



Implementation of Information and Communication Technology in Management Learning System During the Covid 19 Pandemic

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Abstract

This study examines the use of information technology in the management system of Indonesian higher education institutions. This could have been more optimal and evenly distributed in terms of hardware and management. This study is an international journal study. Input resource findings include visualizers/document cameras, computers, whiteboards, student-ready systems, and application programs. Output resources include projectors, interactive whiteboards, and displays. monitor, television, etc. Finally, other ICT devices include digital cameras, switchers, digital recorders, and other innovations. In short, inequalities in the infrastructure supporting the application of this technology in education and the need for better preparedness of human resources for the use of information and communication technologies in learning.

Keywords: Information Technology, Communication, Learning Management

1. Introduction

Since the current learning system is a face-to-face class that requires online [1], changes in education are required to keep up with changes in the world's condition and Indonesia's threat from the Corona-19 Virus Pandemic. It's "online" using this system. utilizing online technology. An information system is a group of pieces working together to accomplish a single purpose. It consists of a number of interconnected parts that work together to build a small-scale work network [2]. Therefore, in this age of globalization, the development of information and communication technology has spread, and it has permeated various aspects of human life, including the world of education in Indonesia and other countries[3]. Education systems around the world are under tremendous pressure from Information and Communication Technology (ICT). This is because technological developments offer great opportunities to develop teaching management and learning processes in higher education institutions[4].

ICT is a multimedia learning system (technology that includes text, images, sound, and video) that can make the presentation of the subject matter interesting, not monotonous, and easy to digest[5]. This important and strategic role as a learning center, cultural center and cultural center requires the ability of educational institutions to develop transparent and extensive learning activities. But remember that ICT is only a tool in the learning process. According to UNESCO, the use of his ICT in the education system has five benefits: 1) promoting and expanding access to education; 2) improving equity in education; 3) improving the quality of learning; 4) improving teacher professionalism[6].



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UNESCO experts recommend that all countries know and understand the magnitude of the benefits of ICT education, especially in developing countries. Increase the resources needed for the development of ICT in various educational policies, strategies and activities. Most countries now emphasize the learning and use of information and communication technology as the core of their education system[7]. In Indonesia, under the National Medium Term Development Plan (RPJM) 2020-2024, the fourth priority of the Ministry of Education and Culture is highlighted as technology development[8]. According to the minister, the purpose of this technology is to help everyone in the system to do their job better[9]. A good service Ministry of Education and Culture is one thing to do. Information and communication technology (ICT) development is carried out, among other things, through the use of information and communication technology in the field of education[10]. The role of ICT as a subject, learning materials, training institutions, qualification standards, training management support, tools for training unit management, and training infrastructure[11].

In connection with the above, the use of ICT in educational institutions is getting more and more attention. Even in the 2013 curriculum, ICT is essential in implementing learning. The 2013 curriculum explains that learning is based on the principle that everyone is a teacher, everyone is a student, and everywhere is a class[12]. Therefore, using information and communication technology is very important for the effectiveness and efficiency of learning[13].

ICT in learning can play two roles: (1) As a learning presentation medium. For example, in the form of PowerPoint slides or animations using the Flash program. (2) as an independent learning medium or e-learning, students perform tasks such as reading the Internet, searching information sources, submitting answers to tasks, trying out and working with learning materials; Given. With online learning, learning is no longer limited by space and time. Learning can be done anytime, anywhere [14]. It encourages students to analyze and synthesize information, research, process and use it, and produce their texts, knowledge, and information. For students to be assisted in developing and compiling their knowledge without direct teacher guidance, the learning situation must be constructive[15]. The role of digital media can be maximized by empowering it with learning designs, learning theories, and message designs so that they can present a good learning experience for students[16].

However, in reality, the application of ICT in education in Indonesia is still in its early stages and has yet to be used optimally and evenly[17]. The uneven infrastructure that supports the use of ICT in the education sector and the need for more human resources that are prepared to use ICT in online system learning in the circumstances of the Covid-19 epidemic are some of the reasons for these barriers [18].

2. Research Method

This essay was written using data from research published in foreign publications. The Usefulness of Podcast Revised Lectures for M-Learning in Higher Education. Analysis of Cloud Computing Use Among College Lecturers: A Zimbabwe Case Study by Samuel Musungwini, Beauty Mugoniwa, Samuel Simbarashe Furusa, and Taurai George Rebanowako: Mixed Methods Study by John Marco Pima, Michael Odetayo, Rahat Iqbal, and Eleamani Sedoyeka, available at Adam Wong's Cell Phones and Research website. William W. Song, Anders Forsman, and Jia Yan's "An E-Curriculum-Based Systematic Resource Integration Approach to Web-Based Education." Seyed Ahmad Hashemy, Daryosh Hayati, and Zainab Hashemy edited a survey on the use of information and communication technologies in education.

