

PSYCHOLOGICAL ADAPTATION AND MOTIVATIONAL FACTORS IN TEACHERS' USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES

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Abstract. This article analyzes the psychological adaptation and motivational factors that emerge when teachers in general education and higher educational institutions use artificial intelligence technologies. Specifically, it examines the interrelationships between attitudes towards technology, technological anxiety, intrinsic and extrinsic motivation, the desire for professional self-development, and innovative competencies. The study employed a mixed-method approach, combining questionnaires and semi-structured interviews; data collected from 180 teachers were processed using descriptive statistics and correlation analysis. Results indicate that perceived usefulness and ease of use of the technology, technological self-efficacy, and intrinsic motivation are strong predictors of teachers' positive attitudes and intention to use [1,3,6,17]. While technological anxiety remains at a moderate level, it is found that professional development programs focused on self-improvement can reduce this anxiety and significantly enhance innovative competencies [4,9,13,19]. The conclusions drawn provide practical recommendations for educational policy, pedagogical psychology, and the design of teacher training programs.

Keywords. artificial intelligence technologies; technological anxiety; internal and external motivation; professional self-development; innovative competencies; technology adoption; pedagogical psychology

Introduction. The rapid integration of artificial intelligence technologies into the education system in recent years necessitates a fundamental reconsideration of pedagogical practices, the role of teachers, and professional competencies [4,7,9]. Studies indicate that the main factor in successful integration is not the technology itself, but the **psychological readiness** of educators, their motivational profile, and mechanisms of technology adoption [5,17,19]. Increasingly diverse research within the widely used TAM and UTAUT approaches to technology adoption demonstrates that perceived usefulness and perceived ease of use are central determinants of teachers' intention to use technology [1,3,6,17]. Simultaneously, it has been found that psychological factors such as intrinsic motivation, learning agility, and metacognitive self-regulation have a stronger impact than external social factors [1,3,18].

Technological anxiety among educators, particularly difficulties in learning the system, fears associated with workplace automation, and ethical consequences, can slow down the integration process [6,11,12,18]. However, a number of studies show that as competence and technological self-confidence increase, anxiety decreases and the intention to use increases, which highlights the importance of targeted professional development programs [4,9,13,15,16]. The purpose of this article is to conduct a comprehensive analysis of the features of psychological adaptation and motivational factors in educators' use of artificial intelligence technologies, specifically:

- attitudes towards technology and levels of technological anxiety;
- the role of intrinsic and extrinsic motivation;
- the relationship between the pursuit of professional self-development and innovative competencies.



The research seeks to answer the following questions:

1. What are educators' attitudes towards technology and their levels of technological anxiety?
2. To what extent do intrinsic and extrinsic motivation influence educators' intention to use and actual practice?
3. How do the pursuit of professional self-development and innovative competencies mediate the relationship between technological anxiety and intention to use?

Materials and methods

Research Design. The study employed a **mixed-method** approach (quantitative survey and qualitative semi-structured interview). This approach allowed for both identifying statistical relationships between psychological factors and gaining a deeper understanding of educators' subjective experiences[4,19]. The quantitative component was designed based on technology acceptance models[1,3,6,17] and Self-Determination Theory[8,20].

Sample Description. A total of 180 educators (65% female, 35% male) from 3 higher education institutions and 6 general education institutions participated in the study. The average teaching experience was 11.4 years (SD = 6.7). Subject distribution: exact sciences - 32%, social sciences and humanities - 41%, language and literature - 27%. Participants were recruited using **purposive convenience sampling**; the main criterion was that they had used AI-based educational applications at least once in the past year for lesson planning, assessment, or preparation of educational materials[4,10].

Measurement Instruments. The questionnaire employed the following scales based on a 5-point Likert scale (1 - "strongly disagree," 5 - "strongly agree"):

- **Attitude towards technology and intention to use:** Adapted items based on TAM/UTAUT[1,3,6,17].
- **Technological anxiety** (learning anxiety, job replacement anxiety, configuration anxiety, sociotechnical blindness) [6,11,12,18].
- **Internal and External Motivation:** Internal interest in teaching and using technology, external incentives and commitment components, based on SDT[8,18,20].
- **Technological self-confidence and innovative competencies** (creating and adapting digital materials, readiness for experimentation) [4,9,13,17].
- **Striving for professional self-development:** participation in professional development courses, frequency of independent study and experience exchange[4,9,10].

The scales were adapted from existing international questionnaires and underwent expert review for linguistic and cultural adaptation[13,17]. The internal consistency indicators were satisfactory (Cronbach's α ranging from 0.78 to 0.89).

Qualitative data. Semi-structured online interviews were conducted with a small group of participants (n = 20). The questions focused on emotional attitudes toward technology, sources of anxiety, self-development strategies, and innovative experiences[19]. The data underwent thematic analysis.

Data analysis. Quantitative data were analyzed using SPSS software. Descriptive statistics, Pearson correlation, and multiple regression models were used[3,6,17]. In some analyses, ANOVA and Kruskal-Wallis tests were employed to determine differences among age and length of service groups[2,11,12]. Inductive thematic coding was performed for qualitative data[19].

Results

Attitudes towards technology and levels of anxiety. Overall, educators highly assessed the potential of technologies in improving the quality of education: perceived usefulness was recorded at an average of 4.12 (SD = 0.63), and ease of use at 3.78 (SD = 0.71). These indicators confirm the prevalence of positive utilitarian views among teachers [1,3,6,17].



