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## Teacher Motivation in AI-Integrated School Environments

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### ABSTRACT

This study investigates how Herzberg's Two-Factor Theory and Dinham and Scott's three-domain model of teacher satisfaction apply in the context of AI integration in secondary education. Using qualitative data from secondary school teachers, the research identifies how motivators, such as professional growth, recognition, and pedagogical innovation, are influenced by hygiene factors and systemic conditions. Contrary to Herzberg's assumption of independence between motivators and hygiene factors, findings reveal that in AI-driven educational environments, intrinsic motivators are fragile and contingent on stable extrinsic and systemic support, including reliable infrastructure, technical assistance, and clear AI-related policies. The absence of such support fosters anxiety, resistance, and burnout, particularly in policy-volatile contexts. The study also highlights the roles of leadership, collegiality, and professional community in mediating AI adoption, aligning with Dinham and Scott's emphasis on systemic forces in sustaining teacher satisfaction. Policy implications include equitable investment in digital infrastructure, development of context-specific AI guidelines, and institutional recognition of innovative AI pedagogy. Practically, embedding AI literacy in workload-sensitive professional development and fostering peer-support networks are essential to sustaining motivation and reducing anxiety. By reframing motivator-hygiene dynamics through a contingency lens, this research extends Herzberg's model to technology-driven education and underscores the foundational role of systemic conditions in enabling motivators to function effectively. These findings contribute to theory refinement and offer actionable insights for policymakers, school leaders, and practitioners seeking to balance technological innovation with teacher well-being.

### INTRODUCTION

The integration of Artificial Intelligence (AI) into education represents a significant transformative development within contemporary educational practice, driven by rapid technological advancements and increasing demands for personalized and efficient instructional strategies. Research suggests that AI tools offer considerable promise in enhancing instructional quality, customizing learning experiences, automating administrative processes, and providing data-driven insights to support educational decision-making (Martínez-Comesaña *et al.*, 2023; Owan *et al.*, 2023). However, alongside these promising opportunities, AI implementation also brings substantial challenges that affect educators' professional roles and experiences. Teachers often face increased workloads, reduced autonomy, ethical concerns, and heightened stress related to adapting to new technologies, all of which may impact their overall job satisfaction and motivation (Akçaba *et al.*, 2024; Alasgarova & Rzayev, 2024; Al-Zahrani, 2024). In Azerbaijan, the educational landscape has experienced rapid modernization characterized by curriculum reforms and increased integration of digital tools, including AI technologies. Despite rising interest and ongoing policy initiatives to foster technological innovation in education, little empirical research has explicitly examined Azerbaijani teachers' experiences and perceptions of their motivation and job satisfaction in the context of

AI integration. Herzberg's Two-Factor Theory, a widely recognized motivational framework distinguishing intrinsic motivators (such as achievement, recognition, and growth opportunities) from extrinsic hygiene factors (including salary, administrative policies, and working conditions), offers a potentially valuable theoretical lens for exploring these issues (Herzberg *et al.*, 1959; Dinham & Scott, 2000). Previous research applying Herzberg's theory in educational settings underscores its utility in clarifying how various work-related factors distinctly influence teachers' job satisfaction and dissatisfaction (Ajikere, 2024; Akdemir, 2020; Ataç *et al.*, 2016). This study aims to address the identified gap by systematically examining how AI integration influences teacher motivation and satisfaction among secondary school educators in Azerbaijan through Herzberg's theoretical framework. By critically exploring both intrinsic motivators and extrinsic hygiene factors affected by AI adoption, this research will provide a nuanced understanding of the challenges and opportunities teachers encounter during the digital transformation of education.

### Research Questions

1. How do secondary school teachers in Azerbaijan perceive the hygiene and motivator factors influencing their job satisfaction and dissatisfaction?
2. In what ways does the integration of AI tools in

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secondary education influence the hygiene and motivator factors experienced by teachers in Azerbaijan?

3. What policy and pedagogical strategies can be recommended to enhance and sustain teacher motivation in the context of increasing AI adoption in Azerbaijani secondary schools?

By addressing the research questions, the current study contributes

valuable insights and practical guidance for effectively managing AI integration in educational contexts, thereby informing policy decisions and enhancing professional development efforts both within Azerbaijan and internationally.

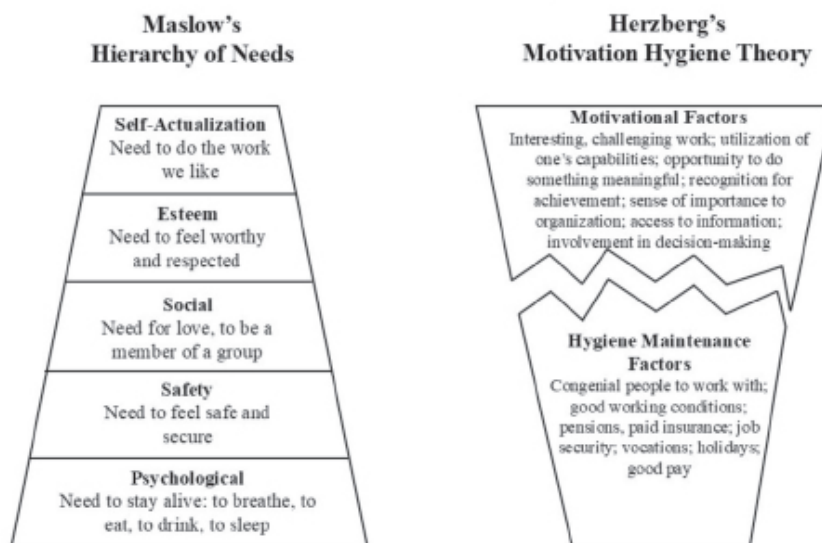
## LITERATURE REVIEW

### Herzberg's Two-Factor Theory and Its Application in Educational Contexts

Herzberg's Two-Factor Theory, first introduced by Frederick Herzberg in 1959, emerged from research into workplace motivation, notably among engineers and accountants. The theory fundamentally distinguishes between two sets of workplace influences: motivators and hygiene factors (Herzberg *et al.*, 1959). Motivators encompass intrinsic aspects directly related to the nature and fulfillment of the job itself, such as achievement, recognition, responsibility, advancement opportunities, and the inherent meaningfulness of the work (e.g., Ajikere, 2024; Akdemir, 2020; Ataliç *et al.*, 2016; Dinham

& Scott, 2000; Lee *et al.*, 2022; Miah & Hasan, 2022). These factors, when positively perceived, contribute significantly to job satisfaction and sustained motivation. Conversely, hygiene factors are extrinsic conditions of employment, including salary, administrative policies, working conditions, job security, and interpersonal relationships, that do not inherently foster satisfaction but, if inadequately managed, result in job dissatisfaction (e.g., Ajikere, 2024; Lee *et al.*, 2022).

