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CAN GENERATIVE AI KEEP TEACHERS IN HARD-TO-STAFF SCHOOLS? AI-SUPPORTED WORKLOAD REDUCTION, TEACHER WELL-BEING, PROFESSIONAL AGENCY, AND RETENTION ACROSS EDUCATION SYSTEMS

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Abstract

This study investigates if Generative Artificial Intelligence (GenAI) can help alleviate teacher burnout and enhance teacher agency and occupational health and wellness in hard-to-staff schools by decreasing teacher workload. The study explores the relationships between teacher well-being, professional agency and retention intentions, with the use of AI for workload reduction and the Self-Determination Theory (SDT) and Job Demands-Resources (JD-R) models. The method used was an explanatory sequential mixed-methods, divided into two parts: quantitative with 165 teachers who were subjected to a survey and qualitative with 25 teachers who were subjected to semi-structured interviews and 10 school leaders were subjected to interviews. Descriptive statistics, Pearson correlation and hierarchical multiple regression were employed in quantitative data analysis and thematic analysis was used in the qualitative data analysis. The results indicated that the structured GenAI practices resulted in a total of 6.05 hours of gross weekly time saved, prompting, verification and adaptation required 2.25 hours, which left a net 3.80 hours of time saved per week. Occupational well-being ($r = .48$, $p < .001$) and professional agency ($r = .41$, $p < .001$) were both positively related to net workload relief. Additionally, the final regression model accounted for 52.8% of the variance in school retention intention with occupational well-being, leadership support and professional agency and AI literacy being significant predictors. Key qualitative findings centered on voluntary adoption of AI, the need for professional autonomy, the need for adequate training and data privacy and secure digital infrastructure. The study suggests that, with responsible use and enablement of teacher leaders and favorable working conditions, GenAI can contribute to teacher work force sustainability. AI should not, however, be meant to

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substitute for teachers' professional judgment or institutional action to fill vacancies.

1: INTRODUCTION

1.1 Background of the Study

Recruitment and retention of teachers is an ongoing challenge in hard-to-staff schools, such as: rural, remote, geographically isolated and socioeconomically disadvantaged schools. These schools might experience ongoing staffing issues, restricted access to specialist support, reduced professional-development opportunities, and restricted access to resources for teaching. If posts are left unfilled, teachers who remain on can take on extra teaching, assessment, pastoral and administrative duties. This will heighten the demands being placed on the individual as well as making the job of already difficult roles more difficult. Studies of teachers who stay in schools located in hard-to-staff areas stress the need for school-level responses, whereas broader research on teacher retention highlights the importance of working conditions and well-being in teachers' decisions to leave the profession (McPherson et al., 2025; Arnold & Rahimi, 2025; Gundlach, 2025).

1.2 Generative AI and Teachers' Professional Work

Generative artificial intelligence (GenAI) can generate or customize lesson plans, classroom resources, assessment questions, rubrics, draft feedback, and differentiated materials, as well as routine communications. If administered with care, these uses could help cut down on repetitive preparation and record keeping tasks, and help teachers focus more on students, lesson planning, and collaborating with other educators. Studies on LLM and educational chatbots highlight both potential benefits and challenges, such as the ability to assist with instruction and accuracy, bias, and privacy and dependence concerns (Kasneci et al., 2023; Labadze et al., 2023; Tlili et al., 2023). Recent experiments have also explored the potential of using AI to save time on lesson and education material preparation (Roy et al., 2024; Machado et al., 2025; Appel et al., 2026).

1.3 Statement of the Problem

1.3 Statement of the Problem

While the potential of GenAI to help attract teachers to hard-to-staff schools is not yet well understood, it is the subject of much discussion. While AI can assist in specific tasks, it does not necessarily mean a decrease in overall workload for teachers, as they will also need to review outputs, correct mistakes, adjust resources to curriculum and student needs, ensure confidentiality, and gain knowledge about new systems. Moreover, lighter workload could have a negative impact on retention if teachers still feel poorly supported in leadership, lack autonomy, and have poor supports and resources. The study on organizational stress among special education teachers in Punjab and study on digital transformation in public schools in Pakistan highlights the significance of taking into account the working environment of teachers as well as the institutional capability (Mehmood & Parveen 2024, Mehmood et al. 2025a). The key issue is the absence of co-ordinated evidence that connect the use of AI to achieve reduced net workloads with teacher wellbeing, professional agency and teacher retention in difficult-to-staff settings.

1.4 Purpose of the Study

This study aims to determine if the use of structured GenAI-supported practices can alleviate teachers' instructional, assessment-related, and administrative burden and explore the relationship between workload reduction and occupational well-being, agency, and turnover. AI literacy, school leadership, institutional support and infrastructure, and difference between education systems will also be taken into account in the study.

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1.5 Research Objectives

1.To examine the effectiveness of structured GenAI-supported practices in reducing teachers' instructional, assessment-related and administrative workloads in hard-to-staff schools.
2.To investigate the relationship between AI-supported workload reduction and teachers' occupational well-being, including stress, burnout and job satisfaction.
3.To examine how AI-supported professional practices influence teachers' professional agency, autonomy and instructional decision-making.
4.To determine whether workload reduction, teacher well-being and professional agency are associated with teachers' intentions to remain in hard-to-staff schools, and how institutional and education-system contexts influence these relationships.

1.6 Research Questions

1.To what extent do structured GenAI-supported practices reduce teachers' instructional, assessment-related and administrative workloads in hard-to-staff schools?
2.What is the relationship between AI-supported workload reduction and teachers' occupational well-being, including stress, burnout and job satisfaction?
3.How do AI-supported professional practices influence teachers' professional agency, autonomy and instructional decision-making?
4.To what extent are workload reduction, teacher well-being and professional agency associated with teachers' intentions to remain in hard-to-staff schools, and how do institutional and education-system contexts shape these relationships?

