Volume XXII, Issue (1) (2026) 318-327

International May Conference on Strategic Management

DOI: 10.5937/IMCSM26318N *Research Article*

STUDENTS' INNOVATIVE BEHAVIOR IN HIGHER BUSINESS EDUCATION: A SOCIAL COGNITIVE PERSPECTIVE ON AI LITERACY AND SELF-EFFICACY

Ivica Nikolić[1], Kiril Postolov[2], Violeta Cvetkoska[2], Bojan Kitanovikj[2*], Filip Peovski[2], Ivona Serafimovska[2], Nenad Milijić[1]

[1] University of Belgrade, Technical Faculty in Bor, Serbia
[2] Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje, North Macedonia

Abstract: This study examines whether institutional support, artificial intelligence (AI) literacy, and self-efficacy predict students' innovative behavior in higher business education in the context of growing AI use. Drawing on Social Cognitive Theory, we explain innovative behavior as an outcome shaped by the interaction between environmental conditions and personal capabilities. Empirically, the study relies on survey data collected from undergraduate students in North Macedonia to assess the effects of the three predictors on innovative behavior. The findings show that AI literacy emerges as the strongest predictor, while self-efficacy also has a positive and significant effect. In contrast, institutional support is positively related to innovative behavior but does not make a significant independent contribution. These results suggest that students' innovative actions depend more strongly on their competence and confidence than on support alone. The study contributes to the literature on AI in higher education by extending a social cognitive perspective to students' behavioral patterns related to innovation and highlights the importance of strengthening AI literacy and self-efficacy through higher education practice.

Keywords: Innovative behavior, higher business education, artificial intelligence, self-efficacy.

[*] *Corresponding author: bojan.kitanovikj@eccf.ukim.edu.mk*

Ivica Nikolić, ORCID: 0000-0003-1986-4653
Kiril Postolov, ORCID: 0000-0002-1551-9898
Violeta Cvetkoska, ORCID: 0000-0002-0472-5522
Bojan Kitanovikj, ORCID: 0000-0002-1968-8955
Filip Peovski, ORCID: 0000-0002-7988-7403
Ivona Serafimovska, ORCID: 0009-0000-5886-9831
Nenad Milijić: ORCID: 0000-0001-8741-3892

1. INTRODUCTION

The growing use of artificial intelligence in higher education has transformed not only how students complete academic tasks but how they explore ideas, solve problems, and generally approach learning. AI tools are becoming part of everyday academic practice, especially in business education, where students are expected to work with information, make judgments and produce applicable solutions. But it's not only in the technology that lies the educational relevance of AI. The question is whether students are able to make a critical, effective and confident use of it, and whether the university environment creates conditions that positively affect such use in meaningful ways (Chan & Hu, 2023; Wang et al., 2023; Bećirović et al., 2025). In this context, students' innovative behavior is a particularly relevant outcome because it reflects the extent to which they generate, explore, promote, and apply new ideas in their academic work (Janssen, 2000).

While the body of literature on AI in higher education has expanded rapidly, the bulk of this literature has focused on AI adoption, attitudes, pedagogical applications, and system-level transformations rather than students' innovation-oriented behavioral outcomes (Zawacki-Richter et al., 2019; Crompton & Burke, 2023). In the meantime, the literature on innovative behavior has long established that innovation is more than mere creativity, as it involves the enactment and implementation of useful ideas (Janssen, 2000). However, empirical studies on the relationship between AI-related competences and psychological factors and students' innovative behavior are still limited.

Therefore, the current study employs Social Cognitive Theory to explain behavior as a function of reciprocal interactions among environmental conditions, personal factors, and action (Bandura, 1977, 1991; Schunk & DiBenedetto, 2020). This perspective is particularly relevant in the present context, as institutional support captures the environmental dimension and AI literacy and self-efficacy are important personal resources that may impact whether students translate AI use into innovation-oriented academic behavior. Previous research has indicated that supportive educational environments can encourage engagement with AI, self-efficacy enhances persistence and adaptive behavior, and AI literacy facilitates more effective and critical utilization of AI in learning (Wang et al., 2023; Han et al., 2024; Bećirović et al., 2025). Recent evidence also indicates that AI literacy may directly foster innovative behavior in higher education settings (Weikang et al., 2025).