Herzberg's theory aligns theoretically with Maslow's Hierarchy of Needs, though with important distinctions. Both theories posit that human needs drive behavior, yet they differ in the ways and sequences in which needs are met. Maslow (1943) presented a hierarchical progression from physiological needs up through safety, love and belonging, esteem, culminating in self-actualization. Herzberg, meanwhile, simplified this structure into two categories, which are motivators and hygiene factors, implicitly aligning Maslow's higher-order needs (esteem, self-actualization) with intrinsic motivators, and the lower-order needs (physiological, safety) with extrinsic hygiene factors (Spies, 2014 ) (Figure 1). However, empirical evidence challenges the strict hierarchical progression assumed by Maslow and adapted by Herzberg. Rojas *et al.* (2023) found that belongingness and esteem significantly impacted subjective well-being irrespective of whether lower-level needs had been satisfied, suggesting a more dynamic relation than originally posited.



**Figure 1:** Comparison of Maslow's hierarchy of needs and Herzberg's motivation-hygiene theory

From *The Democratization of Innovation: Managing Technological Innovation as If People Matter* (p. 20), by P. Spies, 2014, *World Futures Review*, 6(1), 15–28 (<https://doi.org/10.1177/1946756714522211>). Copyright 2014 by the Author.

Personality has been shown to significantly influence how individuals perceive intrinsic motivators and extrinsic hygiene factors. Furnham and Cuppello (2025) found that intrinsic motivation correlates strongly with personality traits such as Curiosity (linked to Openness), Ambiguity Acceptance, Conscientiousness, and low Neuroticism (Adjustment), suggesting that intrinsic motivators are

more stable and personality-driven. In contrast, extrinsic factors such as pay, perks, and conditions were more weakly associated with personality traits and were more influenced by contextual variables. These findings challenge the universal applicability of Herzberg's model, emphasizing that such individual differences as personality traits mediate responses to motivational

structures and that intrinsic and extrinsic factors may not be experienced uniformly across individuals and cultures. This insight is particularly relevant in educational settings, where contextual and personal differences significantly shape motivational dynamics. The Two-Factor Theory has been influential in educational research, especially regarding teacher motivation across diverse contexts. For example, teachers in Bangladesh and Nigeria reported notable dissatisfaction from hygiene factors such as low salaries, administrative bureaucracy, poor school infrastructure, and excessive workloads, even though improvements in these areas alone did not necessarily translate into high intrinsic motivation (Ajikere, 2024; Miah & Hasan, 2022). Similarly, Dan and Subramaniam (2023) observed Chinese teachers' high dissatisfaction stemming primarily from extrinsic hygiene factors such as excessive workload and insufficient leadership support, despite motivational elements like autonomy and professional development having relatively minor predictive power in teacher retention.

Interestingly, research on high school teachers in Turkey found that both hygiene and motivator factors contributed to job satisfaction, but hygiene factors, such as salary, supervision, interpersonal relations, and working conditions, were reported to have a stronger influence on overall satisfaction than motivators like recognition and advancement (Ataç *et al.*, 2016). A later study revealed that female teachers in Zonguldak reported significantly higher scores on intrinsic motivation dimensions, including professional development and institutional support, suggesting that gender may mediate how motivators are experienced (Akdemir, 2020).

Dinham and Scott's (2000) research across Australia, New Zealand, and England expanded Herzberg's binary framework by proposing a third domain – societal or systemic-level factors – that strongly influence teacher dissatisfaction and cannot be neatly classified as either hygiene or motivator factors. They found that societal pressures, policy changes, and external accountability significantly eroded intrinsic motivation, complicating Herzberg's simplistic duality of job satisfaction.

The introduction of AI in education affects both intrinsic and extrinsic aspects of teacher motivation. While AI can enhance professional growth and instructional creativity, it also raises concerns over workload, surveillance, and job security. These impacts often go beyond Herzberg's original model, highlighting the need to consider broader systemic and technological influences on motivation.

### Teachers' Motivation and Job Satisfaction in Azerbaijan

There is scant prior research explicitly applying Herzberg's Two-Factor Theory to teachers in Azerbaijan. Nonetheless, interest in these topics is rising across sectors. Recent studies have begun measuring teacher well-being and motivation in both higher education and K-12. Overall, the literature suggests that Azerbaijani teachers derive considerable intrinsic satisfaction from their work even as they face persistent extrinsic challenges

and systemic constraints.

### Intrinsic Motivators (Intrinsic Factors)

Across these studies, teachers' passion for teaching and personal fulfillment in the profession emerge as powerful motivators. Aghayeva's (2019) qualitative study of university faculty found that participants viewed teaching as their "innate need" (p.96) and "favorite profession" (p.150). All interviewed faculty expressed deep satisfaction with their career choice and genuine interest in their subject matter, which positively contributed to their emotional well-being. This intrinsic love of teaching helped them overcome barriers and persist in using innovative methods, leading to a sense of professional self-realization. At the school level, Mikayilova and Kazimzade (2016) similarly observed strong intrinsic drive for professional growth among teachers. In their "Teachers as Reflective Learners" study of a national curriculum reform, the majority of teachers demonstrated high motivation for self-improvement, prioritizing professional development and expressing a strong demand for in-service (Mikayilova & Kazimzade, 2016). These findings indicate that, in the Azerbaijani context, educators are often internally driven by commitment to their students and craft. Teachers report positive emotions from successful teaching experiences, for example, seeing students learn and succeed was said to "increase [teachers'] self-esteem" and provide a strong sense of professional fulfillment (Aghayeva, 2019, p. 131). Diganayeva's (2021) research on teacher well-being confirms that recognition and meaningful results are key motivators: when teachers' work was recognized and they witnessed improvements in student outcomes, it "enhanced [their] psychological health" (p.26) and made them feel energized. The researcher interprets this as evidence that "task significance" (p.26), i.e. the sense that one's work is meaningful, and positive feedback (appreciation) are essential for sustaining teacher motivation. Consistent with Herzberg's theory, these intrinsic factors (love of the work itself, achievement, recognition) were associated with high job satisfaction. Indeed, Nasirov's (2024) survey of 208 school teachers found overall job satisfaction levels to be high, comparable to the TALIS 2018 results for teacher satisfaction. This high satisfaction, despite challenges, suggests that many Azerbaijani teachers find personal reward and purpose in their profession that buffers against external difficulties. There are nuances in emphasis across studies. Aghayeva's (2019) focus on highly motivated university faculty highlights how intrinsic commitment can drive innovation even in the absence of external rewards. By comparison, Nasirov's (2024) broader sample likely included teachers of varying motivation yet still reported strong average satisfaction, implying a generally resilient professional ethos. No study reported intrinsic motivators to be lacking; rather, convergence is seen in the prominence of internal satisfaction, whether through love of teaching, desire to improve, or enjoyment of student success, as

a cornerstone of teacher well-being in Azerbaijan. Any divergence lies in context: higher education instructors and school teachers alike value their work, but their opportunities to act on this passion (e.g. engaging in innovative pedagogy or professional learning) may differ by context. Nonetheless, the intrinsic “motivators” identified align closely with Herzberg’s model: teachers thrive on the meaningfulness of their work and the accomplishments it brings.

