Digital Literacy Management Based On Open Artificial Intelligence (Open AI) In PGMI Student Research Development

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Abstract. Digital literacy is an important approach in dealing with the rapid development of information technology. Digital literacy includes an understanding of the use, evaluation, and production of digital content. This study aims to determine the level of digital literacy of PGMI IAI Syarifuddin Lumajang students. This research is a qualitative study with a phenomenological research approach using triangulation design. Based on the results of the study, it can be concluded that the results of the use of Artificial Intelligence for students will depend on how they manage the use of this technology wisely. When used correctly, Artificial Intelligence can be a very useful tool to improve the quality of student learning, research, and skill development.

Keywords: Literacy Digital, PGMI, Artificial Intelligence (OPEN AI).

1. Introduction

The rapid advancement of digital media and Open Artificial Intelligence technologies has significantly impacted various aspects of life, including education. In particular, education benefits from Artificial Intelligence, as these technologies offer new opportunities to improve learning outcomes and transform pedagogical practices. This study aims to explore the potential benefits and challenges associated with the use of Open, in the development of student research in the PGMI study program at Syarifuddin Islamic Institute of Lumajang. By investigating current research, theories, and practical applications, this study seeks to provide valuable insights into effective implementation strategies and potential areas for future development.

Transformative learning theory as one way to understand the complexity of education in an era where information and communication technology continues to change and reinvent acceptable concepts of what it means to teach and learn. This means that current developments require the presence of technology in all aspects of life, while Open Artificial

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Intelligence is one of the media that can be utilized in developing student research products at the Syarifuddin Islamic Institute Lumajang.

With the advancement of technology, Anderson argues that the interaction between learners and teachers can be incorporated in the design of sophisticated learning materials. A good design of distance learning materials can optimize not only the interaction between learners and materials, but also the interaction with teachers and other learners. Moreover, in this information era, learners have wide access to various learning resources that continue to increase in number so that it greatly helps and enriches the process of learner interaction with teaching materials.

The new ecosystem of academia needs to focus on collaborations across institutions, across geographies, across disciplines, that extend relationships beyond the traditional four-walled classroom and beyond the traditional campus. Such collaboration leverages our globalized world and the tools that enable us to create shared learning experiences. In this case, the use of Open Artificial Intelligence of PGMI students of Syarifuddin Islamic Institute Lumajang can develop which results in more sophisticated research products.

The increasingly sophisticated technology in this era of digitalization requires students to have more advanced skills than before, this is to navigate and utilize digital resources effectively is very important for the strengthening and development of student research. However, many students face challenges in acquiring adequate digital literacy skills. Artificial intelligence (AI) has the potential to address these challenges by offering intelligent tools and platforms that facilitate and enhance digital literacy among students.

The reason the researcher chose the theme of research on Open Artificial Intelligence is because recently it has begun to be widely discussed in academia, especially in the last five years since its emergence. However, not many have studied Open Artificial Intelligence (AI) in Scopus indexed journals.

This research will focus on how the process of evaluating the level of AI-based digital literacy in research development among students, especially students of the PGMI study program at Syarifuddin Islamic Institute.

2. Methods

This research uses descriptive qualitative research methods with a phenomenological research approach. While the design used in this research is a triangulation design where the purpose of this triangulation design is to get different data, from the same topic to understand the research problem well. Qualitative methods, such as interviews and focus groups with PGMI study program lecturers, education staff, and students, will be used to gather in-depth insights into their experiences, perceptions, and challenges related to digital literacy based on open artificial intelligence.

The main issues raised in the research background are the importance of digital literacy for PGMI students and the lack of utilization of Open AI in research development in the field of PGMI. This question supports the issue of the importance of digital literacy for PGMI students. By knowing their level of digital literacy, this research aims to be able to identify the needs and challenges that need to be addressed in improving their digital literacy.

Research Instruments In-depth Interview: Interview scripts will be prepared in advance and validation will be done by experts in the field of Islamic Education Management and Information Technology. Observation: Observation criteria and indicators will be identified to understand the implementation and challenges of digital literacy. Focus groups: Discussions will be facilitated to gather collective perceptions and experiences related to the phenomenon under study.

Data Collection Techniques In-depth Interviews: Conducted face-to-face or online, with a duration of about 30-45 minutes per session. Observation: Conducted directly in the educational environment, with attention to predetermined aspects. Focus Group: Facilitated by the researcher and lasting about 60-90 minutes.

Data Analysis Data will be analyzed using content analysis. Transcripts from interviews and focus groups will be coded and categorized. Furthermore, data triangulation will be conducted to validate the findings.

