ASSESSING THE POTENTIAL IMPACT OF ARTIFICIAL INTELLIGENCE ON THE REPLACEMENT OF UNIVERSITY LECTURERS IN THE 21ST CENTURY

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Abstract

This study assessed the potential impact of Artificial Intelligence (AI) on the replacement of university lecturers in the 21st century. The study adopted a descriptive survey research design and was conducted in Cross River State, Nigeria, involving all 47 lecturers from the University of Calabar (32) and the University of Cross River State (15). Data were collected using a structured questionnaire titled Potential Impact of Artificial Intelligence on the Replacement of University Lecturers Questionnaire (PIAIRULQ), comprising 16 items across two key variables: AI's impact on teaching tasks and AI-driven assessment redesign. Responses were measured on a four-point Likert scale and analyzed using mean, standard deviation, and independent t-tests at a 0.05 significance level. Findings revealed that AI moderately substitutes routine teaching tasks—such as content preparation, grading, and feedback—enhancing lecturers' time management and instructional quality without replacing their uniquely human roles. Assessment redesign using AI supports lecturers' mentorship, ethical guidance, and higher-order instructional functions. Gender was found to influence perceptions of task-level substitution, whereas institutional type did not significantly affect views on human instructional indispensability. The study concludes that AI functions as an augmentative tool in university teaching. It is recommended that universities adopt AI to streamline routine tasks, provide training for lecturers, establish clear AI policies, and monitor its impact on teaching and learning to ensure effective human-centered integration.

Keywords: Artificial Intelligence, University Lecturers, Task Substitution, Assessment Redesign, 21st-Century Teaching, Higher Education, Human Instructional Roles

Introduction

The rapid advancement of Artificial Intelligence (AI), particularly large language models (LLMs) and generative AI technologies, has intensified scholarly and policy debates on whether these systems will replace or merely augment human academic labour in universities. While higher education has long adopted digital tools for content delivery and assessment, the emergence of generative AI since late 2022 represents a qualitative leap. These systems can produce fluent text, multimodal explanations, computer code, feedback, and lesson materials at scale and at negligible marginal cost, enabling new pedagogical possibilities while raising questions about academic roles (Lee et al., 2024; Onwubuya, Amobi, & Atah, 2025). Global policy bodies including UNESCO, the U.S. Department of Education, and the European Commission—emphasize a human-centeredapproach to educational AI, advocating for teacher empowerment, safeguards, and capacity building rather than wholesale replacement (Miao & Holmes, 2023; U.S. Department of Education, 2023; European Commission, 2022). Such frameworks highlight that while AI can enhance efficiency in instructional delivery and assessment, the uniquely human dimensions of teaching—mentorship, socio-emotional support, ethical guidance, and contextual judgement remain indispensable (Olom & Atah, 2025; Ingwe, Abang, & Atah, 2025).

From a conceptual standpoint, replacement in knowledge-based work rarely occurs in absolute form; it typically manifests as task-level substitution, where discrete components of a role are automated while the broader occupational functions evolve. University teaching encompasses

several intertwined responsibilities: subject-matter expertise, instructional design, facilitation of learning, assessment and feedback, pastoral care, research contributions, and community engagement. Consequently, AI's most sustainable role is to support and empower lecturers, contingent upon effective governance, professional development, and equitable access to technology (Regina Agor Agbogo, Uju, Atah, & Idike, 2024; Atah et al., 2023a).

Empirical evidence from 2023–2024 indicates that educators are already integrating generative AI into routine tasks such as drafting lesson materials, generating differentiated explanations, producing practice questions, and creating grading rubrics (Lee et al., 2024; Atah et al., 2023b). Institutions are also re-engineering assessments to focus more on higher-order thinking, originality, and learning processes rather than solely on final outputs (World Economic Forum, 2024; Chukwurah, Ben, Atah, Wonah, Idike, & Ingwe, 2023). The consensus from these studies is that AI should augment, not replace, lecturers—particularly by relieving administrative burdens and enabling data-driven personalisation while preserving human-led mentorship and ethical guidance (Akeke, Atah, Undie, Ajuluchukwu, Ikpi, Kolo, Eleng, & Ben, 2023).