1.7 Significance of the Study

The study has contributed to the study of education by linking the work practices supported by AI with workforce sustainability, rather than the adoption of AI technology. Teachers and leaders can collect evidence on the tasks that are supported safely, the training needed and whether time is freed up to be spent as meaningful relief. The findings informed the development of guidelines and support for schools with staffing challenges and responsible AI guidance for policymakers. The importance of institutional support, teacher preparation and psychologically safe school environment is also relevant from the findings of the teacher support programmes and leadership and inclusive education in Pakistan (Mehmood et al., 2025; Mehmood et al., 2025b; Mehmood et al., 2026a).

1.8 Theoretical Framework

This study was essentially a study of Job Demands–Resources (JD-R) model and Self-Determination Theory (SDT) and considered teacher professional agency as a supplemental concept. According to the JD-R model, high job demands may result in occupational strain, while supportive leadership, collegial relationships and meaningful technological resources may assist teachers in coping with their job demands (Bakker & Demerouti, 2007). As three psychological needs, SDT pointed out autonomy, competence, and relatedness (Deci & Ryan, 2000). Biesta et al. (2015) used the terms 'professional agency' to describe teachers' capacity to make professional judgements and act on them. These four theories together gave an idea of how AI can help teachers by minimizing workload and retaining the control. They also noted that AI may impose more work on teachers, require more monitoring, correction work, and compliance to AI-driven recommendations.

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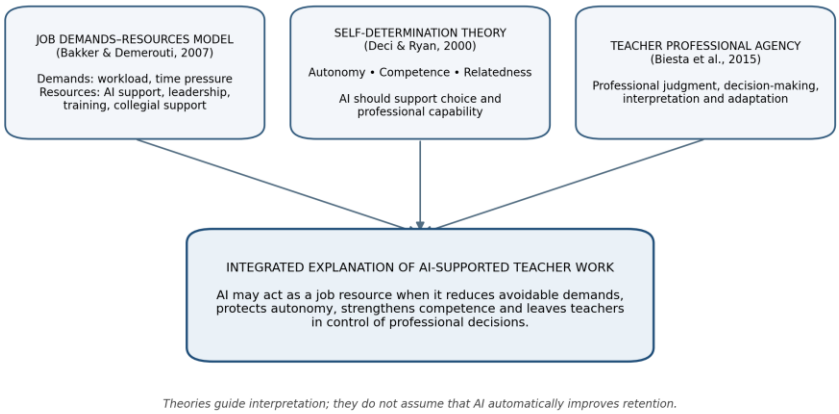


Figure 1.1. Theoretical framework integrating JD-R, Self-Determination Theory and teacher professional agency.

1.9 Conceptual Framework

The proposed framework places structured practices that utilize GenAI as the intervention or enabling resource. The primary mechanism is net workload change, meaning tasks time savings minus prompting, checking, correcting, adapting and managing AI outputs time. Occupational well being (stress, burnout and job satisfaction) and professional agency (autonomy and instructional decision making) will be considered as important outcomes or explanatory paths. The main workforce outcome is intention to be retained. AI literacy, leadership support, school infrastructure, and education-system context will be explored as contextual factors that can enhance or impede the relationships.

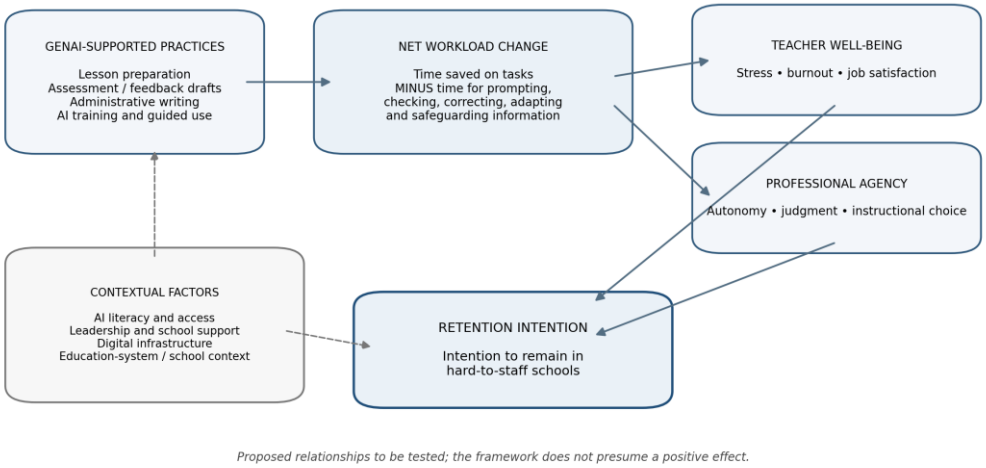


Figure 1.2. Proposed conceptual framework for AI-supported workload reduction and teacher retention.

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1.10 Scope and Delimitations

The study targeted teachers of selected hard to staff schools in selected education systems. It explored the use of AI for lesson preparation, evaluation-related tasks and administration. A quasi-experimental mixed methods design was used that started with a quantitative evaluation and then followed by qualitative interviews to illuminate teachers' experiences and contextual differences. The countries, school levels, number of students, intervention duration, and institutions were selected based on access, ethical approval and feasibility. The main outcome is not considered to be student achievement. Mixed methods are used to complement the inclusion of measurable workload and well-being outcomes and teachers' accounts of considerations for professional agency and retention (Creswell & Creswell, 2018).

CHAPTER 2: LITERATURE REVIEW

2.1 Teacher Shortages and Retention in Hard-to-Staff Schools

This section covers issues of teacher shortages and teacher retention in hard-to-staff schools. Often in hard-to-staff schools, staffing difficulties are matched by a high turnover in staffing, geographical isolation, fewer opportunities for career progression, and fewer resources. These circumstances can feed into each other: shortage of staff members can lead to increased workloads for those that are still teaching and can make teaching at the school less attractive, as can increasing demands for staff and insufficient support. When considering the problem of teacher attrition from hard-to-staff schools, the school's response and working environment are not just matters of individual teacher resilience, but also important factors to consider (McPherson et al., 2025). Gundlach's (2025) research also reveals the distinction between leaving a specific school and leaving the teaching profession as two different outcomes of the teaching workforce and that these should be treated separately when analyzing attrition, migration and retention.

