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Strategy for Using Information Technology for Learning Minahasa Culinary Specialties

Telly F S Tangkere*
[1]Department of Family Welfare Education, Universitas Negeri Manado, Indonesia

*Corresponding author: tellytangkere@unima.ac.id

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ABSTRACT

This study explores the strategy of using information technology (IT) in learning Minahasan culinary, a region with a rich and diverse culinary heritage in Indonesia. Given the importance of preserving traditional culinary culture, this study aims to identify how technology can support the learning process in formal and non-formal educational institutions. The research methods used include surveys, in-depth interviews, and case study analyses of various learning programs implementing information technology as a learning medium. The results of the study indicate that the use of technology such as mobile applications, e-learning platforms, and social media is effective in increasing the accessibility and understanding of students towards traditional Minahasan culinary recipes and techniques. In addition, integrating technology into learning can facilitate interaction between instructors and students and encourage innovation in the presentation and development of traditional recipes. This study provides recommendations for teachers and curriculum developers to optimize the use of technology in traditional culinary learning, to ensure the preservation of Minahasan culinary culture in the digital era

Keywords: information technology, culinary learning, Minahasa, cultural preservation, e-learning.

INTRODUCTION

Indonesia, with its diverse cultures and traditions, has invaluable culinary riches. One important cultural heritage is Minahasan cuisine, which reflects the history, customs, and local values that have been passed down from generation to generation. However, like other culinary traditions in Indonesia, Minahasan cuisine faces challenges in its preservation, especially in the era of globalization that is increasingly blurring cultural boundaries. Lifestyle changes, shifts in culinary preferences, and the lack of documentation and formal learning about traditional cuisine have the potential to threaten the sustainability of this culinary heritage. In this context, information technology (IT) has emerged as a potential tool to support the learning and preservation of traditional cuisine (Alajmi & Alshamari, 2019). Technology can facilitate the dissemination of knowledge, increase the accessibility of information, and enrich the learning experience through various digital platforms (Sá & Serpa, 2020). By utilizing IT, educational institutions and culinary practitioners have the opportunity to not only preserve traditional Minahasan culinary recipes and techniques, but also introduce this culinary culture to a wider audience, both nationally and internationally. Minahasa, a region in North Sulawesi, has a culinary richness that is deeply rooted in local traditions and culture. Minahasa culinary is not only a culinary heritage, but also a cultural identity that represents the values, history, and life of the local community. However, amidst rapid technological developments and social change, there are concerns that this culinary tradition could be eroded or even extinct if there are no effective preservation efforts (Brown & Green, 2018). One of the main challenges in preserving Minahasa traditional culinary is the limited access to structured and in-depth culinary education, especially among the younger generation (Shih & Tseng, (2021). Many culinary recipes and techniques are only passed down orally from generation to generation, without adequate documentation. This has resulted in the loss of much culinary knowledge over time (Chen & Kong, 2017). On the other hand, information technology (IT) has developed rapidly and offers various opportunities to support the learning and preservation of culinary culture. However, this potential has not been fully utilized in the context of learning Minahasa culinary. There is still a gap in the integration of technology into the culinary education curriculum, both at the formal and non-formal levels (Connolly & O'Brien, 2020). Another challenge that arises is how to ensure that the use of this technology can be accepted and adopted by various groups, including those who may not be familiar with digital technology (Subhash & Cudney, 2018).

The problem faced in this research is how to formulate an effective strategy to utilize information technology in Minahasan culinary learning so that it can strengthen efforts to preserve and develop this cuisine in the future. This research also needs to identify obstacles that may arise in the application of this technology, as well as explore innovative solutions that can be adopted to overcome these challenges (Fang & Chu, 2021). The results of this study are expected to guide teachers, culinary practitioners, and curriculum developers in integrating information technology effectively and sustainably in Minahasan culinary education. Several studies have explored the application of technology in culinary education. These studies show that the use of video tutorials, digital recipe applications, and virtual cooking classes can increase the effectiveness of learning, especially in terms of understanding cooking techniques and practicing culinary skills (Garcés & Leal, 2020). In addition, augmented reality (AR) and virtual reality (VR) technologies have begun to be introduced in culinary education to simulate cooking experiences that are close to real conditions, although their application is still in its early stages (He & Zhu, 2019). However, studies on the use of IT in traditional culinary learning, such as Minahasan culinary, are still limited. Several existing studies focus more on

