

Exploring Artificial Intelligence And Portfolio Assessment For Student Engagement: A Survey Of Nigerian Academics

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Abstract

This study investigated Nigerian academics' awareness of Artificial Intelligence (AI), perceptions of the concept of Portfolio Assessment (PA), and the integration of AI and PA as future assessment tools. A survey design was employed to sample 93 lecturers across Nigerian Universities who are members of the Association of Educational Researchers and Evaluators of Nigeria (ASSEREN). A questionnaire titled: Artificial Intelligence and Portfolio Assessment for Students' Engagement as Future of Assessment (AIPASEFA) was utilized for data collection independently by the authors on demographics. AI awareness with six items, PA concepts with five items, and perception towards AI and PA integration in assessment. Five items were included. The questionnaire was validated, and its internal consistency was ascertained using Cronbach Alpha statistics on twenty lecturers. Reliability coefficients were obtained as 0.77 for AI awareness; 0.71 for Concept of portfolio assessment, and 0.78 for Use of AI and PA for meaningful academic engagement of students' subscales, respectively. Percentages, mean, and standard deviation were employed for data analyses. Findings show a high level of awareness of AI's educational potentials, agreement of PA as systematic, learning-focused, promotion of equitable learning opportunities, and readiness among academia to integrate AI with portfolio assessment practices to foster innovative, engaging educational experiences. It was concluded that optimism about AI's future role in assessment to engage students for global citizenship is evident, and integration of AI and PA can enhance student engagement. A deeper sensitization and capacity building were recommended among others due to moderate agreement levels observed in some responses.

Keywords: Assessment, Artificial-Intelligence, Portfolio-Assessment, Students-Engagement

Introduction

Teaching and learning remain central to human intellectual development and the advancement of societies. In higher education, teaching involves the deliberate facilitation of knowledge, skills, and values, while learning reflects the active process through which learners acquire, construct, and apply knowledge to shape cognition, behaviour, and practice. Universities, as knowledge-

producing institutions, play a strategic role in shaping educational policies, professional competencies, and national development trajectories. Consequently, the quality of teaching, learning, and assessment practices within universities has significant implications for student engagement and educational outcomes.

In contemporary higher education contexts, student engagement has increasingly been influenced by rapid technological advancement. University students are now persistently connected to digital devices, particularly smartphones, which often compete with traditional instructional methods for students' attention during lectures. While this digital immersion has raised concerns about distraction and disengagement, it also presents an opportunity to reimagine teaching, learning, and assessment practices through the purposeful integration of emerging technologies. One such technology is Artificial Intelligence (AI), which has gained global prominence for its potential to transform educational processes, including assessment.

Artificial Intelligence refers to the capability of computational systems to perform tasks traditionally associated with human intelligence, such as learning, reasoning, problem-solving, and decision-making (Russell & Norvig, 2022). Kaplan and Haenlein (2019) further describe AI as systems that use machine learning to adapt flexibly and achieve specific goals. Within education, AI technologies have been increasingly adopted to support personalized learning, automate assessment processes, and provide timely feedback to learners. The integration of AI into educational assessment represents a shift from traditional summative approaches toward more continuous, data-driven, and learner-centred assessment practices.

One assessment approach that aligns naturally with AI-supported learning environments is Portfolio Assessment (PA). Portfolio assessment involves the systematic collection of student work over time to demonstrate learning progress, achievements, and reflective thinking (Arter & Spandel, 1992). Rather than focusing solely on endpoint performance, portfolio assessment emphasizes growth, process, and meaningful engagement with learning tasks (Paulson et al., 1991). When combined with AI tools, portfolio assessment has the potential to generate rich assessment data through continuous student interactions with digital learning tasks, thereby enhancing formative feedback and learner autonomy.