The average level of technological anxiety was found to be 3.01 (SD = 0.82), with the **anxiety related to workplace changes** being higher (M = 3.34), which is consistent with trends observed among language teachers and TESOL students [11,12]. Anxiety about "learning difficulties" and "configuration" was higher mainly among teachers with low technological self-confidence [5,14,16].

Motivational factors and intention to adopt. Intrinsic motivation (internal interest in improving the teaching process) averaged 4.05 (SD = 0.58), while extrinsic motivation (management requirements, regulatory pressure, image) averaged 3.26 (SD = 0.77). Regression analysis showed that in predicting intention to use:

- perceived usefulness ($\beta \approx 0.42$, $p < 0.001$) and intrinsic motivation ($\beta \approx 0.31$, $p < 0.001$) were the strongest factors;
- the influence of extrinsic motivation was significant, but relatively low ($\beta \approx 0.14$, $p < 0.05$);
- technological anxiety had a negative, but moderately strong effect ($\beta \approx -0.19$, $p < 0.01$).

These results support previous studies that showed internal cognitive and motivational factors are more important than external social factors [1,3,15,18].

Professional self-development and innovative competencies. A significant positive correlation was found between indicators of professional self-development (participation in professional development, independent study) and **innovative competencies** (creation of digital materials, conducting experimental work) ($r \approx 0.58$, $p < 0.001$). Additionally:

- innovative competencies are negatively correlated with technological anxiety ($r \approx -0.36$, $p < 0.001$) [4,9,13].
- As technological self-confidence and AI literacy increase, intention to use also increases [5,10,14,17]. Mediation analysis showed that the drive for professional self-development partially mediates the **anxiety** → **intention to use** relationship: teachers who regularly engage in self-study showed higher intention to use, even with the same level of anxiety [4,9,13].

Qualitative results. In the interviews, teachers emphasized the following:

- There is a strong positive attitude because the technology "saves their time" and "expands opportunities to adapt lessons" [4,7,19].
- The main sources of concern are: fairness of assessment, impact on students' independent thinking, and the future of employment [6,11,19].
- Teachers who have gained successful experience have increased self-confidence and willingness to try innovations [4,9,13].
- It was noted that a supportive environment in the professional community strengthens motivation and is more effective than pressure-based demands [2,7,10].

Discussion. The results demonstrated that teachers' adoption of artificial intelligence technologies primarily depends on perceived usefulness, intrinsic motivation, and technological self-efficacy [1,3,6,17]. These findings align with studies conducted in various contexts, where expectations of usefulness and effectiveness emerged as key cognitive determinants [2,10,17].

Technological anxiety was identified as a moderate but significant barrier. Findings related to AI anxiety, including components of job displacement and sociotechnical blindness, echo trends observed among language teachers and students [11,12,16,18]. However, some studies have shown that a certain level of anxiety can enhance extrinsic motivation for learning [16,18], whereas in this study, the overall effect of anxiety on the intention to use artificial intelligence was negative. This discrepancy may be attributed to a heightened perception of pedagogical responsibility and ethical risks [5,19].



The strong role of intrinsic motivation supports self-determination theory: when the needs for autonomy, competence, and meaningfulness are satisfied, the likelihood of voluntary and sustainable adoption of innovative technologies increases [8,15,20]. Research indicates that AI literacy and technological self-efficacy serve to fulfill these needs and indirectly strengthen the intention to use [10,14,15,17]. Targeted programs aimed at professional self-development, particularly structured professional development courses, have a positive impact on teachers' autonomy, digital competence, and psychological well-being, which has been confirmed in this study as well as in other research [4,9]. The strong negative correlation between anxiety and competence suggests that interventions focused on reducing anxiety and increasing self-confidence should be a central component of AI integration policies [9,13,16].

Furthermore, the identified differences in age and professional experience align with findings in other contexts: performance expectations and the habit factor may be more pronounced in middle-aged teachers or those more experienced with technology [2,11]. However, some studies have also noted gender differences, indicating that female teachers may exhibit higher levels of AI anxiety and motivation [6,11,12].

The main limitations of this study include purposive convenience sampling, self-reported measures, and the lack of a longitudinal design. Future research should focus on determining the causal effects of professional self-development programs through longitudinal and experimental studies, as well as developing diagnostic tools adapted to the conditions of Uzbekistan and the region, which remains an urgent scientific task.

Conclusion. The research results show that **psychological adaptation and motivational factors** play a central role in teachers' use of artificial intelligence technologies. While perceived usefulness, intrinsic motivation, and technological self-efficacy strengthen positive attitudes and intentions to use, technological anxiety, especially job-related concerns, slows integration. Systematic professional development programs focused on self-improvement can reduce anxiety, enhance innovative competencies, and facilitate technology adoption.

The following recommendations are proposed for educational policy and practice:

- design technology adoption programs that focus not only on technical skills but also on fostering psychological readiness, motivation, and confidence;
- create conditions that support intrinsic motivation, enhance teacher autonomy, and strengthen professional meaningfulness;
- Development of psychological and pedagogical interventions aimed at identifying and reducing technological anxiety;
- Development of diagnostic tools and qualification standards appropriate to the national context for assessing and developing innovative competencies.

Further research in this direction will serve the effective and ethical integration of artificial intelligence technologies, taking into account the psychological preparation and motivational profiles of educators.

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