3. Results and Discussions

Digital Literacy Management

Good literacy management will be able to foster and develop student literacy skills. To improve students' abilities in literacy management, literacy managers conduct training for students in the form of digital literacy. So that it is more useful and increases the value of student personality through digital literacy activities. The form of integrating literacy study program management is to unite various components related to the institution's literacy system and provide a perception of the importance of reading.

Digital literacy is an important approach in dealing with the rapid development of information technology. Digital literacy includes an understanding of the use, evaluation and production of digital content. Digital literacy in the information technology era, as well as the benefits and challenges associated with digital literacy. Through the following definitions, we can gain a deeper understanding of the importance of digital literacy in our daily lives.

Paul Gilster in his book defines digital literacy as not just about understanding technology, but also about having the skills and knowledge that enable us to participate actively and critically in digital society. Digital literacy is the ability to use digital technology, communication, and evaluation tools to find, evaluate, use, share, and create content using digitally acquired information. In the European Commission, digital literacy is key to overcoming the digital divide and ensuring that every individual has an equal opportunity to participate in the digital economy and society.

It is important for individuals to be digitally literate, as only with good digital literacy can they protect their privacy, identify inaccurate information, and utilize information technology effectively. . Digital literacy involves not only technical skills, but also the ability to understand and manage information, think critically, and participate ethically in the digital world. Digital literacy is an integral part of modern education. It not only prepares individuals for the future of work, but also helps them become responsible citizens in a digital society.

The definition above emphasizes the importance of digital literacy, enabling active participation in digital society, protecting privacy, overcoming the digital divide, and developing the skills necessary to cope with the information technology age. Digital literacy is an important foundation for individuals to adapt and contribute effectively in an ever-evolving digital world.

Artificial Intelligence (AI)

Artificial Intelligence (AI) is used so that computer systems can automatically learn by themselves without being given programming instructions and can improve accurate predictions and its use is realtime.

Fig 1. Chart of the Division of Data Science Branches[10]

In the process, data science is a science that combines mathematics, statistics with computer science with the aim of analyzing data (data analysis) from a set of data both small (sample) and large (population) by applying certain algorithms for the purpose of exploring data (data mining) and getting data patterns and being able to predict data (prediction) accurately enough to help intelligent systems (AI) that can continue to learn by themselves.

Fig 2. Scope of Data Science

Open Artificial Intelligence (Open AI) is a research field related to the development and application of artificial intelligence that is open, transparent, and accessible to all parties, this can be learned from its work system on the official website:

"We believe that AI should be an extension of individual human wills and, in the spirit of liberty, as broadly and evenly distributed as possible. Openness is critical because AI will have broad societal impact before it is fully understood, we commit to providing public goods that help society navigate the path to AGI." - OpenAI Charter. It emphasizes the importance of extending the accessibility of artificial intelligence equally to everyone. Open AI believes that AI should be an extension of individual human will and can be used by anyone, regardless of background or interests. Open AI recognizes that the impact of AI on society as a whole may occur before full understanding is achieved. Therefore, openness and collaboration in the field of AI is important so that emerging problems and challenges can be better addressed

From the statement above, the vision and principles of Open AI in developing artificial intelligence are open and sustainable. In the study of Open AI, it is important to consider fairness, transparency, and broad social impact in the use and development of AI.

Therefore, some principles of Open Artificial Intelligence can be formulated:

1. Openness Principle: Open AI supports the principle of openness in the development of artificial intelligence. They encourage the open sharing of AI knowledge, data, and algorithms to make them accessible to the wider community. This enables collaboration and exchange of ideas that can lead to faster innovation and development.
2. Ethics and Security: Open AI takes the ethical and safety aspects of AI development very seriously. They are committed to avoiding the use of AI that harms or creates harm to humans or society. Open AI also seeks to prevent potential misuse of AI technology that could lead to unintended consequences.
3. Open Research: Open AI supports open research in AI and seeks to encourage collaboration across institutions and communities. They frequently publish their research results and share important discoveries to make them accessible to researchers, practitioners, and the general public.
4. Development of Artificial General Intelligence (AGI): One of the main focuses of Open AI is the development of Artificial General Intelligence (AGI), which is artificial intelligence that equals or exceeds human capabilities in various cognitive tasks. Open AI views AGI as a very powerful potential and wants to ensure that its development is done in a way that is safe and beneficial to humanity as a whole.
5. Collaboration with Communities: Open AI actively forges collaborations and partnerships with institutions, companies, and communities that share their values. They work with experts in various fields, including academia, industry, and non-governmental organizations, to collectively advance AI research and development.