Recent empirical studies suggest that AI-based tools can facilitate assessment and evaluation, automate grading, and deliver personalized feedback. A review of 63 peer-reviewed studies published between 2014 and 2024 indicated that over 70% of AI applications in education were

utilized for learning and assessment purposes, with evidence pointing to improved student engagement and satisfaction. Similarly, pilot surveys have shown that a significant proportion of students perceive AI-supported learning environments as enhancing their educational experience. These findings suggest that AI can play a critical role in promoting meaningful student engagement when strategically integrated into teaching and assessment practices.

In the Nigerian higher education context, however, the adoption of AI and digital assessment practices remains uneven. Studies conducted in various regions of Nigeria have reported low levels of awareness, competence, and utilization of digital and AI-driven assessment tools among teachers and lecturers (Okeke et al., 2024; Famade & Takema, 2024). While some lecturers acknowledge the potential benefits of digital technologies, challenges such as limited technical support, inadequate funding, and concerns about academic integrity have constrained widespread adoption. These concerns are not unique to Nigeria but reflect broader global debates surrounding the ethical and responsible use of AI in education.

Despite these challenges, rejecting AI outright may limit opportunities for innovation in assessment and student engagement. Rather than viewing AI as a threat to academic integrity, there is a growing consensus that its educational value depends on how it is pedagogically framed and regulated. When lecturers intentionally design AI-supported learning tasks that require critical thinking, reflection, and originality, student outputs generated over time can serve as credible portfolio evidence for assessment. This approach positions lecturers not as passive observers but as facilitators who guide students in the responsible and productive use of AI tools.

Empirical evidence from sub-Saharan Africa further supports the potential of AI in higher education. Adomako and Mensah (2023) found that lecturers in Ghana perceived AI-based learning tools as effective in enhancing assessment practices and student engagement. In Nigeria, studies by Adelana and Akinyemi (2021) and Animashaun et al. (2022) revealed that while students are generally aware of AI tools, their competence in using them for educational purposes varies significantly, underscoring the need for structured guidance from lecturers. Similarly, Abubakar et al. (2024) reported that AI technologies have the capacity to redefine student assessment in Nigerian tertiary institutions when appropriately integrated into instructional practices.

However, there remains limited empirical evidence on how Nigerian university lecturers perceive the integration of AI with portfolio assessment as a strategy for enhancing student engagement.

Specifically, questions persist regarding lecturers' awareness of AI tools, their utilization for assessment purposes, and their conceptual understanding of portfolio assessment within digitally mediated learning environments. Given Nigeria's diverse educational contexts and institutional cultures, understanding lecturers' perceptions is essential for informing policy, professional development, and sustainable assessment practices.

Therefore, the evolving questions are: how do lecturers perceive the inclusion of AI into the teaching and learning process to gather data bit by bit for assessment purposes? What is their level of awareness of artificial intelligence as an educational tool, and what is their conceptual understanding of portfolio assessment?

This study aims to facilitate personalized learning feedback that offers innovative insights using students' smartphones; what their attention is often immersed in, and at the same time, make them get involved in learning systematically, bit by bit, that can be measured and reported as portfolio assessment data. By examining lecturers' perceptions and assessment practices, the study seeks to provide empirical insights into how AI-supported portfolio assessment can be leveraged to promote continuous engagement, personalized feedback, and meaningful learning experiences within Nigerian universities.

Methodology

A descriptive survey design was used on a unique population of the lecturers who are members of the Association of Educational Researchers and Evaluation of Nigeria (ASSEREN), about 200. The sample size was 93 randomly selected from ASSEREN who lectured in Nigerian Universities. The questionnaire was titled: Artificial Intelligence and Portfolio Assessment for Students' Engagement as Future of Assessment in Nigeria (AIPASEFA). The questionnaire (AIPASEFA) was utilized to gather data independently by the authors on demographics, AI awareness, PA concepts, and perception towards AI/PA integration. The questionnaire was subjected to reliability computation to ascertain the internal consistency of its items, employing Cronbach Alpha statistics on twenty lecturers. Reliability coefficients were obtained as 0.77 (AI awareness) with six items; 0.71 (Concept of portfolio assessment) with five items; 0.78 (Use of AI and PA for meaningful academic engagement of students) with five items, respectively. Percentages and means were utilized to analyze the collected data. Demographics collected were on Qualification (PhD, Master's or First Degrees), Years of Teaching Experience (0-10, 11-20, 21-30, 31 and above 30 years). Sex (Male or Female) Age categories in Years (20- 30, 31-40, 41-50, 51-60, 61-70, and Above 70. Section B elicited responses on 17 items on Awareness of AIs as Educational Tools

