

Strategic Educational Leadership and Management Practices as Predictors of Institutional Effectiveness: A Framework for AI-Enabled Digital Transformation in Higher Education

Edil Washif P. Insani¹ , Brian G. Torejas² , Vonryan D. Prado³ 

Author Information:

¹Comtech College, Inc., Zamboanga City, Philippines

²Southern City Colleges, Zamboanga City, Philippines

³Asia's Latin Institute, Inc., Zamboanga City, Philippines

Correspondence:

washift.al2024@gmail.com

Article History:

Date Received: October 7, 2026

Date Revised: October 16, 2026

Date Accepted: October 19, 2026

Date Published: October 26, 2026

DOI: <https://doi.org/10.67903/ijroms0562>

Document ID: 2026IJROMS0562

Recommended Citation:

Insani, E. W. P., Torejas, B. G. & Prado, V. D. (2026). Strategic Educational Leadership and Management Practices as Predictors of Institutional Effectiveness: A Framework for AI-Enabled Digital Transformation in Higher Education. *International Journal of Research on Multidisciplinary Studies*, 1(9), 656-663. <https://doi.org/10.67903/ijroms0562>

Abstract. This study examined the predictive influence of strategic educational leadership and management practices on institutional effectiveness in selected higher education institutions and developed an artificial intelligence-enabled digital transformation framework based on the findings. Specifically, it assessed the levels of strategic educational leadership, management practices, and institutional effectiveness and determined whether leadership and management practices significantly predicted institutional effectiveness. A quantitative, non-experimental predictive-correlational research design was employed, involving 136 academic administrators selected through total enumeration. Data were collected using a validated and reliability-tested survey questionnaire and analyzed through weighted mean, standard deviation, and multiple linear regression at a 0.05 level of significance. The findings revealed high levels of strategic educational leadership (4.32), management practices (4.30), and institutional effectiveness (4.29). Regression analysis showed a strong predictive relationship, with a correlation coefficient of 0.870 and a coefficient of determination of 0.756, indicating that the independent variables explained 75.6% of the variance in institutional effectiveness. Both strategic educational leadership and management practices significantly and positively predicted institutional effectiveness, with regression coefficients of 0.431 and 0.440, respectively. The findings highlight the importance of effective leadership and sound management in improving institutional performance. The study concludes that strengthening these practices can enhance institutional effectiveness in higher education institutions. Based on the findings, an artificial intelligence-enabled digital transformation framework was developed to integrate strategic leadership, effective management, and artificial intelligence-driven innovations. The framework aims to support evidence-based decision-making, improve organizational processes, strengthen quality assurance, and promote continuous institutional improvement. Its implementation may help higher education institutions achieve sustainable effectiveness and respond to the evolving demands of digital education.

Keywords: AI-Enabled Digital Transformation; Higher Education Institutions; Institutional Effectiveness; Management Practices; Predictive-Correlational Research

Introduction

Higher education institutions (HEIs) are currently experiencing unprecedented transformations driven by rapid technological advancement, globalization, and the increasing integration of artificial intelligence (AI) into educational systems. The emergence of AI-enabled technologies has reshaped institutional operations, teaching and learning processes, research productivity, governance, and decision-making. Consequently, higher education leaders are expected to adopt strategic leadership and management practices that foster innovation, organizational resilience, and institutional effectiveness while ensuring sustainable digital transformation (Bond et al., 2024; UNESCO, 2023).

Strategic educational leadership has become an essential component of institutional success in the digital era. Unlike traditional administrative leadership, strategic leadership emphasizes long-term planning, evidence-based decision-making, stakeholder engagement, resource optimization, and organizational adaptability. Educational leaders who demonstrate strategic vision and effective management practices are

better positioned to respond to technological disruptions, improve organizational performance, and cultivate a culture of continuous innovation (Fullan, 2020; Hargreaves & Fullan, 2020). As AI increasingly becomes embedded in higher education, institutional leaders must also develop competencies that support ethical AI governance, digital readiness, and technology-driven organizational change.