Through this open, ethical, and collaborative approach, Open AI seeks to build a strong foundation for the development of artificial intelligence that aims to improve human well-being and society as a whole.

Students' Specific Challenges in Utilizing Digital Resources

Currently, Indonesia is trying to develop its education system, both from the curriculum, human resources, and education management. However, in terms of quality, the education system in Indonesia needs to change to align with the education system in developed countries and overcome the challenges of education in the digital era.

Yusuf Qardawi revealed that history teaches that civilization is a cycle, and time will continue to roll, change is a necessity and the fixed state is impossibility and absurdity. And this is an absolute and inevitable law. Samuel Hutington revealed a theory that survives is the most qualified not the strongest, because the strongest is the law of the jungle, while the theory that survives is the most qualified in this case is the law (human) human.

Some of the opportunities faced by PGMI students related to the utilization of digital resources, it turns out that there are also many challenges they will face, including as described by A. Malik Fajar, there are 3 serious challenges that students will face, namely: First, how to defend ourselves from the beginning of the crisis and what we have today should not be left unattended. Second, we are currently in the era of globalization in the field of education. According to him, competition is important, both in the regional, national and international arena. Third, make changes and adjustments to the national education system to support a more democratic education process, taking into account the diversity of needs or conditions of regions and students, and encourage increased community participation.

In addition to the challenges described above, there are some new challenges in utilizing digital resources, namely:

First, the potential for high individuality. It is undeniable that the negative side caused by the use of technology is a relatively high spirit of individuality. Due to the high connectivity of a person with technology, they forget about social interaction.

Second, Speed Competition All information already exists on big data and all sectors have been connected to the internet network, so students who are slow to access information will be late and miss out on opportunities. For this reason, a challenge for PGMI students today is to have speed in accessing various information.

Third, IT expertise. Expertise in the use of Information Technology (IT) is no longer a sunnah for today's young generation which is identical to the millennial generation, because all sectors today are connected to the internet. Like it or not, this has become a challenge for PGMI students to work in the IT field even though PGMI students are prepared as prospective PGMI teachers. To develop competence as a PGMI teacher, you must be able to use IT well and quickly, otherwise you will become a PGMI teacher who is left behind with a variety of information and knowledge that is also developing.

Fourth, the ability to overcome the various challenges faced. The era of society 5.0 that is currently being faced by students will cause various problems, so PGMI students need to be equipped with various abilities.

Digital Literacy Based on OPEN AI in Student Research Development

The era in which almost all aspects of life, including learning that occurs more utilizing digital can be said to be the digital era. In these conditions, everyone, especially PGMI students, must have adequate digital literacy. Digital literacy is a person's ability to use information and communication technology to find, evaluate, create, and communicate information, which requires cognitive and technical skills. Meanwhile Bell and Shank; 2008

(in Emiri, 2015) revealed that digital literacy is the ability to use digital technology, communication tools or networks to find, evaluate, use and create information.

Not only that, in student research development activities, digital literacy is very important and even becomes the main reference to examine the diversity of research. The development of digital technology in the digitalization era not only affects segments of people's lives in general, but students as social groups in scientific academic units are also faced with the stretching of the use of digital technology in supporting lecture activities. The importance of digital literacy has encouraged stakeholders, both from government and non-government organizations, to work together to spearhead the digital literacy movement. This condition also influences the various views/perceptions of students regarding the urgency of digital literacy with the use of Open Artificial Intelligence.

Students need quick and easy access to the latest information to strengthen their research. Open AI can help by providing tools to analyze and summarize various relevant information sources, such as scientific journals, articles, and current news. This will help students stay up-to-date on the latest research and developments in their field. In addition, Artificial Intelligence acts as a Personal Assistant for Learning because students can utilize the language model of Artificial Intelligence as a personal assistant in their learning process. They can ask questions, request explanations, or even ask for advice on certain topics. This will help them understand difficult concepts and improve their understanding.

In Data Processing and Analysis, PGMI students at Syarifuddin Islamic Institute need strong tools for processing scientific clumps in their research in the form of Classroom Action Research, Development Research (R&D) or others, as prospective classroom teachers in Madrasah Ibtidaiyah they are required to master the basics of the fields of social science, natural science, Indonesian language, and mathematics, which require strong tools for data processing and analysis. Artificial Intelligence can provide algorithms and models that can help students process big data, analyze patterns, and produce accurate results. In research and data analysis, Artificial Intelligence can also be used to identify complex patterns or trends that may be difficult to find with traditional methods. This will help students in scientific research and more in-depth data exploration. Besides, in the development of language skills in research, PGMI students of Syarifuddin Islamic Institute include good written and oral communication which is very important in the academic and professional world. Artificial Intelligence can help students improve their language skills by providing feedback on grammar, writing style, and pronunciation. This will help them in writing assignments, papers, and presentations.

