experiment, survey, or prototype), collecting and analysing data, finding a solution to the problem, and making recommendations for practical application or further study (Creswell & Creswell, 2018; Kumar, 2021). The stages of experiential learning delineate the types of experiences involved in such learning and explain why these experiences are necessary, enabling student educators to carefully plan tailored activities for genuine practice learning. Experiential learning is not merely the art of observation; rather, it is the science of interaction and expression.

Consequently, the practices of the applied research process are specific to student teachers in the WIL context. It begins by identifying a problem within a realistic classroom or school setting, where research is directed towards an area of concern, ensuring that the empirical research aligns with real professional practice (Dika et al., 2025). A thorough literature review allows student teachers to critically explore previous studies, determining which solutions are inadequate and where additional research is warranted (Dika et al., 2025). An appropriate research methodology—whether qualitative, quantitative, or mixed-methods—will provide methodological rigour as well as enhance research literacy. Systematic data gathering and analysis also encourage student teachers to develop their abilities in analysing and evaluating practices for evidence-based decision-making. Action research and design-based research principles inform subsequent steps in applying proposals or conducting tests to help develop, deliver, and evaluate interventions in the field, thereby improving practices beyond mere theory (Ozer et al., 2023). Finally, the recommendations provide student teachers with a framework for translating research findings into practice, fostering innovation in curriculum design or further development of research processes. In the field of education, applied research projects are often integrated into service learning, cooperative education, curricular planning measures, teacher practicums, simulations, case studies, and so on. These projects further clarify the interplay between theory, research, and practice, thereby reinforcing the argument for using research as a core methodology in teaching within the WIL context (Mutambara, 2023).

Despite the pedagogical benefits brought by digital and AI-augmented tools, the field of GAI and the incorporation of applied research in general education present new challenges. GAI must be embedded within educational research and assessment processes; its use and misuse, as

well as over-reliance, should be mitigated, and the risk of academic dishonesty should be minimised through proper training and institutional protocols (Matarazzo et al., 2025). This implies concerns regarding academic integrity violations, pedagogical impacts, and over-reliance. A significant question that emerges from GAI in education is whether the processes that generate information contribute to false or misleading content (also known as “hallucinations”) or reinforce societal prejudices and discriminatory beliefs (Gravino et al., 2024). GAI is increasingly utilised as a pedagogical resource, assessment tool, instructional design assistant, and academic integrity tool by teachers and student learners for specific assessment tasks, knowledge construction, and general learning activities. Mukwerete & Chikusvura-Matiza (2025) elaborate that AI implementation in higher education within Zimbabwean educational contexts has led to increased support for students through AI applications, but this has also resulted in detrimental impacts such as plagiarism and decreased student creativity, primarily due to poor accountability and weak rules or regulations. Among the normative issues involving GAI in education are algorithmic bias, transparency and accountability concerns, equity of access, privacy and security issues, and copyright infringement (Osunbunmi et al., 2024; Bala & Colvin, 2023). Matarazzo et al. (2025) identify one of the ethical questions as pedagogical dilemmas regarding the use of GAI in education. Ethical issues include data privacy and model bias, reliance on the system, and concerns about misinformation and AI-generated inaccuracies that compromise the credibility of educational content. Mismanagement of GAI weakens student teachers’ applied research projects by misrepresenting engagement across Kolb’s ELT cycle, leading to superficial experiences, uncritical reflection, weakened conceptualisation, and less authentic application.

## **4.2 Institutional responses**

The adoption of AI for assessing student applied research raises fairness and equity issues, as biases and prejudices can influence assessment results. However, assessment design needs to address these concerns. On one hand, AI may lead to more personalised learning and mastery for students; on the other hand, it could result in deficiencies in critical thinking, creativity, and problem-solving skills. As a result, at this stage a big question arises how to balance the advantages and disadvantages of AI-enabled learning while ensuring a continued focus on quality, human-centred teaching approaches? In this context, guidelines are increasingly important to clarify instructions that can be applied to teacher practice, recognising student use of AI and treating AI as a constructive tool against AI-enabled academic malpractice

The Open Innovation Team and the Department for Education (2024) recommend a government response that targets research resources and develops curricula in response to the impact of AI on education. Bala and Colvin (2023) propose three policy measures to regulate Generative AI (GAI) in assignment coursework: prohibiting its implementation when it counteracts basic learning; allowing its deployment only with clear responsibilities in mind; and promoting its application to support higher-order learning, creativity, and critical thinking. GAI

does not offer a universally applicable institutional response. Other institutions have sought to prevent the implementation of GAI through bans and policy or technical measures, but none have been effective, particularly as technology for GAI tools becomes increasingly accessible. These measures have not led to widespread adoption or monitoring, resulting in more nuanced approaches to piloting approved tools, managing risk, or providing flexibility for educators without a solid institutional foundation (Open Innovation Team & Department for Education, 2024). Although Zimbabwean universities operate with a degree of autonomy, teacher education currently reflects weakly regulated, flexible GAI use, with the most feasible and effective response being guided integration supported by clear accountability, rather than prohibition or resource-intensive control systems.

