

Artificial Intelligence in the Traditional Teaching and Learning Landscape: Cases from Selected Secondary Schools in the Philippines

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Abstract

Artificial intelligence is dominantly used in every affair of individual whether for academic or non-academic undertakings. This study described and examined the use of artificial intelligence in the traditional teaching landscape. It utilized descriptive-correlational research design where a researcher-made questionnaire was used as main instrument in gathering data among 400 public secondary teachers. Results revealed that artificial intelligence is a vital digital support tool for teachers who comprehensively generate, collect and process data, as well as an effective aid in the conceptual design of pedagogical instructions. However, challenges in using artificial intelligence co-equally exist as artificial intelligence provides complex and overlapping information which made teachers confused as to the proper and relevant instructional and assessment design to utilize in their teaching process. With an extensive use and integration of artificial intelligence in the teaching and learning process, it can also pose several gaps where teachers' do not connect their actual teaching conditions on the information and concepts provided by artificial intelligence.

Keywords: artificial intelligence, teachers, instruction, traditional teaching, learning landscape



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INTRODUCTION

Artificial Intelligence (AI) is a breed of new technological and innovative advancements in the society today. The use of AI becomes an imminent concern of professionals, academicians and the whole academic community, as this is now highly utilized by students in doing their academic tasks and other activities associated with their learning acquisition processes. The pressing concern of the academic community is highly surfacing in the four corners of the classroom because learners highly use AI to directly gain advantage in doing their academic work and assignments without establishing higher levels of efforts in analyzing, researching and understanding their assigned tasks. In other words, AI is now commonly drawn as "safe academic haven" for learners because they can easily generate

answers through accurate prompts in the form of direct and elaborated answers. Well-designed technologies like Artificial Intelligence offer high level of human control and high levels of computer automation and can increase human performance including scholastic performances of learners (Shneiderman, 2020). With this, strong arguments are drawn by different scholars in the use and effectiveness of AI. The development of this technological advancement has created advantages and disadvantages in the teaching and learning process.

The value and direct impact of Artificial Intelligence is highly felt by other sectors such as in business, medicine, engineering and other disciplines in a way that AI helped them accurately examine and project trajectories of their business and undertakings through well-

founded and accurate propositions. The apparent effects on the use of AI have directly implicated the intent of the user, operational content of the tool, technological features and ethical actions imposed by the user (Ali et al., 2024). The significant intent of using artificial intelligence in business transactions and other economic activities has been dominantly accepted. Technology-giants like Apple, Microsoft, Google and Facebook competed in the development of Artificial Intelligence as they heavily invested in creating more accurate and innovative features where users can benefit.

In this regard, contextualizing the use of artificial intelligence in the educational landscape, especially in the form and shape by which it helps or destructs effective and retentive learning experiences among teachers and learners, is still a bigger inquiry to undertake. Today, the normal classroom behavior of learners is similar with their active adaptation on the benefits they gain from technological tools. Part and parcel of this is the use of artificial intelligence by both teachers and learners. With a number of factors to consider, such as time constraints, limited information available on other academic websites, and insufficient and unelaborated discussions are not evident when using artificial intelligence. Schools and teachers gained new products in the form of digital tool whereby experiencing beneficial effects of AI (Wang & Cheng, 2021). Thus, the current use of artificial intelligence immensely raises concern as learners may only take great advantage in using artificial intelligence platforms but shows lesser competence as they are not fully inclined to critical thinking and problem-solving skills which traditional teaching can assert.

Apparently, the application of artificial intelligence in education has increasingly recognized as key driver of educational wheels encompassing educational innovation (Tan et al., 2025). Embracing artificial intelligence in the educational landscape, and the manner and means of utilizing the same, pose greater concerns as teachers and learners gradually adapt artificial intelligence as a tool in teaching

and learning. In this regard, this creates a wide range of discussion as to the use and implications of artificial intelligence in a traditional educational set-up. Traditional education encompasses conventional ways of teaching and learning that have been established through ages. In this context, learners are generally viewed to dispense their own thinking and create their own intellectual pieces through comprehensive application of what they have learned.

