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AI-BASED FEEDBACK AND ITS INFLUENCE ON LEARNER MOTIVATION

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ABSTRACT

This study examines the influence of AI-based feedback on learner motivation in higher education contexts. The research investigates how university students perceive AI-generated feedback and how such feedback affects engagement, confidence, autonomy, and academic participation. A mixed-methods research design was employed, involving questionnaires and semi-structured interviews with 60 university students who regularly used AI-assisted educational tools. The findings indicate that AI-generated feedback positively influences learner motivation by providing immediate, accessible, and personalized responses. Students reported increased confidence, improved self-study habits, and greater engagement in learning activities. However, the study also identified limitations related to contextual understanding, emotional support, and overreliance on automated systems. The results suggest that AI-based feedback can effectively support learner motivation when integrated alongside traditional teacher guidance. The study contributes to ongoing discussions regarding the role of artificial intelligence in modern educational environments.

Keywords:

artificial intelligence, AI-based feedback, learner motivation, educational technology, digital learning, student engagement, higher education, adaptive learning.

INTRODUCTION

Artificial Intelligence (AI) has become an increasingly important component of modern education, transforming traditional teaching and learning processes through intelligent technologies and automated systems. In recent years, AI-based educational tools such as intelligent tutoring systems, adaptive learning platforms, automated writing evaluation programs, and chatbot-assisted instruction have gained significant attention in language learning and broader educational contexts. These technologies provide learners with immediate, personalized, and data-driven feedback, which may positively influence academic performance, engagement, and motivation.

Learner motivation is widely recognized as one of the most significant factors affecting academic achievement and language acquisition. Motivated learners are generally more engaged, persistent, and willing to participate actively in the learning process. According to contemporary educational psychology, feedback plays a crucial role in sustaining motivation because it helps learners identify strengths, weaknesses, and areas for improvement (Hattie & Timperley, 2017). Traditional teacher feedback, however, is often limited by time constraints, classroom size, and delayed response. AI-based feedback systems attempt to overcome these limitations by offering immediate and individualized responses to learner performance.

Recent developments in AI technologies have expanded the use of automated feedback in educational environments. AI-driven systems can analyze learner responses, detect errors, provide corrective suggestions, and adapt instructional content according to individual learning needs. Studies suggest that personalized and timely feedback can improve learners' confidence, autonomy, and

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intrinsic motivation (Luckin et al., 2016). In language learning contexts, AI-powered writing assistants and conversational chatbots have become especially popular because they allow learners to practice independently while receiving continuous support and evaluation. Moreover, digital learning environments increasingly encourage self-directed learning, where learners rely on technology-assisted guidance rather than solely depending on teachers. According to Holmes, Bialik, and Fadel (2019), AI technologies may enhance learner engagement by creating interactive and adaptive educational experiences that respond to individual progress and preferences. As a result, many educational institutions have started integrating AI tools into classrooms, online learning platforms, and blended learning models.

Despite the growing use of AI in education, there remains ongoing debate regarding its influence on learner motivation. Some researchers argue that AI-based feedback enhances motivation through personalization, immediate response, and reduced anxiety, while others suggest that excessive dependence on automated systems may decrease human interaction and emotional support in the learning process. Furthermore, students' perceptions of AI-generated feedback may vary depending on factors such as trust, digital literacy, and learning preferences.

Although numerous international studies have explored AI applications in education, limited research has specifically examined how AI-based feedback affects learner motivation in language-learning and higher-education contexts. Therefore, this study aims to investigate the influence of AI-generated feedback on learner motivation and engagement among university students. The research focuses on students' perceptions of AI-assisted feedback systems, their motivational responses, and the potential advantages and challenges associated with the use of AI in educational settings. This study contributes to current discussions in educational technology and applied linguistics by providing insights into the relationship between AI-based feedback and learner motivation in contemporary digital learning environments.