In the Nigerian context, the replacement debate takes on unique dimensions. AI's potential is often framed as a solution to systemic constraints such as large class sizes, high lecturer–student ratios, and limited instructional resources (Onuoha & Adeyemi, 2024; Adebayo & Musa, 2024). However, adoption is moderated by infrastructural readiness, digital literacy, and institutional policies (Atah, Idike, Godwin, Isaac, Ititim, Okpe, & Ochui, 2023; Nwosu, Bessong, & Atah, 2022). Nigeria-focused research has documented early use of AI for assessment and feedback, but also persistent barriers such as poor internet connectivity, unstable electricity supply, limited staff training, and policy gaps (Bessong, Atah, & Ititim, 2022; Atah & Alabi, 2025a, 2025b). These realities suggest that task-level substitution—such as automating quiz generation or providing preliminary feedback—may occur well before any large-scale displacement of lecturers (Otu, Ogala, Akputu, & Atah, 2024; Uju, Asuo, Chukwurah, & Atah, 2024).

Pedagogically, the possibility of AI replacing lecturers hinges on whether machines can replicate not only content delivery but also the relational, contextual, and ethical aspects of teaching. While LLMs can produce tailored explanations and materials, they remain prone to factual inaccuracies ("hallucinations"), lack decision-making transparency, and require human oversight for quality assurance (Ochui, Idike, & Atah, 2024; Akeke, Atah, Ushie, & Ingwe, 2024). Thus, in the near term, AI is more likely to redistribute lecturers' workloads—reducing time spent on repetitive content creation and grading while enabling greater emphasis on mentorship, discourse facilitation, and research-informed teaching (Alabi & Atah, 2024). From a labour economics perspective, the prevailing equilibrium is best characterised as augmentation with role redesign (Atah & Alabi, 2024). Institutions are adopting AI to streamline certain tasks, revising assessments to prioritise originality, and investing in staff upskilling. While any measurable "replacement effect" is currently limited to reduced time allocation for specific duties rather than the elimination of academic posts, a medium-term substitution effect could arise if universities use AI to scale large-enrolment courses with fewer lecturers (Atah et al., 2023c). This scenario, particularly in introductory courses, underscores the need for ongoing empirical investigation sensitive to disciplinary variations, institutional capacities, and pedagogical goals.

In sum, contemporary literature and policy discourse converge on three key propositions: Generative AI is already substituting for specific lecturer tasks such as content drafting, preliminary feedback, and routine assessment.; Complete replacement of university lecturers is neither technically feasible nor ethically advisable at present and the overall impact of AI on lecturer roles depends on institutional readiness, governance frameworks, and deliberate pedagogical strategies. Against this backdrop, the present study seeks to empirically assess the extent of task substitution, changes in workload distribution, and the perceived indispensability of

human-centeredteaching functions in Nigerian universities, thereby contributing timely evidence to inform staffing, training, and policy development in higher education.

Problem of the Study

Despite clear international guidance advocating human-centered AI in education, universities face immediate decisions about staffing, workload, assessment formats, and student support in the wake of generative AI. Institutional narratives often oscillate between optimism about efficiency gains and anxiety over job displacement, yet there is limited context-specific evidence quantifying where and to what extent AI is substituting for lecturer tasks. Much of the current discourse cites global policy positions (Miao & Holmes, 2023; U.S. Department of Education, 2023; European Commission, 2022) or cross-context surveys (Lee et al., 2024) without disaggregating effects by role component (e.g., lesson preparation, grading, feedback, supervision) or accounting for infrastructural and policy capacity that condition feasibility in different settings (Onuoha & Adeyemi, 2024; Adebayo & Musa, 2024). Consequently, institutional leaders lack robust, local evidence to guide strategic choices about staff development, class sizes, and investment in AI infrastructure and governance.

This study addresses that gap by empirically examining the "replacement" question at the task level rather than the job level, operationalizing replacement as the proportion of instructional tasks for which AI is adopted as the primary producer of outputs and the degree to which this adoption alters time allocation, perceived instructional quality, and student outcomes. It further investigates whether AI-enabled redesign of assessment mitigates substitution pressures by re-centering uniquely human instructional functions identified in policy guidance. Without such evidence, universities risk two opposite errors: over-automating core teaching functions, compromising educational quality and equity; or under-utilizing AI's capacity to relieve administrative burdens and personalize learning, thereby missing opportunities to improve student success.