### Extrinsic Hygiene Factors (Extrinsic Conditions)

Some recent studies in Azerbaijan also underscore significant extrinsic factors that impact teacher satisfaction, many of which are classic “hygiene” factors in Herzberg’s framework. A clear theme is inadequate compensation and reward structures.

For example, while Aghayeva’s (2019) participants were intrinsically motivated, they also acknowledged that institutional conditions undermined motivation more broadly. Faculty noted that low salaries, lack of promotion incentives, and the absence of teaching rewards disincentivized innovative efforts among their peers. One participant noted she would not consider a full-time academic career despite her passion for teaching because “faculty salaries are too low in Azerbaijan” (Aghayeva, 2019, p.158) and there is no financial incentive for teaching excellence. This lack of material recognition created frustration; several of Aghayeva’s participants argued for monetary incentives to reward high-quality teaching. Low income as a stressor was likewise noted by Diganayeva (2021): teachers in her sample reported that meager pay, excessive paperwork, and lack of appreciation from management made them feel stressed and demotivated, causing them to “lose excitement at their work” (p.26).

Another widespread hygiene concern is workload and bureaucracy. Nasirov’s (2024) survey found that the number one issue troubling Azerbaijani teachers is the excessive amount of work they have to handle. Teachers commonly have to stay late at school or take work home to keep up with administrative tasks, indicating a heavy workload. Diganayeva’s findings echo this: heavy assignment loads and administrative “structural disorder” (p.26) were frequently cited as factors undermining teachers’ well-being. Relatedly, lack of support and recognition by school leadership emerged as a critical extrinsic problem. Fuenzalida’s (2021) quantitative study in Baku revealed a striking gap between teachers’ relationships with students (which were very strong) and with principals (which were significantly weak). While teachers enjoyed positive collegial relations, the poor quality of teacher–principal interaction was a significant predictor of lower job satisfaction. In other words, many teachers felt unsupported or undervalued by their administrators. Diganayeva (2021) also noted that “no appreciation of their work” (p. 26) by school authorities contributed to teacher stress. Thus, whether in universities or schools, a lack of adequate institutional support serves

as a hygiene factor that can erode job satisfaction if not addressed. Mikayilova and Kazimzade (2016) observed, for instance, that during Azerbaijan’s curriculum reform, teachers were highly motivated to improve but frequently reported unmet needs for training and resources, saying they had “insufficient knowledge” (p.7) of new teaching methods, assessment strategies, and ICT skills to meet the reform’s demands. This shortfall points to extrinsic failings (inadequate professional development provision) that left teachers feeling unprepared and frustrated, despite their willingness to learn.

It is noteworthy that in several cases teachers managed to maintain overall satisfaction despite these hygiene shortfalls. Nasirov (2024) remarked on this paradox: even with pervasive complaints of overwork, teachers’ self-reported job satisfaction remained high. This suggests that intrinsic rewards (as discussed above) may compensate to some degree for poor extrinsic conditions which is consistent with Herzberg’s theory that hygiene factors chiefly prevent dissatisfaction but do not by themselves create true satisfaction. Still, some specific extrinsic factors that are most pressing vary across the studies. For school teachers, workload and administrative burden loom largest, whereas for university faculty, low compensation and lack of teaching incentives were especially salient. The reviewed studies, however, agree that improving these external conditions is vital. Participants across the board called for better pay, reduced bureaucratic load, and stronger recognition from leadership as prerequisites for sustaining morale. Notably, supportive leadership (or the lack thereof) is a common thread. Sindhvad *et al.*’s (2020) study on Baku school principals found that those who devoted a greater proportion of their time to mentoring teachers and providing classroom resources were more likely to report high instructional leadership capacity and to perceive these activities as influential for student learning. As they noted, “time on instructional leadership is the key contextual factor” shaping which leadership behaviors are prioritized (Sindhvad *et al.*, 2020, p.93). While the study does not explicitly indicate time constraints or administrative overload, it implies that leadership capacity is closely linked to how principals allocate their time. At the same time, Fuenzalida’s (2021) findings show that teacher–principal relationships were the weakest among the measured social dimensions and had a statistically significant impact on teachers’ job satisfaction and self-efficacy. Teachers with stronger relationships with principals reported notably higher occupational well-being across both indicators. These results emphasize the importance of leadership support as a key dimension of teacher well-being in Baku schools.

### Systemic and Societal Influences

Beyond the immediate job conditions, these studies highlight several systemic and societal factors that shape teacher motivation and well-being in Azerbaijan. Dinham and Scott’s (2000) third domain is evident in the influence of education reforms, school culture, and societal

expectations. For example, the sweeping curriculum reforms of the 2000s imposed new professional demands on Azerbaijani teachers, requiring a shift from traditional lecture-based instruction to interactive, student-centered pedagogies. Mikayilova and Kazimzade (2016) document how this transition, though ambitious in intent, often lacked adequate training and support. Teachers were expected to implement complex instructional and assessment strategies within a short time frame, and many reported confusion, persistent difficulties, and stress throughout the process. The reforms demanded immediate pedagogical change without fully aligning professional development structures to classroom realities. In short, macro-level decisions have trickle-down effects on teacher satisfaction, mediated by how well the system provides resources and clarity during transitions. School organizational culture emerges as a significant meso-level influence on teacher well-being. In Diganayeva's (2021) study, schools perceived by teachers as fostering a stronger learning culture, measured through dimensions such as collaboration, shared vision, and strategic leadership, were associated with higher levels of teacher engagement and well-being. Respondents with above-average scores on organizational learning indicators also reported higher psychological engagement at work. These findings suggest that a supportive social climate and professional collaboration can play a protective role against stress and contribute positively to teacher motivation. Similarly, Fuenzalida (2021) identified class size and school type as key contextual variables associated with differences in teacher well-being in Baku. Teachers working in smaller classrooms (8–15 students) demonstrated significantly higher self-efficacy and more positive relations with principals, while those in classrooms with over 30 students reported notably lower scores across multiple indicators. Although overall occupational well-being was rated as “very positive” (Fuenzalida, 2021, p.62), the data reveal that overcrowded classrooms and certain school settings contributed to additional strain. These findings suggest that structural conditions, such as student–teacher ratios and institutional context, play a critical role in shaping well-being and may warrant systemic attention.

