

Analysis of Digital Technology and Artificial Intelligence (AI) Usage Practices in the Educational Process and Their Influence on Students' Motivation

Alexandru Lungu¹ Marcel Iordache²

Abstract

The digital transformation of education and AI usage raises a central question for school organizations and the future labor market: how does the use of generative Artificial Intelligence tools shape young people's motivation to learn? This study examines the relationship between digital technology and AI usage practices and high school students' academic motivation, through a case study conducted at a Theoretical High School in Straseni, Republic of Moldova. The study applies a quantitative, cross-sectional methodology. A structured questionnaire with 29 Likert-scale items was administered to a sample of 123 students from grades 10, 11, and 12, covering both the Science and Humanities profiles. Data analysis combines descriptive statistics, Pearson correlation, the independent-samples t-test, one-way analysis of variance (ANOVA), and multiple linear regression. Based on the usage items, the study builds an operational distinction between Active AI Usage (Requesting Explanations and Verifications) and Passive AI Usage (Automated Content Generation). The results support this distinction as the decisive factor behind the motivational effect. Active usage of AI correlates positively with students' confidence in their own understanding ($r = 0.280$; $p = 0.002$) and with their motivation to continue learning ($r = 0.375$; $p < 0.001$). Passive usage of AI correlates negatively with intrinsic motivation ($r = -0.296$; $p < 0.001$) and positively with concern about technological dependency ($r = 0.181$; $p = 0.045$). The analysis of variance shows that intrinsic motivation rises with study time ($F = 6.16$; $p = 0.001$), and the regression confirms Passive usage of AI as the strongest negative predictor of intrinsic motivation to persist and remain engaged in the learning process ($\beta = -0.37$). Of the ten hypotheses tested, seven were validated. The study contributes an operational active-versus-passive framework to research on AI in education, showing that the impact of AI on motivation depends on how it is used rather than how often. It proposes pedagogical frameworks that encourage active technology use, addressing the conference themes of technological transformation and social impact.

Keywords: artificial intelligence, learning motivation, active/passive AI use, educational technology, self-determination theory

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¹ West University of Timisoara, Romania. ORCID: 0009-0009-8696-9026

² West University of Timisoara, Romania. ORCID: 0009-0007-3964-4953