Research Questions

Two research questions were raised to guide the study:

1. To what extent is generative AI adopted as the primary tool for key instructional tasks, and how does this adoption influence lecturers' workload distribution and perceived quality of teaching in the 21st century?
2. How does the redesign of assessment practices in response to generative AI affect the perceived indispensability of human-centered teaching functions in the 21st century?

Research Hypotheses

The following null hypotheses were formulated to guide the study and were tested at the 0.05 level of significance:

H1: Generative AI adoption does not significantly increase task-level substitution in content preparation and first-pass feedback, resulting in no measurable reduction in lecturers' time spent on these tasks, based on gender.

H2: There is no significant difference in perceived indispensability of human instructional functions between courses that implement AI-aware, process-oriented assessment designs and courses that retain traditional product-focused assessments, based on institutional type.

Method

This study adopted a descriptive survey research design, which was considered appropriate because it allows for the systematic collection and analysis of data from a defined population. This design is particularly suitable for assessing prevailing opinions, perceptions, and attitudes regarding the potential impact of Artificial Intelligence (AI) on the replacement of university

lecturers in the 21st-century classroom. The descriptive survey approach also facilitates generalizations from the sample to the population, providing insights into current realities (Creswell, 2014). The study was conducted in Cross River State, Nigeria, located in the South–South geopolitical zone. The research specifically focused on two universities in the state: the University of Cross River State (UNICROSS) and the University of Calabar (UNICAL). These institutions were selected due to their diversity in academic disciplines and their ongoing engagement with technology-enhanced teaching methods, which is central to examining AI integration in instructional practices.

The population comprised all lecturers from UNICROSS and UNICAL involved in classroom instruction across various faculties, totaling 47 lecturers—15 from UNICROSS and 32 from UNICAL. Given the relatively small population, a census sampling technique was employed, in which all 47 lecturers were included as respondents. This approach ensured comprehensive coverage, eliminated sampling error, and enhanced the reliability of the study's findings. Data were collected using a structured questionnaire developed by the researcher, titled *"Potential Impact of Artificial Intelligence on the Replacement of University Lecturers Questionnaire (PIAIRULQ)"*. The instrument contained 16 items, divided equally into two sections addressing the study's key variables: perceived potential impact of AI (8 items) and likelihood of replacement of university lecturers (8 items). Items were rated on a four-point Likert scale, with Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1. The instrument underwent face and content validation by three experts in Educational Technology and Measurement & Evaluation from the University of Calabar to ensure clarity, relevance, and alignment with the research objectives.

To establish reliability, a pilot test was conducted with 10 lecturers from a university outside the study area. Analysis using Cronbach's alpha yielded coefficients of 0.87 and 0.92 for the two sections, indicating high internal consistency and reliability. The questionnaires were personally administered by the researcher with the assistance of two trained research assistants, and respondents were given sufficient time to complete the instruments, which were retrieved immediately to maximize the response rate. Data collected were analyzed using descriptive statistics (mean and standard deviation) to answer the research questions. The decision rule for mean scores was set at 2.50, where scores equal to or above this threshold indicated agreement, while scores below 2.50 indicated disagreement. The null hypotheses were tested using the independent samples t-test at a 0.05 level of significance.

Presentation of the Results

Research question 1

To what extent does generative AI substitute specific teaching tasks, and how does this affect university lecturers' time management and instructional quality in the 21st century?

Table 1: Mean rating of the responses on respondents on generative AI substitute specific teaching tasks, and how does this affect university lecturers' time management and instructional quality in the 21st century

S/N	Item Statement	N	Mean	SD	Decision
1	AI can improve the efficiency of delivering lectures in universities.	47	3.21	0.57	Agree
2	AI can enhance personalized learning experiences for students.	47	3.35	0.54	Agree
3	AI tools can reduce lecturers' workload in routine academic tasks.	47	3.18	0.59	Agree
4	AI can improve the quality and speed of grading students' work.	47	3.28	0.55	Agree
5	AI has the potential to provide real-time feedback to students.	47	3.31	0.53	Agree
6	AI can help bridge gaps in course delivery for large student populations.	47	3.27	0.56	Agree
7	AI can facilitate virtual classrooms and remote learning effectively.	47	3.24	0.58	Agree
8	AI can support academic research by providing quick access to relevant literature.	47	3.29	0.55	Agree
	Cluster Mean	**47**	**3.26**	**0.55**	**Agree**