At the broader societal level, there is an expectation in Azerbaijan (as elsewhere) that teaching, as a profession, should be revered and well-supported. Nasirov (2024) notes that teachers are widely regarded as part of the intellectual elite and vital contributors to societal welfare, making high teacher satisfaction one of the most important priorities for the country. The reality, however, presents a mixed picture. His finding that excessive workload is the top concern of teachers underscores a tension between the ideal of the teacher's status and the practical challenges teachers face daily. In other words, systemic issues like large class loads, extensive non-teaching duties, and limited autonomy can undercut the professional esteem in which teachers are held. Overall, the inclusion of this third domain reinforces that to

fully understand teacher motivation in Azerbaijan, one must look not only at the job itself but also at the wider education system and societal context in which that job is embedded. Structural conditions, from national policies down to school climates, can either bolster intrinsic motivation or conversely, impose strains that even passionate teachers struggle to overcome.

While the reviewed literature offers insight into teacher motivation in conventional settings, it does not yet reflect the changing realities introduced by AI integration in schools. In Azerbaijan, the swift and largely unregulated adoption of AI tools is reshaping the nature of teachers' work (Alasgarova & Rzayev, 2024; Bakhadirov *et al.*, 2024). These shifts have the potential to significantly affect teachers' day-to-day experiences and working conditions. To contextualize these developments, it is essential to examine how AI is being integrated into educational systems globally and locally.

### Integration of AI in Education

The rapid rise of AI is reshaping educational practice, with significant implications for teacher motivation and satisfaction. Recent literature explores how teachers accept and use AI, the perceived benefits and drawbacks of AI integration, teachers' anxieties and concerns, the impact on teacher-student relationships, and the new demands on teacher roles and support systems. This review synthesizes findings from ten recent studies, highlighting common themes and insights relevant to Herzberg's motivation-hygiene framework (motivators vs. dissatisfiers) in the context of AI in education. The research indicates that while AI offers substantial opportunities to enhance teaching and learning, its integration also poses challenges that must be addressed through thoughtful support, training, and policy measures.

### Teacher Acceptance of AI: TAM and Beyond

Understanding teachers' willingness to adopt AI often builds on the Technology Acceptance Model (TAM). Researchers have extended TAM to capture additional motivational factors in the education context. For example, Hazzan-Bishara *et al.* (2025) augmented TAM with external inputs (teachers' exposure to AI information, the credibility of that information, and institutional support) and internal factors (intrinsic motivation and self-efficacy). Their extended model showed that credible information exposure boosts perceived usefulness of AI, which in turn strongly drives teachers' intention to use AI. Crucially, institutional support was found to have influenced teachers' intention to use AI through both immediate and mediated pathways. This suggests that supportive leadership and resources can enhance not only the practical ability but also the intrinsic drive to adopt AI tools.

Complementing this, Bakhadirov *et al.*, 2024 (2024) investigated AI adoption among teachers using TAM alongside individual and institutional factors. Consistent with TAM, perceived usefulness of AI emerged as a

significant positive predictor of teachers' actual AI use. However, perceived ease of use did not show a significant effect on adoption in practice, indicating that simply making AI tools user-friendly is not enough: teachers must see clear value in improving teaching or learning outcomes. The study also found that institutional conditions matter. The presence of school policies supporting AI and peer usage by colleagues correlated with higher AI uptake. Interestingly, personal traits like openness or innovativeness were not strong drivers here, though younger teachers were somewhat more likely to adopt AI than older teachers in this sample. In sum, these studies show that teachers' acceptance of AI is influenced less by their disposition and more by perceived pedagogical value (usefulness) and a supportive context (credible information, policies, and peer examples).

### Benefits and Drawbacks of AI Integration

Across the literature, there is broad agreement that AI brings both promising benefits and notable drawbacks to education. A systematic review by Martínez-Comesaña *et al.* (2023) synthesizes these as a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for AI in student assessment. The identified strengths include improved instruction (e.g. enhanced STEM learning and personalized tutoring) and efficiency gains, whereas weaknesses involve technical limitations such as data bias and the heavy data requirements for AI systems. Future opportunities were seen in shifting teacher roles from knowledge transmission to guidance and offloading tedious tasks to AI, while threats encompassed issues like teachers' fear of replacement by AI and the lack of adequate teacher preparation for AI use. Notably, Martínez-Comesaña *et al.* (2023) conclude that the "implementation of AI in education has greater potential in its strengths and opportunities than its weaknesses and threats" (p.101), with technology's benefits outweighing its risks if managed properly. This optimistic outlook underscores that AI's positive impact can prevail, provided the weaknesses and threats are mitigated.

Empirical work by Owan *et al.* (2023) similarly highlights a balance of advantages and concerns. On one hand, AI tools can improve assessment accuracy and efficiency, generate personalized feedback, and help teachers tailor instruction to individual student needs. Such benefits align with the motivators in Herzberg's theory, i.e., the work itself becomes more effective and rewarding when AI streamlines tasks and facilitates student success. On the other hand, Owan *et al.* caution that AI in assessment comes with significant limitations and risks, such as algorithmic biases, threats to fairness, and reliability issues. They emphasize that educators and policymakers must work together to maximize the benefits of AI in assessment while mitigating the associated risks. In practical terms, this entails developing ethical algorithms, ensuring transparency, and maintaining human oversight in AI-driven processes. In summary, the literature portrays AI integration in education as both offering

powerful opportunities to enrich teaching and learning and introducing new weaknesses and threats that require strategic management. Recognizing both sides is crucial for a realistic, tempered adoption of AI beyond the hype.

### Changing Teacher Roles and Well-Being

As AI takes on certain instructional tasks, the role of the teacher is being redefined. Teachers are expected to guide AI-enhanced learning, which adds new responsibilities and can strain their well-being. The voice of teachers captured in qualitative research by Alasgarova and Rzayev (2024) indicates mixed feelings about these changes. On one hand, teachers recognize AI's potential to personalize learning and offload routine work; on the other hand, many feel unprepared and even skeptical, fearing negative effects on students' habits and their own professional autonomy. In interviews, some teachers expressed concern that over-reliance on AI could make students "indolent in their studying habits and eventually demotivated" (Alasgarova & Rzayev, 2024, p.7). Such comments reflect teachers' protective stance toward student learning and a desire to ensure AI is used responsibly. Teachers also reported feeling unconfident about using AI in the classroom, pointing to a need for building their capacity and confidence.