These publications, particularly those written during the Covid-19 epidemic, offer the authors their first information on a number of topics connected to the use of ICT technology to promote learning. It encapsulates the notion of this article even if the use of electronic media in learning institutions is widespread in other nations, particularly in the context of the Covid-19 pandemic. make the writer pause. expected. And it is further developed in Indonesia to enable the community, especially teachers and students, to achieve educational excellence.

3. Findings

ICT is a broad umbrella term that includes all technical devices for processing and transmitting the information. ICT teaching tools can be divided into three categories, namely

input resources, output resources, and other ICT tools[19]. Input resources include imaging/documentation cameras, computers, whiteboards, student response systems, and application software[20]. Projectors, interactive whiteboards, and screens—monitors, TVs, and more—are examples of print resources. Digital cameras, switches, digital recorders, and other advances are examples of additional ICT equipment [21].

3.1 Problem

The use of ICT in education has aided in the advancement of educational technology. International research demonstrates that ICT can enhance student learning and create more effective teaching strategies [22]. According to the National Institute of Multimedia Education in Japan, adding ICT to the curriculum has a noticeable favorable impact on student retention, notably in terms of knowledge, comprehension, and practical skills. est prouvé [23].

In traditional learning, teachers have limitations in teaching students, although many positive things can be learned from it. Some of these limitations include limited interaction because classes are usually filled with many students. So far, the teaching and learning process still needs to be improved because the number of students who attend classes has reached dozens[24][25]. This makes the teaching and learning process not optimal because the data and information conveyed to students need to be more optimal. In this case, several cases worth noting are the presence of some students who are slow in understanding the material. This is where the computer understands slow learning children because learning styles are just a technical problem." By adding infrastructure in the form of personal computers (PCs)/computers, students can activate their senses and sensitivities through seeing, hearing, and reading.

ICT as a learning and teaching tool is necessary to achieve efficiency and optimization of learning. However, it must be understood that learning principles are followed regardless of the media used. When we talk about e-learning or using electronic media to increase learning efficiency, effectiveness, and attractiveness, we only stick to the word e and forget about the learning itself. Many schools compete to equip their schools with ICT equipment, but their use needs to meet the needs. Alternatively, many electronic media can be used for learning but must be optimized. LCD projectors and laptops in the classroom will not bring significant changes if the teacher only uses them to explain lessons. However, there will be significant changes when students can share ideas and knowledge with other friends using this technology. Suppose the teacher only uses this technology for lessons. In that case, students only get information about what is being taught and some illustrated pictures, which are more exciting and authentic even though the presentation slides are well made. However, other students gain knowledge when they use it to present their ideas and knowledge to peers. Students who have access to this technology enhance or indirectly enhance ICT and critical thinking, problem-solving, and more.

3.2 Research Implementation

The process of podcasting entails using your computer to download a week's worth of audio or video broadcasts (files) to your digital media player. This recording can be viewed and listened to as often as students wish, anytime, anywhere. Podcasts are one type of ICT that can be used.

We can generalize the Thai method to find a solution to the educational gap felt by Indonesians living in remote (underdeveloped) areas. Solutions that governments can consider to overcome this problem include:

1. Underprivileged Area Ambassador Program: Invite disadvantaged area ambassadors consisting of local teachers, lecturers, students and student representatives to participate in a training package on ICT introduction and use in the area. receive. Anyone who becomes a regional ambassador must expose their region's weaknesses, especially in the area of education. After completing the training package, You should be able to provide regional responses to questions

- about the use of ICT. It is intended that by having ambassadors from underdeveloped areas present, they will be able to educate the local population about ICT
2. Easy Link Having identified the areas where ICT needs to be introduced, it is hoped that the government will set up an easy link to each educational institution to provide information access to people in these areas.
 3. Optimizing ICT Potential in Greenfields Enable greenfield ambassadors to share knowledge with the community with rewards in the form of ICT facilities (regional ambassadors can use laptop facilities or free internet guarantee). Training in ICT usage could be part of this activity. They have the duty of disseminating this knowledge to the area by asking an ambassador from a greenfield area to instruct her in the usage of ICT. This aims to address Indonesia's unequal access to high-quality education

The use of information and communication technology is now one of the teacher's competency requirements, both as a support for performing tasks (planning, presenting lessons, assessing assessments and assessment results) and as a means of finding and downloading learning resources. is also used. Therefore, all teachers at all levels must be willing to continue learning ICT in order to meet these competency requirements. In her Legislative Decree (PP) No. 74 of 2008 on Teachers, a teacher's qualifications include educational obtained through vocational training: competency, personal competence, social competence, and professional competence. Pedagogical competences are a component of competencies that instructors must have (fulfill) in the context of ICT.

