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Research Article

In the Digital Spheres: Navigating Artificial Intelligence in Teaching

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ABSTRACT

Artificial Intelligence is one of the most advanced technological tool which was developed to proceed convenient and fastest generation of ideas and concepts. This study described and examined the use and effectiveness of artificial intelligence in the traditional teaching landscape in the study. It utilized descriptive correlational research design where researcher-made questionnaire was used as the main instrument of the study. It was participated by 500 public secondary teachers in the Philippines. Findings showed that Artificial Intelligence as perceived by teachers was useful and directly beneficial to facilitate effective and retentive instruction, effectively provides relevant and highly diversified instructional methods and strategies which teachers can use in order to cater the individual needs and interests of learners and provides enormous amount of assessment styles, procedures and methods that objectively assess learners' academic performances. Also, AI is perceived by teachers to be an effective tool in providing effective learning acquisition process as AI provides accurate data which are timely and relevant, provides instructional styles and methods which are practical and highly engaging and institute authentic assessment s that reflect real-world activities thereby promoting effective transfer of learning. Apparently, as the effectiveness of AI in instruction increases, learners' learning acquisition also increases. AI as digital platform help increase instructional competence of teachers through provision of accurate and reliable information or data gathered which can be potentially used during the teaching and learning process.

Keywords: *Use, Effectiveness, Artificial Intelligence, teachers, learners, public, secondary, schools*

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Introduction

Artificial intelligence in the most in demand digital tool for learners, professionals and other individuals who are engaged in private and public organization. As the dawn of modern technology rises, rapid advancement and development to operations including matters and systems in the educational settings are influenced. Convenience and accessibility are the foremost considerations in using highly advanced technology. The ability of artificial intelligence to control students' behaviour and direct learning may potentially improve the efficiency of educational system (Tyagi., 2020). In this regard, learners commonly used AI for the purposes of convenience which put less emphasis on the application of higher order thinking skills. Learners as observed by the researchers are only the recipients of the information and ideas generated by AI. This condition poses greater concern for teachers as they are to ensure the retentive and meaningful learning experiences of the learners. 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). Instructors have been able to perform different teaching and administrative functions such as reviewing and grading students' assignments more effectively and efficiently in using AI (Su & Yang, 2022). Further, AI has significant direct effects on learning effectiveness and instructional methods used by teachers (Chou et al.,2022). It is believed by scholars and teachers that AI and AI technologies are helpful in daily educational activities and help them gain information regardless of time and space limitations (Sarwari & Mohd Adnan. 2024).

Schools and teachers gained new products in the form of digital tool whereby experiencing beneficial effects of AI (Wang and Cheng, 2021). In addition, the use and effectiveness of artificial intelligence pose greater concern in the teaching and learning process. The researchers observed that most number of learners are only relying on the information or data provided by AI. It is in this line that higher engagement and critical thinking skills of learners are seen to be compromised because their learning tasks are always, if not, most often than not, only generated by AI prompts like in creating essays, proposals and the like. The use and effects of AI to learners' actual learning and retentive experiences have not yet been seen effective or ineffective. There are less studies published on the use and effectiveness of AI in the teaching and learning process of the learners among public schools as observed by the researchers. Apparently, the application of artificial intelligence technology in education has increasingly recognize as key drivers of educational wheels encompassing educational innovation (Tan et al., 2025). This study examined the use and effectiveness of artificial intelligence in the normal classroom settings in the Philippine's basic education program. The study described the use of artificial intelligence as described by teachers in terms of instruction, methods and assessment. Meanwhile, the study also described the challenges encountered by teachers in using artificial intelligence in terms of learners' learning acquisition, teaching styles utilized by teachers and assessment process used.

Methods

The study utilized descriptive correlational research describe and examine the use and effectiveness of artificial intelligence under the normal teaching and learning set-up among selected public secondary schools in the Philippines. The study utilized a developed survey questionnaire which contained two (2) segments. 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 effectives in using Artificial Intelligence in the normal teaching and learning set-up in terms of learners' learning acquisition, teaching methods and assessment. Use of 4-Likert Scale was utilized 4-Strongly Agree, 3- Agree, 2-Disagree and 1-Strongly Disagree.