Another prominent theme is teacher burnout in the AI era. Teachers are already juggling heavy workloads, and integrating AI can initially add to this load: learning new tools, redesigning lesson plans, and managing AI-related issues. Alasgarova and Rzayev (2024) found that AI adoption creates considerable complications, including teacher burnout and ethical concerns, even as it offers benefits. The introduction of AI without proper support can exacerbate stress: educators must "add one more role to their duties" on top of existing responsibilities, which risks disrupting an "already unstable life-work balance" (p.2). Indeed, lack of clarity and preparation in AI use was cited as a factor that could decrease morale. However, the same study highlights that these challenges are not insurmountable. By leveraging the Technological Pedagogical Content Knowledge (TPACK) framework, initially introduced by Mishra and Koehler in 2006, teachers can develop a balanced skill set that integrates technology with pedagogy and content knowledge. The literature suggests improving teachers' TPACK is a key strategy to empower teachers (amplifying their professional voice in how AI is used) and to prevent burnout by making AI a helpful enhancement rather than a stressor.

Given the above challenges, it is unsurprising that almost every study calls for substantial professional development and support structures to assist teachers with AI integration. Teachers need training not just in the technical use of AI tools, but in pedagogical strategies to integrate those tools effectively. Several sources identify lack of training as a critical barrier (even a threat) to successful AI implementation. Owan *et al.* (2023) stress providing targeted training and ongoing support for educators as

an essential response to AI-related challenges, noting that educators must be equipped through professional development opportunities and continuous support to effectively incorporate AI in their practice.

Another aspect of support is providing technical and administrative backing, for instance, ensuring reliable infrastructure and on-demand technical help. Hazzan-Bishara *et al.* (2025) argue that educational leaders should “allocate resources for infrastructure, technical support, and professional development” to drive AI adoption (p.21). When teachers feel that their institution is investing in the tools and in their ability to use them, they are more likely to embrace AI as a positive innovation rather than a burden. Indeed, institutional encouragement and clear policies are a form of support that interacts with training: teachers need to know what is allowed and encouraged and have leadership endorsement to experiment with AI in teaching. In summary, the literature converges on the need for comprehensive capacity-building for teachers. This includes formal training to build knowledge, continuous professional development to update skills as AI evolves, and robust support systems (technical, peer, and administrative) to foster a confident and motivated teaching workforce in the AI era. These support mechanisms address hygiene factors (reducing stress and uncertainty) and also provide motivators (opportunities for growth and mastery), thereby contributing to greater teacher satisfaction.

### **Leadership, Community, and Teacher Satisfaction**

Effective AI integration is not merely a technical or individual matter but fundamentally a social one, emphasizing the critical role of school leadership and teacher communities. Multiple studies underline that teachers adopt AI more readily when supported by principals and peers. For instance, Bakhadirov *et al.* (2024) found a clear peer effect: teachers were “more likely to use AI if they observe other teachers using it” (p.26), highlighting the importance of collaborative school cultures. Additionally, institutional support and clear school policies significantly boosted teachers’ confidence in utilizing AI.

Strong leadership and collegial support fulfill teachers’ intrinsic needs for belonging, recognition, and security, thereby enhancing job satisfaction. This aligns closely with Dinham and Scott’s (2020) third domain of teacher satisfaction, emphasizing school-based factors such as administrative support and community regard. In practical terms, supportive leadership may manifest through principals allocating time for AI training and encouraging teachers to experiment without fear of negative repercussions. Community support further involves engaging parents and the public in recognizing the value of AI in education and trusting teachers’ professional judgment. Such conditions reduce anxiety and empower teachers, fostering greater motivation to innovate.

A trusting and collaborative school culture allows

teachers to voice concerns openly and address challenges collectively, preventing feelings of isolation or apprehension toward AI. Thus, a supportive institutional climate acts as both a hygiene factor (mitigating dissatisfaction) and a motivator, enhancing teachers’ sense of value and inclusion in an innovative educational team.

Broader policy and regulatory frameworks are essential to effective AI integration in education. Clear school and district-level guidelines addressing AI use, such as AI-assisted cheating, data privacy, and recommended tools, can alleviate teacher uncertainty and reduce stress. Hazzan-Bishara *et al.* (2025) emphasize that explicit policies convey institutional support, fostering teachers’ sense of security and reducing resistance stemming from ambiguity. Similarly, Al-Zahrani (2024) advocates holistic policymaking that safeguards human-centered teaching approaches, privacy, fairness, and clearly regulates AI-generated content in educational contexts.

Studies on teacher motivation in digital environments demonstrate that school leadership, infrastructure, and collegial collaboration significantly shape teacher satisfaction. Evidence from Galeng (2025) shows strong relationships between engagement and administrative support, whereas Malabanan (2025) emphasizes that learning management system implementation success depends heavily on leadership practices.

On a larger scale, Judge *et al.* (2025) argue that traditional regulatory models are insufficient for managing AI due to its inherent unpredictability. They suggest innovative regulatory approaches, such as consolidated oversight bodies, licensing AI systems, mandatory disclosures of AI algorithms, rigorous verification of AI behavior, and mechanisms for rapid response to emerging issues. Although their recommendations are general, these principles translate effectively into educational contexts, emphasizing the need for rigorous certification of AI educational tools and transparency in their deployment. Hence, integrating AI in education requires coordinated efforts involving both bottom-up adoption by educators and robust top-down policy frameworks.

## **MATERIALS AND METHODS**

### **Research Design**

This study adopted a qualitative research approach, utilizing focus group interviews as the primary data collection method. The choice of qualitative methods is justified by the research’s objective to deeply explore teachers’ perceptions, experiences, and attitudes toward job satisfaction, motivational factors, and the integration of AI tools in education. Qualitative research facilitates the examination of complex phenomena within their real-life context and captures rich, detailed information on participants’ views and lived experiences (Creswell & Creswell, 2022). Focus groups were specifically chosen because they allow for interaction among participants, fostering a dynamic discussion that can yield insights not accessible through individual interviews (Patton, 2015).

### Population and Sampling

The population of the study consisted of secondary school teachers working across eight public schools in Azerbaijan. Teachers varied in age, teaching experience, and subject specialization, reflecting a broad representation of the secondary school teaching workforce.

The sampling technique applied was purposive and convenience-based. School principals were asked to randomly select available teachers who were not engaged in teaching duties at the time of the focus group sessions, ensuring minimal disruption to school schedules. This resulted in a total sample of 108 teachers, with approximately 10–15 teachers participating from each school, which made nine focus groups. Such sampling ensured diverse yet manageable group sizes, enhancing the quality of interaction and discussion (Patton, 2015). Official permission to conduct the study was obtained from the State Agency for Preschool and General Education of the Republic of Azerbaijan. All procedures complied with the ethical principles of the Declaration of Helsinki (World Medical Association, 2001), as well as APA 7 ethical standards for research involving human subjects (American Psychological Association, 2019). All participants were provided with detailed information about the study and gave written informed consent before participation.