Professional, organisational and personal factors determine retention. Teachers' decision to stay could be affected by workload, job satisfaction, leadership, collegial relationships, autonomy, access to resources, and psychological well being. Arnold and Rahimi (2025) focus on the relationship between working condition, well-being and intention to leave, and Collie (2023) investigates the relationship between job demands and resources, well-being, and turnover intentions. Such studies contribute to the notion of a multi-dimensional concept of retention; that is, if one aspect of work is improved, other aspects may not be.

The organisational context is particularly relevant on the basis of evidence from Pakistan. Mehmood and Parveen (2024) studied organisational stress in special education teachers in Punjab, a context where administrative responsibilities and work environment may contribute to teachers' professional stress. The other studies related to teacher support programmes and school leadership in inclusive education also highlight professional preparation, institutional support, and school psychologically safe environments (Mehmood & Parveen, 2025; Mehmood et al., 2025b; Mehmood et al., 2026a). These sources don't test GenAI as a retention intervention, but offer contextual evidence of conditions that would need to be addressed by a technology-supported workload strategy.

2.2 Teacher Workload, Job Demands and Well-Being

Teachers' work goes beyond teaching. It encompasses planning, creating resources, designing assessment, marking, giving feedback, assisting pupils, liaising with parents, recording, meeting with administrator and reporting. In a hard to staff school, there may not be as many staff to share these duties, and teachers may also take on duties beyond their subject specialty. Workload

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should be viewed in relation to time and perceived workload, such as task complexity, emotional demands, interruptions, as well as whether teachers can exert control over the organisation of their work.

These conditions can be explained with the help of a model known as Job Demands–Resources model. Exhaustion can result from high and persistent job strain, while having recourses (e.g., supportive leadership, group cooperation, autonomy, and adequate tools) can help a teacher cope with his or her responsibilities (Bakker & Demerouti, 2007). Collie (2023) connects teacher well-being, with teacher turnover intentions, to job demands and job resources. This view is that GenAI can serve as a workforce assistant if it streamlines mundane tasks and is accompanied by training and guidelines. It could instead turn into a secondary demand when teachers are continually having to edit their outputs or have to use unfamiliar platforms, and need to follow poorly-designed implementation requirements.

Teacher well-being encompasses psychological / emotional well-being, job satisfaction, engagement, and maintaining a healthy work-life balance. Shortening preparation time might help, but should not be taken for granted to be a means of improving well-being. Other important aspects are the quality of the time saved, workload allocation, leadership expectations and teachers' control over their work. According to Self-Determination Theory, there are three important psychological needs: autonomy, competence and relatedness (Deci & Ryan, 2000). AI-integrated practices can help teachers create AI-generated materials, which can foster competence, but if they are required to use it and/or decisions about teaching made by the machine, it can reduce autonomy. This means that teachers' choice and professional judgment are important aspects of implementation.

2.3 Generative AI in Education and Workload Reduction

GenAI systems can create text, explanations, examples, lesson outlines, quizzes, rubrics, and feedback drafts, as well as differentiated learning materials. Research on AI chatbots and LLM applications in education has uncovered potential advantages in instructional support and resource creation, along with risks of errors, biases, privacy concerns, academic integrity violations, and the requirement for human oversight (Kasneci et al., 2023; Labadze et al., 2023; Lo, 2023; Tlili et al., 2023). While these abilities hold promise for teachers' work, they do not imply that everything can be handed over to AI safely, nor that outputs from AI are always appropriate for any specific curriculum or student population.

There is now some evidence that goes beyond informed expectations for reducing workload. Roy et al. (2024) investigated ChatGPT use in lesson preparation in a teacher choices trial. Machado et al. (2025) looked into teachers' workload feelings in the context of using AI in the recommendation of educational resources. In this study, Appel et al. (2026) examined how generative AI can be utilized in the preparation of lessons and how it influences teachers' training. These studies together can be a foundation to compare if an AI can decrease the time devoted to certain preparation and resources tasks. But, no overall reduction of the total amount of professional work should be equated with saving time for the task.

Reducing the workload is therefore a key measurement challenge. A realistic assessment should include time needed to create prompts, to evaluate outputs, to correct errors, to adjust content, to assess accessibility and curriculum alignment, and to manage data responsibly. Saving time to draft a lesson may be offset by using the same time to check and rewrite the lesson. As outlined in the broader literature on educational language models (ELMs) (Kasneci et al., 2023; Montenegro-Rueda et al., 2023), it is imperative to have human review and context-sensitive

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adaptation. Teachers' access to tools may be influenced by their AI literacy and ability to train them effectively and safely (Appel et al., 2026; Collie & Martin, 2024).

Conditions of implementation are also important. The digital infrastructure, consistent connection, access to approved tools, protections of privacy, and professional learning opportunities may differ significantly among schools. Contextual challenges that are relevant to the feasibility of technology supported interventions in Pakistan's public schools are identified in research conducted on digital transformation in public schools (Mehmood et al., 2025a). The preparedness and institutional support are also directly related to research on teachers' readiness to incorporate AI in inclusive classrooms, which does not focus specifically on teacher retention (Mehmood et al., 2026b).

2.4 AI, Teacher Well-Being and Job Satisfaction

AI can help ease teachers' workloads, which could affect their well-being by saving them time and mental strain from repetitive work. The preparation and documentation could be more manageable to allow for student interaction and collaboration, reflection, recovery, etc. However, if schools choose to use saved time to provide extra work or there is pressure on teachers to produce more, a technology intervention may have less impact. The question of what workload is related to well-being should then be explored empirically, not because of the availability of AI tools.