As such, tackling AI-induced academic malpractice should be inclusive in nature, involving new forms of evaluation, expanded invigilation, policy clarity, staff development, and oral exams or vivas (Open Innovation Team & Department for Education, 2024). It is recommended that further action and transparency in the use of GAI are also implemented in this process of learners' improvement, which may include AI assistance in recognising, summarising, brainstorming ideas, or generating initial lists of resources to be systematically and critically scrutinised and documented (Bala & Colvin, 2023). Similarly, Matsa and Chikunda (2024) suggest that for teacher education to be effective, research-informed pedagogies coupled with exercises to encourage the development of student teachers (reflective practitioners, responsible researchers, and technology users) in their classrooms should be applied. European organisations are also calling for the responsible application of AI systems in educational tasks globally, with the right measures, policy frameworks, capabilities, and regulatory and experimental academic research and laboratories to ensure such activities are used responsibly (Gravino et al., 2024). Though this intervention represents a shift from unregulated and ineffective control of GAI towards a structured, pedagogy-driven model, it needs adaptation to fit Zimbabwe's resource-constrained higher education context. Moreover, research is still needed to address certain areas (e.g., ownership of intellectual property of the outcomes of AI and the sustainability of the educational publishing ecosystem) (Open Innovation Team & Department for Education, 2024).

## **5. Conclusions**

With GAI's strategic support, TP and applied research hold great potential as forms of WIL in teacher education in Zimbabwe. These modalities promote service learning, cooperative educational environments, and curriculum development by fortifying the alignment of theory, research, and professional practice. In response to legitimate challenges faced by students in school and community contexts, applied research projects enable student teachers to put pedagogical theory into practice in a context-appropriate manner. However, the application of GAI is fraught with significant risks due to its uncritical or inadequately managed incorporation. Academic dishonesty can occur through the misuse of GAI tools, making it challenging for

teacher educators to verify the authenticity of students' applied research. Some student teachers may also plagiarise or invent fictitious research problems and solutions. Consequently, students may engage superficially with applied research, hindering their development of essential skills such as interpersonal skills, creativity, critical thinking, and problem-solving. On a larger scale, robust governance mechanisms are crucial to ensuring that the educational value and integrity of AI-supported applied research projects as WIL are maximally utilised. Such frameworks can include systems for monitoring and evaluation, transparent AI models, standards for AI integration, and XAI frameworks. This approach is vital for safeguarding data protection, ethical research practices, equitable access, and the credibility of content. Ultimately, this can position applied research projects as authentic, credible, and sustainable WIL strategies in Zimbabwean teacher education.

Despite the relevance of the findings, this study is constrained by a number of methodological and contextual limitations. As a conceptual analysis, this chapter does not provide empirical evidence for the claims made. The findings are interpretive and should be validated through primary research. Furthermore, the analysis focuses on a single theoretical perspective, ELT, and may not capture the full complexity of WIL and GAI integration. Despite these limitations, this work contributes significant information regarding TP and applied research endeavours.

## **5.1 Recommendations and future directions**

Much more is required to examine the impact of applied research projects as WIL in teacher education in Zimbabwe. This will activate student teachers' competencies as professionals, enhance reflection, and prepare them for classroom realities. Future research should employ a design-based approach to co-develop and test a context-sensitive framework for GAI use in applied research projects, involving a cohort of student teachers and their mentors in Zimbabwean universities. This could inform and experiment with context-sensitive frameworks for ethical and pedagogically sound GAI implementation in applied research endeavours moving forward. Such frameworks should emphasise not only academic integrity and respect for authenticity in university students' work but also the advancement of higher-order thinking skills. However, issues related to heavy dependence on AI as content generators, fabricated research outputs, plagiarism, and fake results generated by AI must be addressed. Mixed methods and quasi-experimental approaches, supported by case study or action research designs to capture the contextual and practical realities of implementation, can be employed to evaluate the success of professional development programmes. Such programmes can subsequently be designed to enhance educators' ability to supervise applied research while using AI tools responsibly. Even though this approach addresses aspects of learning AI in Zimbabwean teacher education, further work is needed to comprehend what the wider implications of applying Explainable AI (XAI) principles would be in facilitating transparency in assessment and guided decision-making in Zimbabwean teacher education.

