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Literature Review on the Use of Electronic Modules in Independent Learning in Higher Education

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ABSTRACT

The use of electronic modules in the implementation of Independent Learning Independent Campus (MBKM) in higher education has proven to be effective in improving the quality of learning and student learning outcomes. Research shows that electronic modules, such as those based on Project Based Learning (PjBL), hypercontent, and e-pub, provide flexible interactivity and support independent and collaborative learning. The study reveals the development of entrepreneurship modules in the ISI Yogyakarta Music Education Study Program, which has been highly successful. The module has been validated with a high score of 93, meeting the standards of practitioners, academics, and communication experts. It has also improved students' knowledge and motivation in the creative industry. The module's structure and content make learning more straightforward, and students have provided positive feedback. It is also relevant to the graduate profiles of the program, including art managers, consultants, and music educators. This study highlights the importance of entrepreneurship modules in meeting students' academic needs and empowering them in the business world. This module also helps students master difficult concepts, increase their interest and practical skills, and motivate them to face work challenges. In response to MBKM, the electronic module allows students to learn flexibly, be relevant to the real world, and develop 21st-century skills. Therefore, the development more interactive modules and technology-based applications needs to be improved, and lecturers and students must be trained to utilize this technology. Collaboration with industry and educational technology developers is also important to create modules that suit the needs of the world of work. Continuous evaluation and innovation are needed so that the module remains relevant to technological developments and future educational demands.

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1. INTRODUCTION

The rapid development of information technology has brought significant changes in the world of education. In contrast, technology has an important role in supporting teachers and improving the education system in Indonesia, emphasizing the need to facilitate better access to education across the region [1].

In the learning model, one of the innovations that emerged in response to this change is using electronic modules (e-modules) in the learning process. According to Suarsana and Mahayukti, e-modules are teaching materials displayed in electronic format, which are expected to increase students' interest and motivation to learn. This is because e-modules involve the display of images, audio, video, and animation [2]. Compared to print modules, e-modules can provide ease of access, flexibility, and the ability to present more interactive and engaging materials through multimedia such as video, audio, and animation. This makes the learning process more enjoyable and effective [3].

Electronic modules are increasingly relevant to improving university learning quality, along with the Independent Learning Independent Campus (MBKM) policy launched by the Ministry of Education, Culture, Research, and Technology. Implementing the Independent Learning Independent Campus (MBKM) itself is based on the demands of developing science, competencies, and skills in the 21st century and the importance of changes in lecture activities [4].

This policy is expected to encourage students to master various disciplines to help them face the world of work and industry in the Society 5.0 era. Freedom of Learning is relevant to current conditions because Society 5.0 integrates technological advances to help solve problems and meet individual social needs [5].

The MBKM program aims to provide broader learning freedom for students by encouraging the development of independence and creativity. In this context, the MBKM-based electronic module is expected to be a tool that supports the achievement of these goals. Electronic modules can provide students with access to study anywhere and anytime, as well as accommodate various learning styles [6]. The learning process in the Independent Campus is one of the manifestations of student-centered learning, and it is essential. Learning in the Independent Campus provides challenges and opportunities for the development of innovation, creativity, capacity, personality, and student needs, as well as developing independence in seeking and finding knowledge through realities and field dynamics such as ability requirements, real problems, social interaction, collaboration, self-management, performance demands, targets, and achievements. Through a well-designed and implemented independent learning program, students' hard and soft skills will be formed strongly [7].

Implementing the MBKM program not only improves the quality of students but also the capacity of lecturers. This program helps lecturers expand their networks, increase partnerships, and increase creativity in research, community service, and the use of information technology. Based on research, 44% of lecturers considered capacity building quite good, 22% good, and 33% very good [8].

