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INNOVATION AND DEVELOPMENT LEARNING IN THE DIGITAL ERA

PEMBELAJARAN INOVASI DAN PENGEMBANGAN DI ERA DIGITAL

Apriyal Fakih[1*], Nuraini[2], Yuli Setiowati[3]

[1*]Universitas Muhammadiyah Kalimantan Timur, Email : af907@umkt.ac.id
[2]Universitas Muhammadiyah Kalimantan Timur, Email : nur849@umkt.ac.id
[3]Universitas Muhammadiyah Kalimantan Timur, Email : ys178@umkt.ac.id

*email koresponden: af907@umkt.ac.id

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Abstract

The rapid development of information and communication technology (ICT) has changed the way information is accessed. The use of mobile devices, the internet, and various online learning applications is increasingly widespread. This demands innovation in learning methods to make it more relevant and interesting for learners. This article aims to identify ICT applications used for learning innovation and digital era learning models. The method used in writing this article is descriptive method and through literature study. The conclusion of this article is that there are three learning innovations that can be applied, namely: Project Based Learning (PjBl), Google Sites and Google Drive. And there are three digital era learning models, namely: Blended Learning is a combination of online and offline learning, Distant Learning and Mobile Learning (M-Learning) Mobile Learning is learning supported by wireless mobile technology (smartphones).

Keywords : Innovation, Technology, Learning, Digital.

Abstrak

Perkembangan pesat teknologi informasi dan komunikasi (TIK) telah mengubah cara mengakses informasi. Penggunaan perangkat seluler, internet, dan berbagai aplikasi pembelajaran daring semakin meluas. Hal ini menuntut inovasi dalam metode pembelajaran agar lebih relevan dan menarik bagi peserta didik. Artikel ini bertujuan untuk mengidentifikasi aplikasi TIK yang digunakan untuk inovasi pembelajaran dan model pembelajaran era digital. Metode yang digunakan dalam penulisan artikel ini adalah metode deskriptif dan melalui studi pustaka. Kesimpulan dari artikel ini adalah terdapat tiga inovasi pembelajaran yang dapat diterapkan, yaitu: Pembelajaran Berbasis Proyek (PJBL), Google

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Sites, dan Google Drive. Dan terdapat tiga model pembelajaran era digital, yaitu: Pembelajaran Campuran (Blended Learning) yang merupakan kombinasi pembelajaran daring dan luring, Pembelajaran Jarak Jauh (Distant Learning), dan Pembelajaran Seluler (Mobile Learning/M-Learning) yang didukung oleh teknologi seluler nirkabel (smartphone).

Kata Kunci : Inovasi, Teknologi, Pembelajaran, Digital.

1. INTRODUCTION

The rapid development of information and communication technology (ICT) has transformed the way we access information. The use of mobile devices, the internet and various online learning applications is becoming increasingly widespread. This calls for innovation in teaching methods to make them more relevant and engaging for learners.

The current generation has different characteristics from previous generations. They are more independent, critical and creative. They are also accustomed to a fast-paced, information-rich environment. Traditional teaching methods may be less effective in meeting their learning needs.

Further evidence of this rapid advancement in ICT is the data for 2024, which shows that more than 220 million people in Indonesia are active internet users. According to APJII data for 2024, this figure represents more than 70 per cent of Indonesia's population.

This study aims to identify the types of ICT applications used for learning innovation and digital-era learning models, including the challenges faced by lecturers and teachers in applying them to learners.

2. RESEARCH METHOD

The research methods used in writing this article are the descriptive method and a literature review. The literature review drew on books concerning information technology and learning innovation, including journals, online papers and articles published in print media relating to technology and innovation in learning. This paper began with the selection of a title in line with the established topic, the collection of information from literature sources, and the drafting of an abstract.

3. RESULT AND DISCCUSSION

A. Innovation in Learning

According to Law No. 18 of 2002, innovation is research, development and engineering activity aimed at developing the practical application of new scientific values and contexts, or new ways of applying science and technology. In the Great Indonesian Dictionary, innovation is defined as a new discovery that differs from what already exists or was previously known (an idea, method or tool).