Institutional effectiveness remains one of the primary indicators of organizational excellence in higher education. It reflects an institution's ability to achieve its mission through quality instruction, research productivity, community engagement, efficient resource management, and continuous quality improvement. Previous studies have shown that effective leadership significantly contributes to institutional performance by influencing organizational culture, employee commitment, strategic planning, and innovation (Bryson, 2018; Bush, 2020). However, the rapidly evolving technological landscape requires educational leaders to expand their strategic capacities beyond conventional management approaches to embrace AI-enabled transformation.

Recent literature highlights that AI has become a catalyst for digital transformation across higher education institutions. AI applications such as predictive analytics, intelligent decision-support systems, adaptive learning platforms, and automated administrative processes have enhanced institutional efficiency and academic service delivery (Crompton & Burke, 2023; Zawacki-Richter et al., 2019). Nevertheless, the successful implementation of AI initiatives largely depends on leadership readiness, strategic management, organizational support, and institutional policies. Without strong strategic leadership, digital transformation initiatives often encounter resistance to change, inadequate resource allocation, and implementation challenges.

Despite the growing body of literature on educational leadership, institutional effectiveness, and digital transformation, relatively few studies have comprehensively examined how strategic educational leadership and management practices predict institutional effectiveness within the context of AI-enabled digital transformation, particularly in higher education institutions in developing countries. Existing studies frequently investigate leadership or digital transformation independently, leaving limited empirical evidence regarding their combined influence on institutional effectiveness. This gap underscores the need for a more integrative framework that explains how strategic leadership and management practices contribute to organizational success in an increasingly AI-driven educational environment.

Anchored on the principles of strategic leadership theory, organizational effectiveness theory, and digital transformation frameworks, this study seeks to determine the extent to which strategic educational leadership and management practices predict institutional effectiveness in selected higher education institutions. Furthermore, the study aims to develop an evidence-based framework for AI-enabled digital transformation that may assist educational leaders, policymakers, and institutional administrators in strengthening organizational performance, improving governance, and promoting sustainable innovation in higher education. The findings are expected to contribute to the growing body of knowledge on educational leadership while providing practical insights for institutions preparing for the future of AI-driven education.

Research Questions

This study determined whether strategic educational leadership and management practices significantly predicted institutional effectiveness in selected higher education institutions.

Specifically, it sought to answer the following questions:

1. What is the level of strategic educational leadership in selected higher education institutions in terms of:
 - 1.1 strategic vision and direction;
 - 1.2 transformational leadership; and
 - 1.3 decision-making and innovation?
2. What is the level of management practices in selected higher education institutions in terms of:
 - 2.1 human resource management;
 - 2.2 resource and financial management; and
 - 2.3 quality assurance and continuous improvement?
3. What is the level of institutional effectiveness in selected higher education institutions in terms of:
 - 3.1 academic excellence;
 - 3.2 research, innovation, and extension; and
 - 3.3 organizational performance?
4. Do strategic educational leadership and management practices significantly predict institutional effectiveness in selected higher education institutions?
5. Based on the findings of the study, what AI-enabled digital transformation framework may be developed to enhance institutional effectiveness in higher education institutions?

Scope and Delimitation of the Study

The study involved 136 academic administrators from selected HEIs, including administrators, deans, department chairpersons, program coordinators, and other academic administrators involved in institutional leadership and decision-making. A quantitative, non-experimental, predictive-correlational design was used, with data gathered through a validated survey questionnaire and analyzed using weighted mean, standard deviation, and multiple linear regression. The study was limited to the perceptions of the selected academic administrators and did not include students, faculty members, or non-academic personnel. It also focused only on the identified variables and did not cover other factors that may influence institutional effectiveness. The resulting AI-enabled digital transformation framework was developed based on the findings but was not implemented or evaluated in actual institutional settings.

Literature Review

Strategic educational leadership is important in establishing institutional goals, guiding organizational change, and improving performance. Bryson (2018) emphasized the importance of strategic planning in achieving organizational objectives, while Fullan (2020) discussed leadership approaches that support change and continuous improvement. These concepts suggest that effective leadership helps higher education institutions establish clear directions and respond to changing educational needs.

Management practices are also important in supporting institutional effectiveness through resource allocation, organizational planning, and continuous improvement. Abad-Segura et al. (2020) examined sustainable management in digital transformation in higher education and highlighted the importance of organizational adaptation to technological change. Their study supports the need for effective management practices when institutions implement digital initiatives.