Meanwhile, in the development of innovative projects, PGMI students of Syarifuddin Islamic Institute have utilized Artificial Intelligence to create smarter and more sophisticated solutions. For example, they have used generative models to create creative

content, such as graphic design or music as an indispensable part for the reinforcement of cultural arts subjects. Artificial Intelligence has also helped students save time in completing their academic tasks. With the ability to generate automated text, such as summaries, lecture notes, or document formatting, students can focus on understanding concepts rather than administrative tasks.

Overall, the technological utilization of Artificial Intelligence can help meet the various needs of students in the process of learning, research, and skill development. With wise use, Artificial Intelligence can be a very useful tool in supporting students' education and personal development.

The results of students utilizing Artificial Intelligence can be positive in several significant ways:

1. Improved Quality of Academic Work: With access to data analysis, writing, and processing tools provided by Artificial Intelligence, students can produce higher quality academic work. This can include more informative, better, and more detailed assignments, papers, PTK, R&D, Thesis, and other final projects.
2. Increased Productivity: Students can save a lot of time in their research and assignments by using automation tools provided by Artificial Intelligence. This will allow them to focus more on understanding core concepts and developing critical thinking.
3. Improved Concept Understanding: Through the help of virtual assistants powered by Artificial Intelligence, students can gain a deeper understanding of the learning material. They can ask relevant questions and get clear explanations, which will help them understand difficult concepts.
4. Language Skills Development: Students can use Artificial Intelligence to practice and improve their language skills. This will help them in written and oral communication, which is important in presentations, interviews, and in their professional careers.
5. Innovation and Creativity: Artificial Intelligence allows students to create creative content more easily, such as writing, design, or music. This can stimulate their innovation and creativity, which are valuable assets in various disciplines.
6. Improved Research Efficiency: For students involved in research, Artificial Intelligence can help them save time in collecting data and analyzing findings. This will allow them to accelerate the progress of their research and possibly drive faster discoveries.
7. Automated Research: Students can use OpenAI's data mining algorithms to identify trends and patterns in their datasets. This can speed up the data analysis process and help them find insights that they might have missed with manual methods.

8. Hypothesis Generation: Artificial Intelligence can be used to generate initial hypotheses based on analysis of existing data or literature. This helps students in designing experiments or further studies.
9. Translating Written Sources: For students conducting international research or accessing literature in foreign languages, Artificial Intelligence can be used to translate texts and articles into their native language. This allows them to access more sources and contribute to the scientific literature better.
10. Sentiment Analysis: In research that involves analyzing public opinion or user responses, students can use Artificial Intelligence to identify sentiment in text, such as positive, negative, or neutral. This can be used in marketing research, political science, or other social studies.

But from the many explanations related to the use of Artificial Intelligence above, there are several things that must be considered. One of them is the risk of plagiarism if automation tools are used unethically. Students should also prioritize understanding concepts rather than relying on these tools excessively. In the development of student research, it is also important to remember to maintain academic integrity. Students should ensure that they understand the sources used and adhere to research ethics as well as the policies of Institut Agama Islam Syarifuddin or other Universities related to the use of technology such as Artificial Intelligence.

4. Conclusions

The outcome of utilizing AI for students will depend on how they manage the use of this technology wisely. When used correctly, AI can be a very useful tool to improve the quality of student learning, research, and skill development. For from time to time innovations in technology will always change, for example, the beginning of the calculator In 1642, Blaise Pascal, who was 18 years old at the time, invented what he called a numerical wheel calculator to help his father do tax calculations. The device, called Pascaline, used eight jagged rotating wheels to add numbers up to eight digits. It is certain that for educators, especially math teachers who are not familiar with this tool, it is a kind of boomerang for students, but in reality it is a very useful tool.

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Based on the results of the study, it can be concluded that the outcome of utilizing Artificial Intelligence for students will depend on how they use this technology wisely. When used correctly, Artificial Intelligence can be a very useful tool to improve the quality of student learning, research and skill development. Thus creatively and innovatively students can use Artificial Intelligence quickly, easily and more interestingly. However, it is necessary to

strengthen the capacity of digital literacy for teacher education students so that they are able to answer challenges and take advantage of opportunities in this digital era..

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