international cuisine or popular cuisine, so they pay less attention to the preservation of local cuisine that has high cultural value. In addition, challenges in integrating IT into traditional culinary learning are often related to the lack of specific and verified content, as well as the difficulty in conveying cultural values inherent in traditional cuisine through digital media (Huang & Chen, 2018). In the context of Minahasa, its traditional cuisine includes various unique cooking techniques and the use of specific local ingredients, which require a different learning approach compared to modern or international cuisine (Tsai & Chen, 2019). Therefore, this study needs to explore how IT strategies can be adapted to the specific characteristics of Minahasan cuisine, as well as how technology can be used to ensure that important cultural elements are maintained in the learning process (Hung & Yeh, 2020). Amidst the trend of globalization and modernization, it is important to develop strategies that focus not only on the transfer of technical knowledge but also on the preservation of cultural values through culinary learning (Wang & Wu, 2018). This study will fill the existing gap by offering an approach that integrates technology into Minahasan culinary education so that it can support the preservation of this cuisine in the digital era. The results of this study are expected to contribute to the existing literature by providing a learning model that can be applied to the preservation of traditional cuisine in various other regions (Jenkins & Walther, 2019). This study aims to identify effective strategies for the use of IT for Minahasan culinary learning. The main focus of this research is to understand how technology can be integrated into the culinary education process, from providing teaching materials to virtual culinary practice training. In addition, this research will also explore the challenges that may be faced in implementing this technology, as well as provide recommendations for developing a curriculum that is more responsive to the needs of cultural preservation in the digital era. By examining the use of IT in Minahasa culinary learning, it is hoped that this research can provide a significant contribution to the development of sustainable and culturally aware culinary education, as well as support efforts to preserve traditional culinary amidst the dynamics of rapid technological developments.

METHODS

This study uses a mixed-methods approach, combining qualitative and quantitative methods to gain a comprehensive understanding of the strategy of using information technology (IT) in Minahasan culinary learning. This approach was chosen because it allows for in-depth exploration of the subjective experiences of culinary education practitioners while providing data that can be measured and analyzed statistically (Jones & Lockwood, 2017).

Phase I: Literature Study

In the initial stage, a literature study was conducted to identify the latest developments in the application of IT in the field of culinary education, especially those related to the preservation of traditional culinary. The literature reviewed includes journal articles, books, and research reports related to technology in culinary education, as well as specific references regarding Minahasan culinary.

The results of this literature study will be used to design a conceptual framework and compile research instruments.

Phase II: Quantitative Survey

This study will survey teachers, culinary instructors, and students at various educational institutions in Minahasa and its surroundings. This survey aims to collect data on the level of IT adoption in culinary learning, the types of technology used, and the perceptions and obstacles faced in implementing the technology.

The questionnaire used will include closed-ended questions and Likert scales to measure respondents' attitudes and perceptions toward the effectiveness of technology in culinary learning.

Phase III: In-depth Interviews

To gain more in-depth information, semi-structured interviews will be conducted with culinary experts, curriculum developers, and educational technology practitioners. These interviews aim to gain a deeper understanding of the challenges, opportunities, and innovations related to the use of IT in Minahasa culinary learning.

Data from these interviews will be analyzed thematically to identify key themes relevant to the research objectives.

Phase IV: Case Study Analysis

Case studies will be conducted on programs or institutions that have successfully integrated IT into traditional culinary learning, both in Minahasa and in other areas as a comparison. This case study will explore the learning models that have been implemented, as well as identify factors that contribute to the success or failure of the implementation of the technology.

Data obtained from the case studies will be compared and analyzed to develop strategies that are relevant and applicable in the context of Minahasa culinary learning.