Learning innovation refers to new ideas, concepts or technologies applied within the learning process to enhance the quality of learning in order to achieve learning objectives, and is carried out by educators, the government and other educational institutions (Rosyiddin et al., 2022).

Estu et al. define innovative learning as learning designed by teachers or lecturers that embodies ideas or techniques considered novel, with the aim of facilitating learners' progress in both the learning process and learning outcomes. Thus, educational innovation can simply be understood as a change or renewal in the teaching and learning process aimed at improving the quality of education.

B. The Importance of Innovation in Learning

This is not merely a matter of modifying methods, but rather an effort to create new approaches that are more effective, efficient and relevant to pupils' needs in an era that is constantly changing and evolving. The importance of innovation in learning is as follows:

1. Enhancing student motivation: Innovative learning methods tend to be more engaging and interactive, thereby motivating students to learn.
2. Deepening understanding: New methods can help students grasp difficult concepts in a simpler and more thorough way.

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3. Developing 21st-century skills: Innovative learning often emphasises the development of skills such as critical thinking, creativity, collaboration and communication.
4. Preparing students for the future: By adopting learning methods relevant to today's world of work, students will be better prepared to face future challenges.

C. Technology and Innovation in Learning

One way to ensure that pupils' and students' senses (sight and hearing) are engaged holistically is through the use of technology in learning. This accommodates pupils' diverse learning abilities, thereby improving learning outcomes (Kurniawan, 2022). This is in line with research by Kareem (2018), which states that the use of technology can create a conducive learning environment as it simplifies and speeds up students' work, whilst also enhancing their skills in utilising technological advancements.

The use of digital technology can be implemented across all subjects and courses. Technology acts as the driving force behind education, serving as a means to develop education across all sectors of society. Information and communication technology is not only accessible via computers or laptops through the internet—which makes obtaining information increasingly convenient (Guillen Gamez & Mayorga-Fernández, 2022)—but can also be accessed via smartphones.

1. Examples of Learning Innovation

The following are examples of learning innovations:

a. Project-Based Learning (PjBL)

According to Mohamed (2023), the Project-Based Learning (PjBL) approach is a learning strategy that places the primary focus on the learners. In this method, learners are actively involved in the entire learning process. Within the context of PjBL, learners are given the opportunity to develop their thinking skills by solving the problems they encounter.

Collaboration amongst learners is key to this approach, as they work together with their classmates and reflect on the knowledge they have acquired. Furthermore, this approach motivates learners to take an active role in seeking out information and subsequently making decisions or drawing conclusions, ultimately contributing to the development of practical thinking skills.

b. Google Sites

This Google product is extremely useful for e-learning, offering a user-friendly site with a dashboard that is easy to understand, even for general users and beginners.

Among the benefits of learning via Google Sites, firstly, when lecturers or teachers upload learning materials, students do not need to copy them onto a USB stick. Secondly, it helps prevent viruses from entering laptops or computers. Thirdly, students can access course information easily and quickly.

Picture 1. Google Sites header view

c. Google Drive

Google Drive functions as follows: (1) pupils/students are provided with video materials. (2) teachers/lecturers set lesson topics and pupils/students are asked to respond, either in the form of questions or relevant statements, thereby fostering an interactive discussion. (3) It records learners' activities, including attendance, marks and learning activities. (4) It serves as a tool for educational evaluation. (5) It facilitates teamwork, allowing each pupil or student to form study groups. (6) It