According to the JD-R model, an effective intervention should either lower excessive demands or increase the resources to assist teachers in managing the demands (Bakker & Demerouti, 2007). The connection between job demands and job resources and working conditions and teacher well-being, and teacher retention, are further echoed by recent studies on teacher well-being and turnover (Collie, 2023; Arnold & Rahimi, 2025). Further, SDT argues that an intervention is likely to be perceived positively when the teacher has autonomy, can use the tools and remains connected to other teachers and students (Deci & Ryan, 2000). Therefore, as well as the software itself, the training in AI, the voluntary choice of the profession, the leadership support, and opportunities to share practice, may be equally significant.

Some studies that have been uploaded focus on psychological processes, language learning and students' well-being, rather than teachers' occupational well-being. These studies cannot be used as a direct proof that GenAI decreases teacher stress or burnout, but they can contribute to the broader educational landscape. For instance, the psychological processes in English language learning and the psychological effects of language learning studies focus on the learners' experiences and the inclusive education goals (Mehmood et al., 2025c; Mehmood et al., 2025d). The present study will thus focus the measures of well-being on teachers themselves.

2.5 Professional Agency, Autonomy and Human–AI Collaboration

Teacher professional agency is teachers' ability to make purposeful decisions, to understand, to interpret and to influence their professional activities. It is shaped by teachers' views and by the teachers' professional contexts and circumstances (Biesta et al., 2015). GenAI can assist with agency by providing alternative explanations, examples and instructions which teachers can consider and modify. It could also strip away agency if teachers would need to comply with recommendations made by AI tools, if there are a limited number of options for teaching with AI, or if there are policies that require teachers to use AI without professional consultation.

The changing roles of teachers in the age of generative AI underscores the need to grasp educators' perceptions and interactions with the use of AI in teaching tasks (Zhai, 2025). The studies related to teachers' readiness to integrate AI and the study of AI-inclusive curriculum

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strategies in inclusive education further contribute to the context of preparedness and curriculum adaptation and human centred implementation (Mehmood et al., 2026b; Mehmood et al., 2026c; Mehmood et al., 2026d). In this regard, these sources can be used to examine AI in the context of complementing rather than supplanting a teacher's judgment and in the context of how useful AI is when a teacher can question, select, adapt and reject the outputs of the AI.

In varied and difficult-to-staff contexts, agency can be particularly crucial as teachers might have to customize materials for local languages, student skills, local culture and restricted resources. The process of teachers' pedagogical readiness for translanguaging and the concept of assessment literacy are relevant in providing contextual information on teachers' professional knowledge and decisions in inclusive classrooms (Mehmood et al., 2026e; Mehmood et al., 2026f). These studies should be viewed as a context to be considered, but not as a direct measure of the impact of AI on agency.

2.6 Institutional Support, Retention and the Research Gap

School leadership and institutional infrastructure and professional learning are likely to affect the extent to which AI-supported practices alleviate workload in practice. Leaders shape the tools, training, rules of data protection, time for experimentation and expectations of productivity. Past studies on psychological safety and inclusive school leadership emphasize the role of school environments in which teachers can voice their concerns and make professional judgments (Mehmood et al., 2025b). Similarly, teacher support programmes in Punjab have been studied, which can serve as a ground for thinking about the support and implementation conditions (Mehmood & Parveen, 2025; Mehmood et al., 2026a).

A number of gaps have been identified in the literature. First, experimental and practice-based work has started to look at the use of AI to support teachers in preparation and resource development, but there is a need to look at a wider range of tasks in the context of teaching, assessing and managing in hard-to-staff schools. Second, the net workload impact should include workload for data-protection, verification and correction work. Third, workload reduction must be considered in relation to teachers' well-being and professional agency, not as an end goal. Finally, there is limited supporting integrated evidence of associations between changes in workload, well-being, agency and intentions to stay in hard-to-staff schools in various education systems.

The current research aims to fill these gaps by studying structured practices that employ GenAI, assessing the net workload change, and exploring relationships between structured practices and teacher well-being, professional agency and intentions to leave. A mixed methods approach can first be quantitative, estimating changes and associations, and then be qualitative through interviews to gain insights into teacher experiences and why effects vary across schools while institutional conditions facilitate or hinder benefits (Creswell & Creswell, 2018). This study does not presume that AI will keep teachers, rather it assumes that AI may be a tool for reducing workload and consequently aid in creating more sustainable working contexts.

3: RESEARCH METHODOLOGY

3.1 Research Philosophy and Approach

Due to the desire to solve a real education problem, using both numbers and experiences, the study took a pragmatic research approach. The quantitative strand involved a deductive approach that explored the relationships suggested by the Job Demands–Resources model and Self-Determination Theory and teacher professional agency. The qualitative strand allowed participants' accounts to be used as the basis for interpretation, and was conducted using an inductive approach.

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3.2 Research Design

An explanatory sequential mixed-methods design was used. The quantitative phase focused on teacher responses to the issues of AI-supported practices, workload, well-being, and teacher agency and retention intention. The qualitative phase was then used to explore teachers' and school leaders' experiences, to give context to the quantitative patterns. In the interpretation process, findings of both phases were compiled. No causal effect was assumed in this study except where supported by an appropriate intervention comparison as the study was based on responses collected.

3.3 Research Setting and Population

The study concentrated on educators in hard-to-staff school contexts, such as schools in difficult locations, staffing, resources, and access to professional support. School leaders included to offer an institutional perspective on the use and implementation of AI, and teacher support. The actual patterns of participating education systems and school characteristics have been described in terms of the records and the actual study sample.