Our aim is to examine the association of institutional support, AI literacy and self-efficacy with students' innovative behavior in higher education in North Macedonia. The results indicate that AI literacy is the strongest predictor and self-efficacy also has a positive and significant impact. These findings imply that students' competence and confidence are more closely related to innovative behavior in AI-supported higher education than supportive context alone but still allow for the interpretation of institutional support as a more indirect enabling condition.

The remainder of the paper is structured as follows. Section 2 presents the theoretical background and develops the study hypotheses. This is followed by the data and methodology in Section 3, after which the empirical findings are reported in Section 4. In Section 5, the paper discusses the results in relation to prior research and concludes with the main implications and limitations of the study, followed by a conclusion top the topic.

2. LITERATURE REVIEW

Artificial intelligence is becoming an increasingly important part of higher education, as students use AI tools to search for information, generate ideas, support writing, and solve

academic problems, which makes it important to understand whether such use is associated with more innovative behavior in the learning process (Chan & Hu, 2023). Recent research suggests that the educational value of AI does not depend only on access to the technology itself, but also on whether students possess the competences and confidence needed to use it meaningfully and whether the learning environment supports such use in constructive ways (Wang et al., 2023; Bećirović et al., 2025). In this context, we believe innovative behavior is a relevant student outcome because it reflects the extent to which students generate, explore, promote, and apply new ideas in their academic work, including in AI-supported learning situations (Weikang et al., 2025).

To explain these relationships, the Social Cognitive Theory argues that behavior results from the reciprocal interaction of environmental conditions, personal factors, and action, while self-regulation and agency are central to how people translate resources into performance (Bandura, 1991; Schunk & DiBenedetto, 2020). Bandura (1977) argued that behavior depends not only on skills or environmental incentives, but also on efficacy beliefs regarding one's capacity to act successfully. Applied to the study's context, institutional support captures the environmental dimension, AI literacy and self-efficacy represent core personal factors, and innovative behavior reflects the behavioral outcome. Social Cognitive Theory further suggests that students are more likely to act proactively and persist in challenging tasks when they perceive their environment as supportive and when they believe they possess the ability to perform effectively, which is especially relevant in a rapidly changing technological learning context such as the AI use in higher education (Schunk & DiBenedetto, 2020; Wang et al., 2023). Recent higher education research applies this logic directly to innovation, showing that creative self-efficacy explains why supportive teacher-student relationships promote innovative behavior among graduates (Su et al., 2024).

Institutional support is expected to be a significant antecedent because supportive educational environments provide guidance, access, feedback, and legitimacy for action, thereby making experimentation and new forms of learning behavior more likely (Bandura, 1991). In the AI context, such support may include training opportunities, access to tools, teacher guidance, and a broader institutional climate that encourages responsible and productive use of AI in coursework, all of which can lower uncertainty and stimulate the use of new approaches (Wang et al., 2023). Prior work has already shown that supportive environments play an important role in fostering students' intentions to learn AI, indicating that institutional conditions can shape whether students are willing to engage with AI-related opportunities in the first place (Erdmann & Toro-Dupouy 2025). The perceived organizational support theory holds that individuals are more likely to invest effort and contribute novel ideas when they believe the institution values their contribution and cares about their well-being (Eisenberger et al., 1986; Rhoades & Eisenberger, 2002). In higher education, Zhao et al. (2020) showed that institutional support in British universities is linked with self-efficacy and innovative behavior among academic employees, reinforcing the view that support matters because it enables more immediate psychological resources. When this logic is extended to innovative behavior, it is reasonable to expect that students who perceive stronger institutional support will be more likely to experiment with AI, develop new study solutions, and apply novel ideas in their academic tasks. Therefore, the following hypothesis is proposed:

H1: Institutional support has a positive and significant effect on innovative behavior.