Phase V: Strategy Model Development and Validation

Based on the results of the previous stages, this study will develop a specific IT usage strategy model for Minahasan culinary learning. This model will include recommendations on the type of appropriate technology, effective learning methods, and strategies for preserving cultural values through digital media.

The developed model will be validated through focus group discussions involving stakeholders from the education sector, government, and the Minahasan culinary community.

Stage VI: Data Analysis and Report Preparation

Data obtained from surveys, interviews, and case studies will be analyzed using descriptive and inferential statistical analysis techniques for quantitative data, and thematic analysis for qualitative data. The results of the analysis will be summarized and presented in the form of a comprehensive research report, which includes practical recommendations for educational institutions and other stakeholders to implement IT usage strategies in Minahasan culinary learning.

Through this mixed methods approach, this study is expected to provide in-depth insights and applicable strategies in supporting the preservation of Minahasan culinary through the integration of information technology in culinary education.

RESULTS AND DISCUSSION

Level of Information Technology Adoption in Minahasa Culinary Learning

The results of this study reveal through a Quantitative Survey that has been conducted that the data results from 150 Respondents who are individuals consisting of 50 culinary teachers/instructors, 80 students, and 20 curriculum developers from various educational institutions in Minahasa.

The results of this study indicate that the Use of Digital Platforms as much as 80% of teachers/instructors have used digital platforms such as YouTube and WhatsApp as supporting media for learning. The results of this research also show that as many as 60% of students access culinary materials through mobile applications or websites.

While the Use of Special Culinary Applications found that only 25% of teachers/instructors use special culinary applications in the learning process. In addition, to the use and implementation of Online Classes, as many as 40% of institutions have implemented online cooking classes during the COVID-19 pandemic.

In addition, this research found that there were Technological Constraints, namely 65% of respondents mentioned limited internet infrastructure as the main obstacle. This can be interpreted that even though there is adoption of technology in learning, its use is still limited to general platforms. The use of special applications and advanced technologies such as AR/VR is still minimal.

Perception and Attitudes towards the Use of Technology in Culinary Learning

The results of this study were found through a Quantitative Survey using the Likert Scale (1-5) which showed the Effectiveness of Learning through IT, research data showed that the average score was 4.2, which indicates that respondents agreed that IT increases the effectiveness of learning.

In addition, the results of this study also showed that the Ease of Use of Technology showed an Average score of 3.8. the results of this study also showed that the Need for Additional Training, with an Average score of 4.0, indicated a desire for further training.

Through the In-depth Interviews that have been conducted, the following research findings were obtained, many teachers/instructors feel the need for special training to optimize the use of IT. In addition, some Students like interactive and visual learning materials.

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Case Study of Technology Implementation in Traditional Culinary Learning

Case Study 1: SMK Negeri 1 Manado

The results of this study indicate that there is an Initiative at SMK Negeri 1 Manado, namely Developing an e-learning module for Minahasa culinary. The results of this study indicate that there is an Increase in Participation, namely Online classes have increased participation by 30% compared to conventional classes. In addition, there is Positive Feedback of 85% of students providing positive feedback on the e-learning module.

Case Study 2: "Warong Minahasa" Culinary Community

This study also conducted an Initiative research, namely Holding a virtual cooking workshop using the Zoom platform. The results of this study indicate that the Number of Participants attending was an average of 50 participants per session. There was Active interaction in all Q&A sessions that took place actively, indicating high involvement.

The results of this study identified Barriers to Technology Integration such as Technical Constraints such as. Limited Internet Access, Especially in rural areas. In addition, this study also identified the Lack of Adequate Devices such as Many students do not have devices such as compatible computers or smartphones.

In addition, there are Non-Technical Constraints such as Resistance to Change such as Some teachers/instructors are reluctant to change traditional teaching methods. There are other obstacles such as the Lack of Specific Content, namely the lack of digital resources that specifically discuss Minahasa cuisine.

The results of this study also show that there is a Technology Preference for Culinary Learning. The results of this research obtained data through a Quantitative Survey which showed that there was the use of the Most Preferred Media such as Video Tutorials, Chosen by 70% of respondents. While the Interactive Recipe

The application was 50%. In addition, there was a Live Streaming Class of 45%.