MATERIALS AND METHODS

This study employed a qualitative and quantitative mixed-methods research design to investigate the influence of AI-based feedback on learner motivation in higher education settings. The research focused on students' perceptions, motivational responses, and experiences with AI-assisted educational tools used in academic learning environments.

Participants

The participants of the study consisted of 60 university students aged between 18 and 25 years from several higher educational institutions in Tashkent. The participants were selected through purposive sampling because they had prior experience using AI-based educational tools such as automated writing assistants, AI chatbots, grammar correction applications, and adaptive learning platforms. The participant group included undergraduate students from different academic disciplines, including foreign language education, computer science, business, and social sciences. All participants possessed basic digital literacy skills and regularly used online learning technologies in their academic activities.

Data Collection

The data were collected over a six-week period using two primary research instruments:

1. A structured questionnaire;
2. Semi-structured interviews.

The questionnaire consisted of 20 items designed to measure students' attitudes toward AI-based feedback and its impact on motivation, engagement, confidence, and learning autonomy. A five-point Likert scale ranging from "strongly disagree" to "strongly agree" was used to evaluate participant responses. Additionally, semi-structured interviews were conducted with 15 volunteer participants to

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obtain deeper qualitative insights into their experiences with AI-generated feedback. The interview questions focused on:

- perceived usefulness of AI feedback;
- emotional reactions to automated evaluation;
- motivation during independent learning;
- comparison between teacher feedback and AI-generated feedback.

Research Instruments

The AI-based tools examined in this study included commonly used educational technologies such as: AI writing assistants; grammar-checking applications; chatbot-based learning systems; adaptive educational platforms. Participants interacted with these tools during academic writing, language-learning tasks, homework completion, and self-study activities. The questionnaire items were adapted from previous studies on educational technology, learner motivation, and digital learning engagement (Holmes et al., 2019; Zheng et al., 2021). To ensure reliability and clarity, the survey instrument was pilot-tested with a small group of students before the main data collection process.

Data Analysis

Quantitative data obtained from the questionnaires were analysed using descriptive statistical methods, including percentages, mean scores, and frequency distributions. The analysis focused on identifying general patterns related to learner motivation, confidence, and engagement when receiving AI-generated feedback. Qualitative interview data were analysed through thematic analysis. Participant responses were transcribed, coded, and grouped into thematic categories related to: motivational benefits; challenges of AI feedback; learner autonomy; emotional responses to automated evaluation. The findings from both quantitative and qualitative data were compared and interpreted to provide a comprehensive understanding of the influence of AI-based feedback on learner motivation.

RESULTS

The findings of the study revealed that AI-based feedback had a generally positive influence on learner motivation, engagement, and confidence among university students. Most participants reported that AI-generated feedback helped them improve academic performance, identify mistakes more quickly, and become more independent in the learning process.

Student Attitudes Toward AI-Based Feedback

The questionnaire results showed that a majority of participants viewed AI-generated feedback positively. Approximately 78% of respondents agreed that AI tools provided immediate and useful feedback that improved their learning efficiency. Many students stated that instant correction and suggestions motivated them to revise their work more actively. In addition, 72% of participants reported that AI-assisted feedback increased their confidence during academic writing and language-learning activities. Students particularly appreciated the ability to receive feedback privately without fear of embarrassment or criticism from peers.

The data also demonstrated that students valued the accessibility and convenience of AI tools. Participants frequently mentioned that AI-based systems were available at any time and allowed them to practice independently outside the classroom environment.

Influence on Learner Motivation

The findings indicated that AI-generated feedback positively influenced several dimensions of learner motivation:

- increased willingness to complete assignments;
- higher engagement in self-study activities;
- improved confidence in academic tasks;
- greater learning autonomy.

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Many participants explained that immediate feedback encouraged them to correct mistakes instantly and continue practicing until improvement was achieved. Several students reported feeling more motivated when they observed visible progress through AI-supported learning platforms. Interview responses further revealed that personalized recommendations and adaptive exercises created a sense of individual support, which increased learners' interest and participation in educational activities.