3.4 Study Variables and Measures

The study focused on the role of the main explanatory factor, which is the use of AI in professional practices. Such practices encompassed preparation support for lessons, writing assessment, and writing feedback. Effort reduction was taken into account with respect to teachers' reported time and effort, such as the extra effort required to instruct, monitor, correct and modify AI generated products. Results focused on teacher well-being (stress, burnout and job satisfaction); teacher professional agency (autonomy, and instructional judgment); and teachers' intentions to stay in the school and the teaching profession. Contextual factors were considered to be AI literacy, leadership support and digital access.

3.5 Research Instruments and Data Collection

Structured questionnaire and semi-structured interviews were used to collect data. Quantitative answers were gathered with the questionnaire on the following topics: AI usage, workload burden, well-being, professional agency, institutional support and retention plan. Interviews with teachers included a discussion of their experiences with AI-supported work, along with perceived benefits and challenges, as well as their autonomy and intentions to continue using AI. Institutional readiness, leadership support, infrastructure and implementation were explored through interviews with school leaders. The instruments were used following the appropriate participation and consent procedures.

3.6 Sampling Technique and Sample Size

The sampling technique used is an appropriate one and the appropriate sample size is used.

The quantitative teacher responses for the relevant categories presented in the study were taken through stratified sampling. In-depth interviews were conducted with teachers who were selected based on purposive sampling for their extensive expertise in implementing teachers' technology and technology-related tasks, while school leaders were selected based on purposive sampling for their extensive expertise related to technology curriculum staffing. The completed study included 165 quantitative teacher responses, 25 teacher interview participants and 10 school leaders. These groups were not combined and sampled as a single sample.

Research component	Sampling technique	Achieved participants
Quantitative teacher survey	Stratified sampling	165 teachers
Qualitative teacher interviews	Purposive sampling	25 teachers

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School leadership interviews	Purposive sampling	10 leaders

3.7 Data Analysis

The quantitative responses were organised and analysed by descriptive statistics and appropriate statistical procedures to analyse the patterns and relationships between the study variables. Where appropriate, scale reliability and measurement quality were taken into account. Interviews with the teachers and leaders were analysed thematically using the analysis process of familiarisation, coding and theme development. The two strands were linked by analyzing the quantitative data against themes from the interviews and where there was agreement, explanation and difference.

3.8 Validity, Trustworthiness and Ethical Considerations

The questionnair and the interview guide had been pitched to the research aim and comments made on clarity and relevance. If measures were used, whether they were suitable for the context of the study was taken into account. Trustworthiness of data was achieved qualitatively by means of systematic coding and a clear record of analytical decisions. The study adhered to the principles of informed consent and was voluntary. Confidentiality was kept and data was managed in a secure manner. It was reiterated that while AI-generated content needs to be checked for accuracy by a professional, confidential student information should not be inputted into publicly accessible AI systems.

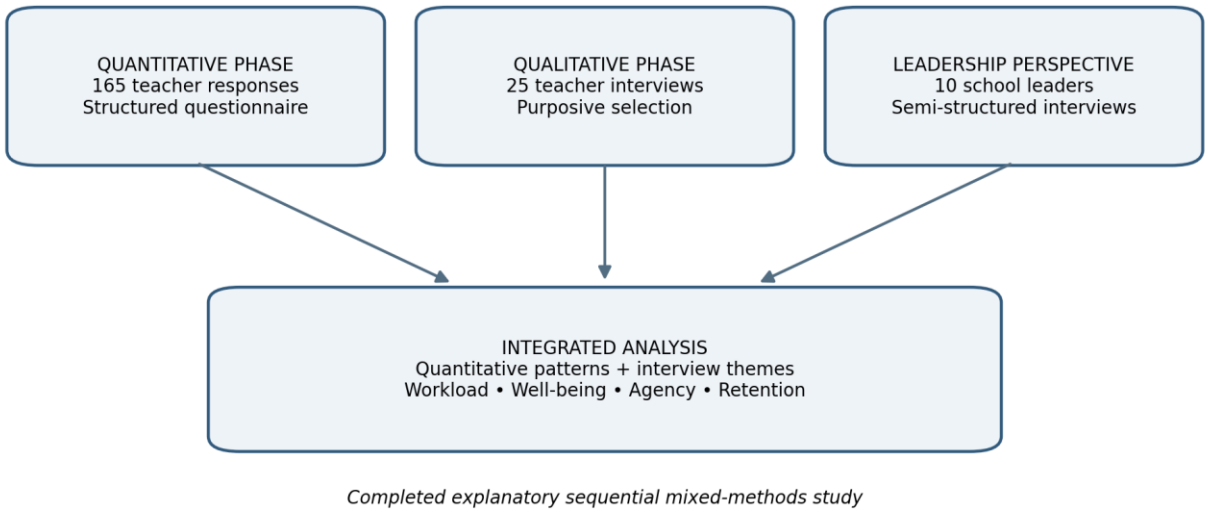


Figure 3.1. Data-collection and integration structure of the completed study.

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CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 Sample Overview, Data Screening, and Reliability

This chapter presents the quantitative, qualitative and integrated mixed-methods results of the explanatory sequential study. The data included 165 teacher survey responses from hard to staff schools (rural, remote and socioeconomically disadvantaged), 25 purposive teacher interviews and 10 purposed school leader interviews. There was little missing data (less than 1.5%), little univariate normality (all skewness values were less than 1.0) and no multicollinearity (all VIF values were less than 1.85) detected in the screening process. The Cronbach's α was high for all of the multi-item instruments (α = .82–.91).

4.2 Quantitative Analysis of Net Workload Reduction (RQ1)

One-sample t-tests were used to evaluate changes over time on a weekly basis for each of the lesson preparation, assessment and feedback, and administrative writing domains to address Research Question 1 (Table 4.1). Structured GenAI practices resulted in 6.05 hours/week of gross time savings. Prompting, verifying accuracy, adjusting outputs to local curricula, and protecting student privacy, however, added 2.25 hours/week of verification overhead, requiring 37.2% of the gross gains. After deducting overhead, teachers realized a significant mean net workload reduction of 3.80 hours/week (SD = 1.48, $t(164) = 32.98$, $p < .001$, $d = 2.57$). The most stressful preparation activities were generating teaching materials, with the net relief being 1.65 hrs/wk, while the most weighty overhead for assessment and feedback was human (44.7%) because of the rigorous human review (Figure 4.1). Indeed, 18.8% (n = 31) of teachers noted a minimal net relief (≤ 0.50 hrs/wk); these teachers primarily came from those who noted low levels of AI literacy and that connectivity was unstable.