This study examined the use of artificial intelligence in the normal classroom settings in the Philippine's basic education system. It described the teachers' use of artificial intelligence in terms of instruction, methods and assessment while it also described the challenges they encountered in using artificial intelligence in terms of learners' learning acquisition, teaching styles utilized by teachers and assessment process used.

METHODS

Descriptive-correlational research was utilized to describe and examine the use of artificial intelligence in the traditional educational landscape. A correlation is defined as a process of measuring two variables - understanding and assessing the statistical relationship between them with no influence from any extraneous variable. Usually, it aims to establish a link or influence of one variable from another variable (Canonizado, 2024). In other words, descriptive correlational research describes first the phenomenon or conditions by using variables then correlate the same variable to examine if there would be relationship among them. Correlational aspects of the study involved the use of variables under artificial intelligence in traditional teaching landscape in terms of instruction, methods and assessment. On the other hand, variables under challenges encountered by teachers in using artificial intelligence are students' learning acquisition, teaching methods and assessment. Hence, the study correlated these variables to potentially examine if artificial intelligence tends to influence teachers' challenges in the traditional teaching and learning process.

A research-made survey questionnaire was used consisting of two parts. For part 1, it contained items relating to the use of artificial intelligence in terms of instruction, methods and assessment while part 2 contained items relating to the challenges encountered by teachers and learners in using artificial intelligence in terms of learners' learning acquisition, teaching methods and assessment. A 4-point Likert Scale was utilized for part 1 of the instruments with the following numerical scales and descriptions: 4-Strongly Agree, 3-Agree, 2-Disagree and 1-Strongly Disagree. Meanwhile, another 4-point Likert Scale was used for part 2 of the questionnaire with the following numerical scales and descriptions: 4-Always Encountered, 3-Encountered, 2-Often Encountered and 1- Not Encountered. The instrument was also validated by selected experts in education consisting of school heads, master teachers and graduate school professors. Thus, the same instrument was pre-tested which obtained a Cronbach Alpha results of .784 signifying that the instrument was "Acceptable."

The study was participated in by 400 Junior and Senior High School teachers who were randomly selected by the researchers among public secondary schools in the Philippines. On the other hand, informed consent was secured, and short orientation was conducted in order to discuss the purpose, nature and scope of the study.

Relevant statistical tools were used, such as frequency, mean, standard deviation, general weighted mean and Pearson R. Data collection was implemented sensitively as the data was organized and stored through a digital platform in the form of MS Excel.

RESULTS AND DISCUSSION

Artificial Intelligence in the Teaching Process. Teachers strongly agreed that artificial intelligence creates relevant, comprehensive and extensive support in the design and development of teaching processes in terms of instruction, methods and assessment. Based on the results in Table 1, instruction gained an

overall mean score of 3.56 which is verbally described as "Strongly Agree". This implies that teachers find artificial intelligence highly capable in providing efficient, reliable and accurate data in designing their instruction relevant to the topics they teach. Thus, the results also show that artificial intelligence creates practical applications of concepts and information through creation of illustrative examples which enabled them to draw comprehensive learning activities for their learners.

Table 1

Artificial intelligence in traditional teaching landscape in terms of instruction, methods and assessment, (n=400)

Indicator	m	Verbal Description
Instruction		
1. AI builds relevant information	3.58	Strongly Agree
2. AI provides easy access data	3.64	Strongly Agree
3. AI create comprehensive narration of topics	3.52	Strongly Agree
4. AI provides realistic insights	3.45	Strongly Agree
5. AI provides illustrative examples and practical explanation of topics	3.65	Strongly Agree
Overall Mean	3.56	Strongly Agree
Methods		
1. AI provides current methods of teaching and learning	3.65	Strongly Agree
2. AI provides comprehensive procedures in designing teaching and learning methods	3.72	Strongly Agree
3. AI creates highly engaging activities	3.56	Strongly Agree
4. AI provides reliable and accurate sources for developing impactful teaching methods	3.38	Strongly Agree
5. AI creates comprehensive discussions on procedures and technical aspects of relevant teaching methods	3.56	Strongly Agree
Overall Mean	3.57	Strongly Agree
Assessment		
1. AI provides accurate assessment methods dependent on learners' activities	3.32	Strongly Agree
2. AI creates accurate formula for assessment under a certain activity	3.61	Strongly Agree
3. AI builds standard procedures in assessing learners' performance	3.51	Strongly Agree
4. AI provides comprehensive explanation as to the proper assessment tools to use	3.74	Strongly Agree
5. AI explains concepts of assessment extensively when asked about a particular assessment tool to use	3.78	Strongly Agree
Overall Mean	3.59	Strongly Agree