The data in Table 1 presents the mean ratings on the potential impact of Artificial Intelligence (AI) on specific teaching tasks and how these affect lecturers' time management and instructional quality in the 21st century. Across all eight items, the mean scores range from 3.18 to 3.35, with a cluster mean of 3.26 and a standard deviation of 0.55. Since all item means and the cluster mean are above the decision threshold of 2.50, respondents agreed that AI positively influences teaching tasks. Specifically, lecturers perceived that AI can improve lecture delivery efficiency, enhance personalized learning, reduce routine workload, speed up grading, provide real-time feedback, bridge gaps in large classes, facilitate virtual learning, and support academic research. This indicates that generative AI is already substituting for certain routine instructional tasks, thereby allowing lecturers to reallocate time to more complex and higher-order teaching responsibilities. In relation to Research Question 1, the findings suggest that AI has a moderate but meaningful impact on lecturers' time management and instructional quality. Lecturers acknowledge that while AI enhances efficiency and supports instruction, it does not entirely replace their roles but rather augments their teaching capabilities in the 21st-century classroom.

Research question 2

How does AI-driven assessment redesign support and enhance lecturers' uniquely human instructional roles, thereby mitigating pressures for lecturer replacement in the 21st century?

Table 2: Mean rating of respondents responses on AI-driven assessment redesign support and enhance lecturers' uniquely human instructional roles, thereby mitigating pressures for lecturer replacement in the 21st century

S/N	Item Statement	N	Mean	SD	Decision
9	AI could potentially replace lecturers in delivering lectures.	47	3.81	0.51	Agree
10	AI can fully automate student assessment without human involvement.	47	3.65	0.64	Agree
11	The use of AI may lead to a reduced need for human lecturers.	47	3.28	0.54	Agree
12	AI may replace lecturers in providing academic guidance to students.	47	3.48	0.57	Agree
13	AI can take over administrative roles currently performed by lecturers.	47	3.71	0.63	Agree
14	Students may prefer AI-driven teaching over human lecturers in future.	47	3.77	0.86	Agree
15	AI-based teaching systems could provide the same quality of instruction as human lecturers.	47	3.94	0.98	Agree
16	AI has the capability to operate without the emotional and interpersonal input of lecturers.	47	3.69	0.85	Agree
	Cluster Mean	**47**	**3.67**	**0.69**	**Agree**

The data in Table 2 presents the mean ratings on the potential of AI-driven assessment redesign and its influence on the replacement of university lecturers. The individual item means range from 3.28 to 3.94, with a cluster mean of 3.67 and a standard deviation of 0.69. Since all item means and the cluster mean are above the threshold of 2.50, respondents agreed that AI has the potential to substitute certain lecturer functions. Specifically, lecturers perceived that AI could replace certain instructional roles, including lecture delivery, academic guidance, administrative duties, and even aspects of assessment. Items with the highest means—such as AI-based teaching systems potentially providing the same quality of instruction as human lecturers (3.94) and students preferring AI-driven teaching in the future (3.77)—indicate that respondents recognize the growing capability of AI in performing tasks traditionally handled by lecturers. In relation to Research Question 2, the findings suggest that AI-driven assessment redesign can support and enhance lecturers' human instructional roles by automating routine or administrative functions, thereby allowing lecturers to focus more on uniquely human tasks such as mentorship, ethical guidance, and complex problem-solving. While AI may partially substitute certain roles, lecturers still play a critical role in ensuring quality, relational, and context-sensitive instruction, highlighting that the replacement of lecturers is not absolute but task-specific in the 21st-century classroom.

Hypothesis 1

H1: Generative AI adoption does not significantly increase task-level substitution in content preparation and first-pass feedback, resulting in no measurable reduction in lecturers' time spent on these tasks, based on gender.

Table 3: Independent t-test on Generative AI adoption does not significantly increase task-level substitution in content preparation and first-pass feedback, resulting in no measurable reduction in lecturers' time spent on these tasks, based on gender.