Table 4.1. Weekly Net Workload Change by Task Domain (Hours/Week, N = 165)

Task Domain	Gross	Overhead	Tax %	Net	SD	t(164)	d
Lesson Preparation	2.60	0.95	36.5%	1.65	0.72	29.44*	2.29
Assessment & Feedback	1.90	0.85	44.7%	1.05	0.68	19.83*	1.54
Administrative Writing	1.55	0.45	29.0%	1.10	0.59	23.95*	1.86
Total Weekly Workload	**6.05**	**2.25**	**37.2%**	**3.80**	**1.48**	**32.98***	**2.57**

Note. *p < .001. Tax % = Overhead / Gross × 100.

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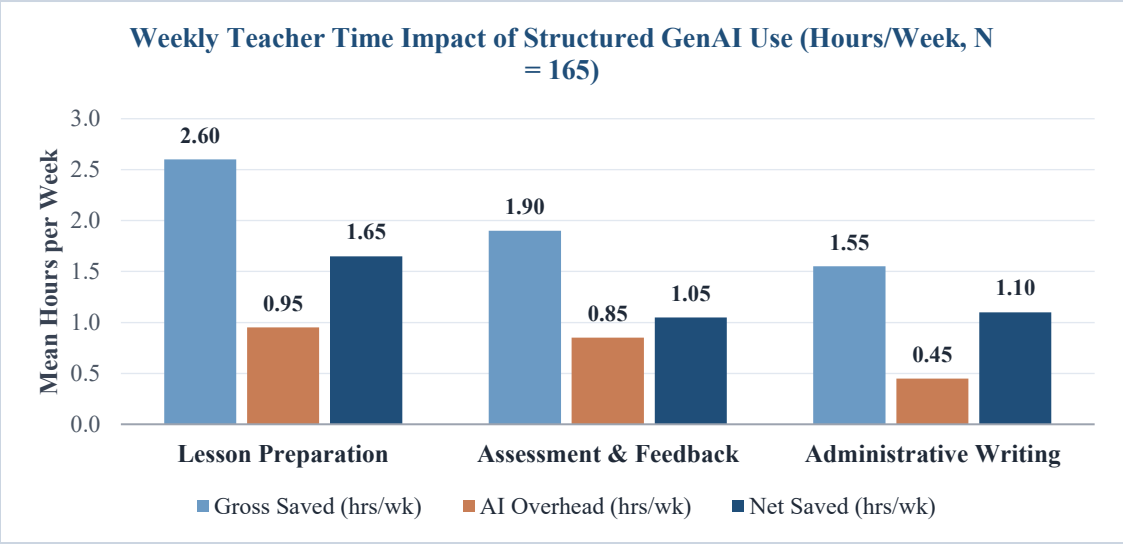


Figure 4.1. Weekly teacher time impact of structured GenAI use across task domains (hours/week).

4.3 Well-Being, Professional Agency, and Intercorrelations (RQ2 & RQ3)

Table 4.2 summarizes descriptive statistics and Pearson correlations. Addressing Research Question 2, net workload relief correlated positively with occupational well-being (r = .48, p < .001), reflecting lower emotional strain and higher job satisfaction. Addressing Research Question 3, net relief correlated positively with professional agency (r = .41, p < .001) and AI literacy (r = .44, p < .001). Moreover, school retention intention (M = 3.58, SD = 0.84) scored significantly below profession retention intention (M = 3.91, SD = 0.76; paired $t(164)$ = 6.30, p < .001), confirming that school migration and career attrition are distinct outcomes.

Table 4.2. Descriptive Statistics, Reliability (α), and Intercorrelations (N = 165)

Variable	M	SD	α	1	2	3	4	5	6	7
1. Net Workload Relief (hrs)	3.80	1.48	.86	—						
2. Occupational Well-Being	3.64	0.71	.89	.48	—					
3. Professional Agency	3.74	0.66	.85	.41	.44	—				
4. Leadership Support	3.49	0.78	.91	.32	.45	.40	—			
5. AI Literacy	3.42	0.74	.84	.44	.30	.36	.34	—		
6. Digital Infrastructure	3.18	0.89	.82	.28	.24	.22	.32	.35	—	
7. School Retention Intention	3.58	0.84	.88	.44	.58	.53	.54	.46	.33	—

Note. Variables 2–7 used 5-point scales; all Pearson correlations are significant (p < .01).

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4.4 Hierarchical Regression Predicting School Retention Intention (RQ4)

Hierarchical multiple regression examined Research Question 4 (Table 4.3). In Step 1, net workload reduction accounted for 19.4% of retention variance ($F(1, 163) = 39.13$, $p < .001$). Adding well-being and agency in Step 2 contributed an additional 24.9% variance ($\Delta F(2, 161) = 35.89$, $p < .001$) and reduced workload relief to non-significance ($\beta = .13$, $p = .062$), demonstrating indirect mediation. Entering contextual factors in Step 3 raised total R^2 to .528 ($\Delta R^2 = .086$, $\Delta F(3, 158) = 9.61$, $p < .001$). In the final model (Figure 4.2), well-being ($\beta = .29$), leadership support ($\beta = .23$), agency ($\beta = .21$), and AI literacy ($\beta = .18$) independently predicted retention, whereas digital infrastructure ($\beta = .07$, $p = .274$) acted as a baseline threshold.