Artificial intelligence (AI) offers opportunities to improve institutional decision-making, administrative processes, and educational services. Zawacki-Richter et al. (2019) reviewed AI applications in higher education, while Crompton and Burke (2023) examined the growing use of AI in educational assessment, prediction, and learning support. Bond et al. (2024) further emphasized the importance of ethical practices, collaboration, and research quality in AI integration. These studies indicate that AI adoption should be supported by appropriate leadership, management, and institutional policies.

Overall, literature highlights the importance of strategic leadership, effective management, and responsible digital transformation in higher education. However, further research is needed to examine how strategic educational leadership and management practices jointly predict institutional effectiveness and how these findings can inform an AI-enabled digital transformation framework. The present study addresses this gap by examining these relationships in selected higher education institutions.

Methodology

Research Design

This study employed a quantitative, non-experimental, predictive-correlational research design to determine whether strategic educational leadership and management practices significantly predicted institutional effectiveness in selected higher education institutions. A quantitative approach was deemed appropriate because it enabled the researcher to collect numerical data through a structured survey questionnaire and objectively analyze the relationships among the study variables using statistical methods. The descriptive component of the design was utilized to determine the level of strategic educational leadership, management practices, and institutional effectiveness based on the respondents' perceptions. Specifically, weighted mean and standard deviation were used to describe the extent of each variable across its respective dimensions. Moreover, the predictive-correlational component of the research design was employed to examine the predictive influence of strategic educational leadership and management practices on institutional effectiveness. Since the study did not involve the manipulation of variables but instead investigated naturally occurring relationships, a non-experimental design was considered appropriate. Multiple linear regression analysis was used to determine the extent to which the independent variables significantly predicted the dependent variable. Furthermore, the empirical findings served as the basis for developing an AI-enabled digital transformation framework aimed at enhancing institutional effectiveness in higher education institutions. The proposed framework was grounded on the statistical results, relevant leadership and management theories, and current literature on digital transformation in higher education.

Research Participants

The population of this study consisted of 136 academic administrators from selected higher education institutions (HEIs). The respondents included university administrators, deans, associate deans,

department chairpersons, program coordinators, and other academic administrators who were directly involved in institutional leadership, management, and organizational decision-making. These academic administrators were selected because they possessed the knowledge and experience necessary to assess the institutions' strategic educational leadership, management practices, and institutional effectiveness.

Research Instrument

The researcher employed a researcher-made survey questionnaire for students, comprising four parts. Part I inquired about the respondent's profile, including their sex, age, and socioeconomic status. Parts II and III utilized a four-point Likert scale to assess the level of proficiency and the challenges encountered in using technology, specifically in video editing, creating presentations, word processing, and internet navigation, where 4= SA (Strongly Agree), 3= A (Agree), 2=DA (Disagree), and 1= SDA (Strongly Disagree). Part IV of the survey collected data on academic performance by measuring grades, specifically the general weighted average of their grades for the third quarter of the school year 2023-2024. This was conducted with the permission of the Principal/Officer-in-Charge and with the knowledge of the advisers, in accordance with the Data Privacy Act of 2012, Republic of the Philippines.

Data Gathering Procedure

The survey questionnaires were administered upon securing permission from the administrators of the selected higher education institutions. The researcher personally distributed and retrieved the questionnaires, while an online version of the instrument was made available to respondents who preferred to accomplish the survey electronically. All completed questionnaires were collected within the designated data collection period and were checked for completeness and accuracy before data encoding and statistical analysis. Ethical principles were strictly observed throughout the conduct of the study by ensuring voluntary participation, obtaining informed consent, maintaining the confidentiality and anonymity of respondents, and using the collected data solely for academic and research purposes. The results of the study served as the basis for developing the proposed AI-enabled digital transformation framework to enhance institutional effectiveness in higher education institutions.

Results and Discussions

Research Question 1: What is the level of strategic educational leadership in selected higher education institutions in terms of strategic vision and direction, transformational leadership, and decision-making and innovation?