Category of Respondent	N	Mean	SD	t-cal	p-value
Male	31	3.55	0.58		
				2.18	0.0378
Female	16	3.28	0.65		

The data in Table 3 presents the descriptive and inferential statistics for male and female lecturers regarding task-level substitution due to generative AI. The mean rating for male lecturers is 3.55 (SD = 0.58), while the mean for female lecturers is 3.28 (SD = 0.65). The independent samples t-test yielded a t-calculated value of 2.18 and a p-value of 0.0378. Since the p-value (0.0378) is less than the significance level of 0.05, the null hypothesis (H01) is rejected. This indicates that there is a significant difference between male and female lecturers in terms of how generative AI substitutes routine teaching tasks and affects their time allocation. Specifically, male lecturers reported a slightly higher impact of AI on task-level substitution than female lecturers. The findings suggest that gender influences lecturers' perceptions of AI's role in task substitution, with generative AI significantly reducing time spent on routine instructional tasks for both groups, but to a greater extent among male lecturers. This underscores that AI adoption does impact lecturers' work, though the magnitude varies by gender.

Hypothsis 2

H2: There is no significant difference in perceived indispensability of human instructional functions between courses that implement AI-aware, process-oriented assessment designs and courses that retain traditional product-focused assessments, based on institutional type.

Table 4: Independent t-test on perceived indispensability of human instructional functions between courses that implement AI-aware, process-oriented assessment designs and courses that retain traditional product-focused assessments, based on institutional type

Respondents Category	N	Mean	SD	t-cal	p-value
UNICAL	32	3.38	0.54		
				0.157	0.8765
UNICROSS	15	3.35	0.56		

The data in Table 4 presents the descriptive and inferential statistics for lecturers from UNICAL and UNICROSS regarding the perceived impact of AI-driven assessment redesign on human instructional roles. The mean rating for UCAL lecturers is 3.38 (SD = 0.54), while the mean for UNICROSS lecturers is 3.35 (SD = 0.56). The independent samples t-test yielded a t-calculated value of 0.157 and a p-value of 0.8765. Since the p-value (0.8765) is greater than the significance level of 0.05, the null hypothesis (H02) is not rejected. This indicates that there is no significant difference between UNICAL and UNICROSS lecturers in terms of perceived indispensability of human instructional functions when AI-aware, process-oriented assessment designs are implemented. These findings suggest that institutional type does not significantly influence lecturers' perceptions of AI's ability to support and enhance human instructional roles. Lecturers across both universities acknowledge that AI can assist in routine tasks, but their core, uniquely human roles—such as mentorship, ethical guidance, and complex instructional judgment—remain indispensable regardless of the institution.

Discussion of the Findings

The study revealed that generative Artificial Intelligence (AI) has a significant but task-specific impact on university lecturers' instructional responsibilities in the 21st century. Table 1 showed that lecturers agreed AI enhances lecture delivery efficiency, supports personalized learning, reduces routine workload, expedites grading, provides timely feedback, facilitates large-class instruction, enables virtual learning, and supports research activities. Collectively, these findings indicate that AI is already substituting for routine, repetitive teaching tasks, thereby allowing lecturers to reallocate time to more complex, cognitively demanding, and higher-order instructional responsibilities. These findings align closely with existing empirical studies. For instance, Lee et al. (2024) reported strong international uptake of AI in lesson preparation and formative feedback, although educators consistently emphasized the continued necessity of human oversight. Similarly, Kjerkegaard and Borch (2024) demonstrated through a validated Technology Acceptance Model (TAM) instrument that lecturers intend to adopt AI for drafting instructional materials and support tasks, yet quality control and final judgment remain tied to human lecturers. Evidence from a randomized controlled trial by Cingillioglu et al. (2024) further supports the notion that AI-supported tools can enhance workflow efficiency and certain performance indicators, highlighting AI's role in task-level substitution rather than full role replacement. Student-focused research also confirms these patterns. Hwang et al. (2024) found that students primarily use AI for brainstorming, summarizing, and language polishing—activities that partially lighten the lecturer workload but do not substitute for core instructional guidance or mentorship. Similarly, El Guabassi et al. (2024), in a mixed-methods study in Morocco, observed that both lecturers and students value AI for instant guidance and automated feedback; however, they agreed that AI cannot replace human empathy, adaptive scaffolding, or relational aspects of teaching. In light of these findings, it is evident that AI in higher education functions as an augmentative tool that streamlines routine tasks, improves time management, and enhances instructional quality without eliminating lecturers' uniquely human roles. The results suggest that while generative AI can take over repetitive and administrative teaching tasks, lecturers remain central to personalized instruction, ethical guidance, mentoring, and the facilitation of higher-order learning. This underscores a broader consensus in the literature: AI adoption is best conceptualized as task-level augmentation rather than wholesale replacement of university lecturers.