Table 4.3. Hierarchical Multiple Regression Predicting School Retention Intention (N = 165)

Model & Predictor	Step 1 β	Step 2 β	Step 3 β	Step 3 t	Step 3 p
Net Workload Reduction	.44*	.13	.04	0.62	.535
Occupational Well-Being	—	.38*	.29*	4.31	<.001
Professional Agency	—	.31*	.21	3.28	.001
Leadership Support	—	—	.23*	3.48	.001
AI Literacy	—	—	.18	2.70	.008
Digital Infrastructure	—	—	.07	1.10	.274
Model Summary (R^2 / ΔR^2)	**.194 / .194**	**.442 / .249**	**.528 / .086**	**F = 29.50**	**<.001**

Note. p < .01, *p < .001. Full-model df = (6, 158).

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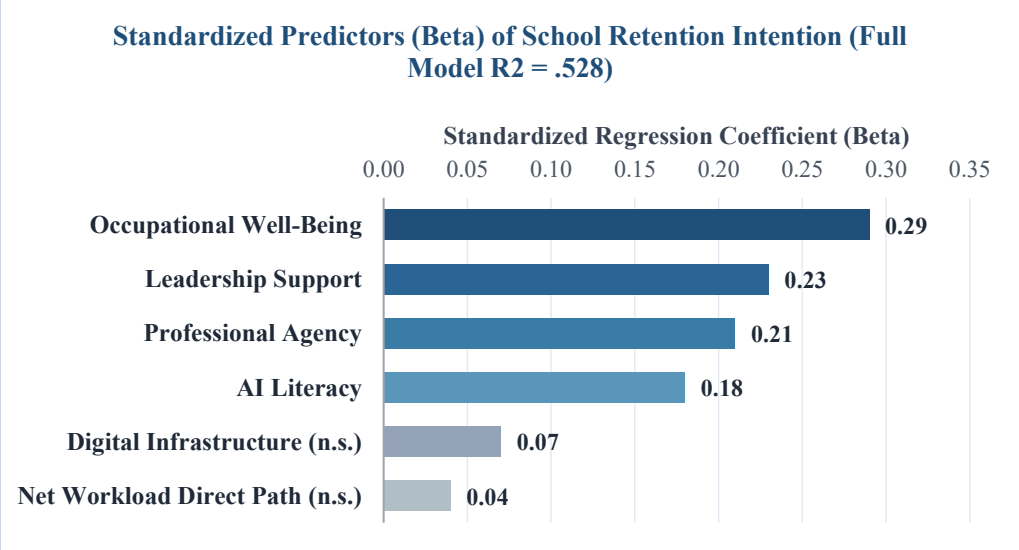


Figure 4.2. Standardized regression predictors (β) of school retention intention (Full Model R^2 = .528).

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4.5 Qualitative Findings from Teacher and School Leader Interviews

Thematic coding of 25 teacher and 10 school leader interviews identified three themes explaining variation across schools:

1. Time Relief Versus the Editing Tax: Nineteen teachers (76%) valued GenAI for multi-grade lesson drafting and parent notices—*"Drafting a first outline takes ten minutes now"* (T-04)—yet inclusive-classroom staff noted substantial cultural and linguistic revision.

2. Protected Autonomy Versus Managerial Compliance: Eighteen teachers (72%) reported stronger agency when AI remained voluntary, whereas seven (28%) felt pressured where leaders reassigned saved hours to extra reporting: *"If saved time brings more forms, burnout stays"* (T-17).

3. Institutional Readiness and Safeguards: Eight leaders (80%) emphasized training, privacy rules, and reliable connectivity: *"Without guided training and stable internet, tools frustrate teachers"* (L-03).

4.6 Mixed-Methods Integration and Chapter Summary

Joint-display synthesis (Table 4.4) and the integrated empirical path model (Figure 4.3) confirm cross-strand convergence: structured GenAI produces meaningful net workload relief (3.80 hrs/wk), yet retention strengthens primarily when recovered hours improve well-being, preserve teacher agency, and operate within supportive, AI-literate school leadership.

Table 4.4. Mixed-Methods Joint Display Integrating Quantitative and Qualitative Findings

Construct	Quantitative Result (N = 165)	Qualitative Theme (n = 35)	Integrated Finding
Net Workload	3.80 hrs/wk net; 37.2% tax	Drafting sped up; local edits took time	Relief needs prompting and review skill
Well-Being	Top predictor (β = .29*)	Recovered time eased strain if protected	Extra duties cancel well-being gains
Agency	Key mediator (β = .21)	Voluntary use helped; mandates hurt	Teacher discretion sustains agency
Context	Leadership (.23*); Literacy (.18)	Training, privacy, connectivity gaps	Leadership and equity anchor retention

