

Conference Paper

The Contribution of Machine Learning in the Role of IT Students in Increasing Digital Literacy in North Maluku Society

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ABSTRACT

In their role as change agents, computer science students have superior technical knowledge that can be used to educate the surrounding community. With your expertise in machine learning, you can design innovative applications and learning tools that are adapted to local needs. This step not only facilitates access to technology but also helps increase understanding and practical application of technology in everyday life. The purpose of the study was to see how students can utilize machine learning as a means of digital literacy. The research method used in this study is to use a theoretical basis and interviews with students and the community in North Maluku. The results of this study are the use of machine learning applications such as educational chatbots that help people gain knowledge.

Keywords: Contribution, machine learning, digital literacy

Introduction

In their role as change agents, computer science students have superior technical knowledge that can be used to educate the surrounding community. With your expertise in machine learning, you can design innovative applications and learning tools that are adapted to local needs. This step not only facilitates access to technology but also helps increase understanding and practical application of technology in everyday life. Digital competence is a concept for monitoring students' internet usage (Fajri et al., 2023). In general, it is known that the Internet is a place where all the information in the world can be accessed with one hand. Digital literacy refers to a person's ability to understand digital content (Dewi et al., 2021).

E-learning means continuous learning using mainly electronic media to connect to the Internet (George & Lal, 2019). Predicting the success rate of the result Student learning is a major theme Very interesting in the field of data mining, i.e., the analysis of education and learning. There are several challenges associated with online learning, the most important being the lack of motivation of students to complete learning activities and various learning materials (Hussain et al., 2018).

Predicting students' learning performance is very useful for taking timely action as it can improve learning outcomes (Ofori et al., 2020). With machine learning techniques used to discover patterns or patterns in data and very useful in decision-making, the ability to predict students' learning performance is very important in our current education system. We applied machine learning concepts to this research (Belachew & Gobena, 2017). Machine learning offers advantages over traditional forms of statistical analysis, focusing on predictive performance rather than demonstrable theoretical properties (Al-Shabandar et al., 2017).

The contribution of computer science students to expanding their knowledge of machine learning and its use to support digital culture in North Maluku is very important. Their ability to

How to cite:

Albaar, M., Abdullah, S. D., Fuad, A., & Sirajuddin, H. K. (2025). The contribution of machine learning in the role of IT students in increasing digital literacy in North Maluku Society. *The 8th International Joint Conference on Science and Technology*. NST Proceedings. pages 72-76. doi: 10.11594/nstp.2025.4809

enable a better understanding of technology and develop adaptive solutions can lead to significant changes in the acceptance and use of technology at the local level.

Material and Methods

Digital literacy is the ability to use and exploit digital tools such as computers, laptops, or mobile phones to obtain or transmit information (Sutisna et al., 2020). This explanation is consistent with that of Jones and Hafner (Ayu, 2020), who state that digital literacy is a person's ability to interact, communicate, or find information in their lives through existing interactions in digital media. According to (Dinata, 2021), it is a skill Digital literacy plays a very important role in supporting one's success in participation in online learning. This is quite convenient, especially when you access a variety of information related to the subject

Machine learning is a science that was discovered and developed as a subfield of artificial intelligence in the 1950s. The earliest stages of machine learning date back to the 1950s, but there has been no significant research and development in this science (Cellk, 2018). Machine learning is a scientific field that is part of artificial intelligence (AI), with programming that allows computers to behave intelligently like people can increase their understanding through automatic experience (Kusuma, 2020). Machine learning (ML) is the scientific study of algorithms and statistical models that use computer systems to perform specific tasks without being explicitly programmed, to teach machines to manage data more efficiently (Mahsesh, 2020). Machine learning (ML) or machine learning has been widely used in AI to replace or imitate human behavior to solve or automatically realize problems.

Combining literature review and interview methods, this study aims to provide a comprehensive understanding of the contribution of machine learning to the role of computer science students in improving digital literacy in South Maluku society. The following is a picture of the research flow used.



Figure 1. Research flow

Results and Discussion

Digital literacy encompasses an individual's ability to understand, evaluate, and use information from a variety of digital sources. This includes the ability to use hardware and software, as well as critical skills in assessing information found online. Digital literacy is a very important skill in today's digital era. People who have good digital literacy will be better able to adapt to technological changes and use technology to improve their quality of life. Digital literacy encompasses the skills needed to navigate, evaluate, and create information using digital technologies. Here is an explanation of the seven main elements of digital literacy. as in the following image.

