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## Usefulness of Artificial Intelligence (AI) in Education of TVL-Information Communication Technology (ICT) Senior High School Learners

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## ABSTRACT

Emerging high technologies in Artificial Intelligence (AI) are providing new trends, approaches, and enriching learning experiences. The importance of Artificial Intelligence (AI) is growing in various aspects of life, especially in the technological era. This study aimed to identify the experiences perceived by different AI tools in a classroom setting based on the usefulness of Artificial Intelligence (AI) in education to TVL-ICT senior high school learners. The researcher employed a qualitative research method, utilizing a narrative inquiry approach through semi-structured interviews and focus group discussions. A total of ten (10) learner respondents were purposively selected. Data revealed that the usefulness of AI education is a significant factor in analyzing data, identifying patterns, and improving the academic performance of TVL-ICT learners. Utilizing AI tools in school promotes teaching innovation and ready access to materials. However, there are advantages and disadvantages to the usefulness of AI education to learners, incorporating proper training and discipline. An increase in assessment efficiency, time-saving searching for relevant and updated information, and open access to everyone. In contrast, learners experience a high risk of accessing private personal information, potential bias in gathering information, and a lack of trust in using AI tools. Lastly, AI education revealed a five-cycle learning process in education for ICT learners. The integration of Artificial Intelligence (AI) in education led to a significant improvement in school resources and technological advancement. Artificial Intelligence (AI) tools in education have been developed to motivate, innovate, and adapt technological development. The usefulness of AI tools cannot replace humans in instructional strategies, but resistance to change may be replaced by technology in the future.

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#### INTRODUCTION

Information Communication Technology (ICT) can be useful for education to provide free access to online learning resources, especially for e-learning educational purposes. The artificial intelligence (AI) in education in the TVL-ICT strand represents an innovative approach to education. It is about computers that are capable of performing tasks that do not require human knowledge in solving problems and making decisions. The educational system now integrates the importance of ICT education to enhance skills in computer systems and access facilities that make it easier to communicate internationally. The main concern is about the digital division of the students' advantages and disadvantages of technology. More access for the more privileged students in highly urbanized cities (Van De Werfhorst et al., 2022). There were issues about using classroom technology that might affect the students' performance. It must ensure that using technology is constructive and safely analyzes problems using critical thinking, with or without artificial intelligence. The study of Haldorai et al. (2021) suggests that despite the challenges encountered with artificial intelligence in classroom situations, there might be good potential benefits to ICT students in education, and the support of technology helps to improve educational performance for all students. The quality of teaching transformed into collaborative, interactive, and engaging strategies in a classroom setting. Teachers deliver their lessons actively and properly. They can use online platforms as a synchronous way of learning that can easily track the students' progress. However, the effective integration of technologies using AI is constituted by the beliefs, attitudes, and experiences of teachers towards the usefulness of Information Communication Technology (ICT) (Vongkulluksna et al., 2018; Blundell et al., 2020; Seufert et al., 2021; Backfisch et al., 2021).

Nowadays, innovative technology like artificial intelligence can access more information and learning resources online. Information communication technology has a bigger impact on learning since it is more flexible and convenient for students nowadays. Furthermore, it opens new, updated, and relevant information for students in learning activities. It can create learning experiences that significantly transfer important information globally. Furthermore, ICT connects students, teachers, and professional experts in cultivating and enriching learning through artificial intelligence (Crompton & Burke, 2023; Bond et al., 2024; Zawacki et al., 2019).

The integration of technology through artificial intelligence has become a priority and important in education because it utilizes various ways to enhance and improve the teaching and learning process. It will become essential in educational institutions for both teachers and students. However, electronic learning in the classroom is not intended to replace traditional teaching but to provide online platforms for blended learning between teachers and students (Masrom, 2007; Rathore et al., 2023). Providing significant training, tutoring, and educational tools to improve the quality of education. One of the major roles of artificial intelligence is to develop proper tutoring systems on educational AI tools, applications, and data (Holmes, 2020; Chinta et al., 2024). The artificial intelligence is designed to provide individualized instructions to students based on their skills, abilities, and creativity. The usefulness of the tutoring system of AI can adapt to the changing needs of a daily routine of effective instruction in the classroom.