## 6. Declarations

**Funding:** No funding was established for this study.

**Conflicts of Interest:** Both authors declare no conflict of interest in this study.

## References

- Almpanis, T., Conroy, D., & Joseph-Richard, P. (2025). Practical implications of generative AI on assessment: Snapshot of early reactions to assessment redesign in an HRM and a psychology course. *Electronic Journal of e-Learning*, 23(3), 19–29. <https://doi.org/10.34190/ejel.23.3.3971>
- Al-Thani, N. J., & Ahmad, Z. (2025). Teaching research to teachers—Traversing from research-oriented education to research learning theory. In *Teaching and learning with research cognitive theory* (pp. 97–112). Springer. [https://doi.org/10.1007/978-3-031-87544-1\\_6](https://doi.org/10.1007/978-3-031-87544-1_6)
- Association for Experiential Education. (n.d.). What is experiential education? <https://www.aee.org/what-is-experiential-education>
- Bala, K., & Colvin, A. (2023, July 18). Generative artificial intelligence for education and pedagogy (Committee report). Cornell University, Center for Teaching Innovation. [https://teaching.cornell.edu/sites/default/files/2023-08/Cornell-GenerativeAIForEducation-Report\\_2.pdf](https://teaching.cornell.edu/sites/default/files/2023-08/Cornell-GenerativeAIForEducation-Report_2.pdf)
- Bertram, C., & Rusznyak, L. (2018). *Theorising knowledge for teacher education*. Routledge. <https://doi.org/10.4324/9781315199963>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Darling-Hammond, L. (2025). A systematic review of the impact of teacher professional development on digital instructional integration and teaching practices. *Frontiers in Education*, 10, Article 1541031. <https://doi.org/10.3389/educ.2025.1541031>
- Dika, S. L., Ahlgrim-Delzell, L., & Privitera, G. J. (2025). *Research methods for education* (2nd ed.). SAGE Publications.
- Ferns, S., Rowe, A. D., & Zegwaard, K. E. (Eds.). (2021). *Advances in research, theory and practice in work-integrated learning: Enhancing employability for a sustainable future*. Routledge. <https://doi.org/10.4324/9781003080080>
- Fodouop, A. W., Kouam, A., & Muchowe, R. M. (2025). Assessing the role of AI technology in mitigating the equity gap in educational access in Zimbabwe: Barriers and implications. *Journal of Applied Learning & Teaching*, 8(1). <http://journals.sfu.ca/jalt/index.php/jalt>
- Fütterer, F., & Runge, C. (2025). Rethinking professional development: Development and evaluation of an evidence-based online PD course on the effective use of technology in the classroom. *Education Sciences*, 15(2), Article 205. <https://doi.org/10.3390/educsci15020205>
- Gravino, C., Iannella, A., Marras, M., Pagliara, S. M., & Palomba, F. (2024). Teachers interacting with generative artificial intelligence: A dual responsibility. In S. Di Martino et al. (Eds.),

- Proceedings of the Ital-IA 2024 thematic workshops* (pp. 83–88). CEUR-WS. <https://ceur-ws.org/Vol-3762/579.pdf>
- Green, P., Kolb, A. Y., Kolb, D. A., & Kuh, G. (2024). Defining experiential education: The field's seminal thinkers take stock and look ahead. *Experiential Learning & Teaching in Higher Education*, 7(1). <https://doi.org/10.46787/elthe.v7i1.4010>
- Griffiths, V., & Tann, S. (2019). Teacher education and the problem of theory and practice. *Journal of Education for Teaching*, 45(3), 231–244. <https://doi.org/10.1080/02607476.2019.1619517>
- International Development Research Centre. (2024). *Teacher professional development: A research synthesis*. IDRC.
- Jackson, D., & Bridgstock, R. (2021). What actually works to enhance graduate employability? *Teaching in Higher Education*, 26(5), 606–620. <https://doi.org/10.1080/13562517.2019.1576161>
- Johari, N. S. B., Saad, N., & Kasim, M. (2022). Teacher collaboration and its influence on teachers' self-efficacy among secondary school teachers. *International Journal of Evaluation and Research in Education*, 11(4), 1873–1880.
- Kahn, P., Carrigan, M., Smith, P., Murtagh, L., Liu, R., & Song, F. (2025). Teacher agency and generative artificial intelligence: Teaching in higher education as a responsive, cultural activity. *Learning, Media and Technology*. <https://doi.org/10.1080/17439884.2025.2575993>
- Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development* (2nd ed.). Pearson.
- Kumar, R. (2021). *Research methodology: A step-by-step guide for beginners* (5th ed.). Pearson.
- Kumar, T., Kait, R., Ankita, & Malik, A. (2024). The role of generative artificial intelligence (GAI) in education. In B. Shukla et al. (Eds.), *Intelligent IT solutions for sustainability in Industry 5.0 paradigm* (Lecture Notes in Electrical Engineering, Vol. 1185, pp. 195–207). Springer. [https://doi.org/10.1007/978-981-97-1682-1\\_17](https://doi.org/10.1007/978-981-97-1682-1_17)
- Matarazzo, M., Caldelli, R., Martini, B., & Sciarrone, F. (2025). The impact of artificial intelligence and generative AI in education: A review of the post-ChatGPT era. In *Proceedings of the International Conference on Technology, Innovation and Industrial Management for Sustainable Development* (pp. 439–445). ToKnowPress.
- Matsa, W., & Chikunda, P. (2024). Revisiting teaching practice assessment in teacher education. *Journal of Research Innovation and Implications in Education*, 8(3), 279–293. <https://doi.org/10.59765/sipiw4956>
- Mesuwini, J., Thaba-Nkadimene, K. L., Mzindle, D., & Mokoena, S. (2023). Work-integrated learning experiences of South African TVET lecturers. *International Journal of Work-Integrated Learning*, 24(1), 83–97.
- Ministry of Primary and Secondary Education. (2015). *Curriculum framework for primary and secondary education 2015–2022*. Government of Zimbabwe.