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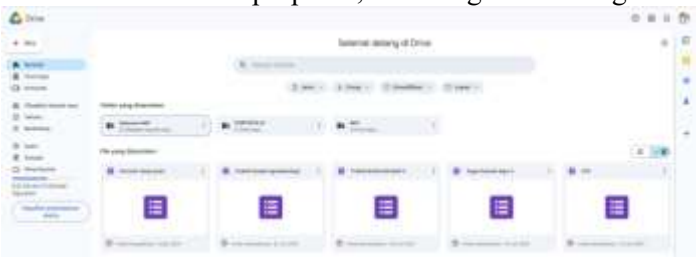
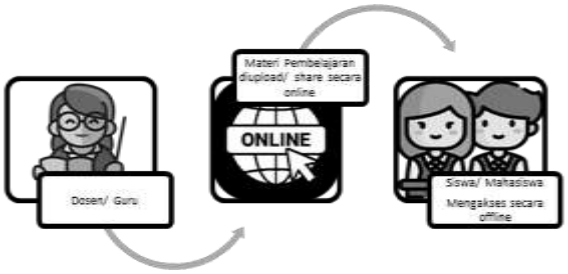
provides tools for sharing ideas and concepts. (7) It offers facilities for creating presentation slides. (8) Spreadsheets can be utilised for learning, including for learning assessment, educational surveys, and as references for learning models. (8) Image services for creating objects that can be used for learning. (9) Form services for educational purposes, including for learning assessment.



Picture 2. Google Drive interface

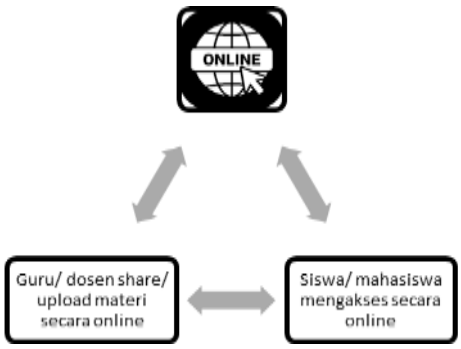
2. Learning in the Digital Age

There are differences between current digital-age learning models and conventional learning models. There are at least three digital-age learning models: first, teachers or lecturers provide learning materials online, which are then downloaded and studied manually or independently (offline) by pupils or students.



Picture 3. Model 1 (One) of Learning in the Digital Era

Secondly, teachers and lecturers deliver the learning material online, and pupils and students access and study it in the same way.



Picture 4. Model 2 (Two) of Learning in the Digital Era

Here are some learning models for the digital age: ***Firstly***, Blended Learning is a combination of online and face-to-face (offline) learning; this concept can therefore be described as an educational approach that combines online learning materials with opportunities for in-class interaction. Blended Learning is also often referred to as technology-mediated instruction, web-enhanced instruction, or mixed-mode instruction (telkomuniversity.ac.id).

Secondly, Distance Learning (Pendidikan Jarak Jauh). According to Ministerial Regulation No. 7 of 2020, distance learning (PJJ) is a teaching and learning process conducted remotely through the use of various communication media. PJJ is delivered with the aid of various information and

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communication technologies (ICT) and utilises ICT-based learning resources. Given the separation of distance and time between learners and the learning providers, learning based on information and communication technology is absolutely essential. (Dewi Salma Prawiradilaga, 2013).

Thirdly, Mobile Learning (M-Learning) Mobile Learning is learning supported by wireless mobile technology (smartphones). Mobile learning makes it easy for learners to access learning resources (materials) without being constrained by time or place.

D. Challenges in Learning Innovation

Technological progress is a fundamental driver of learning innovation; however, at the same time, digitalisation also presents challenges.

Table 1. Data on Social Media Users in Indonesia in 2024

No	Data	Jumlah (Juta)
1	Youtube	139
2	Instagram	122
3	Facebook	118
4	Wahatsapp	116
5	Tiktok	89

Technological developments are changing the way teachers and lecturers acquire and convey information. Educators must adapt to more interactive teaching methods by utilising digital tools such as slide presentations, videos and other multimedia. The following are the challenges of learning innovation in the digital era: ***Firstly,*** time management: teachers and lecturers risk becoming bogged down by the time spent using technology. Effective time management is essential, including when preparing teaching materials that align with the curriculum. ***Secondly,*** access gaps and the digital divide: not all pupils and students have the same devices or access to technology. ***Third,*** the transformation of the teacher's role: in the digital age, there is a phenomenon where pupils and students are more proficient in using technology than teachers and lecturers. ***Fourth,*** the difficulty in maintaining pupils' and students' attention: there are distractions such as social media, online games, or instant messaging. Educators need to find alternative ways to ensure pupils' and students' attention remains focused on the material being presented. ***Fifth,*** relevant assessment: Selecting the appropriate assessment methods to measure students' understanding and skills. Sixth, digital ethics: The ability of teachers to help students understand that technological progress must also be balanced with good character and wisdom in accessing technological devices in accordance with learning needs.