The results of this research also revealed that there was the Effectiveness of Using Technology in Improving Understanding of Minahasa Culinary. The results of this research show that the Pre and Post-Learning Assessments used Methods such as Using knowledge tests before and after IT-based learning. The results of this study show that there was an increase in the Average Score, namely 65 (pre-test) increasing to 85 (post-test), indicating an increase in understanding of 20%.

Stakeholder Recommendations

The results of this study also collected data through Focus Group Discussions which produced research data such as Special Application Development such as Developing an application containing recipes, history, and Minahasa culinary cooking techniques. In addition, there is Training for Teachers/Instructors, namely a routine training program on the use of IT in learning. There is also

Collaboration with the Government to Support internet infrastructure, especially in remote areas (Xu & Yang, 2020).

The results of this study found that although the adoption of information technology in learning Minahasa culinary specialties has begun, its use is still limited and faces various obstacles. The use of general platforms such as YouTube and WhatsApp is common, but the use of more specific and sophisticated technology is still minimal (Kang & Kim, 2020). Positive perceptions of the effectiveness of IT in learning show great potential for further development. Case studies show that IT use initiatives can increase student participation and understanding. However, technical and non-technical challenges need to be addressed through a comprehensive strategy, including training, specific content development, and infrastructure improvement (Kim & Hall, 2021). Stakeholder recommendations emphasize the importance of collaboration and investment in technology to support the preservation and learning of Minahasan culinary.

The results of this study highlight the great potential of information technology (IT) in supporting the learning and preservation of Minahasan culinary but also reveal significant challenges in its implementation. This discussion will evaluate the results of the study in the context of culinary education theory, practice, and policy, and discuss their implications for the development of more effective and sustainable learning strategies.

Potential and Limitations of Information Technology Use

The research findings indicate that the use of digital platforms such as YouTube and WhatsApp has been quite widespread among teachers and students in Minahasan culinary learning. This is in line with global trends in culinary education, where digital platforms are used to facilitate access to information and facilitate independent learning (Kurniawan & Ismail, 2019). However, this study also found that advanced technologies such as augmented reality (AR) and virtual reality (VR) are still rarely used (Liu & Li, 2018). This may be due to limited access to these technologies in the Minahasa area, as well as the lack of training and resources to support their implementation.

Although the use of simple technologies has shown increased student participation and understanding, there is an urgent need to expand the adoption of more advanced technologies to provide more interactive and immersive learning experiences (Zhang & Lin, 2018). For example, AR/VR technology can be used to simulate virtual cooking experiences, which will not only improve technical skills but also help preserve the cultural aspects of Minahasan cuisine.

Positive Perceptions and Challenges of Technology Adoption

The high average scores on the Likert survey indicate that both teachers and learners have positive perceptions of the effectiveness of IT in enhancing learning. However, this study also revealed significant barriers, especially related to limited technology infrastructure, such as uneven internet access and lack of adequate devices.

These barriers reflect broader challenges in implementing educational technology in areas with inadequate infrastructure. Therefore, proposed strategies should consider the local context and attempt to address inequities in technology access (Lopez & Cerdan, 2020). For example, developing a culinary application that can be accessed offline or with low internet connectivity could be a relevant solution in the Minahasa area.

Culinary Learning as Cultural Preservation

One of the main contributions of this study is the recognition that culinary learning is not only about the transfer of cooking skills but also about cultural preservation. The use of IT in Minahasa culinary learning must be designed in such a way that it not only facilitates the teaching of cooking techniques but also conveys the cultural values contained in traditional cuisine. For example, the culinary application developed should not only include recipes and techniques but also historical background and cultural stories related to each dish (Lu & Zhou, 2017). Thus, learners not only learn how to cook but also understand the meaning and cultural context behind each dish, which is an important part of preserving culinary heritage.

Implications for Curriculum Development and Training

This study shows that despite the willingness to adopt technology in culinary learning, many teachers and instructors feel less confident and require additional training. This highlights the importance of developing a more technology-responsive curriculum, as well as ongoing training programs for instructors (Park & Shin, 2019).