Table 1. Level of Strategic Educational Leadership

Indicators	Weighted Mean	Perception	Interpretation
1. Strategic vision and direction	4.29	Agree	High Level
2. Transformational leadership	4.32	Agree	High Level
3. Decision-making and innovation	4.34	Agree	High Level
Average	4.32	Agree	High Level

Table 1 presents the level of strategic educational leadership as perceived by the respondents. The overall weighted mean of 4.32, with an interpretation of Agree, indicates a High Level of strategic educational leadership. This implies that educational leaders demonstrate strong capabilities in providing direction, implementing innovative decisions, and inspiring stakeholders toward achieving institutional goals. Among the indicators, decision-making and innovation obtained the highest weighted mean of 4.34, followed by transformational leadership with 4.32, and strategic vision and direction with 4.29, all interpreted as a High Level.

The findings suggest that leaders in higher education institutions effectively practice strategic leadership by promoting innovation, encouraging collaboration, and establishing clear institutional directions. The results emphasize the importance of leadership competencies in responding to emerging challenges, particularly in supporting digital transformation and institutional development. This aligns with the concept of transformational leadership, where leaders motivate stakeholders and facilitate continuous improvement to achieve organizational goals. Overall, the high level of strategic educational leadership indicates that institutional leaders are perceived to possess the necessary skills and practices to guide their organizations toward future-ready and innovative educational environments.

Research Question 2: What is the level of management practices in selected higher education institutions in terms of, human resource management, resource and financial management; and quality assurance and continuous improvement?

Table 2. Level of Management Practices

Indicators	Weighted Mean	Perception	Interpretation
1. Human resource management	4.31	Agree	High Level
2. Resource and financial management	4.31	Agree	High Level
3. Quality assurance and continuous improvement	4.27	Agree	High Level
Average	4.30	Agree	High Level

Table 2 presents the level of management practices as perceived by the respondents. The overall weighted mean of 4.30, interpreted as Agree, indicates a High Level of management practices within the institution. This suggests that administrators effectively implement management strategies related to personnel development, resource allocation, and quality improvement to support institutional operations and goals. Among the indicators, human resource management and resource and financial management obtained the highest weighted mean of 4.31, both interpreted as High Level, indicating effective practices in managing personnel and utilizing institutional resources.

Meanwhile, quality assurance and continuous improvement obtained a weighted mean of 4.27, which was also interpreted as High Level. This implies that the institution continuously promotes monitoring, evaluation, and improvement initiatives to maintain academic and organizational standards. The findings indicate that strong management practices contribute to institutional effectiveness by ensuring efficient resource utilization, supporting faculty and staff development, and fostering a culture of continuous improvement. Overall, the results suggest that effective management practices provide a strong foundation for institutional growth and readiness for emerging innovations, including AI-enabled digital transformation in higher education.

Research Question 3: What is the level of institutional effectiveness in selected higher education institutions in terms of, academic excellence; research, innovation, and extension; and organizational performance.

Table 3. Level of Institutional Effectiveness

Indicators	Weighted Mean	Perception	Interpretation
1. Academic excellence	4.26	Agree	High Level
2. Research, innovation, and extension	4.29	Agree	High Level
3. Organizational performance	4.33	Agree	High Level
Average	4.29	Agree	High Level

Table 3 presents the level of institutional effectiveness as perceived by the respondents. The overall weighted mean of 4.29, interpreted as Agree, indicates a High Level of institutional effectiveness. This implies that the institution demonstrates strong performance in achieving academic goals, promoting research and innovation, and maintaining effective organizational processes. Among the indicators, organizational performance obtained the highest weighted mean of 4.33, followed by research, innovation, and extension with 4.29, and academic excellence with 4.26, all interpreted as a High Level.

The findings suggest that the institution is effective in managing its operations, supporting innovation initiatives, and sustaining academic quality. The high rating in organizational performance indicates that respondents recognize the institution's ability to achieve its objectives through effective leadership and management practices. Furthermore, the strong perception of research, innovation, and extension reflects the institution's commitment to knowledge creation and community engagement. Overall, the results indicate that institutional effectiveness is highly evident, demonstrating the institution's capacity to adapt, improve, and remain responsive to the evolving demands of higher education, including the integration of digital transformation initiatives.

Research Question 4: Do strategic educational leadership and management practices significantly predict institutional effectiveness in selected higher education institutions.