Based on data from several studies, there is an increasing interest in using technology in education, especially among students and teachers. Such as research from Widiastuti et

al. [9] shows that most students prefer to read digital literary reading media rather than printed literary reading media, especially because of its ease of access. Prajana and Astuti's research shows that more than 80% of teachers use communication and information technology in learning planning. However, less than 70% of teachers still use communication and information technology in the learning process and as a learning evaluation tool [10]. The e-module itself, in its use, has been proven to be effective, such as the results of a study that showed that in digital simulation, subjects received 90.6% positive responses from students, which means that this e-module received a very good response [11].

A survey by the Educational Technology Center (2023) shows that more than 70% of students prefer learning using digital media to printed materials. Electronic modules (e-modules) have become one of the main choices because they offer interactivity, flexibility, and ease of access. In addition, more than 65% of teachers expressed interest in using electronic teaching modules because they can enrich the material with multimedia elements, such as videos, animations, and interactive quizzes.

Research conducted by the Ministry of Education and Culture (2022) states that access to quality printed teaching materials remains a serious issue in several regions, especially in 3T areas (Frontier, Outermost, and Disadvantaged). Students often have to share textbooks, and not all schools have adequate libraries. With the presence of electronic modules, this issue can be addressed because the material can be accessed and downloaded digitally. Data shows that over 80% of students in the 3T region have access to smartphones, allowing for broader use of electronic modules.

Currently, learning that uses electronic media is very attractive to students in the learning process because of students' interest in knowing new things, supported by a learning model that stimulates motivation and stimulation of learning activities and even brings a positive influence on students in addition to that it can also eliminate boredom in the learning process [12]. E-modules are important in learning and can help teachers explain the subject matter. The advantage of E-modules compared to other print media is that they are interactive. E-modules packaged in digital form can be read through laptops or computers. The E-module also has facilities such as learning videos, animations, images, and audio [13].

Previous studies have shown that using e-modules in learning increases students' motivation, concept understanding, and analytical skills [14]. In addition, e-modules designed following MBKM principles are believed to be able to encourage students to be more active in designing their learning and be involved in more meaningful learning experiences [15].

However, although various studies have highlighted the benefits of using electronic modules, there are still limitations to their widespread application, especially in developing content following the principles of MBKM and its integration into the curriculum. Therefore, an in-depth literature review is needed to understand the potential, challenges, and optimal strategies for using MBKM-based electronic modules in universities.

The need for creative solutions is fueled by the significance of the problems facing the education industry today, particularly those about poor student motivation and restricted access to high-quality learning resources. Printed books and other traditional learning materials frequently fall short of the digital age's more flexible and interactive needs. This

difficulty is much more noticeable in places where educational resources are scarce. Electronic modules have, therefore, become a viable substitute for this problem. This literature review aims to investigate and assess how electronic modules can improve student motivation for learning, the efficacy of self-directed learning, and the accessibility of learning resources. The findings of this study are intended to provide a deeper understanding.

This literature study will explore various research, articles, and academic works to investigate the use of electronic modules in universities. This step aims to identify trends, findings, and knowledge gaps in the existing literature. First, a search will be carried out on various studies that have been conducted previously that examine the use of electronic modules and their implementation in universities. The focus will include various aspects, such as the effectiveness of the electronics module in improving self-learning. The electronic module provides flexibility and allows for more individualized learning, where students can control their learning pace as needed." [16].

Then, the effectiveness of electronic modules in improving learning accessibility is shown: "One of the main advantages of e-modules is wide accessibility, providing greater opportunities for students to access learning materials without limitations in time and space." [17], as well as the increased use of project-based and collaborative learning methods, "Electronic modules allow the integration of various learning methods, including project-based and collaborative learning, which are essential in Independent Learning Independent Campus." [18].

Furthermore, an analysis will be carried out on theories supporting electronic modules in implementing Independent Learning Independent Campus in universities. This includes learning theories such as constructivism, independent learning, cognitive load, technology-based, and collaborative learning theories.