However, AI tools can analyze data and improve the quality of education by creating virtual assistants to perform in all subject areas. Different tasks, such as grading systems, paperwork, teaching strategies, and communication skills, can be helped with feedback to improve learning. Artificial intelligence also helps to free up their time so that they can focus more on aspects of their teaching. The early stage of Artificial Intelligence in education had a positive impact on students' learning ICT, but there is an improvement in technology to revolutionize the future.

With this gap, the usefulness of Artificial Intelligence in education towards TVL-ICT learners in SHS-Dolores National High School was to investigate the use of Artificial Intelligence (AI) in education, which had a greater influence on every school in developing lifelong learners. Artificial Intelligence systems can provide educational sustainability and adaptation to the changing educational system.

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#### **OBJECTIVES OF THE STUDY**

This study aims to identify the Usefulness of Artificial Intelligence (AI) in Education of SHS TVL-ICT learners at Dolores National High School in the Division of Eastern Samar, Philippines.

The study seeks to answer the following questions:

- 1. How do TVL-ICT learners of Dolores National High School perceive the utilization of Artificial Intelligence (AI) in Education?
- 2. What are the experiences of TVL-ICT learners using Artificial Intelligence (AI) in Education?
- 3. How does Artificial Intelligence (AI) affect the usefulness of education to TVL-ICT learners of Dolores National High School?

#### METHODOLOGY

#### Research Design

A qualitative research method with a narrative inquiry approach was used in this research. Qualitative research is suitable for investigating complex phenomena that require an in-depth understanding to identify variables that cannot easily be measured in their beliefs and attitudes (Creswell, 2013). The story of an individual becomes raw data based on narrative experiences, identity, culture, and understanding people on how to think and feel about a certain situation (Butina, 2015). The narrative story approach by the respondents serves as a guide to senior high school TVL-ICT learners to determine the usefulness of Artificial Intelligence (AI) in education.

#### Locale of the Study

This study was conducted at Senior High School Building A, Dolores National High School, Eastern Samar, in the S.Y. 2024-2025. The locale of the study is in Reynaldo Street, Barangay 9, Dolores, Eastern Samar. The researcher has chosen the study's locale since the researcher works there. Likewise, the researcher is hopeful that the results were a great avenue to help learners, teachers, and curriculum in teaching strategies to improve the academic performance of TVL-ICT learners.

#### Respondents of the Study

The research respondents are Grade 12 students officially enrolled in Dolores National High School and taking up Senior High School with the track of Technical-Vocational-Livelihood (TVL) and Information Communication Technology (ICT) strand. The study consisted of ten (10) learner-respondents purposively selected based on the qualification criteria. The learner respondents answered in a focus group discussion with in-depth interviews, a researcher-made instrument, and validated by experts.

### Sampling Method

The researcher used a purposive sampling method with homogeneity because it would provide adequate information based on specific characteristics, experiences, and backgrounds. The idea that were directly focused and influenced by the relevant needs of the research questions in the study (Etikan et al., 2016).

#### Research Instrument

The researcher utilized a semi-structured research questionnaire with an interview guide. It contained an open-ended questionnaire that aimed to gain insights from research respondents on their experiences about the usefulness of Artificial Intelligence (AI) in the education of Grade 12, TVL-ICT learners in Dolores National High

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School. Furthermore, the research questions interview guide was validated by three (3) experts: an IT Professional Programmer, a Master Teacher in ICT, and a Teacher with a National Certificate III or Training Methodology I in ICT.

However, the researcher used the interview guide as an instrument; the learner respondents' answers are based on their experiences that influence artificial intelligence in education. In an open-ended question, the respondents are not constrained in their answers. To make it ideal, the researcher never knows more possible options and criteria to explore the answers.

Furthermore, Hancock (2001) states that open-ended questions allow the respondents to create more answers to the experiences from their social and cultural experiences instead of the researcher's own experiences. To bridge the gap from Artificial Intelligence (AI) education of TVL (ICT) SHS Learners in Dolores National High School, DepEd Eastern Samar.

## Reflexivity

This study maintains neutrality based on the findings of the respondents' responses, to avoid any manipulation or alteration of the data. Furthermore, it is essential not to give an idea or introduce biases when the data is being collected. All respondents are allowed to answer the questions in any language prepared without any pressure, and a lot of time is given for every specific response.