Table 4. Regression Analysis of strategic educational leadership and management practices on academic innovation

Model Fit Measures							
Model	R	R ²	N	Interpretation			
1	0.870	0.756	136	Very strong predictive relationship			

Omnibus ANOVA Test							
Source	Sum of Squares	df	Mean Square	F	p-value	Interpretation	
1. Strategic Educational Leadership	0.907	1	0.9071	24.2	<.001	Significant	
2. Management Practices	0.826	1	0.8259	22.0	<.001	Significant	
3. Residuals	4.992	133	0.0375				

Predictor	Regression Coefficients Predicting Academic Innovation				Interpretation
	Unstandardized Coefficient (B)	Standard Error (SE)	t	p-value	
1. Intercept	0.542	0.1870	2.90	.004	Significant Constant
2. Strategic Educational Leadership	0.431	0.0877	4.92	<.001	Significant Positive Predictor
3. Management Practices	0.440	0.0939	4.69	<.001	Significant Positive Predictor

Table 4 presents the regression analysis conducted to determine the predictive influence of strategic educational leadership and management practices on academic innovation. Model Fit Measures show that the regression model obtained an R-value of 0.870 and an R^2 value of 0.756 among the 136 respondents, indicating a very strong predictive relationship between the independent variables and academic innovation. The coefficient of determination further reveals that 75.6% of the variation in academic innovation is explained by strategic educational leadership and management practices, suggesting that these factors substantially contribute to the development and enhancement of innovative practices within higher education institutions.

The results of the Omnibus ANOVA Test confirm that the regression model is statistically significant. Specifically, strategic educational leadership showed a significant effect on academic innovation ($F = 24.2$, $p < .001$), while management practices also demonstrated a significant contribution ($F = 22.0$, $p < .001$). These findings indicate that both leadership and management dimensions are important factors influencing the institution's capacity to develop innovative academic practices. The significant results suggest that institutions with effective strategic leadership and well-established management systems are more capable of responding to changing educational demands and implementing improvement initiatives.

Furthermore, the regression coefficients indicate that both predictors significantly and positively influence academic innovation. Strategic educational leadership obtained a coefficient of $B = 0.431$ ($p < .001$), indicating that stronger leadership practices are associated with increased academic innovation. Similarly, management practices emerged as a significant positive predictor with $B = 0.440$ ($p < .001$), suggesting that effective resource management, quality assurance, and organizational processes contribute to innovation outcomes. Overall, the findings emphasize that strategic leadership and sound management practices serve as critical drivers in advancing academic innovation and supporting AI-enabled digital transformation initiatives in higher education institutions.

Research Question 5: Based on the findings of the study, what AI-enabled digital transformation framework may be developed to enhance institutional effectiveness in higher education institutions?

The findings of the study served as the basis for developing an AI-Enabled Digital Transformation Framework aimed at enhancing institutional effectiveness in higher education institutions. The descriptive analysis revealed that respondents perceived strategic educational leadership ($WM = 4.32$), management practices ($WM = 4.30$), and institutional effectiveness ($WM = 4.29$) at a high level. Moreover, the regression analysis demonstrated that strategic educational leadership and management practices significantly and positively predict institutional effectiveness, with the model explaining 75.6% of the variance ($R^2 = 0.756$). These findings indicate that effective leadership and sound management practices are essential foundations for the successful implementation of AI-enabled digital transformation initiatives.

Based on these results, the proposed framework positions Strategic Educational Leadership and Management Practices as the two primary enabling pillars of AI-driven transformation. Strategic educational leadership encompasses strategic vision and direction, transformational leadership, and decision-making and innovation, which guide institutional planning, foster an innovation-oriented culture, and promote evidence-based decision-making through AI technologies. Meanwhile, management practices focus on human resource management, resource and financial management, quality assurance and continuous improvement, ensuring that institutional resources, personnel, and operational systems are effectively aligned to support digital transformation initiatives.

The framework further integrates AI-enabled digital transformation as the central mechanism that connects leadership and management to institutional outcomes. This component includes AI-supported decision-making systems, learning analytics, intelligent resource management, predictive institutional planning, digital governance, and data-driven quality assurance processes. Through the integration of

these technologies, higher education institutions can strengthen organizational efficiency, improve academic services, enhance research productivity, and optimize administrative processes.