Use of learning technology and social skills:Functional use of communication and information technology. Therefore, a teacher's mastery (use) of ICT is very important in learning. However, not all teachers know how to manage and use it. The development of teaching materials must follow this progress. We need ICT tools to support this development.

Students have little time to fumble with technology in today's information age. Technology is designed to be a learning unit to help students become more active and independent. Teachers/lecturers must also have professional qualifications, namely. H. constantly improves and develops his scientific qualifications and skills through science, technology, and art developments. Educators must improve their skills by collaborating with peers, collaborating with parents, utilizing community resources, and conducting research. Teachers/lecturers must manage information and communication technology for their learning needs. Learning and learning activities must be appropriately managed.

Educators (in this case instructors) ICT skills are necessary since they can help office work (word processing and other fundamentals, spreadsheets). ICT aids in the compilation of multimedia instructional resources to meet student demands. ICT can support learning management processes (e-learning, extended requirements). ICT can be used for technical support and knowledge expansion for self-executing creation (antivirus, tools, network, internet).

For ICT to continue to be used by educators, the benefits of education must be balanced against the need to solve everyday problems. Otherwise, one's technical skills are quickly forgotten. Therefore, educational institutions must have mandatory use of ICT programs and reward and punishment rules in addition to increasing the competence of teachers/lecturers. For educators to want to use ICT, the use of ICT must first be explained clearly to each educator personally, not only for the benefit of educational institutions or other parties, because if so, the motivation of educators to want to use ICT is not strong.

The government has made several attempts to strengthen and improve the quality of education, as evidenced in various programs, in order to adapt to the development of science and technology and the era of globalization. The enhancement of services based on modern management is one of the government's instructions, among others, and it necessitates a more active and innovative adjustment process on the part of educators and institutions.

In response to various government policies, almost all educational institutions responded proactively through various measures such as: Organization of training activities,

updates, ICT seminars and workshops. Plan training and locate any instructors who have interesting materials. Teachers are encouraged to continue their education at the government-specified level. equipped with a range of media and learning-supporting areas. Utilize various techniques and approaches to learning. conducting comparative research on advanced nations both domestically and internationally.

4. Conclusion

The utilization of ICT in learning still needs to be increased and evenly distributed. This situation is partly caused by the uneven infrastructure that allows the use of ICT in learning, in addition to the unpreparedness of human resources (especially teachers) to use ICT in an integrated manner in knowledge.

The Utilization of ICT for learning carried out by teachers in stages and continuously accompanied by periodic teacher training, the pioneering activities of using ICT for learning carried out will eventually lead to ICT-integrated learning activities.

As a follow-up to the conclusions that have been put forward, it is suggested that: (1) carry out continuous outreach about the potential, advantages, and significance of ICT in educational activities so that policy is supported by the principal as well as the central government, regional governments, and private organizations; (2) the provision of more intensive instruction with more latitude or time to allow teachers to put the lessons learned in class into practice implementing ICT equipment acquisition in schools gradually and continually, both through the private government and the community; (3) teachers responding positively to ICT progress with tangible actions through the use of ICT in learning activities which are their professional responsibility.