#### **Ethical Considerations**

The researcher had some ethical issues to consider while conducting this research. It is of utmost importance that all learner-respondents are fully notified and participate voluntarily. The researcher secretly kept all the personal details of the grade 12 learner-respondents confidential. To protect their privacy and make them feel secure and protected. The researcher used pseudonyms or mnemonics as replacements for learners' names and strictly adhered to the Data Privacy Act of 2012 regarding the treatment, use, handling, and storage of research data collected from learner respondents.

#### Data Collection Procedure

The researcher used a semi-structured interview questionnaire. It was conducted in a private and comfortable classroom with informed consent from the respondents. However, to ensure the learner respondents are treated properly, the researcher asked permission from the school head by writing a formal letter requesting that the respondents' confidentiality be protected throughout the process. Learner respondents received a letter of consent, and parents who initially consented but later wished to decline participation were not forced to remain part of the study. The researcher explained to the learner-respondents that their involvement was confidential and that all data collected was solely for the research study. However, the researcher personally administered the focus-group discussion and interview to the selected participants. After that, the researcher collected the complete data of the learner participants and analyzed it with some interpretation of the findings.

#### Analysis of Data

The data analysis in the qualitative data used thematic analysis. Thematic analysis is a qualitative method that involves reading data sets from transcripts of in-depth interviews and focus group discussions. The identification of meaningful data patterns across the respondents' answers was derived from themes of the study. The student responses were classified into different themes with specific thoughts based on their experiences and insights from the learner respondents.

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#### FINDINGS AND DISCUSSION

## Artificial Intelligence (AI) influences the Senior High School TVL-ICT learners: Perceptions and Experiences of AI in education

Table 1 presents how artificial intelligence (AI) influences senior high school TVL-ICT students in terms of perceptions and experiences regarding the different usefulness of the AI curriculum in education. In the advancement of technology, the ICT program is critically transforming through Artificial Intelligence (AI) in terms of language processing and programming (Haldorai et al., 2021).

Based on the findings, "I'm too lazy to read and went to the library to search for an answer in our activities. So, I prefer using AI ChatGPT, Cici, and MetaAI hassle-free. It is accessible anytime and anywhere. (R7 & R10)" It reflects that by using artificial intelligence with different applications that are accessible online, more students did not fulfill their responsibilities because of laziness and poor performance in education. Similar to the study of Villarosa (2024), artificial intelligence has a strong awareness of improving academic performance. However, the practical usage of AI tools remains moderate, and more training is needed to realize the potential advantages of AI tools.

However, Artificial Intelligence (AI) with the supporting quote "It can help me to answer the teacher's questions quickly using MetaAI, Cici, You.com ChatGPT. All the task assignments, activities, and modules can be easily available using AI. (R 4)". The enormous global education was transformed and promoted innovation in classroom strategy, effectively supporting future learners, educators, and ICT instructors in AI education (Balaban et al., 2023).

Even in the recruitment of the educational system, the same issue with the supporting quotes "To make sure that the AI is correct, I use a specific keyword so that it generates a specific answer, especially to find the meaning of a specific word. (R 8)". the AI lacks human intelligence and needs more budget for acquiring more training the tools in AI that incorporate the specific keyword or guidelines to make it sure with the understanding of artificial intelligence tools (Mirji, 2021; Foutsitzi & Caridakis, 2019).

However, with the theme: "Being a TVL ICT student, we know that Artificial Intelligence (AI) in education has a crucial role in developing lifelong learners". helps to develop advanced technologies that make life easier and more fulfilling with creativity designed to achieve the different tools in artificial intelligence (Chiu et al., 2021; Chiu, 2021; Choi et al., 2023).

The experiences gained by the senior high school learners in the TVL-ICT strand play a crucial role in education. To provide quality education in modern technologies that make them digitally competent in the advancement of technologies.

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Table 1. Artificial intelligence (AI) influences senior high school learners in terms of perceptions and experiences towards the different usefulness of AI education.

## Core Ideas and Supporting Quotes

The TVL ICT student knows that Artificial Intelligence (AI) in education has a crucial role in developing lifelong learners.

#### Core Idea

The TVL-ICT students perceive Artificial Intelligence (AI) in education: Perceptions and Experiences of AI in Education.