with responses ranging from Not Aware(NA) -1, Slightly Aware -2, Moderately Aware,-3 to Very Aware-4. Concept of Portfolio Assessment with responses ranging from: I do not know (IDNK)-1, Strongly Disagree(SD)-2, Disagree(D)-3, Agree(A)-4, to Strongly Agree(SA)-5, and Use of AI and PA for meaningful engagement of students. Academic Engagement of Students responses ranging from Strongly Disagree (SD)-1, Disagree(D)-2, Agree(A)-3 to Strongly Agree(SA)-4. Data was collected independently from respondents during ASSEREN national annual conferences.

Results

Table 1: Presentation of Demographic Information of Respondents

Demographic Variable	Category	Frequency	Percent (%)
1. Qualification	PhD Degree	54	58.1
	Master's Degree	28	30.1
	First Degree	11	11.8
	Total	93	100.0
2. Teaching Experience	0–10 Years	54	58.1
	11–20 Years	21	22.6
	21-30 Years	11	11.8
	Above 30 Years	7	7.5
	Total	93	100.0
3. Sex	Male	48	51.6
	Female	45	48.4
	Total	93	100.0
4. Age	20–40 Years	26	28.0
	41–60 Years	59	63.5
	Above 61 Years	8	8.6
	Total	93	100.0

Table 1 presents four key demographic variables: qualification, teaching experience, sex, and age, each broken down into categories with corresponding frequencies and percentages. Qualification distribution indicates that majority of the respondents hold a PhD (58.1%), followed by Master's (30.1%) and First Degrees (11.8%). It suggests a highly educated sample, with over half possessing doctoral qualifications. Teaching Experience data shows the majority (58.1%) have 0–10 years of experience, suggesting a relatively young teaching workforce. Only 7.5% have over 30 years of experience. For Sex, the sample is fairly balanced, with 51.6% male and 48.4% female respondents. The age distribution implies that most respondents (63.4%) fall within the 41–60 years age bracket, while 28% are between 20–40 years, and 8.6% are above 61 years. The age distribution shows a predominantly middle-aged workforce, which could influence perspectives

on work-life balance, career progression, and institutional success. This reflects a mature population, consistent with the observed high qualification levels. The implication of the demographic profile of respondents in this study is that over 58% participants hold PhDs, which reflects lecturers capable of providing informed, expert-level responses, especially in academic or research-related studies. The nearly equal male-female ratio suggests that gender bias is not involved in this sample, allowing for more generalizable findings across sexes. Though many are in the mid-career age range (41–60), a large portion has relatively low teaching experience (0–10 years). The large proportion of early-career lecturers (0–10) suggests a need for professional training and retention strategies.

Research Question One: What is the level of awareness of Artificial Intelligence as an Educational Tool among academia in ASSEREN?

Table 2: Descriptive Statistics of Responses on Awareness of AIs as Educational Tools

S/ N	Item	1	2	3	4	Mean	SD	Remarks
1	AI is a necessary educational tool in the teaching- learning process.	1 (1.1%)	7 (7.5%)	32 (34.4%)	53 (57.0%)	3.47	0.69	Very Necessary
2	You are aware of the use of Artificial Intelligence (AI) in learning.	0 (0.0%)	8 (8.6%)	23 (24.7%)	62 (66.7%)	3.59	0.65	Very Aware
3	You are aware that students use AI-generating tools for assignments.	2 (2.2%)	9 (9.7%)	25 (26.9%)	57 (61.3%)	3.47	0.76	Very Aware
4	The use of AI in the teaching-learning process could encourage personal learning.	2 (2.2%)	10(10.8 %)	35 (33.52%)	48 (51.6%)	3.44	0.70	Very Well
5	You can confidently distinguish between human-created content and AI-generated content.	3 (3.2%)	19 (20.4%)	34 (36.6%)	37 (38.8%)	3.37	0.76	Very Confident
	Grand Mean.					3.51	High-Awareness Level	