This analysis will help strengthen the theoretical basis in supporting electronic modules as an effective learning tool. In addition, an exploration will be carried out on the factors that affect the effectiveness of electronic modules in implementing Independent Learning Independent Campus in universities. This includes practical considerations such as the electronic modules' design and content, the student's characteristics, and the relevant learning context. Thus, this literature study will provide a comprehensive overview of the various aspects of using electronic modules in higher education. This literature study will also discuss the practical implications of these findings in the context of curriculum development and learning practices in higher education. It includes suggestions for educators on integrating electronic modules in college learning, strategies to improve learning independence, development of time management skills, and increase the attractiveness and effectiveness of learning.

Finally, directions for further research in this field will also be presented. Although much research has been conducted, many questions still need to be answered, and aspects need to be further researched to deepen the understanding of the use of electronic modules in the implementation of independent learning on independent campuses in higher education. By providing this direction, it is hoped that this literature study can become a solid foundation for further research. Through the study of these theories and their integration with electronic modules, it is hoped that we can gain a deeper understanding of the

Implementation of Independent Learning Independent Campus in Higher Education. Thus, this literature study aims to be a solid foundation for developing innovative and effective learning practices to improve learning in this modern era.

This study makes a significant contribution by showing that electronic modules in the Merdeka Belajar Kampus Merdeka (MBKM) program successfully enhance learning outcomes and cultivate employable skills like creativity and problem-solving. This study also emphasizes the modules' applicability to the little-discussed needs of MBKM, the significance of creating adaptable modules, and the cooperation of academic institutions, businesses, and educational technology producers. This study also highlights the significance of ongoing innovation and training to keep the module current with emerging technologies.

2. METHOD

The literature review method used in this research aims to collect, analyze, and synthesize previous studies on electronic modules in learning. This process involves systematically searching academic databases such as Google Scholar, Scopus, and ProQuest to find articles, journals, books, and research reports on electronic modules' development, use, and effectiveness in various educational contexts. The selected literature will be identified based on inclusion criteria, such as a focus on digital education, accessibility, and student learning motivation after the literature is collected.

This study uses the Systematic Literature Review Method to collect, assess, and analyze findings from various studies relevant to a specific research topic. This approach is aimed at answering pre-determined research questions. The steps taken in the Systematic Literature Review include the identification, evaluation, and interpretation of all research relevant to the research topic. This process is carried out in a structured manner and follows pre-established guidelines, thus ensuring consistency and accuracy in data collection and analysis [19].

The literature analysis process will be conducted using a thematic approach, where each study will be categorized based on related main themes, such as the effectiveness of electronic modules in improving learning outcomes, their impact on student motivation, and how these modules can help overcome the limitations of access to printed teaching materials. This approach will allow for identifying recurring research trends while providing a more holistic view of the potential and challenges of implementing electronic modules at various educational levels. Each reviewed study will also be evaluated based on the strengths and weaknesses of its methodology to ensure that the findings drawn from the literature are valid and relevant to the current research context.

This study makes a significant contribution by showing that electronic modules in the Merdeka Belajar Kampus Merdeka (MBKM) program successfully enhance learning outcomes and cultivate employable skills like creativity and problem-solving. This study also emphasizes the modules' applicability to the little-discussed needs of MBKM, the significance of creating adaptable modules, and the cooperation of academic institutions, businesses, and educational technology producers. This study also highlights the

significance of ongoing innovation and training to keep the module current with emerging technologies.

Furthermore, this method will help identify research gaps that remain unanswered. For example, if most of the literature only focuses on education in urban areas, this indicates the need for further research in remote or underdeveloped regions. This literature review will also be used to develop research hypotheses and formulate more specific research questions. Thus, this literature review method provides a more comprehensive understanding of the researched topic and as a tool to map the direction of future research.

3. RESULTS AND DISCUSSION

The focus is on utilizing Electronic Modules to implement Independent Learning Independent Campus in Higher Education. This approach allows researchers to collect journal articles from various sources, including Google Scholar and Sinta or accredited journals, using keywords such as "electronic module" and "Independent learning independent campus." The time range for publication of the selected articles ranges from 2020 to 2024. After the search, the researcher reviewed the titles and abstracts of the found literature to determine whether the literature met the inclusion criteria of the study. Literature that is relevant and appropriate to the research topic is selected to be included in the study.