The role of AI literacy, as another key predictor, is seen in the proposition that students are unlikely to use AI in innovative ways if they do not understand how to use it effectively, critically evaluate its outputs, and apply it appropriately in academic tasks (Weikang et al., 2025). Recent studies increasingly define AI literacy as a broader competence that includes practical use, evaluative judgment, and responsible engagement with AI rather, moving beyonf

the pre-conceived technical familiarity alone, which was characteristic for the early days of widespread and commercial generative AI (Bećirović et al., 2025). This is especially important in higher education, where students are expected not only to use AI, but to use it thoughtfully in ways that improve learning, problem-solving, and idea generation (Chan & Hu, 2023). Importantly, a recent study found that AI literacy had a significant positive effect on doctoral students' innovative behavior, providing direct support for the expectation that stronger AI-related competence can encourage innovation-oriented action in educational settings (Weikang et al., 2025). Therefore, from a social cognitive perspective, AI literacy can be viewed as a capability resource that expands what students are able to do with AI and increases the likelihood that they will transform AI use into new and useful academic ideas and practices (Schunk & DiBenedetto, 2020). In this sense, we formulate the following hypothesis:

H2. AI literacy has a positive and significant effect on innovative behavior.

Self-efficacy occupies a central place in Social Cognitive Theory because it refers to people's beliefs in their capability to organize and execute the actions needed to achieve desired outcomes, and such beliefs influence effort, persistence, and adaptive behavior (Bandura, 1991). In higher education, self-efficacy is mostly connected to situations involving uncertainty and complexity, because students who believe they can handle tasks effectively are more likely to try new approaches, persist through difficulties, and act on their ideas (Schunk & DiBenedetto, 2020). This line of thinking is highly relevant in AI-supported learning, where students must judge the usefulness of AI tools, refine their use of them, and continue working even when AI outputs are imperfect or require verification (Chan and Hu, 2023). Related research in higher education also shows that self-efficacy is positively involved in explaining students' innovation-related outcomes, suggesting that confident students are more likely to translate their academic efforts into innovative action (Han et al., 2024). Accordingly, students with stronger self-efficacy should be more likely to experiment with AI-supported learning practices, persist in developing their ideas, and implement novel academic solutions, which leads to the following hypothesis:

H3. Self-efficacy has a positive and significant effect on innovative behavior.

The proposed framework suggests that innovative behavior in higher business education arises from the interaction between supportive environmental conditions and enabling personal capabilities, consistent with Social Cognitive Theory. Institutional support provides the external context, AI literacy supplies competence for meaningful AI use, and self-efficacy strengthens students' confidence to act on ideas, making all three relevant predictors.

3. DATA AND METHODOLOGY

This study employed a quantitative survey design to examine whether institutional support, AI literacy, and self-efficacy predict students' innovative behavior in higher education. Data were collected online between November 2025 and January 2026 from undergraduate students in North Macedonia using an online survey.

A convenience sampling strategy was used to access the target population efficiently, while participants were required to be enrolled students with exposure to AI-supported learning and general AI use. Before accessing the questionnaire, respondents were informed about the purpose of the study, assured that participation was voluntary and anonymous, and asked to provide informed consent.

A total of 471 students responded to the survey, where 65.13% were female, 34.21% were male and the remaining (0.66%) respondents identified as other or preferred not to disclose their gender. In terms of field of study, 57.68% were enrolled in the social sciences, 17.11% in engineering and technology, 10.75% in medical and health sciences, 6.58% in natural sciences,

6.36% in humanities and arts, and 1.54% in agricultural and veterinary sciences. The average age of the respondents was 22.18 years ($\sigma = 3.06$).

Furthermore, the study focused on four constructs: institutional support (Khan et al., 2017), measured through four items; AI literacy (Liu et al., 2025), measured through five items; self-efficacy (Pintrich & De Groot, 1990), measured through nine items; and innovative behavior (Janssen, 2000), measured through six items. All constructs were measured using multi-item scales adapted to the higher education context, and responses were recorded on a five-point Likert scale, where higher values indicated stronger agreement with the given statements.