### Data Collection Instrument

The semi-structured focus group interview guide (Supplementary File S1) was adapted from the Teacher Satisfaction and Motivation Survey developed by

Dinham & Scott (2000) and later used in Herzberg-based educational research (e.g., Akdemir, 2020; Atalıç *et al.*, 2016). Question prompts were modified to reflect the context of AI integration in Azerbaijani secondary schools. The guide included both structured prompts linked to Herzberg’s motivator–hygiene–systemic framework and open-ended questions to encourage detailed, reflective discussion on the impact of AI integration on teachers’ motivation, job satisfaction, and perceptions of required policy and pedagogical interventions. To ensure content validity, the questionnaire was reviewed by experts in educational management and qualitative research methodologies. Data from the focus groups were analyzed manually through thematic analysis. The manual approach allowed for deeper engagement with the data, enhancing interpretative accuracy (Creswell & Creswell, 2022).

### RESULTS AND DISCUSSIONS

This presents the qualitative findings from focus group discussions with 108 secondary school teachers across eight state schools in Baku, Azerbaijan. Guided by Herzberg’s Two-Factor Theory and Dinham & Scott’s systemic domain, seven core themes emerged from the data, each reflecting distinct but interrelated facets of teachers’ experiences with AI integration. Table 1 provides an overview of these themes, categorizing each under Herzberg’s framework (intrinsic motivators vs. extrinsic hygiene factors) and noting key subthemes and the prevalence across the participating schools.

**Table 1:** Thematic Overview of Findings.

Theme	Herzberg’s Category	Subthemes	Schools Reporting
Absent Infrastructure for AI Readiness	Hygiene factor (Extrinsic)	Lack of devices/internet; Insufficient technical support/training; Resource underinvestment	8/8 (All schools)
AI-Induced Workload and Stress	Hygiene factor (Extrinsic)	Added planning and training load; Work–life imbalance; Burnout concerns	8/8 (All schools)
Motivation Without Institutional Support	Motivator (Intrinsic) (undermined by hygiene deficits)	Passion for teaching and innovation; Lack of recognition; Minimal administrative support	7/8 Majority
Digital Divide and Technological Inequality	Hygiene factor (Extrinsic) (Systemic)	Unequal access to AI tools; Gaps in teacher digital skills; Resource disparities among schools	6/8 Several
Low Trust and High Anxiety Regarding AI	Hygiene factor (Extrinsic)	Fear of job replacement; Concerns about AI errors/bias; Uncertainty and stress	8/8 (All schools)
Navigating the Policy and Regulatory Vacuum	Hygiene factor (Extrinsic) (Systemic)	No clear AI guidelines; Ambiguity in ethical/legal use; Desire for regulatory guidance	8/8 (All schools)
Personalization and Non-Judgmental AI Support	Motivator (Intrinsic)	AI-enabled individualized learning; Improved student engagement; AI as patient teaching aid	5/8 Many

Some themes were closely related and therefore merged in the narrative to avoid repetition and present a clearer analysis. Absent Infrastructure for AI Readiness and Digital Divide and Technological Inequality were combined into Infrastructure and Access Inequality, as both address resource gaps and inequities in technology readiness. Similarly, Low Trust and High Anxiety Regarding AI and Navigating the Policy and Regulatory Vacuum were integrated into Trust, Anxiety, and Policy Gaps, reflecting their shared focus on uncertainty, lack of guidance, and perceived risks. The remaining themes, AI-Induced Workload and Stress, Motivation Without Institutional Support, and Personalization and Non-Judgmental AI Support, were retained as distinct due to their unique focus and prominence in participant accounts.

### **Infrastructure and Access Inequality (Hygiene/Systemic)**

A persistent obstacle was the uneven distribution of technological resources. Some schools enjoyed smart boards and up-to-date labs, while others relied on “old machines” and unstable internet connections. Teachers in the latter settings felt “set up to fail” when asked to implement AI-based activities. These disparities echo international findings that reliable infrastructure is a prerequisite for meaningful technology adoption (Hazzan-Bishara *et al.*, 2025; Owan *et al.*, 2023) and highlight the role of systemic investment in ensuring equity across schools.

### **Workload Pressure and Burnout Risk (Hygiene)**

Instead of streamlining tasks, AI often added to teachers’ workloads like training, adapting lessons, troubleshooting without reducing other responsibilities. One participant likened the experience to “doing two jobs at once.” This additional cognitive and time burden reflects longstanding concerns about workload as a driver of teacher dissatisfaction (Nasirov, 2024) and suggests that without deliberate workload rebalancing, the motivational potential of AI may be offset by implementation fatigue.

### **Motivation Without Recognition (Motivator undermined by Hygiene)**

Several participants described experimenting with AI out of a genuine desire to engage students and enhance learning. Yet these efforts were rarely acknowledged by leadership. As one teacher put it, innovation was “for the kids, not for any reward from management.” Such accounts reinforce earlier observations in Azerbaijan (Aghayeva, 2019) that intrinsic commitment can persist in the absence of extrinsic incentives, but also underline the risk of attrition when recognition, resources, and encouragement are lacking.

### **Trust, Anxiety, and Policy Gaps (Hygiene/Systemic)**

Discomfort with AI opacity and uncertainty about its implications were common. Concerns ranged from data

privacy to fears of job displacement. The absence of official guidance amplified this unease: “We’re basically on our own. There’s no document telling us what’s OK or not.” This lack of governance mirrors issues identified by Akçaba *et al.* (2024) and Al-Zahrani (2024) and points to a pressing need for clear, educator-informed policies to build confidence and encourage responsible experimentation.

### **AI-Enabled Personalization (Motivator)**

When infrastructure and training were in place, teachers highlighted the potential of AI to support differentiated learning. One noted that a shy student would “try over and over” with an AI tutor because it never judged mistakes. Such examples capture Herzberg’s motivators – achievement and meaningful work – by enabling teachers to witness tangible improvements in student engagement. They also reinforce the conclusion made by Martínez-Comesaña *et al.* (2023) that personalization remains one of AI’s most valuable contributions to pedagogy.

The findings show that while Azerbaijani teachers remain deeply committed to their profession and recognize the instructional potential of AI, their ability to sustain enthusiasm depends on addressing infrastructural deficits, workload pressures, lack of recognition, and policy uncertainty. These extrinsic and systemic barriers must be addressed if the intrinsic motivators identified here are to translate into long-term job satisfaction in the AI era.

## **Discussion**

### **Herzberg’s Motivators in an AI-Driven Context**

The findings reaffirm Herzberg’s (1959) premise that intrinsic motivators, which are achievement, meaningful work, and professional growth, are essential for sustaining teacher engagement, while also aligning with Ajikere (2024), Akdemir (2020), and Ataliç *et al.* (2016), who emphasize the centrality of these factors in educational settings. In the Azerbaijani context, professional achievement was most strongly associated with AI-enabled personalization, enabling teachers to reach students reluctant to participate in traditional settings. As one teacher explained, “AI gives me the chance to tailor lessons for students who usually stay quiet. They respond differently when the system adapts to them.” This mirrors Martínez-Comesaña *et al.* (2023), who found personalization to be a catalyst for student engagement and teacher fulfilment, and extends Herzberg’s model by showing that in technology-rich contexts, achievement also derives from the novelty and creativity of pedagogical methods.