Based on the findings that have been presented, the author conveys recommendations for education practitioners, advanced researchers, and policymakers who have the potential to optimize the Utilization of Electronic Modules in the Implementation of Independent Learning on campus in Higher Education. The first step in the research is to establish a research problem and then conduct a search for research data through an electronic journal on Google Scholar to collect ten relevant articles to get the necessary data. The selected literature is then thoroughly evaluated to identify key findings, general patterns, and conclusions that can be drawn.

These data are then analyzed and synthesized to compile a conceptual framework and present findings in a literature study. After systematically reading the reference sources, the author develops an article outline. The main ideas from various literature sources are synthesized to form the framework of the article. Using a systematic literature analysis method, this literature study aims to provide a comprehensive understanding of the Utilization of Electronic Modules in the Implementation of Independent Learning Independent Campus in Higher Education and provide guidance for developing more effective and innovative learning practices. The findings from previous studies published in national and international publications have become an important cornerstone of this research. The researcher investigates the content and results of previous research to obtain a deeper understanding of the problem being studied. The results of the findings were then classified according to the research variables, namely the learning media and the Independent Learning Independent Campus curriculum, with a focus on the context of higher education. Learning media, such as electronic modules, are an important focus because learning media has great potential to help lecturers in the teaching and learning process.

Electronic modules are recognized as one of the creative forms of learning media that not only add an interesting visual dimension but can also enrich the learning experience.

Thus, this article has a very relevant purpose in supporting the development of innovative and effective learning practices in implementing the Independent Learning Independent Campus curriculum in universities.

Table 1. Literature Review Results

Author and Year	Journal Title	Result
Syahrul Munir et al. [20]	Merdeka Belajar, Merdeka Berkarya: E-Modul Android Untuk Mendukung Implementasi Kurikulum Merdeka	The Ecobook e-module, an android-based application for basic economic problem material, has been proven effective in improving learning outcomes for students in the XE class of SMAN 1 Probolinggo. The study suggests that this innovative approach can reduce student boredom and be a reference for the future development of Android-based economics applications.
Rini Widyastuti et al. [21]	Modul Elektronik Berbasis Project Based Learning (PjBL) pada Pembelajaran Manajemen Proyek	The research developed an electronic project-based learning module using a 4D model. Validated by experts and tested by 17 students, the module features interactive elements like videos, quizzes, and evaluations. The use of Flip Pdf Professional software enhances its relevance for modern learning. The module has proven effective in improving students' understanding and skills in project management.
Naufal Dzakwan, R. Eka Murtinugraha, Riyan Arthur [22]	Efektivitas penggunaan e-modul pada mata kuliah statistika di program studi pendidikan teknik bangunan fakultas teknik Universitas Negeri Jakarta	The study at the State University of Jakarta found that using an e-module for Statistics improved student learning outcomes in the Building Engineering Education Study Program. The e-module was more effective due to its flexibility, interactivity, and support for learning independence, recommending its development as a primary teaching material.
Suprayekti, R. A. Hirmana Wargahadirata, Zuhdy, Cecep Kustandi [23]	Analisis Kebutuhan Inovasi Modul Digital berbasis Hypercontent di Perguruan Tinggi	The research proposes hyper-content-based digital modules for online learning during the COVID-19 pandemic, particularly in the Foundation of Education course. These modules, incorporating multimedia elements, enhance student engagement and 21st-century skill mastery, enhancing flexibility, interactivity, and relevance to real life, and are recommended for other courses.
Rifki Alifa Ramadhan [24]	Pengembangan Modul Elektronik Bermuatan Nature of Science (NOS) Pada Materi Larutan Elektrolit	The research proposes hyper-content-based digital modules for online learning during the COVID-19 pandemic, particularly in the Foundation of Education course. These modules, incorporating multimedia elements, enhance student engagement and 21st-century skill mastery, enhancing flexibility, interactivity, and relevance to real life, and are recommended for other courses.