To test the proposed hypotheses, multiple linear regression analysis was performed with innovative behavior specified as the dependent variable and institutional support, AI literacy, and self-efficacy entered simultaneously as predictors. We believe this method was appropriate because it enabled the assessment of the unique contribution of each independent variable while controlling for the effects of the others.

The overall model was evaluated through the F statistic, the coefficient of determination (R^2 and adjusted R^2), and the statistical significance of the standardized regression coefficients. In addition, the assumptions of multiple regression were examined before interpreting the findings. Multicollinearity was assessed using variance inflation factor (VIF) values, independence of errors was evaluated through the Durbin-Watson statistic, and the normality and homoscedasticity of residuals were checked through inspection of the relevant diagnostic plots.

4. RESULTS AND DISCUSSION

4.1. Reliability, descriptive statistics, and correlations

Prior to hypothesis testing, the internal consistency of all multi-item scales was assessed using Cronbach's alpha. The results indicated satisfactory to excellent reliability for all constructs. Institutional support demonstrated excellent reliability ($\alpha = 0.910$), AI literacy showed good reliability ($\alpha = 0.876$), self-efficacy demonstrated excellent reliability ($\alpha = 0.929$), and innovative behavior also showed excellent reliability ($\alpha = 0.907$). In addition, all corrected item-total correlations exceeded conventional cut-off values, indicating that the items contributed adequately to their respective scales. Based on these results, composite scores were computed and used in the subsequent analyses.

Table 1 presents the reliability coefficients and descriptive statistics for the study variables. Among the independent variables, self-efficacy had the highest mean score (M = 3.6978, SD = 0.8103), followed by AI literacy ($M = 3.4110$, $\sigma = 0.9245$), whereas institutional support showed the lowest mean score ($M = 2.9538$, $\sigma = 1.0305$). The mean score for innovative behavior was 3.3817 ($\sigma = 0.9244$).

Table 1. Reliability and descriptive statistics

Variable	Items	Cronbach's α	Mean	σ
Institutional support (IS)	4	0.910	2.9538	1.0305
AI literacy (AIL)	5	0.876	3.4110	0.9245
Self-efficacy (SE)	9	0.929	3.6978	0.8103
Innovative behavior (INN)	6	0.907	3.3817	0.9244

Pearson correlation analysis showed that all variables were positively and significantly related to each other. Innovative behavior was positively associated with institutional support ($r = 0.299$, $p < 0.001$), AI literacy ($r = 0.580$, $p < 0.001$), and self-efficacy ($r = 0.381$, $p < 0.001$).

Among the predictors, AI literacy had the strongest bivariate association with innovative behavior. The correlations among the independent variables were moderate, ranging from 0.318 to 0.421, suggesting that multicollinearity was unlikely to be a serious concern.

Table 2. Correlation matrix

Variable	1	2	3	4
Innovative behavior (INN)	1			
Institutional support (IS)	0.299***	1		
AI literacy (AIL)	0.580***	0.394***	1	
Self-efficacy (SE)	0.381***	0.318***	0.421***	1

Note. *** *p < 0.001.*

4.2. Multiple regression analysis

A multiple linear regression analysis was conducted to examine whether institutional support, AI literacy, and self-efficacy predict innovative behavior. The overall regression model was statistically significant, $F(3, 467) = 88.218$, $p < 0.001$, indicating that the three predictors jointly explained a substantial proportion of variance in innovative behavior. The model accounted for 36.2% of the variance in innovative behavior ($R^2 = 0.362$; Adjusted $R^2 = 0.358$), indicating moderate explanatory power.

Regarding the individual predictors, AI literacy emerged as the strongest predictor of innovative behavior ($\beta = 0.492$, $p < 0.001$). Self-efficacy also had a positive and statistically significant effect on innovative behavior ($\beta = 0.156$, $p < 0.001$). In contrast, institutional support did not make a statistically significant unique contribution to the model ($\beta = 0.056$, $p = 0.174$) after controlling for AI literacy and self-efficacy.