Professional growth was another prominent motivator, consistent with Aghayeva’s (2019) findings on Azerbaijani educators’ commitment to innovation. Teachers described AI integration as a stimulus for experimentation and skills acquisition. Yet this growth was conditional on adequate infrastructure, which is a dependence not anticipated in Herzberg’s original model. The conditionality indicates that in AI contexts, intrinsic motivators are vulnerable to

erosion when basic functional requirements are unmet. These findings also align with prior research on AI adoption framed through TAM. Motivator elements such as opportunities for professional growth and perceived instructional enhancement parallel the construct of perceived usefulness, while hygiene factors such as institutional support and workload management parallel perceived ease of use (Hazzan-Bishara *et al.*, 2025; Bakhadirov *et al.*, 2024). Consistent with these studies, when teachers saw clear pedagogical value in AI tools and had credible information, supportive policies, and examples from peers, acceptance and willingness to integrate AI were strengthened. Conversely, when institutional conditions were weak or when benefits were unclear, adoption was inhibited even if the tools were easy to use. This suggests that in AI integration, the connection between motivators and hygiene factors also functions as an adoption filter, shaping whether teachers move from initial exposure to sustained use.

### Hygiene Factors as Structural Constraints

Consistent with Lee *et al.* (2022), Miah & Hasan (2022), and Owan *et al.* (2023), the findings demonstrate that inadequate infrastructure and technical support function as major hygiene barriers, directly suppressing motivation. Disparities in resource allocation between schools, for example, some equipped with smart boards and modern labs, others dependent on outdated computers, echo Hazzan-Bishara *et al.* (2025) and reinforce Herzberg's assertion that poor hygiene factors lead to dissatisfaction. However, here, they also eroded motivators, contradicting Herzberg's claim of independence. Workload intensification emerged as another key hygiene factor, aligning with Nasirov (2024) and Dan & Subramaniam (2023) on burnout risks when responsibilities grow without time or compensation adjustments. One participant compared AI adoption to "doing two jobs at once," while another stressed, "It's not that I mind learning something new. But it's on top of everything else, and there's no extra time." This resonates with Mikayilova & Kazimzade (2016) on the challenge of sustaining teacher innovation under heavy workloads. The absence of recognition further compounded dissatisfaction. Although recognition is traditionally classified as a motivator, its absence here operated as a demotivator, echoing Aghayeva (2019) and Sindhvad *et al.* (2020) on the need for institutional acknowledgment to sustain long-term engagement.

### Third Domain: Policy, Leadership, and Trust

Dinham & Scott's (2000) "third domain" of systemic influences was highly visible in the data. Policy ambiguity and lack of formal guidelines for AI use produced uncertainty, anxiety, and reluctance to innovate. This findings align with Akçaba *et al.* (2024), Al-Zahrani (2024), and Judge *et al.* (2024) on the necessity of regulatory clarity in emerging technologies. As one teacher remarked, "We're told to be innovative, but no one tells us what's

allowed or how far we can go with AI." Malabanan (2025) similarly highlights that insufficient technical guidance and leadership direction hinder effective digital tool implementation.

Concerns about AI reliability, bias, and job displacement parallel international patterns identified by Cao (2024), Alasgarova and Rzayev (2024), and Bakhadirov *et al.* (2024). These anxieties were amplified in the absence of leadership guidance, consistent with Sindhvad *et al.* (2020) on the pivotal role of instructional leadership in shaping adoption climates.

Community factors also emerged implicitly. Where school leadership fostered open discussion and collaborative problem-solving, teachers expressed greater willingness to experiment with AI despite technical or policy gaps. This suggests, as Diganayeva (2021) notes, that professional community and collegial trust can buffer systemic weaknesses. At a broader level, these patterns also point to the role of societal and cultural expectations: in contexts where public trust in educational institutions is high, teachers may feel greater latitude to innovate, whereas in more skeptical climates, even strong internal leadership may be insufficient to overcome resistance.

### Interdependence of Motivators, Hygiene, and Systemic Conditions

The interplay of findings suggests that motivators in AI integration are fragile and contingent-dependent on the stability of both extrinsic and systemic conditions. For instance, the potential of AI to enhance personalization was diminished in under-resourced schools, while enthusiasm for professional growth eroded under unmitigated workload pressures. This supports Ajikere (2024) and Lee *et al.* (2022) in proposing modifications to Herzberg's model where motivators and hygiene factors are mutually contingent.

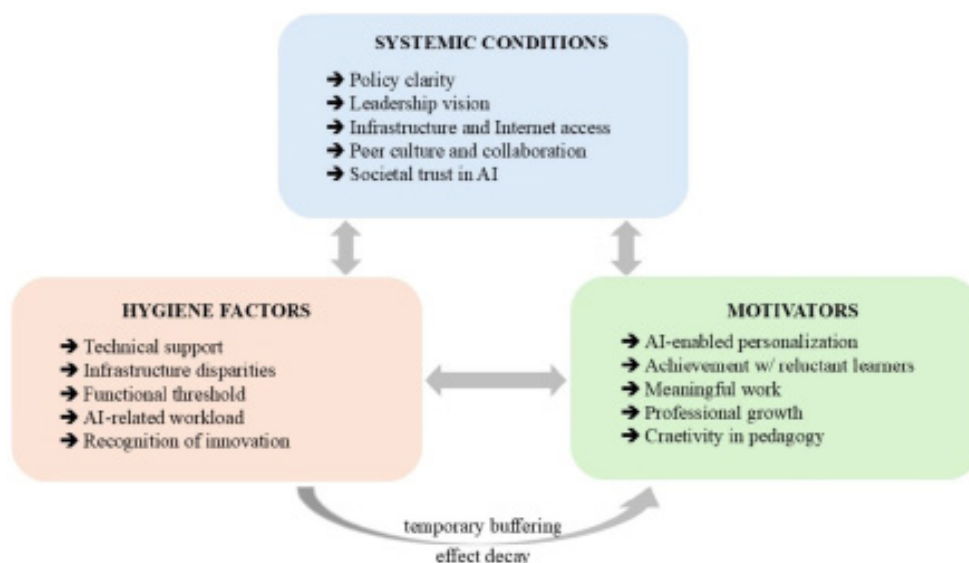
The conceptual model (Figure 2) illustrates that, in AI-driven educational contexts, motivators, hygiene factors, and systemic conditions do not operate in isolation but form a dynamic network of reinforcement and constraint. Motivators such as AI-enabled personalization, creativity in pedagogy, and professional growth generate enthusiasm and commitment, but their effect is highly dependent on hygiene factors such as technical support, infrastructure stability, and recognition of innovation. When hygiene factors fall below a functional threshold, the energizing influence of motivators is weakened; enthusiasm becomes harder to sustain, and innovative practices are abandoned despite their perceived value.