On the other hand, in terms of methods, an overall mean of 3.57 ("Strongly Agree") shows that teachers strongly affirmed that artificial intelligence provides comprehensive narration of methods and teaching styles which teachers are guided accordingly. The ability of artificial intelligence in providing relevant, accurate and more practical approach shows that they are capable of building effective teaching and learning process. Meanwhile, artificial intelligence in teaching in terms of assessment obtained an overall mean of 3.59 which is verbally described as "Strongly Agree". This

shows that artificial intelligence provides accurate assessment methods tailored to learners' activities, creates precise formulas for assessment under specific activities and establishes standard procedures for assessment. Hence, artificial intelligence significantly helped teachers to design and develop appropriate assessment.

The extensive use of artificial intelligence by teachers significantly shows that artificial intelligence helped teachers to formulate, design and develop instructional styles, approaches and assessments which leverage their skills and capabilities in dispensing effective teaching and learning process. The use of artificial intelligence in building meaningful teaching process in the traditional teaching landscape has been widely accepted and that teachers are provided with more practical and relevant teaching design which information, procedures and data provided by artificial intelligence platforms are more convenient and reliable to utilize. The above findings were affirmed in the study of Lin et al. (2022) which asserted that AI-assisted teaching, exercise, exam and assessment had significant positive influences on teaching effectiveness. Thus, teachers' perceptions of artificial generated data had a partial mediating effect for Artificial Intelligence in Education (AIED) on the improvement of teaching effectiveness.

Challenges Encountered by Teachers in Using Artificial Intelligence in Teaching. Based from the results of the study (Table 2), an overall mean score of 3.50, which is verbally described as "Always Encountered", signifies that teachers find artificial intelligence as a good source of information and strong support to deliver proper instruction. However, it often demonstrates critical, complex and overlapping information and data which are not easily understood by learners specially when they are accessed by learners to seek support with their academic tasks. On the other hand, in terms of teaching methods, an overall mean of 3.47, which is verbally described as "Always Encountered", implies that there is a wide disconnection between teaching styles and methods used by teachers to their learners'

interests. Meanwhile, it also shows that artificial intelligence provides diverse teaching styles and methods. Also, based on the results, in terms of assessment, an overall mean of 2.61, which is verbally described as "Often Encountered", shows that teachers find it difficult to assess their learners because of the complexity of assessment procedures it provides.

Table 2
Challenges encountered by teachers in using artificial intelligence in terms of students' learning acquisition, teaching methods and assessment, (n=400)

Indicator	m	Verbal Description
Students' Learning Acquisition		
1. Find AI confusing because of overlapping discussions	3.62	Always Encountered
2. Gives extensive data which are difficult to understand by the learners	3.15	Always Encountered
3. Gives complex discussions that are out of context	3.72	Always Encountered
4. Exceeds the data provided for each subject or topic searched	3.33	Always Encountered
5. Fails to provide numerical data to support the explanations provided	3.72	Always Encountered
Overall Mean	3.50	Always Encountered
Teaching Methods		
1. Gives multiple methods or styles to use	3.56	Always Encountered
2. Gives different styles which do not consider learners' needs and interests	3.72	Always Encountered
3. Gives difficult methods that are impossible to execute	3.56	Always Encountered
4. Concentrated on technology-based methods	2.98	Encountered
5. Dominantly gives gamified as teaching methods	3.56	Always Encountered
Overall Mean	3.47	Always Encountered
Assessment		
1. Provides complex assessment procedure	3.19	Encountered
2. Gives multiple procedures under specific assessment tool	3.56	Always Encountered
3. Gives unrealistic methods for assessing students' performance	2.36	Often Encountered
4. Gives no numerical formula for assessment	2.41	Often Encountered
5. Gives no explanation about the relevant assessment tool	1.56	Not Encountered
Overall Mean	2.61	Often Encountered