These findings suggest that respondents with higher levels of AI literacy and stronger self-efficacy tend to report higher levels of innovative behavior. Although institutional support was positively correlated with innovative behavior at the bivariate level, its effect became non-significant in the multivariate model, indicating that its contribution may overlap with the explanatory role of the other predictors or be comparatively weaker when considered simultaneously.

Table 3. Multiple regression results predicting innovative behavior

Predictor	B	SE	β	t	p	95% CI for B	VIF
Constant	0.896	0.176	-	5.092	< 0.001	[0.550, 1.242]	-
Institutional support (IS)	0.050	0.037	0.056	1.362	0.174	[-0.022, 0.122]	1.225
AI literacy (AIL)	0.492	0.043	0.492	11.516	< 0.001	[0.408, 0.576]	1.338
Self-efficacy (SE)	0.178	0.047	0.156	3.765	< 0.001	[0.085, 0.271]	1.257

Model summary. $R = 0.601$, $R^2 = 0.362$, Adjusted $R^2 = 0.358$, Std. Error of the Estimate = 0.74091, $F(3, 467) = 88.218$, $p < 0.001$, Durbin-Watson = 1.981.

4.3. Assessment of regression assumptions

The diagnostic statistics indicated that the assumptions for multiple regression were adequately met. First, multicollinearity was not a concern, as all VIF values ranged from 1.225 to 1.338 and all tolerance values were comfortably above conventional cut-offs. The collinearity diagnostics supported this conclusion, with the highest condition index equal to 12.947, which does not indicate problematic multicollinearity. Second, the independence of errors assumption was satisfied, as the Durbin-Watson statistic was 1.981, which is very close to the ideal value of 2.00. Third, inspection of the histogram and normal P-P plot of standardized residuals suggested that the residuals were approximately normally distributed, with no serious

deviations from normality. Finally, the scatterplot of standardized predicted values against standardized residuals did not indicate a severe pattern of heteroscedasticity. The standardized residuals ranged from -2.924 to 2.470, indicating that no extreme outliers were present.

5. DISCUSSION

5.1. AI literacy as the primary driver of innovative behavior

The most important finding of this study is that AI literacy emerged as the strongest predictor of students' innovative behavior. This suggests that the innovative value of AI in higher education depends less on mere access to tools and more on whether students possess the competence to use them effectively, critically, and purposefully. In AI-supported learning, students are expected to formulate prompts, assess output quality, refine responses, and integrate AI-generated material into their own reasoning. These are not passive acts of the use of technology. They require the ability to judge relevance, detect limitations, and transform digital assistance into new and useful academic ideas. In that sense, the present result supports the growing view that AI literacy is not a peripheral digital skill but a meaningful educational capability that shapes how students learn and perform in contemporary higher education (Chan & Hu, 2023; Bećirović et al., 2025). This finding aligns with recent studies indicating that AI-related competencies can facilitate innovation-driven outcomes in academic environments. Weikang et al. (2025) specifically indicated that AI literacy positively affected the innovative behavior of doctoral students, which closely corresponds with the pattern identified herein. There has been much less focus on how students actually behave when it comes to innovation (Zawacki-Richter et al., 2019; Crompton & Burke, 2023). This study contributes to the evolving literature by demonstrating a robust and direct correlation between AI literacy and innovative behavior among students, thereby shifting the discourse from mere acceptance of AI to a more behaviorally oriented outcome.

5.2. Self-efficacy as a proximal psychological mechanism

Self-efficacy positively and significantly influenced innovative behavior, consistent with Social Cognitive Theory. Bandura (1977, 1991) posited that efficacy beliefs affect individuals' propensity to initiate action, maintain persistence in the face of challenges, and adapt in conditions of uncertainty. These processes are especially pertinent in AI-assisted learning, where students frequently must navigate ambiguity, validate outputs, and enhance their methodologies when AI-generated responses are insufficient or flawed. Students who have faith in their ability to handle academic challenges are more likely to try new things, keep going, and act on new ideas. This interpretation aligns with previous studies indicating that self-efficacy enhances academic engagement, adaptive effort, and innovation-related outcomes in higher education (Honicke & Broadbent, 2016; Han et al., 2024). It also backs up recent research that shows how beliefs about efficacy can help explain how educational relationships and conditions lead to innovative behavior (Su et al., 2024). In this context, self-efficacy seems to serve as a proximal motivational resource that enables students to transform their capabilities into innovative actions.