## Supporting Quotes

It can help me answer questions given by teachers, and I quickly use MetaAI, Cici, You.com, and ChatGPT. All the task assignments, activities, and modules can be easily available using AI. (R4 & R3)

I relay all the answers on AI. I didn't understand the answer, so I copied and pasted all the answers; there is no critical thinking. (R5 & R6)

To make sure that the AI is correct, I use a specific keyword so that it generates a specific answer, especially to find the meaning of a specific word. (R8)

Not all are satisfied with the answer on AI, but it gives a clue on the references on the website. (R9)

Using AI, my life may become lazy, even for simple questions. I used AI to find the answer. I didn't exert effort to analyze the problem because only one type of keyboard, all the answers are there. (R1)

AI makes me more comfortable with answering all the activities in school. (R2)

I'm too lazy to read books. I went to the library and searched for an answer in our activities. So, I prefer using AI ChatGPT, Cici, and MetaAI hasslefree. It is accessible anytime and anywhere. (R7 & R10)

## Artificial Intelligence (AI) influences the Senior High School TVL-ICT students: Advantages and Disadvantages of AI Education

Table 2 presents data on Artificial Intelligence (AI) that influences Senior High School TVL-ICT learners, with advantages and disadvantages. From the supporting quote of the respondents, "It is very easy to answer if you don't understand the question. Open source to access the application. A powerful tool that can access relevant, updated program information in UI, API, and all references. (R3)" and "If there is no internet connectivity or signal on my phone, I can still use it to find the answer using artificial intelligence (AI). (R6 & R4)." The advantages of AI include many benefits, such as improving academic performance and easily accessing all the resources from the AI tools without any hassle. With just one click, all the information from the program will be obtained without internet connectivity. In addition, Mallikarjunaradhya et al. (2023), artificial intelligence is a beacon of hope, innovative, predictive, and promising, with adaptive automated security solutions. With the usefulness of AI, learning resources and activities can be made faster for the TVL-ICT learners. It will guarantee that they receive a unique education,

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career paths, and analysis of information that will provide the best support and self-reflection through the AI-enhanced tools. (Gedrimiene et al., 2024).

However, with this supporting quote, "Using artificial intelligence tools in the application on my cellphone, I can easily search, edit, and find the answer I want to look for(R5)". The artificial intelligence can be modified through the degree of difficulty of the activity and lesson, and the students learn at their own pace by revising the answer found in the AI tool application. However, the main responsibility of teachers is only for teaching in any educational setting. The artificial intelligence not only assists academically but also enhances the effectiveness of the educational resources (Ahmad et al., 2022).

As a result, Artificial Intelligence (AI) is increasingly influencing the use of ICT. Students learn conveniently to acquire the necessary skills needed for the career path they want to choose. Artificial intelligence in education had a greater influence on educational outcomes for the students in the TVL-ICT strand. In addition, it generates the alignment of the curriculum needed for students in 21st-century skills, providing critical skills, decision-making, and developing easy tasks.

In addition, Peng et al. (2023) showed that students' perceived competence in technical education of ICT school ICT resources use policies was positively affected by the support of teachers in ICT. The usefulness of AI is a vast feature that may utilize the advantage of the students in TVL-ICT in improving the curriculum and providing a better learning experience for effective teaching. Generally, a positive outlook emphasizing the importance and awareness of AI technology through education that has a strong inclination towards potential benefits among students (Campued et al., 2023).

Furthermore, disadvantage of Artificial Intelligence (AI) are based on these supporting quotes "Data generated by AI is redundant information not validated by experts and professionals. Sometimes I use everyday even though the questions are easy to answer (R2)", "My private information would be shared with others if I ever use ChatGPT or Meta AI on my phone (R8)", and "Open access to the website may be my personal or private information, accessed or divulged without my consent (R7 & R9)". With these findings, it has an extreme danger in the educational system as teachers and students may encounter technical problems that interrupt the teaching and learning process. Students did not think critically about the value of underdeveloped higher-order thinking skills, and lacked interaction with professional experts to validate all ideas about artificial intelligence tools. Likewise, Tao et al. (2019) conclude that AI generates a disconnection with emotion in the students and teachers, like robots' lack of emotions. Teachers in TVL-ICT fear not only for their position being replaced, but also that AI can replace them in teaching ICT.

Learning students' activities and tasks requires validation by teachers in ICT through an AI detector and authentic feedback for them not to be replaced by AI in education. More issues and concerns may arise for those using AI tools and applications, and the capabilities of AI in education could pose a fundamental threat to the privacy of students and teachers through operation, or the system may leak information and pose a high risk to data privacy (Curzon et al., 2021).