Key: Not Necessary (NA)-1 Slightly Necessary (SN)-2 Moderately Necessary (MN)-3 and Very Necessary (VN); -4 Not at-all (NA)-1 Slightly (SL)-2 Moderately (MO)-3 and Very Well (VW)-4 Not Aware (NA)-1 Slightly Aware (SA)-2 Moderately Aware (MA)-3 and Very Aware (VA)-4 Not confident at all (NC)-1 Slightly Confident (SC)-2 Moderately Confident (MC)-3 and Very Confident (VC)-4.

Table 2 reveals descriptive statistics on the level of awareness and perception of Artificial Intelligence (AI) as an educational tool among academia. It includes five items measured on a 4-point Likert scale, with mean scores and standard deviations (SD) reported for each. In item 1, respondents rated AI as a necessary educational tool with a mean of 3.47 (SD = 0.69), indicating that most consider AI very necessary for teaching and learning. For item 2, awareness of AI use in

learning had a mean of 3.59 (SD = 0.65), showing that respondents are very aware of AI integration in education. In item 3 respondent indicated that awareness that students use AI-generated tools for assignments, with a mean score of 3.47 (SD = 0.76), reflecting very high awareness among participants. In item 4, respondents agreed that AI encourages personalized learning with a mean of 3.44 (SD = 0.70), interpreted as a well-recognized aid of personalized learning. Confidence in distinguishing human-created content from AI-generated content had a mean of 3.37 (SD = 0.76) in item 5, indicating respondents feel very confident in differentiating AI and human-created content. The grand mean of 3.51 suggests an overall high level of awareness of AI as an educational tool among academia in ASSEREN.

Research Question Two: What is the conceptual understanding of portfolio assessment among academia in ASSEREN?

Table 3: Descriptive Responses on Conceptual Understanding of Portfolio Assessment

S/ N	Item	1	2	3	4	5	Mean	SD	Remark
6	Portfolio Assessment is a systematic collection of responses from tasks assigned to students that reflect students' learning outcomes in a specific subject.	23 (24.7%)	4 (4.3%)	30 (32.3%)	29 (31.2%)	7 (7.5%)	3.15	0.88	Agree
7	Portfolio Assessment is a learning-focused.	17 (18.3%)	9 (9.7%)	2 (2.2%)	54 (58.1%)	11 (11.8%)	3.55	1.34	Agree
8	Portfolio Assessment is content-focused.	19 (20.4%)	5 (5.4%)	6 (6.5%)	52 (55.9%)	11 (11.8%)	3.35	1.33	Agree
9	Portfolio Assessment focuses on the provision of equal learning opportunities for all learners.	27 (29.0%)	6 (6.5%)	5 (5.4%)	49 (52.7%)	6 (6.5%)	3.33	1.35	Agree
10	Portfolio Assessment is a form of formative assessment.	19 (20.4%)	4 (4.3%)	5 (5.4%)	50 (53.8%)	15 (16.1%)	3.41	1.38	Agree

Table 3 shows academia's conceptual understanding of portfolio assessment measured on a 5-point Likert scale (1 = I do not know, 2 = Strongly disagree, 3 = Disagree, 4 = Agree, 5 = Strongly agree). Responses on items 6 to 10 indicated that respondents generally agreed that: "Portfolio Assessment is a systematic collection of responses from tasks assigned to students which reflects students' learning outcomes in a specific subject." "Mean = 3.15 (SD = 0.88) for item 6 a Mean = 3.55 (SD = 1.34), for item 7. "Portfolio Assessment is content-focused." Mean = 3.35 (SD = 1.33) for item 8.' respondents agreed that portfolio assessment emphasizes content. "Portfolio