The developed survey-questionnaire was validated by selected experts in education consisting of professors in the graduate school in the selected graduate school institutions in the Philippines. Thus, the same instrument was pre-tested which obtained a Cronbach Alpha results of .814 which signified that the instru-

ment was "Acceptable." The study was participated by 500 Junior and Senior High School teachers who were randomly selected by the researchers among public secondary schools in the Philippines. Informed consent were distributed to the respondents before the actual administration of the instrument while letter of requests have been forwarded to the concerned officials to the selected schools which served as the locale of the study. Apparently, 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, established by the researchers.

Result and Discussion

Artificial Intelligence is a digitalized tool serving as highly convenient platform to generate ideas and information. The use and effectiveness of AI in the normal teaching and learning process pose greater concerns as learners can access information considering less emphasis on instituting deeper critical and analytic thinking skills.

1. Artificial Intelligence in the Normal Teaching and Learning Process

Table 1. Artificial intelligence in normal teaching and learning set-up in terms of instruction, methods and assessment

Artificial Intelligence in Normal Teaching and Learning Set-up	General Weighted Mean	Verbal Interpretation
1.Instruction	3.56	Strongly Agree
2.Methods	3.58	Strongly Agree
3.Assessment	3.61	Strongly Agree
Overall Mean	3.58	Strongly Agree

Artificial Intelligence in the Normal Teaching and Learning Process. As shown in table 1, it reveals that the use of AI in the normal teaching and learning process obtains an overall mean of 3.58 which means that teachers strongly agreed to the prevalent use of AI in the teaching and learning process along with instruction, methods and assessment. Thus, results showed that AI is beneficial for both teachers and learners as they reinforce the educative process. In addition, teachers are prepared and adoptive with the use of AI in the teaching and learning process. To note, instruction obtains a general weighted mean of 3.56 which indicates that teachers strongly agreed that AI enhances their instructional practices as AI being digital tools can facilitate personalized learning experiences, providing them with constructive and objective instructional feedback towards their learners' performance through provision of reliable data in obtaining effective and efficient delivery of instruction. On the other hand, methods obtains a general weighted mean of 3.58 which indicates that AI positively implicates teaching methods in which when AI is being integrated into lesson planning, classroom management and instructional delivery, it elevates creativity and innovation in the normal teaching and learning set-up. Lastly, in terms of assessment which obtains a general weighted mean of 3.61 which shows that teachers positively use AI in assessing their learners as they can be able to gather reliable and accurate data on the proper and relevant assessment techniques including automated grading schemes, data analytics and adaptive assessment measures. Practically, AI in education has its potential positive implication when positively applied in the normal teaching and learning set-up. It enables teachers to explore wide array of data without consuming large amount of time thereby ensuring access to reliable information which can be explored by their learners. The findings are affirmed in the study of Lin et al. (2022) which asserted that AI-assisted teaching, exercise, exam and assessment had significantly 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.

2. Effectiveness in Using Artificial Intelligence in the Normal Teaching and Learning Set-up

Table 2. Effectiveness of using artificial intelligence in the normal teaching and learning set-up

Artificial Intelligence in Normal Teaching and Learning Set-up	General Weighted Mean	Verbal Interpretation
1.Learning Acquisition of Learners	3.72	Strongly Agree
2.Teaching Methods	3.74	Strongly Agree
3.Assessment	3.63	Strongly Agree
Overall Mean	3.69	Strongly Agree