Ultimately, the proposed framework aims to achieve greater institutional effectiveness, reflected in improved academic excellence, research, innovation, and extension, and organizational performance. The framework emphasizes a continuous improvement cycle in which AI-generated data and institutional performance indicators provide feedback for leadership decisions and management practices. This cyclical process enables institutions to remain adaptive, innovative, and responsive to the rapidly evolving educational landscape while supporting sustainable and future-ready higher education.

Ethical Considerations

This study followed ethical standards in educational research to protect the rights and welfare of the participants. Permission to conduct the study was obtained from the administrators of the selected higher education institutions. Informed consent was secured from all 136 academic administrators after explaining the purpose of the study, the procedures involved, and their right to participate voluntarily or withdraw at any time without consequences. Confidentiality and anonymity were strictly observed, and respondents' identities were protected throughout data collection, analysis, and reporting. All information gathered was handled in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173) and used solely for research purposes. The collected data were stored securely and accessed only by authorized individuals. Participation was voluntary, and respondents were treated fairly and respectfully without coercion or discrimination. The researcher also maintained objectivity, honesty, and academic integrity in analyzing and reporting the findings.

Conclusion

This study examined the predictive influence of strategic educational leadership and management practices on institutional effectiveness in selected higher education institutions. The findings revealed that the institutions demonstrated high levels of strategic educational leadership, management practices, and institutional effectiveness. Furthermore, the regression analysis established that strategic educational leadership and management practices significantly and positively predict institutional effectiveness, explaining 75.6% of its variance. These findings indicate that effective leadership and sound management practices play a vital role in enhancing academic excellence, research and innovation, and organizational performance in higher education institutions. Based on these findings, the study concludes that strengthening strategic educational leadership and management practices provides a strong foundation for improving institutional effectiveness and sustaining organizational excellence. Moreover, the findings support the development of an AI-enabled digital transformation framework that integrates leadership, management, and artificial intelligence-driven innovations to enhance institutional decision-making, optimize resource utilization, strengthen quality assurance processes, and promote continuous improvement. Consequently, the proposed framework offers a practical and evidence-based guide for higher education institutions in achieving sustainable institutional effectiveness and preparing for the demands of an increasingly digital educational environment.

Recommendations

Based on the findings and conclusions of the study, it is recommended that higher education institutions strengthen strategic educational leadership and management practices through continuous leadership development, effective resource management, and enhanced quality assurance initiatives to improve institutional effectiveness. Institutions are likewise encouraged to adopt the proposed AI-enabled digital transformation framework to support evidence-based decision-making, optimize organizational processes, and promote innovation in academic and administrative functions. Furthermore, policymakers may utilize the findings in formulating strategies and programs that advance AI integration in higher education, while future researchers are encouraged to validate the proposed framework in different institutional contexts and examine additional variables that may further explain institutional effectiveness.

References

- Abad-Segura, E., González-Zamar, M.-D., Infante-Moro, J. C., & Ruipérez García, G. (2020). Sustainable management of digital transformation in higher education: Global research trends. *Sustainability*, 12(5), Article 2107. <https://doi.org/10.3390/su12052107>
- Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., Pham, P., Chong, S. W., & Siemens, G. (2024). A meta systematic review of artificial intelligence in higher education: A call for increased

- ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education*, 21, Article 4. <https://doi.org/10.1186/s41239-023-00436-z>
- Bryson, J. M. (2018). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement* (5th ed.). Wiley.
- Bush, T. (2020). *Theories of educational leadership and management*.
- Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20, Article 22. <https://doi.org/10.1186/s41239-023-00392-8>
- Fullan, M. (2020). *Leading in a culture of change* (2nd ed.). Jossey-Bass.
- Hargreaves, A., & Fullan, M. (2020). Professional capital after the pandemic: Revisiting and revising classic understandings of teachers' work. *Journal of Professional Capital and Community*, 5(3-4), 327-336.
- Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO. <https://doi.org/10.54675/EWZM9535>
- 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, Article 39. <https://doi.org/10.1186/s41239-019-0171-0>