Teachers often encountered challenges when they utilize artificial intelligence in generating instructional concepts, teaching methods and assessment procedures. Several information which includes overlapping of data and complex discussions made teachers confused as to what proper instructional styles, methods and approaches they can utilize. These findings were negated by Poliakov (2024) revealing that artificial development should be an opportunity to increase the importance of educational system and management. Thus, the study also shows that artificial intelligence opens many ethical concerns regarding access to education, recommendations to individual students,

personal data concentration and impact on academics.

Relationship Between the Use of Artificial Intelligence in Traditional Teaching landscape and Challenges Encountered by Teachers in using artificial intelligence. The correlation coefficient for instruction reveals weak negative correlations with student learning acquisition (-.193) and teaching methods (-.228) which indicates that the teachers' use of artificial intelligence for instructional aspects in teaching strategies. On the other hand, there is a similarly weak negative correlations with student learning acquisition (-.063) and teaching methods (-.101). This implies that teachers may not be experiencing severe and substantial challenges with the use and integration of artificial intelligence in the design, development and implementation in their teaching and learning process.

Table 3
Relationship Between the Use of Artificial Intelligence in Traditional Teaching landscape and Challenges Encountered by Teachers in using artificial intelligence

Use Of Artificial Intelligence In Teaching		Challenges Encountered By Teachers In Using Artificial Intelligence		
		Stds Lrng Acqstn	Tchg Mthds	Assmt
Instruction	Correlation Coefficient	-.193	-.228	.031
	Significance	.507	.433	.916
	N	400	400	400
Methods	Correlation Coefficient	-.063	-.101	-.394
	Significance	.830	.730	.163
	N	400	400	400
Assessment	Correlation Coefficient	-.460	-.711*	-.578*
	Significance	.098	.004	.030
	N	400	400	400

*Legend: Correlation is significant at 0.05 level (2-tailed)

Correlation is significant at 0.01 level (2-tailed)

Meanwhile, assessment shows that there is more alarming results with significant negative correlations. Thus, correlation coefficient with student learning acquisition is -.460 which reaches significant level suggesting key potential issues in assessing student learning when artificial intelligence is utilized and integrated. In addition, the correlation with teaching methods is highly significant at -.711 which indicates a strong inverse relationship in which artificial intelligence, when integrated into assessment practices, may complicate teaching methods. Apparently, the correlation with assessment itself is also significant at -.578 which suggests that challenges in

assessment are more likely affecting the total teaching experience of teachers in the teaching and learning process.

While artificial intelligence is dominantly used in the teaching and learning practices, strong negative correlation between artificial intelligence and teaching methods suggests that teachers who are using artificial intelligence may struggle to adapt their instructional strategies effectively which may also hamper their assessments towards their learners' performance. This is negated in the study of Kuleto et al. (2021) revealing that artificial intelligence is an essential technology that enhance learning primarily through students' skills, collaborative learning in higher education institutions (HEI) and an accessible research environment.

Conclusion. Artificial intelligence is one of the most dominant digital tools for teaching and learning today as teachers and learners utilize it for purposes of generating relevant information. In the traditional teaching landscape, the acceptance and use of teachers with the support of artificial intelligence raises several concerns like academic tolerance, failure to process critical and analytic thinking skills and the like. The study concludes that artificial intelligence is a vital digital support tool for teachers who comprehensively generate, collect and process data, concepts and information to design their instruction effectively. However, challenges in using artificial are co-equally existing as artificial intelligence provides complex and overlapping information which made teachers confuse as to the proper and relevant instructional and assessment design to utilize in their teaching and learning process. With an extensive use and integration of artificial intelligence, it can pose several gaps that do not connect teachers' actual teaching conditions and generated information and concepts provided by artificial intelligence.

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