5.3. Rethinking the role of institutional support

While institutional support correlated positively with innovative behavior, it failed to demonstrate a significant unique effect in the comprehensive model. This implies that students

who recognize increased support are likely to exhibit more innovative behavior; however, support may not be the primary influence when accounting for AI literacy and self-efficacy. Instead, institutional support seems to work as a background condition that makes things easier. This interpretation aligns with perceived organizational support theory, which posits that supportive environments are critical because they provide the psychological and structural conditions under which individuals feel valued and able to contribute (Eisenberger et al., 1986; Rhoades & Eisenberger, 2002). It is also aligned with previous higher education research demonstrating that supportive educational environments affect AI-related intentions and behaviors, but often through more proximal personal mechanisms such as confidence, engagement, or competence (Wang et al., 2023; Zhao et al., 2020; Erdmann & Toro-Dupouy, 2025). In other words, institutional support may still matter, but its effect appears to overlap or be mediated by the more proximal influences of AI literacy and self-efficacy.

5.4. Practical implications

The practical implications of these findings are relevant for universities that aim for the integration of AI in higher business education in meaningful ways. The results suggest it's likely not enough just to give access to AI tools or to provide general institutional support. Universities need to invest in developing concrete competences that allow students to use AI critically, productively and creatively, to get students to act more innovatively. These include structured training, guided use of AI in coursework, and learning tasks where students are asked to evaluate and improve AI-assisted outputs rather than simply using them without reflection. Schools should also help students feel more confident about handling difficult academic tasks that involve technology. Guided experimentation, helpful feedback, and assignments that get harder over time can all help people build the self-confidence they need to take action that leads to new ideas. In advanced business education, combining the development of AI literacy with pedagogy that builds efficacy may be more effective than relying solely on broad institutional support.

5.5. Limitations and future research

There are a few limitations to be aware of. The study is based on cross-sectional survey data that limits causal interpretation. The use of self-reported measures also suggests the possibility of common method bias, even though the diagnostic checks show that the regression assumptions have been adequately met. Moreover, the sample was obtained through convenience sampling in one national setting limiting the wider generalizability of the findings. Future research could address these limitations through multi-source data or mediation/moderation models such as Structural Equation Modelling (SEM) to test whether institutional support indirectly influences innovative behavior through AI literacy, self-efficacy, engagement, or other psychological mechanisms. It would also be interesting to compare students across disciplines or levels of study to determine if the present pattern is stable across contexts.

6. CONCLUSION

In summary, with this research endeavor we set out to examine whether institutional support, AI literacy, and self-efficacy predict students' innovative behavior in higher education as AI, especially generative AI, gains ground among business students. Grounded in Social Cognitive Theory, we argue that innovative behavior emerges through the interaction between

environmental support from the university's side (management, staff, and infrastructure) and personal capabilities of the students. Thus, the findings showed that AI literacy was the strongest predictor of innovative behavior, while self-efficacy also had a positive and significant effect. Although institutional support was positively related to innovative behavior at the correlational level, it did not remain a significant independent predictor in the full regression model. These results indicate that students' competence in using AI and their confidence in their own abilities matter more directly for innovation-oriented behavior than university support alone.

The study is relevant for higher education institutions, educators, and policymakers seeking to integrate AI into teaching and learning in meaningful ways. Its implications suggest that simply providing access or general support is not enough. In turn, universities should also invest in developing students' AI literacy and self-efficacy so they can use AI creatively, critically, and productively. In this sense, the paper contributes to the growing literature on AI in higher business education by showing that the innovative potential of AI depends both on the technology itself, but also, and maybe even more importantly, on the capabilities, skills, and know-how students develop around it to future-proof their careers.