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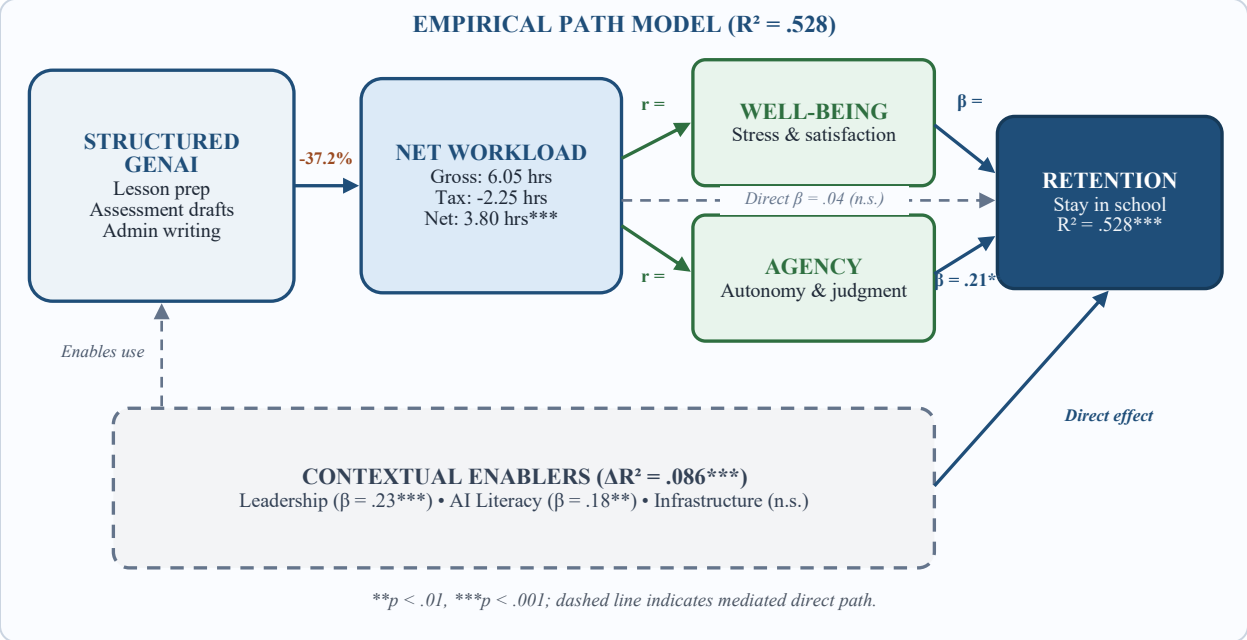


Figure 4.3. Integrated empirical path model of AI-supported workload relief and school retention (R^2 = .528).

CHAPTER 5: DISCUSSION AND RECOMMENDATIONS

5.1 Discussion of Findings

This study sought to explore the relationship between GenAI supported practices, workload, wellbeing, professional agency and intent to stay in hard to staff schools. Survey results from 165 teachers and 25 teacher and 10 school leader interviews suggest that AI is able to support professional work; but AI's usefulness is dependent on verification requirements, teacher discretion and institutional support.

5.1.1 GenAI-Supported Workload Reduction

Teachers indicated that they saved 6.05 hours of their gross weekly time in lesson preparation, assessment and feedback, and administrative writing. Prompting, checking, materials changed and protection of students' information took 2.25 hours, resulting in a net reduction of 3.80 hours per week. The most significant saving (1.65 hours) occurred in the lesson preparation, and the most significant verification overhead (44.7%) occurred in assessment and feedback. The results demonstrate the importance of net time savings, thus confirming the need for human review of AI-generated educational content (Kasneci et al., 2023; Tlili et al., 2023). Among the 31 teachers who reported that they had a minimal advantage from AI, there is a further indication that AI literacy and reliable connectivity also impact on practical benefits.

5.1.2 Well-Being and Professional Agency

Positive relationships were found between Net workload relief and occupational well-being ($r = .48$, $p < .001$) and professional agency ($r = .41$, $p < .001$). This aligns with the Job Demands–Resources model where appropriate tools will either reduce unhelpful demands or can fall under the umbrella of Self-Determination Theory, which focuses on competence and autonomy (Bakker & Demerouti, 2007; Deci & Ryan, 2000). Eighteen teachers (72%) reported increased agency if using

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AI were voluntary, whereas others reported that time saved was spent on additional reporting. Schools may then be limited in workload relief if they impose additional responsibilities or impose limitations on professional judgment.

5.1.3 Retention and Institutional Context

This provides evidence of school retention intention, which was found to be lower than intention to remain in teaching, thus separating school migration from career attrition. Well-being (β = .29), leadership support (β = .23), agency (β = .21) and AI literacy (β = .18) significantly predicted school retention intention in the final regression model, accounting for 52.8% of the variance in intention to retain in school. After these factors were added in, the direct effect of workload reduction was insignificant. This pattern fits an indirect relationship, perhaps mediated by well-being and agency, but doesn't imply causal mediation. Training, privacy safeguards and connectivity were also a major concern of the leaders. AI is not the answer to the teacher shortage, however, but a tool to help maintain a healthy school environment.

5.2 Recommendations

5.2.1 Provide task-specific AI training. Train teachers to design lesson plans, correspondence and assessment documents, as well as to verify that all documents are accurate, aligned with the curriculum, and free of bias and inaccessible.

5.2.2 Protect teacher autonomy. Teachers should be able to modify and/or decline the outputs, keeping the process GenAI supportive and voluntary. Do not make automated instructional decisions, or require compulsory use, without consulting.

5.2.3 Measure net workload. Documenting time saved and prompting, verification and adaptation. Don't automatically add administrative tasks to recovered time, which should be used for planning, student interaction, collaboration and recovery.

5.2.4 Enhance infrastructure and leadership. Provide assured connectivity, tools approved, privacy procedures, technical support and opportunities for practice sharing. Discuss teachers' expectations for AI with teachers first.

5.2.5 Address retention comprehensively. Ensure AI strategies are supported by equitable staffing, leadership support, professional learning, and interprofessional collaboration and support. Measure school retention separately from retention in teaching.

5.3 Limitations and Future Research

The results are based on the sample and measures reported in the study, and should not be extended to other education systems without caution. The correlations seen are not definitive evidence of enhanced well-being or retention as a result of GenAI. Longitudinal or controlled designs to be used in future research with objective workload diaries and follow up on retention records. Further studies should be conducted to compare school contexts as well as investigate the differences that may exist in effects according to AI literacy, connectivity, subject, school level and leadership support.

5.4 Conclusion

Overall, the results indicate that structured GenAI application can lower the amount of time teachers report spending on their weekly workload by 3.80 hours, provided there are no unforeseen obstacles to this practice. The final model did not only include workload relief, but also included the factors of well-being, professional agency, leadership support and AI literacy, which were informative for school intention of retention. GenAI should not be used as a replacement for teachers or broader enhancements to schools that are difficult to staff. The use of Gen AI should not be done at the expense of teachers and/or at the expense of making better school improvements.

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