The picture above explains that digital literacy includes the various abilities needed to navigate, evaluate, and create information using digital technology. Basic technical skills needed to use digital devices, software, and platforms. This includes the ability to operate computers, smartphones, and tablets, as well as the ability to use applications and surf the internet. Functional skills are the foundation of digital literacy, enabling individuals to access and utilize digital resources effectively. The ability to create and produce digital content. This includes skills in digital design, video editing, blogging, coding, and other forms of digital expression. It also involves using digital tools to develop new ideas and innovate. Creativity in the digital world empowers individuals to contribute original content, express themselves, and solve problems in new ways. The ability to critically evaluate digital information, sources, and media. This includes assessing the credibility, accuracy, and relevance of digital content, recognizing bias and misinformation, and making informed decisions based on digital information. Importantly, Critical Thinking ensures that individuals can navigate the vast amount of information available online and make good judgments about what they consume and share. The ability to work effectively with others using digital tools. This includes using collaborative platforms, social media, and communication tools to work on projects, share information, and build community. Collaboration increases productivity and innovation, allowing individuals to leverage the collective knowledge and skills of a group. Ability to communicate effectively using digital technology. This involves using a variety of digital platforms to share information, ideas, and opinions, as well as understanding digital etiquette and online communication norms. Effective communication in the digital age is critical for personal and professional interactions, allowing individuals to connect with others and convey their messages clearly. Knowledge and skills to stay safe and secure online. This includes understanding privacy settings, recognizing phishing and other online threats, using secure passwords, and knowing how to report inappropriate content or behavior. Digital security is essential to protecting personal information and well-being in an increasingly digital world, preventing cyberbullying, identity theft, and other online risks. Awareness and appreciation of the cultural and social context of the digital environment. This includes understanding the impact of digital media on society, recognizing issues of digital inclusion and exclusion, and respecting diverse digital perspectives and identities. Cultural and social understanding fosters digital citizenship, encourages responsible and ethical behavior online, and builds more inclusive digital communities. Understanding and developing these seven elements of digital literacy is key to participating effectively and safely in the digital world. They provide a comprehensive framework for measuring and improving digital skills, ensuring individuals can make full and responsible use of technology. Learning can be used for various applications that support digital literacy, such as recommendation systems, educational chatbots, and data analysis. This technology can help individuals understand patterns and information from digital data. Using machine learning, IT students can create tools and platforms that facilitate digital learning. This can include applications that help people learn to use technology or better understand digital information. IT students have an important role in transferring technological knowledge and skills to the community. They can conduct training, workshops, and community projects that focus on improving digital literacy. The direct involvement of IT students in the community can create a significant impact. They not only share technical knowledge but also inspire and empower people to use technology in their daily lives.

IT students have an important role in transferring technological knowledge and skills to the community. They can conduct training, workshops, and community projects that focus on improving digital literacy. IT students' direct involvement in the community can create a significant impact. They not only share technical knowledge but also inspire and empower people to utilize technology in everyday life. The IT students interviewed stated that they use machine learning to develop educational applications and information systems that help people understand digital technology. These projects include mobile applications for online learning and data analysis platforms to help people understand digital trends. These projects show how IT

students apply their knowledge in practical contexts to help society. The use of machine learning in educational applications helps create a more interactive and personalized learning experience. Using online resources and creating simple machine-learning applications is an effective way to support technology education at the community level. Computer science students can also design educational programs, workshops, or machine learning applications tailored to local needs, helping people understand the basic concepts of machine learning and its benefits in everyday life. The following is an image of the use of machine learning as digital literacy.



Figure 3. Utilization of machine learning for digital literacy

Communities participating in the digital literacy program felt helped by the training and applications developed by IT students. They stated that the program improved their understanding of digital technology and their ability to use digital devices. Positive feedback from the community shows that the digital literacy program led by IT students is effective in improving digital skills. This emphasizes the importance of the role of IT students in supporting digital literacy in the community.

IT students and the community identified several challenges in implementing digital literacy programs, including limited access to technology, lack of basic understanding of technology, and resistance to change. These challenges need to be addressed to ensure the success of digital literacy programs. IT students can work with local governments and organizations to provide better access to technology and develop more easily understood educational materials. Programs that use machine learning show positive results in improving people's digital skills. The developed applications and platforms help people learn in a more interactive and personalized way. Machine learning has huge potential to support digital literacy. Through data analysis and personalization, this technology can provide a more effective and efficient learning experience.

With a deep understanding of the concept of machine learning, the role of active IT students, and the context of digital literacy in North Maluku, this approach provides a solid foundation for formulating significant contributions to improving the understanding and use of technology at the local level. The impacts that can be obtained from the contributions of IT students include increased understanding of technology, wider adoption of technology, increased skills and abilities, empowerment of local communities, and long-term impacts in welcoming an increasingly technologically connected future. Thus, the contribution of IT students in improving digital literacy through the use of machine learning has great potential to Improve Digital Literacy in the North Maluku Community.

Conclusion

This study explores the contribution of IT students in utilizing machine learning technology to improve digital literacy in the North Maluku community. Based on the results of the literature study and interviews, several main conclusions can be drawn.

1. A digital literacy program led by IT students has successfully improved the digital skills of the people of North Maluku. Through training, workshops, and applications developed with machine learning technology, people have become more proficient in using digital devices and understanding digital information.
2. Machine learning plays a vital role in creating interactive and personalized educational tools and platforms. Machine learning-based applications, such as recommendation systems and educational chatbots, help people learn in a more engaging and effective way.
3. Collaboration between IT students, communities, and local organizations has created a strong synergy in the digital literacy program. Active participation from various parties ensures that the program is implemented according to local needs and contexts, thus providing a greater impact.
4. Although digital literacy programs have shown positive results, there are several challenges that need to be addressed, such as limited access to technology, lack of basic understanding of technology, and resistance to change. IT students need to continue to innovate and collaborate with stakeholders to overcome these challenges.
5. The impacts include increased understanding of technology, wider adoption of technology, and increased collaboration between academics and the community. Therefore, the contribution of IT students has great potential to bring positive changes in digital literacy in North Maluku.

Acknowledgment

This research would not have been possible without the support and assistance of various parties. With great gratitude, we would like to thank the informatics students in North Maluku and the Informatics Study Program of Khairun University and the Academy of Computer Science who have provided valuable contributions to this research project.

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