Challenges and Limitations

Despite the generally positive attitudes, some participants expressed concerns regarding AI-based feedback systems. Approximately 28% of respondents believed that AI-generated feedback occasionally lacked detailed explanations or contextual understanding. Students noted that automated systems sometimes failed to recognize creativity, nuance, or complex language use. Several interview participants also emphasized the importance of teacher interaction and emotional encouragement in the learning process. While AI feedback was considered useful for technical correction and practice, students still preferred human feedback for deeper discussion, emotional support, and personalized guidance. Additionally, a small number of participants reported overreliance on AI tools, suggesting that excessive dependence on automated correction systems might reduce critical thinking and independent problem-solving skills.

DISCUSSION

The findings of this study demonstrate that AI-based feedback can positively influence learner motivation and engagement in educational settings. The results support previous research indicating that immediate and personalized feedback contributes to increased learner confidence, autonomy, and academic participation (Luckin et al., 2016).

One of the most significant findings of the study is the motivational impact of instant feedback. Participants appreciated the speed and accessibility of AI-generated responses, which allowed them to identify and correct mistakes without delay. This aligns with educational theories emphasizing the importance of timely feedback in sustaining learner motivation and improving performance (Hattie & Timperley, 2017).

The study also revealed that AI-assisted learning environments promote greater learner autonomy. Many students reported becoming more independent because AI tools enabled them to practice and revise tasks outside traditional classroom settings. This finding corresponds with Holmes et al. (2019), who argue that AI technologies encourage self-directed learning and personalized educational experiences. Another important observation concerns the emotional dimension of AI-based feedback. Several participants indicated that receiving automated feedback reduced anxiety and fear of negative evaluation, particularly in language-learning activities. Because AI systems provide corrections privately and without direct social judgment, learners may feel more comfortable experimenting with language and making mistakes during the learning process.

However, the findings also highlight several limitations of AI-generated feedback. Although participants valued automated correction for grammar and technical accuracy, many still considered teacher feedback more effective for complex explanations, emotional encouragement, and contextual understanding. This suggests that AI technologies should complement rather than replace human instruction in educational environments.

The issue of overdependence on AI tools also emerged during the analysis. Some students relied heavily on automated correction systems, potentially limiting critical thinking and independent problem-solving abilities. This concern reflects broader debates regarding the balance between technological assistance and active learner responsibility in digital education. Overall, the study indicates that AI-based feedback can significantly enhance learner motivation when integrated

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effectively into educational practice. Nevertheless, the findings suggest that the most productive learning environments may combine AI-supported feedback with meaningful teacher interaction and human guidance.

CONCLUSION

This study investigated the influence of AI-based feedback on learner motivation among university students in digital learning environments. The findings demonstrated that AI-generated feedback has a generally positive impact on student engagement, confidence, autonomy, and motivation. Most participants appreciated the immediacy, accessibility, and personalized nature of AI-assisted educational tools, particularly during academic writing and language-learning activities. The results revealed that AI-based feedback encourages learners to participate more actively in self-study and revision processes. Instant correction and adaptive recommendations helped students identify mistakes efficiently and monitor their learning progress. Furthermore, many participants reported that AI-assisted systems reduced anxiety and increased confidence by providing private and non-judgmental feedback.

At the same time, the study identified several limitations associated with AI-generated feedback. Although automated systems were considered effective for technical correction and practice, participants emphasized the continuing importance of teacher feedback for emotional support, contextual explanation, and deeper academic guidance. Concerns regarding excessive dependence on AI tools and reduced critical thinking were also observed among some learners. Overall, the findings suggest that AI technologies can play an important supportive role in modern education when used appropriately and in combination with human instruction. Rather than replacing teachers, AI-based feedback systems may serve as complementary tools that enhance learner motivation and facilitate personalized learning experiences. The study contributes to current research in educational technology and applied linguistics by providing insights into students' perceptions of AI-assisted learning environments. Future research may explore larger participant groups, different educational contexts, and long-term effects of AI-based feedback on academic achievement and learner development.

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