Assessment focuses on the provision of equal learning opportunities for all learners. “Mean = 3.33 (SD = 1.35) for item 9 and “Portfolio Assessment is a form of formative assessment in item 10 with” mean = 3.41 (SD = 1.38), respondents agreed that portfolio assessment serves a form of formative assessment. Overall, the mean scores across items range from 3.15 to 3.55, all above the midpoint, suggesting that academia in ASSEREN generally agrees on the conceptual understanding of portfolio assessment. The Implication in this study means that respondent agreement on key concepts of PA shows that educational evaluators in Nigeria have a foundational understanding of portfolio assessment, which is essential for its effective implementation. Since portfolio assessment is recognized as systematic, content-focused, equitable, and formative, it can be promoted as a valuable assessment method in teaching and learning. However, the moderate mean scores and relatively high standard deviations indicate some variability in understanding, suggesting a need for targeted training and clarity to deepen conceptual grasp of PA.

Research Question Three: What is the perception of Artificial Intelligence- supported portfolio assessment for meaningful academic engagement of students among academia in ASSEREN?

Table 4: AI and PA for Meaningful Academic Engagement of Students

S/N	Item	1	2	3	4	Mean	SD	Remark
11	AI tools are necessary for portfolio assessment.	2(2.2%)	7(7.5%)	42(45.2%)	42(45.2%)	3.40	0.81	Agree
12	The use of AI tools for portfolio assessment is the future of assessment.	2(2.2%)	23(24.7%)	51(54.8%)	17(18.3%)	2.89	0.71	Agree
13	AI tools are full of errors relating to the academic information required for portfolio assessment.	16(17.2%)	40(43.0%)	28(30.1%)	9(9.7%)	2.32	0.87	Disagree
14	Use of AI in portfolio assessment prepares students as global citizens.	1(1.1%)	16(17.2%)	62(66.6%)	14(15.1%)	2.95	0.61	Agree
15	The use of AI in portfolio-assessment hinders students' academic advancement.	19(20.4%)	56(60.2%)	13(14.0%)	5(5.4%)	2.04	0.75	Disagree

Key: Strongly disagree-SD 1, DisagreeD-2, AgreeA-3 and strongly agree SA -4

Table 4 presents academic staff's perceptions of Artificial Intelligence (AI) and Portfolio Assessment (PA) in promoting meaningful academic engagement among students by academia who are members of ASSEREN. Responses indicated in item 13 that AI tools are necessary for

portfolio assessment, with a Mean = 3.40 (SD = 0.81). It implied that respondents agree that AI tools are essential for effective portfolio assessment. For item 14, the Mean = 2.89 (SD = 0.71), showing moderate agreement that the use of AI tools for portfolio assessment is the future of assessment. In other words, AI will shape future assessment practices. Respondent disagreed with the statement in item 15 (Mean = 2.32; SD = 0.87), that “AI tools are full of errors relating to academic information needed for portfolio assessment. “It suggests that they do not view AI as error-prone in its integration into PA. In item 16 (Mean = 2.95, SD = 0.61), “Use of AI in portfolio assessment prepares students as global citizens.”

Indicating agreement that AI-supported portfolio assessment contributes to students’ global readiness. Item 17: “The use of AI in portfolio-assessment hinders students’ academic advancement.” Mean = 2.04 (SD = 0.75), respondents disagree, showing they do not perceive AI as a barrier to academic progress. Overall, these results show a generally positive perception of AI integration with portfolio assessment for enhancing student engagement and learning. The implication in this study is that Nigerian academics who are members of ASSEREN has positive perception of the use of AI tools in portfolio assessment for students’ meaningful academic engagement. It serves as evidence that academia is open to adopting AI-enhanced assessment methods, which can improve student engagement and learning outcomes.