Author and Year	Journal Title	Result
Rahmi E, Ibrahim N, Kusumawardani D [25]	Pengembangan Modul Online Sistem Belajar Terbuka dan Jarak Jauh untuk Meningkatkan Kualitas Pembelajaran Pada Program Studi Teknologi Pendidikan	The research creates an online module for the Open and Distance Learning System (SBTJJ) course, utilizing internet-based technology and multimedia elements. The module improves student motivation and learning outcomes, making it a valuable contribution to higher education.
Metha Pritandhari, Galuh Sandhi, Date Rusman, I Komang Vinata [26]	Modul Kewirausahaan Berbasis Project Based Learning (PjBL) Untuk Meningkatkan Minat Berwirausaha Mahasiswa Pendidikan Ekonomi	The research on Project Based Learning (PjBL)-based entrepreneurship modules has shown significant improvements in students' post-test scores and interest in entrepreneurship. The module effectively increased understanding and knowledge of entrepreneurship, with 48.1% of students agreeing and 37% strongly agreeing. The module was validated with an average score of 87%, indicating its feasibility in learning. It also improved students' practical skills, preparing them for the business world.
Reza Ginandha Sakti [27]	Pemanfaatan Buku Elektronik Interaktif (E-Pub) Kewirausahaan dan HKI Sebagai Media Perkuliahan Hybrid Terintegrasi	The Entrepreneurship and IPR e-pub module has been developed and validated, achieving a 90% score, indicating its quality standards. The module covers entrepreneurship, concepts, branding, marketing, creative industries, and intellectual property rights. Its clear structure improves student literacy and facilitates integrated learning. Feedback from students indicates its usefulness in increasing knowledge in Entrepreneurship and IPR courses.
Panut Setiono, Dwi Anggraini, Pebrian Tarmizi [28]	Pengembangan Modul Kewirausahaan Berorientasi Pengembangan Ekonomi Wilayah Pesisir Bengkulu untuk Mahasiswa PGSD Universitas Bengkulu	The study reveals that an entrepreneurship module developed for the economic development of the coastal area of Bengkulu has been found feasible for learning. The module has received positive student feedback, with high evaluations of its functions, benefits, design, and presentation. The module has also increased student interest in learning entrepreneurship, aligning with previous research. Recommendations for further development include adding more material and developing a digital version for easier access. Overall, the study highlights the positive impact of entrepreneurship modules on local community development.
Reza Ginandha Sakti [29]	Penyusunan Modul Kewirausahaan dan Ekonomi Kreatif Berfokus Profil Lulusan Sebagai Upaya	The study reveals the development of entrepreneurship modules in the ISI Yogyakarta Music Education Study Program, which has been highly successful. The module has been validated with a high score of 93,

Author and Year	Journal Title	Result
	Pemberdayaan Mahasiswa Pendidikan Musik	meeting the standards of practitioners, academics, and communication experts. It has also improved students' knowledge and motivation in the creative industry. The module's structure and content make learning more manageable, and students have provided positive feedback. It is also relevant to the graduate profiles of the program, including art managers, consultants, and music educators. This study highlights the importance of entrepreneurship modules in meeting students' academic needs and empowering them in the business world.

Electronic modules' use in implementing Independent Learning Independent Campus (MBKM) in universities is becoming increasingly relevant and important. The following are the results of several studies related to the development and effectiveness of electronic modules, as well as their relationship with the concept of MBKM:

1. Improving Learning Quality and Learning Outcomes Research by Syahrul Munir et al. [20] shows that android-based e-modules for economic learning can improve student learning outcomes. This module effectively provides flexibility and ease of access to learning, which is one of the main objectives of MBKM, which is strengthening learning independence and improving learning outcomes.