- Mtsetwa, D. K. (2014). Continuous professional development of teachers: A case of Zimbabwe. *International Journal of Humanities and Social Science*, 4(4), 267–275.
- Mukeredzi, T. G., & Manwa, L. (2019). Inside mentor–mentee meetings in pre-service teacher school-based teaching practice in Zimbabwe. *Australian Journal of Teacher Education*, 44(7), Article 3. <https://doi.org/10.14221/ajte.2019v44n7.3>
- Mukwerete, K., & Chikusvura-Matiza, N. (2025). Integration of artificial intelligence by tertiary education students in Zimbabwe. *Randwick International of Education and Linguistics Science Journal*, 6(1), 153–162. <https://doi.org/10.47175/rielsj.v6i1.1143>
- Mutambara, T. E. (2023). Service learning in teacher education programmes: A literature review. *International Journal of Higher Education Management*, 9(2), 63–78.
- Nikolopoulou, K. (2025). Generative artificial intelligence and sustainable higher education: Mapping the potential. *Journal of Digital Educational Technology*, 5(1), ep2506. <https://doi.org/10.30935/jdet/15860>
- Open Innovation Team, & Department for Education. (2024). *Generative AI in education: Educator and expert views*. UK Government. <https://www.gov.uk/government/publications/generative-ai-in-education-educator-and-expert-views>
- Osunbunmi, I. S., Cutler, S. L., Dansu, V., Brijmohan, Y., Bamidele, B. R., Udosen, A. N., Arinze, L. C., Oje, A. V., Moyaki, D., Hicks, M. J., & Shih, B. P. (2024). Generative artificial intelligence-assisted learning. In *Proceedings of the 2024 ASEE Annual Conference & Exposition*. <https://doi.org/10.18260/1-2--47041>
- Ryan, R. M., & Deci, E. L. (2020). Self-determination theory and autonomy support in education. *Frontiers in Education*. <https://www.frontiersin.org/articles/10.3389/feduc.2020.00107/full>
- Sachs, J., Rowe, A., & Wilson, M. (2017). *Good practice report: Work-integrated learning (WIL)*. Department of Education and Training. [https://ltr.edu.au/resources/WIL\\_Report.pdf](https://ltr.edu.au/resources/WIL_Report.pdf)
- Stirling, A., Kerr, G., Banwell, J., MacPherson, E., & Heron, A. (2016). *A practical guide for work-integrated learning*. Higher Education Council of Ontario.
- Tsafos, V. (2025). Developing inquiry and reflection skills through action research in teacher education. *Journal of Teaching and Teacher Education*, 67, 47–60.
- Universities Australia. (2019). *Work integrated learning in universities: Final report*. <https://universitiesaustralia.edu.au/wp-content/uploads/2022/03/WIL-in-universities-final-report-April-2019.pdf>

**Disclaimer:** The views, perspectives, information, and data contained within all publications are exclusively those of the respective author(s) and contributor(s) and do not represent or reflect the positions of ERRCD Forum and/or its editor. ERRCD Forum and its editor(s) expressly disclaim responsibility for any damages to persons or property arising from any ideas, methods, instructions, or products referenced in the content.