The results are based on a theme: "Experiences using Artificial Intelligence (AI) in Education of TVL-ICT students: Pros and Cons". The usefulness of AI uses many algorithms to facilitate features, some of which have Pros and Cons, making it biased and not carefully designed, making the student unable to access other important details in education.

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Table 2. Artificial Intelligence (AI) Influences the Senior High School: Advantages and Disadvantages of AI Education.

Theme	
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Theme	CO

ore Ideas and Supporting Quotes

Experiences using Artificial Intelligence (AI) in Education of Cons.

Core Idea

TVL ICT students' experiences using Artificial Intelligence (AI) in TVL-ICT students: Pros and Education: Advantages and Disadvantages.

## Supporting Quotes

It is very easy to answer if you don't understand the question. Open source to everyone to access the application. A powerful tool that can access relevant, updated information that is programmed in UI, API, and all the references. (R3)

Not all the answers are correct because when I read and understand the answer, it might not be related to the question asked. (R10)

Using artificial intelligence tools in the application on my cellphone, I can easily search, edit, and find the answer that I want to look for. (R5)

If there is no internet connectivity or signal on my phone, I can still use it to find the answer using artificial intelligence (AI). (R6 & R4)

The correct answer on Google is not the same as another App, such as ChatGPT, CiCi, Chatbot, e-books, e-library, and Meta AI. (R1)

Data generated by AI is redundant information not validated by experts and professionals. Sometimes I use everyday even though the questions are very easy to answer. (R2)

My private information would be shared with others if I ever use ChatGPT or Meta AI on my phone (R8)

Open access to the website may be my personal or private information, accessed or divulged without my consent. (R7 & R9)

#### Artificial Intelligence (AI) in Education: Process of Learning

Figure 1 represents the learning process cycle of Artificial Intelligence (AI) of senior high school TVL-ICT learners. The TVL-ICT learners used an AI-written text conversation to gather information from the activities in school. The new technology in the 21st-century learning, language skills are fundamental experiences from sociocultural, network learning capabilities, and connecting globally for them to access the quality of education (Kannan & Munday, 2018). After the text conversation of AI, followed by the cyberattacks, security risks, and privacy threats of the TVL-ICT learners, artificial intelligence in education. Shahriar et al. (2023) suggest the three different privacy risks: identification, inaccurate decisions, and transparency risk in the AI systems. The learners will be encouraged

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to review the privacy regulations in the AI system. However, fairness and bias are followed in the process of Artificial Intelligence (AI). Students interact to determine the fairness of AI teaching aids. The AI ethics and self-data detection play an important role in ethical and legal frameworks in shaping the educational environment (Martin, 2024). According to the study of Chinta et al. (2024), AI highlights the long-standing issues in achieving and balancing the accuracy of data, fairness, biases, and diverse datasets. Furthermore, the self-actualization and critical thinking with higher-order thinking skills enable the TVL-ICT learners to analyze critically and accept that AI is a part of the future generation. The findings of Alam (2021) show that education helped by AI can help in the educational process, assisting and modifying the pedagogy in teaching strategies and content according to what is needed by the curriculum. In addition, SMAR model integration will help to overcome the barriers that prevent effective use of technologies in the learning process of teachers and students (Bicalho et al., 2023). Using Artificial Intelligence (AI), this will be transformed into an operational tool for a reformer and facilitator in conducting critical thinking for the TVL-ICT learners.