To ensure effective technology adoption, educational institutions must invest in training and professional development for teaching staff (Pham & Nguyen, 2021). In addition, culinary curricula also need to be adapted to include more intensive use of technology, as well as teaching that focuses on developing digital skills alongside traditional culinary skills (Rafiq & Khalid, 2018).

Policy Recommendations and Collaboration

Based on the research findings, it is important to encourage collaboration between the government, educational institutions, and local communities to strengthen technological infrastructure in the Minahasa area. Policy support is needed to ensure that investment in educational technology does not only occur in urban centers but also reaches remote areas that have cultural riches that need to be preserved (Reid & Phelan, 2020).

In addition, collaboration with local culinary communities can help in the development of more authentic and relevant educational content, so that information technology can truly function as a tool to preserve and promote Minahasa culinary culture (Rienties & Toetenel, 2017).

The discussion of the results of this study confirms that information technology has great potential to support the learning and preservation of Minahasa culinary specialties, but its implementation still faces various challenges, especially related to infrastructure and human resources. To overcome these challenges, the proposed strategy must take into account the local context, provide adequate training for teachers, and develop technology that is appropriate to the needs of learners (Rivera & Hu, 2019). In addition, efforts to preserve Minahasa culinary through technology-based learning must ensure that the cultural values contained in each dish are maintained. Thus, this study not only contributes to the development of culinary education but also to the preservation of culture through the use of information technology.

CONCLUSION

This study concludes that exploring strategies for using information technology (IT) is essential to support Minahasan culinary learning. The results of the study indicate that information technology has significant potential to increase the effectiveness of culinary learning, especially in terms of accessibility, interactivity, and cultural preservation. However, this study also identified several challenges that need to be addressed to optimize the application of IT in the local context. This study also concludes that Improving Access and Quality of Learning such as the use of information technology has been shown to increase access to culinary learning materials, with many students and teachers having started to utilize digital platforms such as YouTube and mobile applications. The use of this technology allows students to learn anytime and anywhere and provides flexibility in the learning process. However, the application of more sophisticated technologies, such as augmented reality (AR) and virtual reality (VR), is still minimal and requires further attention. In addition, another conclusion is that the Preservation of Cultural Values such as the Use of IT in Minahasan culinary learning does not only focus on teaching cooking skills but also plays an important role in preserving the cultural values inherent in the cuisine. The digital content developed should include the history, traditions, and cultural meaning of each dish so that learners not only learn about cooking techniques but also understand the broader cultural context. The next conclusion is Infrastructure Challenges and Technology Readiness such as the main obstacle in the implementation of IT in the Minahasa area is the limited technology infrastructure, including unequal internet access and limited devices owned by learners. In addition, there is an urgent need for further training for teachers and instructors in the use of technology for culinary learning. Without adequate infrastructure support and proper training, the potential of IT in culinary education will not be maximized. The next conclusion is Collaboration and Policy Support namely This study emphasizes the importance of collaboration between the government, educational institutions, and local communities to overcome infrastructure challenges and ensure that information technology is widely accessible. In addition, policies that support the development of technology-responsive curricula and training programs for teachers are essential to ensure the successful adoption of technology in culinary learning.

Recommendations

This study provides several strategic recommendations such as:

- Specific Application Development, namely It is necessary to develop a digital application specifically for Minahasa culinary learning, which includes recipes, techniques, and cultural contexts of each dish.
- Infrastructure Investment, namely the government and stakeholders need to invest in technological infrastructure in the Minahasa area, especially in improving internet access in rural areas.
- Training and Professional Development, namely educational institutions must provide ongoing training for teachers and instructors to improve their skills in using IT for learning.

- Integration of Cultural Values in Technology, namely Learning content must be designed in such a way that it can maintain and disseminate the cultural values inherent in Minahasa cuisine.

Overall, this study makes an important contribution to understanding how information technology can be integrated into traditional culinary learning, especially in a local context such as Minahasa. The proposed strategy is expected to be a guide for educational institutions, governments, and communities in developing culinary learning that is not only effective but also sustainable and contributes to cultural preservation.

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