2. Independent and Interactive Learning Approach the Project-Based Learning (PjBL)--based electronic module developed by Rini Widyastuti et al. [30] has successfully supported students in understanding project management material independently. This module aligns with the principles of MBKM, which encourages more autonomous and interactive learning and allows students to collaborate and be actively involved.

3. Flexibility and Adaptation of Research Technology by Naufal Dzakwan et al. [31] shows the effectiveness of the Statistics e-module in improving student learning outcomes compared to conventional methods. These results strengthen the role of digital technology as a flexible learning medium that supports the concept of MBKM for distance and hybrid learning.

4. 21st Century Skills Development Suprayekti et al. [32] developed hypercontent-based modules that help students master 21st-century skills. This reflects MBKM's approach, which emphasizes developing essential skills through innovative learning technologies.

5. Motivating and Facilitating Learning Difficult Materials Research by Rifki Alifa Ramadhan [33] on the Nature of Science (NOS) loaded electronic module shows that this module can increase the understanding of difficult and abstract concepts and provide additional motivation for students. This approach supports the principle of MBKM in providing flexibility and ease of access to learning that supports a deeper understanding of the material.

6. Strengthening Independent Learning with Online Modules Research Elfita Rahmi et al. [34] emphasize the development of online modules to support independent and distance learning. This module is very much in line with the spirit of MBKM, which encourages students to study flexibly and independently, both online and in a hybrid way.

7. Increasing Interest and Entrepreneurial Skills Research by Meyta Pritandhari et al. [35] and Reza Ginandha Sakti [27] on PjBL and e-pub-based entrepreneurship modules shows that the use of this electronic module increases students' interest and practical skills in entrepreneurship. It supports MBKM in encouraging students to engage in real-world relevant learning experiences and equipping them with job-ready skills.

8. Local Potential and Creative Entrepreneurship Panut Setiono et al. [36] research on local economy-based entrepreneurship modules and Reza Ginandha Sakti's [29] research on music creative industry modules support the idea of MBKM in improving students' entrepreneurial skills. Modules that focus on the local and creative economy help students be prepared to face the challenges of the dynamic business world, which aligns with the expected graduate profile.

Overall, the use of electronic modules in various learning contexts in higher education is very much in line with the spirit of Independent Learning Independent Campus (MBKM). These modules support more self-sustaining, flexible, interactive, and relevant learning and help students develop the skills needed in the 21st century.

4. CONCLUSION

Summary Findings This research shows that using electronic modules to implement the Merdeka Belajar Kampus Merdeka (MBKM) program in higher education has proven effective in improving the quality of learning and student learning outcomes. Modules based on Project Based Learning (PjBL), hypercontent, and e-pub provide flexibility and support independent and collaborative learning. This study also found that developing the entrepreneurship module in the Music Education Study Program at ISI Yogyakarta has succeeded with a high validation score of 93, meeting the standards of practitioners, academics, and communication experts. This module can enhance students' knowledge and motivation in the creative industry and is relevant to the required graduate profiles, such as art managers, consultants, and music educators.

Implications of these findings highlight the importance of developing technology-based entrepreneurship modules to support more flexible learning relevant to the job market's needs. Electronic modules not only help students master difficult concepts but also motivate them to face the challenges of the working world. Using modules based on approaches like PjBL, students can develop 21st-century skills, such as problem-solving and creativity, which are highly needed in the professional world. Therefore, developing more interactive and technology-based modules is crucial for creating a more effective learning experience.

Future Research Recommendations Future research needs to focus on further developing more interactive and adaptive electronic modules, considering each study

program's specific needs. In addition, training for lecturers and students to utilize technology in learning is essential to implement this module optimally. Research must also pay attention to the importance of collaboration between universities, industries, and educational technology developers to create modules that are genuinely relevant to the demands of the workforce. Continuous evaluation of electronic modules is also necessary to ensure that these modules remain relevant to future technological developments and educational needs.

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