Effectiveness of Using Artificial Intelligence in the Normal Teaching and Learning Set-up. As shown in Table 2, effectiveness of using AI in normal teaching and learning process shows a positive perception among the teachers as implementers of curriculum and agents to deliver effective instructional practices in terms of learning acquisition of learners, teaching methods and assessment. In this line, in terms of learning acquisition of learners, it obtains a general weighted mean of 3.72 which indicates that teachers strongly agreed on the significant use of AI in enhancing the learning acquisition process of learners. Thus, the result also shows that AI tools are help teachers to effectively facilitated deeper understanding, retention and engagement among learners because AI can potentially increase personalized learning paths and adaptive learning experiences to cater individual needs of learners. AI as innovative tool creates accurate information which teachers can gather and implement the same in their instructional practices. On the other hand, in terms of teaching methods, it obtains a general weighted mean of 3.74 which indicates that teachers strongly valued the effectiveness of AI as it provides differentiated instruction which directly cater learners' individual needs. In this line, AI supports innovative approaches which also enable teachers to utilize effective interactive teaching styles. Lastly, in terms of assessment which obtains a general weighted mean of 3.63. The result shows that AI is perceived by teachers as strong partner to effectively facilitate meaningful teaching and learning under normal or traditional classroom set-up. In addition, AI is treated as valuable tool for automating grading, providing real-time feedback and serve as a platform which can generate ideas in the formulation of authentic assessments. Practically, AI is beneficial across learning acquisition process, teaching methods and assessment as it enables teachers to explore enormous information and implemented these gathered ideas to effect meaningful teaching and learning experiences. The findings are negated by the study of Poliakov (2024) which reveals 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.

3. Relationship Between the Use of Artificial Intelligence and Its Effectiveness in the Normal Teaching and Learning Set-up

Table 3. Relationship Between the Use of Artificial Intelligence and Its Effectiveness in the Normal Teaching and Learning Set-up

Use of Artificial Intelligence in the Normal Teaching and Learning Process		Effectiveness of Artificial Intelligence		
		Stds Lrng Acqstn	Tchng Mthds	Assmt
Instruction	Correlation Coefficient	.245*	.338	.348
	Significance	.031	.175	.187
	N	500	500	500
Methods	Correlation Coefficient	-.093	-.181	-.498
	Significance	.830	.730	.163
	N	500	500	500
Assessment	Correlation Coefficient	-.460	-.575**	-.311
	Significance	.098	.994	.208
	N	500	500	500

Legend: **-Correlation is significant at 0.05 level (2-tailed)
*-Correlation is significant at 0.01 level (2-tailed)

Relationship Between the Use of Artificial Intelligence and Its Effectiveness in the Normal Teaching and Learning Set-up. As shown in Table 3, there is a positive correlation between instruction and students learning acquisition process (r=.245). This suggests that as the effectiveness of AI in instruction increases, learners' learning acquisition also increases. AI as digital platform help increase instructional competence of teachers through provision of accurate and reliable information or data gathered which can be potentially used during the teaching and learning process. The result negated the study of Kuleto et al. (2021) which revels that artificial intelligence is an essential technologies that enhance learning primarily through students' skills, collaborative learning in HEI and an accessible research environment. Practically, the positive correlation of AI effectiveness in instruction and learners' learning acquisition suggests that educational institutions may put stronger emphasis on the proper use of AI in the teaching and learning process. Proper guidelines and parameters in the use of AI may also be formulated as AI is found to have positive and beneficial effects in the normal teaching and learning process.

Conclusion

Artificial intelligence becomes today's global phenomenon in the digital world as it provides accurate and reliable information and data specially when it is used in educational contexts. Artificial Intelligence as perceived by teachers are useful and directly beneficial to facilitate effective and retentive instruction, effectively provides relevant and highly diversified instructional methods and strategies which teachers can use in order to cater the individual needs and interests of learners and provides enormous amount of assessment styles, procedures and methods that objectively assess learners' academic performances. Also, AI is perceived by teachers to be an effective tool in providing effective learning acquisition process as AI provides accurate data which are timely and relevant, provides instructional styles and methods which are practical and highly engaging and institute authentic assessment s that reflect real-world activities thereby promoting effective transfer of learning. Apparently, as the effectiveness of AI in instruction increases, learners' learning acquisition also increases. AI as digital platform help increase instructional competence of teachers through provision of accurate and reliable information or data gathered which can be potentially used during the teaching and learning process.

Recommendations

Schools through the collective efforts of school heads, parents, teachers and other stakeholders should formulate specific guidelines and founded policies in the proper use of AI in the normal teaching and learning process. Such policies may be implemented since AI is found to be an effective support

mechanism for teaching and learning process. Also, the school in collaboration with the experts in Information and Communication Technology should examine the potential threats and challenges which may surface when AI is utilized and integrated in the teaching and learning process. As such, further empirical investigation is highly recommended considering AI's potential threats and challenges which may be encountered by teachers and learners.

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