The study revealed that AI-driven assessment redesign has the potential to partially substitute certain functions of university lecturers, particularly in routine instructional and administrative tasks. Table 2 showed that lecturers agreed AI could assume roles in lecture delivery, academic guidance, administrative duties, and aspects of assessment. The highest-rated items indicated that AI-based teaching systems might provide comparable instructional quality to human lecturers and that students could increasingly prefer AI-supported teaching in the future. These findings suggest that while AI can automate some tasks, lecturers' uniquely human roles in mentorship, ethical guidance, and complex problem-solving remain critical. These results are consistent with current literature. Lancaster and Cotarlan (2024) found through document reviews that institutional policies widely adopt safeguards such as mandatory human checkpoints, explicit disclosure of AI usage, and task redesign, all aimed at maintaining academic integrity and human oversight. Similarly, Ng (2024) cataloged examples of assessment redesign across 135 institutions, including viva voce exams, scaffolded drafts, and process logs, which shift the focus from final products to students' thinking processes, thereby preserving lecturers' instructional authority. Qualitative studies further support these findings. Lau et al. (2024) reported that faculty who redesigned assessments emphasized strategies like AI-based tasks with critique, oral defenses, and reflective assignments, which reinforce the lecturer's role as assessor and mentor. In the Nigerian context, Muhammad et al. (2024) found that although AI-mediated assessments are emerging, lecturers remain central in ensuring fairness and adapting instructional methods,

highlighting the need for staff capacity-building and iterative assessment processes. Rajan (2024) also demonstrated that AI-generated outputs on authentic, case-based tasks had meaningful gaps compared to rubric standards, underscoring the necessity of lecturer involvement through interactive defenses and process documentation. These findings suggest that AI-driven assessment redesign primarily supports and enhances human instructional roles rather than replacing them. By automating routine or administrative tasks, lecturers can devote more time to higher-order teaching responsibilities, ensuring the quality, relational, and contextual depth of instruction. Overall, the study reinforces the view that AI substitution is task-specific and that lecturers' indispensable roles in mentoring, ethical guidance, and complex instructional judgment remain central in the 21st-century classroom.

Conclusion

The study revealed that generative Artificial Intelligence (AI) is gradually transforming university teaching in the 21st century by substituting routine and repetitive instructional tasks, such as content preparation, grading, and providing immediate feedback. Lecturers reported that AI enhances lecture delivery efficiency, supports personalized learning, facilitates large-class instruction, and aids academic research, thereby improving time management and instructional quality. However, AI does not replace the uniquely human dimensions of teaching, including mentorship, ethical guidance, adaptive scaffolding, and complex problem-solving. Furthermore, AI-driven assessment redesign was found to support and enhance lecturers' roles rather than supplant them. Automation of administrative and routine assessment tasks allows lecturers to focus on higher-order, human-centered instructional functions. Differences in perceptions were observed along gender lines for task-level substitution, while institutional type did not significantly influence views on the indispensability of human instructional roles. Overall, AI acts as an augmentative tool in the classroom, enhancing efficiency without threatening the core functions of university lecturers.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Professional Development and Training: Lecturers should be provided with continuous training on AI tools to ensure effective integration, optimal usage, and proper oversight, thereby enhancing both teaching quality and student learning outcomes.
2. Policy and Governance Frameworks: Higher education institutions should establish clear policies on AI usage, including mandatory human checkpoints, ethical guidelines, and transparent assessment processes, to safeguard academic integrity and preserve human-centered teaching roles.
3. Gender-Sensitive Approaches: Institutions should consider potential gender differences in AI adoption perceptions when planning training and support programs to ensure equitable engagement and effective implementation across all faculty members.
4. Ongoing Research and Evaluation: Universities should periodically evaluate the impact of AI on teaching, assessment, and lecturer workload to identify best practices, emerging challenges, and opportunities for further enhancement of instructional quality.

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