References

- [1] S. S. Olimov and D. I. Mamurova, "Information Technology in Education," *Pioneer J. Adv. Res. Sci. Prog.*, vol. 1, no. 1, pp. 17–22, 2022.
- [2] N. Lutfiani and L. Meria, "Utilization of Big Data in Educational Technology Research," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 73–83, 2022.
- [3] J. P. Graesch, S. Hensel-Börner, and J. Henseler, "Information technology and marketing: an important partnership for decades," *Ind. Manag. Data Syst.*, vol. 121, no. 1, pp. 123–157, 2021.
- [4] T. Alam, "Cloud Computing and its role in the Information Technology," *IAIC Trans. Sustain. Digit. Innov.*, vol. 1, no. 2, pp. 108–115, 2020.
- [5] F. I. Rakhimovich and F. J. Ibrokhimovich, "The Use of Information Technology in Primary Schools," *Texas J. Multidiscip. Stud.*, vol. 2, pp. 7–10, 2021.
- [6] T. M. Muhammedrisaevna, R. F. Mubinovna, and M. N. U. Kizi, "The role of information technology in organization and management in tourism," *Academy*, no. 4 (55), pp. 34–35, 2020.
- [7] C. S. Bangun, S. Purnama, and A. S. Panjaitan, "Analysis of New Business Opportunities from Online Informal Education Mediamorphosis Through Digital Platforms," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 42–52, 2022.
- [8] B. Akhmedov and K. Shuhkrat, "Cluster methods of learning english using information technology," *Sci. Prog.*, vol. 1, no. 2, pp. 40–43, 2020.
- [9] W. He, Z. J. Zhang, and W. Li, "Information technology solutions, challenges, and suggestions for tackling the COVID-19 pandemic," *Int. J. Inf. Manage.*, vol. 57, p. 102287, 2021.
- [10] Z. G. Shatri, "Advantages and disadvantages of using information technology in learning process of students," *J. Turkish Sci. Educ.*, vol. 17, no. 3, pp. 420–428, 2020.
- [11] P. A. Sunarya, "The Impact of Gamification on IDU (ILearning Instruction) in Expanding Understudy Learning Inspiration," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 59–67, 2022.
- [12] U. Rahardja, "The Economic Impact of Cryptocurrencies in Indonesia," *ADI J. Recent Innov.*, vol. 4, no. 2, pp. 194–200, 2023.

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- [13] H. Tussa'diah and N. Y. Kartika, "Critical Discourse Analysis on Linguistic Ideology of The Netizens Comments," *ADI J. Recent Innov.*, vol. 4, no. 2, pp. 110–121, 2023.
- [14] U. Rahardja, "Using Highchart to Implement Business Intelligence on Attendance Assessment System based on YII Framework," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 19–28, 2022.
- [15] M. Gu, L. Yang, and B. Huo, "The impact of information technology usage on supply chain resilience and performance: An ambidexterous view," *Int. J. Prod. Econ.*, vol. 232, p. 107956, 2021.
- [16] D. T. Untari, "The role of information technology in promotion strategy. Case in taman mini Indonesia indah and ragunan, Indonesia," *J. Environ. Manag. Tour.*, vol. 11, no. 04 (44), pp. 960–964, 2020.
- [17] H. Heslina and A. Syahrini, "The influence of information technology, human resources competency and employee engagement on performance of employees," *Golden Ratio Hum. Resour. Manag.*, vol. 1, no. 1, pp. 1–12, 2021.
- [18] A. S. Bist, V. Agarwal, Q. Aini, and N. Khofifah, "Managing Digital Transformation in Marketing: Fusion of Traditional Marketing and Digital Marketing," *Int. Trans. Artif. Intell.*, vol. 1, no. 1, pp. 18–27, 2022.
- [19] R. E. Santoso, A. G. Prawiyogi, U. Rahardja, F. P. Oganda, and N. Khofifah, "Penggunaan dan Manfaat Big Data dalam Konten Digital," *ADI Bisnis Digit. Interdisiplin J.*, vol. 3, no. 2, pp. 88–91, 2022.
- [20] S. Chatterjee, G. Moody, P. B. Lowry, S. Chakraborty, and A. Hardin, "Information Technology and organizational innovation: Harmonious information technology affordance and courage-based actualization," *J. Strateg. Inf. Syst.*, vol. 29, no. 1, p. 101596, 2020.
- [21] A. N. Halimah and H. Abdullah, "Student preference towards the utilization of Edmodo as a learning platform to develop responsible learning environments" study," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 53–58, 2022.
- [22] S. A. Asongu and N. M. Odhiambo, "Foreign direct investment, information technology and economic growth dynamics in Sub-Saharan Africa," *Telecomm. Policy*, vol. 44, no. 1, p. 101838, 2020.
- [23] S. M. Chege and D. Wang, "Information technology innovation and its impact on job creation by SMEs in developing countries: an analysis of the literature review," *Technol. Anal. Strateg. Manag.*, vol. 32, no. 3, pp. 256–271, 2020.
- [24] N. Ramadhona, A. A. Putri, and D. S. S. Wuisan, "Students' Opinions of the Use of Quipper School as an Online Learning Platform for Teaching English," *Int. Trans. Educ. Technol.*, vol. 1, no. 1, pp. 35–41, 2022.
- [25] E. Sulistyaningsih, "Improving Human Resources Technology Innovation as a Business Growth Driver in the Society 5.0 Era," *ADI J. Recent Innov.*, vol. 4, no. 2, pp. 149–159, 2023.