Discussion of Findings

Findings from research question one reveal a high level of awareness and positive perception of AI among academia in Nigerian Universities who are ASSREN members. It implies readiness for AI integration into teaching and learning processes. It means that AI is strongly appreciated as necessary, with benefits that policymakers and institutions can leverage to design and implement AI-based educational tools effectively in teaching and learning. This high awareness level provides a solid foundation for further research and development of AI applications in education. This finding collaborates with Famade and Takema (2024), who reported that lecturers are knowledgeable of the use of AI tools for educational purposes. This finding did not support Okeke et al. (2024) findings that science teachers in secondary schools' awareness of the Use of AI for educational purposes was low. The variance is likely due to differences in high-stakes educators' sample differences (Universities lectures verses secondary teachers).

Findings from research question two reveal that respondents recognize Portfolio Assessment (PA) as a systematic collection of student work reflecting learning outcomes, content-focused,

promoting equal learning opportunities, and serving as a form of formative assessment. It also reveals disparity in the understanding of PA among academics in Nigerian Universities who are members of ASSREN. It means that strengthening the conceptual clarity of PA can enhance the adoption and quality of portfolio assessment practices, improving student learning outcomes. This finding indicates a foundational understanding of portfolio assessment among academia, which is crucial for its effective implementation in teaching and learning. This finding is consistent with the definition of Portfolio Assessment by Arter and Spandel (1992) and Paulson, et.al (1991).

Findings from research question three reveal the recognition of AI as a necessary and future-oriented approach for portfolio assessment. It highlighted the readiness for innovation in educational assessment. It also reveals confidence in AI's reliability and usefulness. These perceptions provide a foundation for policy development and practical implementation of AI-supported portfolio assessments in universities. However, moderate agreement on future potential and global citizenship preparation indicates a need for awareness creation and capacity building to maximize AI's benefits. It is a further demonstration that AI is a valuable and necessary tool for enhancing portfolio assessment and promoting meaningful academic engagement among students. They generally trust AI's accuracy and do not see it as a hindrance to student advancement. While there is optimism about AI's role in future assessments and preparing students for global citizenship, moderate levels of agreement suggest that further sensitization and training are needed to fully harness AI. AI's potential in educational assessment. This finding mirrors Adomako and Mensah (2023) findings that lecturers in Ghana agreed that AI-based learning tools can facilitate assessment and deliver feedback to improve students' engagement. This finding also aligned with the finding of Adelana and Akinyemi (2021) WHO students can engage with AI-driven learning systems. It supported the assertion of Animashaun et. al, (2022) underscores the need for educators to navigate AI based tools for crucial engagement of students in order to boost mastery in using digitalized tools for personalized learning. Afemikhe (2025), assertion that AI usage in educational assessment potentially promotes innovation in assessment for overall benefits in education, aligns with this finding.

Conclusion

In general, based on the findings from this study, it is concluded that academics who are members of ASSREN possess a high level of awareness and positive perception of Artificial Intelligence (AI) as an educational tool. They recognize its necessity and potential for enhancing teaching and learning processes. They also demonstrate a solid understanding of portfolio assessment as a

systematic, content-focused, equitable, and innovative formative assessment method, though some variability in depth of knowledge exists. Furthermore, respondents perceive AI as a valuable and necessary component of portfolio assessment, essential for meaningful academic engagement of students.

Recommendations

Arising from the findings and conclusions reached in this study, the following recommendations are suggested.

1. Universities in Nigeria should organize frequent, strategized workshops and training to deepen lecturers' knowledge and practical skills in AI applications and portfolio assessment techniques.
2. Universities can create frameworks and guidelines to support AI integration and standardized portfolio assessment practices.
3. Universities can promote collaborative learning that encourages the sharing of experiences and best practices among lecturers to build confidence and competence.
4. Universities are to provide resources and support that guarantees availability of reliable AI tools and technical assistance to facilitate the smooth adoption of AI integration for PA.
5. Universities should implement mechanisms to assess the effectiveness and impact of AI-enhanced portfolio assessments on student engagement and learning outcomes for timely feedback.
6. Further research can focus on longitudinal and experimental studies to explore long-term effects and optimize AI-supported assessment models in universities.

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