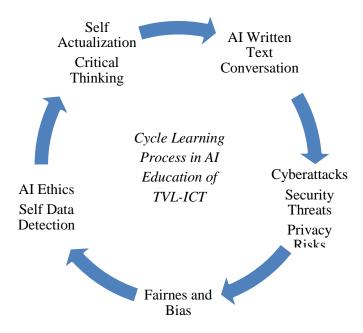


Figure 1. Cycle Learning Process in AI Education

#### CONCLUSION AND RECOMMENDATION

The study concludes artificial intelligence (AI) education for TVL-ICT senior high school learners on their usefulness. Based on the perception and experience gathered from the different points of view, utilizing AI in schools is a very important factor in improving academic performance and promoting innovation in teaching tools to access ready-made materials. A greater responsibility, TVL-ICT learners develop with proper training using artificial intelligence, incorporate discipline, and instill ideals in future generations. The experience gained from artificial intelligence in education was utilized appropriately because the technological era has a corresponding impact on our society. In addition, utilizing Artificial Intelligence (AI) is important to the curriculum, teaching strategies, and real-life problem-solving because learners are using advanced technology to gain more knowledge in a specific subject area. However, there is a negative perception and disadvantages in utilizing artificial intelligence because it gives fake information, a biased representation of real ideas or knowledge that comes from the learners. Utilizing Artificial Intelligence (AI) in a classroom setting may improve the curriculum competencies in the quality of education. Likewise, students' learning may improve their academic performance in the class, and teachers will be motivated to teach and improve their performance in the IPCRF. Somehow, the AI detector is a big help to mislead or found out the fake information.

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Based on the findings of the second question in this study, the experiences of TVL-ICT learners using artificial intelligence (AI) in education. These reflect that the TVL-ICT learners had experiences using the AI application tool, which has advantages and disadvantages. Respondents have more advantages gathered, such as "It is very easy to answer if you don't understand the question. "The open source makes everyone able to access an application. A powerful tool that can access relevant, updated information that is programmed in UI, API, and all the references", "Using artificial intelligence tools in the application on my cellphone, I can easily search, edit, and find the answer that I want to look for", and "If there is no internet connectivity or signal on my phone, I can still use it to find the answer using artificial intelligence (AI)". That means using artificial intelligence (AI) is the primary tool or application that more students want to learn and develop in the future. However, disadvantages to using artificial intelligence (AI) include concerns of fair technology advancement, a lack of interest in human error, and high risks to personal data privacy. Supporting quote: "Open access to the website may be my personal or private information, accessed or divulged without my consent". The researcher concludes that the learning process in AI education of TVL-ICT learners is a cyclic process that provides balance in every action to oneself from the cycle of using AI-written text conversation to self-actualization.

The third objective of the study emphasized the effect of Artificial Intelligence (AI) in education on TVL-ICT learners. Based on the findings, AI tools have a significant improvement in terms of technology, training, and school resources. The usefulness of AI tools must be recommended to TVL-ICT learners who may have faced challenges and difficulties to overcome throughout their education, since not all are financially stable, lack resources in the community, and the integration of AI is a resistance to change in the present curriculum. However, the effect of artificial intelligence is now everywhere, and it is changing the style of learning in education. The educational program must be cultivated and trained by artificial intelligence experts who develop AI systems. In the AI development era, it requires knowledge of computer structures, programming, ICT, and computer engineering to discuss the usefulness of Artificial Intelligence (AI) in education. Using ICT platforms, teachers can employ different strategies in teaching because the application of technology is adaptable and easy to access. It can be customized and personalized learning in line with the competencies, localization, and learners' needs, in which it can foster critical thinking, retention of learning, and improve the learning experiences of learners.

The study strongly recommended that school administrators should prioritize the integration of AI in teaching to empower teachers in curriculum planning. and support in teaching. The curriculum developers may include an AI education curriculum in the context and syllabus for teaching the senior high school program. ICT teachers should provide free training on hands-on skills and the practical application of AI tools in teaching. Government officials may provide a budget through the education continuity plan of the LGU. The education sector may offer scholarship grants to teachers and learners who develop research and innovation projects related to Artificial Intelligence (AI).

Future researchers may conduct a larger sample in a quantitative method to test the reliability of the results. They consider other schools that offer the TVL-ICT strand or other tracks in senior high school programs to validate the current study's claim on the usefulness of Artificial Intelligence (AI) in Education.

#### IMPLICATIONS OF THE STUDY

The study has relevant implications that were drawn from the findings. From a general perspective, the usefulness of artificial intelligence (AI) education on TVL-ICT learners provides greater knowledge and experience for developing character in the 21st-century innovation and advancement of technology. The implication of TVL-ICT senior high school learners is to inspire, motivate, innovate, and become good students with respect and values-oriented. The experience learned from AI tools provides usefulness to the teachers by teaching, inspiring, and motivating TVL-ICT learners to improve their academic performance, which the AI tool cannot replace because of real emotions and feelings of human nature. The learning process of artificial intelligence (AI) implies the need for technological development in the future for us to adapt modern technologies. If we do not use or adjust the changes of technology as learners, teachers, and educators, we may be obsolete in teaching strategies and replaced by technology in the future.

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