Hygiene factors themselves are not purely operational but are shaped by broader systemic conditions, including leadership vision, policy clarity, and societal trust in AI. These systemic elements establish the strategic climate in which hygiene supports are funded, prioritized, and legitimized. Weak systemic conditions undermine hygiene factors, creating infrastructure disparities, vague policy frameworks, or cultures where innovation is not recognized, thus indirectly eroding motivators.

Conversely, strong systemic alignment can amplify the effect of hygiene factors, providing a stable foundation for motivators to take hold.

At the same time, the model shows that motivators can temporarily buffer weaknesses in hygiene or systemic layers. For example, teachers' intrinsic drive for professional fulfilment and creativity sometimes sustains engagement despite technical or workload barriers. However, this buffering capacity has a decay curve: over time, unresolved systemic and hygiene deficiencies lead to frustration, disengagement, and attrition. This temporal limitation highlights that intrinsic motivation cannot indefinitely substitute for structural and policy support.

Importantly, the mutual contingency represented here suggests that interventions aimed at improving AI adoption should not target any single layer in isolation. Boosting motivators through professional development will have limited effect if hygiene factors remain deficient or systemic conditions unsupportive. Similarly, infrastructure investments will not produce lasting gains without policies that empower teachers to use AI creatively and without recognition systems that reinforce their efforts. Sustainable adoption requires coordinated improvements across all three layers, with systemic reform acting as the long-term stabilizer of hygiene and motivational gains.



**Figure 2:** Conceptual model of interdependencies between Motivators, Hygiene Factors, and Systemic Conditions in AI-driven secondary education

The observed connection between motivators and hygiene factors corresponds with Herzberg's distinctions yet also reflects Maslow's proposition that higher-order needs may continue to drive motivation even when lower-order needs are unmet (Maslow, 1943). Teachers' continued engagement with AI despite persistent systemic challenges illustrates that self-actualization and professional fulfilment can coexist with unaddressed extrinsic constraints. This detail suggests that in certain professional cultures, intrinsic drives can sustain engagement temporarily, but this resilience cannot be assumed as a sustainable condition; unless extrinsic and systemic supports are strengthened, early enthusiasm risks collapsing into withdrawal, frustration, or attrition as AI integration deepens.

**Implications for Theory, Policy, and Practice**

**Theoretical Implications**

This study extends Herzberg's (1959) motivator-hygiene framework by introducing a contingency principle in technology-driven educational contexts, confirming critiques by Ewen (1964), House & Wigdor (1967), and Bassett-Jones & Lloyd (2005) that the boundaries

between motivators and hygiene factors can be porous. In line with Ajikere (2024) and Lee *et al.* (2022), the data suggest that intrinsic motivators such as achievement, creativity, and professional growth cannot be fully activated without a baseline of extrinsic and systemic support. Furthermore, the findings reinforce Dinham & Scott's (2000) "outer domain" as foundational rather than peripheral, positioning systemic factors such as policy clarity, infrastructure investment, and leadership as prerequisites for sustaining motivation in the AI era.

**Policy Implications**

The results highlight the urgent need for equitable infrastructure investment, echoing Hazzan-Bishara *et al.* (2025) and Owan *et al.* (2023), to address disparities in access to AI tools and reliable internet across Azerbaijani schools. Policymakers should develop educator-informed AI guidelines, drawing on the concerns documented by Akçaba *et al.* (2024), Al-Zahrani (2024), and Judge *et al.* (2024), to build trust and reduce uncertainty. Recognition systems, whether embedded in performance appraisal, professional awards, or promotion criteria, should be institutionalized, as recognition deficits were found to

undermine innovation (Aghayeva, 2019; Sindhvad *et al.*, 2020). In contexts of policy volatility, formal structures can also safeguard teacher autonomy while guiding responsible AI integration.

### Practical Implications

Practically, AI literacy should be embedded into ongoing professional development rather than offered as an optional supplement, aligning with the workload-sensitive recommendations of Nasirov (2024) and Mikayilova & Kazimzade (2016). Leadership should integrate such training into workload planning, ensuring that AI adoption does not exacerbate burnout risks. Furthermore, peer-support networks, including but not limited to formal mentoring schemes or informal communities of practice, can provide a sustainable channel for sharing effective AI pedagogies, troubleshooting challenges, and fostering collective problem-solving (Diganayeva, 2021). Where trust in leadership and collegial collaboration are high, adoption barriers appear less severe, even when infrastructure remains suboptimal. TPACK framework (Mishra & Koehler, 2006) and TPACK AI adoption (Alasgarova and Rzayev, 2024) provide a useful lens for structuring such professional development. The findings indicate that while AI integration has strengthened technological knowledge, corresponding growth in pedagogical and content knowledge has been less evident. Designing professional learning activities that explicitly integrate these three domains can help ensure that AI adoption enhances instructional quality rather than remaining a primarily technical exercise.

### CONCLUSIONS

The integration of AI into Azerbaijani secondary schools presents a complex interplay of motivators, hygiene factors, and systemic conditions. While teachers expressed strong intrinsic motivation, mostly around AI-enabled personalization and opportunities for professional growth, these motivators proved fragile, often collapsing under the weight of infrastructural deficits, workload intensification, and policy ambiguity. This finding challenges Herzberg's original assertion that motivators function independently of hygiene factors, instead supporting a mutually contingent model where motivators can only thrive if both extrinsic and systemic foundations are secure. By situating these results within Dinham & Scott's systemic domain, this study emphasizes that policy clarity, leadership support, and equitable resource allocation are not merely contextual background variables, but determinants of teacher motivation and job satisfaction in AI-driven contexts. The proposed conceptual model captures this interdependence, offering a framework for understanding how structural and motivational forces interact during technological change. For theory, the study advances Herzberg's model by integrating systemic dimensions into the motivational core. For policy, it calls for targeted interventions in infrastructure, regulatory guidance, and

recognition systems. For practice, it highlights the need for sustainable AI literacy development, workload-sensitive implementation, and strong professional communities. However, as this study was conducted with a limited number of schools in one urban context, caution is needed when generalizing the results to broader populations or rural regions. Future research should further validate the contingency model in diverse educational systems and longitudinal settings. Strengthening institutional infrastructure and regulatory clarity is recommended to sustain teachers' motivation and well-being as AI integration progresses. Future research should test the contingency principle across diverse educational systems, explore rural-urban contrasts in AI adoption, and employ longitudinal designs to track how motivators and hygiene factors evolve over time. In doing so, it will be possible to refine and validate the model proposed here, ensuring that AI integration enhances teacher satisfaction and professional fulfillment.

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