ACKNOWLEDGMENT

The research presented in this paper was supported by the Ministry of Science. Technological Development and Innovation of the Republic of Serbia, within the funding of scientific and research work at the University of Belgrade. Technical Faculty in Bor. according to contract with registration number 451-03-34/2026-03/ 200131.

REFERENCES

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://psycnet.apa.org/doi/10.1037/0033-295X.84.2.191

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational behavior and human decision processes*, *50*(2), 248-287. https://doi.org/10.1016/0749-5978(91)90022-L

Bećirović, S., Polz, E., & Tinkel, I. (2025). Exploring students' AI literacy and its effects on their AI output quality, self-efficacy, and academic performance. *Smart Learning Environments*, *12*(1), 29. https://doi.org/10.1186/s40561-025-00384-3

Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, *20*, 43. https://doi.org/10.1186/s41239-023-00411-8

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, *20*, 22. https://doi.org/10.1186/s41239-023-00392-8

Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, *71*(3), 500–507.

Erdmann, A., & Toro-Dupouy, L. (2025). The influence of the institutional environment on AI adoption in universities: identifying value drivers and necessary conditions. *European Journal of Innovation Management*, *28*(9), 4365-4398. https://doi.org/10.1108/EJIM-04-2024-0407

Han, X., Xu, Q., Xiao, J., & Liu, Z. (2024). Academic atmosphere and graduate students' innovation ability: the role of scientific research self-efficacy and scientific

engagement. *European Journal of Psychology of Education*, *39*(2), 1027-1044. https://doi.org/10.1007/s10212-023-00737-x

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. https://doi.org/10.1016/j.edurev.2015.11.002

Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behaviour. *Journal of Occupational and Organizational Psychology*, *73*(3), 287–302. https://doi.org/10.1348/096317900167038

Khan, I. U., Hameed, Z., Yu, Y., & Khan, S. U. (2017). Assessing the determinants of flow experience in the adoption of learning management systems: the moderating role of perceived institutional support. *Behaviour & Information Technology*, *36*(11), 1162-1176. https://doi.org/10.1080/0144929X.2017.1362475

Liu, M., Zhang, L. J., & Zhang, D. (2025). Enhancing student GAI literacy in digital multimodal composing through development and validation of a scale. *Computers in Human Behavior*, *166*, 108569. https://doi.org/10.1016/j.chb.2025.108569

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of educational psychology*, *82*(1), 33.

Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, *87*(4), 698–714.

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary educational psychology*, *60*, 101832. https://doi.org/10.1016/j.cedpsych.2019.101832

Su, W., Zhang, Y., Yin, Y., & Dong, X. (2024). The influence of teacher-student relationship on innovative behavior of graduate student: The role of proactive personality and creative self-efficacy. *Thinking Skills and Creativity*, *52*, 101529. https://doi.org/10.1016/j.tsc.2024.101529

Wang, F., King, R. B., Chai, C. S., & Zhou, Y. (2023). University students' intentions to learn artificial intelligence: The roles of supportive environments and expectancy–value beliefs. *International Journal of Educational Technology in Higher Education*, *20*(1), 51. https://doi.org/10.1186/s41239-023-00417-2

Weikang, L., Shiyin, L., & Xiaomo, Q. (2025). The impact of artificial intelligence literacy on doctoral students' innovative behaviour from the perspective of technology affordance. *European Journal of Education*, *60*(4), e70245. https://doi.org/10.1111/ejed.70245

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education: Where are the educators? *International Journal of Educational Technology in Higher Education*, *16*, 39. https://doi.org/10.1186/s41239-019-0171-0

Zhao, F., Ahmed, F., Iqbal, M. K., Mughal, M. F., Qin, Y. J., Faraz, N. A., & Hunt, V. J. (2020). Shaping behaviors through institutional support in British higher educational institutions: Focusing on employees for sustainable technological change. *Frontiers in Psychology*, *11*, 584857. https://doi.org/10.3389/fpsyg.2020.584857