DISCUSSION

1. Among the learning innovations that can be applied are: Project-Based Learning (PBL), Google Sites and Google Drive.
2. There are three learning models in the digital age, namely: lended Learning is a combination of online learning and face-to-face (offline). Distance Learning. Mobile Learning (M-Learning). Mobile Learning is learning supported by wireless mobile technology (smartphones).
3. There are six challenges in developing learning innovative in the digital age, namely:

a. Time management regarding the duration of technology use.
b. The digital divide amongst learners.
c. The transformation of the teacher's role: in the digital age, there is a phenomenon whereby pupils and students are more proficient in using technology than teachers and lecturers
d. The ability of teachers and lecturers to maintain pupils' and students' focus on learning rather than on social media.
e. The selection of appropriate assessment methods to measure pupils' and students' understanding and skills.
f. The role of good moral character in balancing technological progress.

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To ensure the success of innovation and the development of learning in the digital age, the author would like to offer several suggestions. These suggestions include:

1. Teachers and lecturers should manage their time effectively when using technological products and applications.
2. When developing the curriculum and teaching materials, these must be adapted to the chosen technological tools.
3. Teachers and lecturers must enhance their ICT skills.
4. Teachers and lecturers must be able to prioritise good moral character when applying ICT products.

4. CONCLUSION

Innovation in learning is an essential effort to improve the quality of education by introducing new ideas, methods, and technologies that make learning more effective, engaging, and relevant to the demands of the digital era. Learning innovations, such as Project-Based Learning (PjBL), Google Sites, and Google Drive, encourage active student participation, enhance motivation, deepen understanding, and develop 21st-century competencies, including critical thinking, creativity, collaboration, and communication.

The integration of digital technology has also transformed learning models through blended learning, distance learning, and mobile learning, enabling education to take place anytime and anywhere. However, the implementation of these innovations is accompanied by several challenges, including time management, unequal access to technology, changes in the role of teachers, maintaining students' attention, selecting appropriate assessment methods, and promoting digital ethics.

Therefore, the successful implementation of learning innovation requires teachers and lecturers to continuously improve their digital competencies, adapt teaching materials and curricula to technological developments, manage technology use effectively, and cultivate students' moral values alongside digital literacy. By addressing these challenges, innovation in learning can contribute significantly to improving educational quality and preparing learners to meet the opportunities and challenges of the digital age.

5. REFERENCES

Data Statistik Penggunaan Media Sosial Masyarakat Indonesia Tahun 2024 diakses di situs https://www.inilah.com/data-pengguna-media-sosial-indonesia pada Sabtu, 05 Oktober 2024.

Dewi Salma Prawiradilaga, Mozaik Teknologi Pendidikan E-Learning, Jakarta: Kencana, 2013, ISBN. 978-692-7985-13-1

Estu dkk. 2022. Inovasi Pembelajaran "Peningkatan Kualitas Guru". Yayasan Wiyata Bestari Samasta: Cirebon

Guillen Gamez, F. D., & Mayorga-Fernández, M. J. (2022). Measuring Rural Teachers' Digital Competence to Communicate with the Educational Community. Journal of New Approaches in Educational Research, 11(2), 323. https://doi.org/10.7821/naer.2022.7.1053

Kareem, A. A. (2018). The use of Multimedia inTeaching Biology and Its Impact on Students' Learning Outcomes. The Eurasia Proceedings of Educational & Social Sciences (EPESS), 9, 157–165. http://www.epess.net/en/pub/issue/38900/457937

Kurniawan, Reza A. 2022. Peran Inovasi dalam Pembelajaran Berbasis teknologi. Pusat Publikasi S-1 Pendidikan IPS IKIP ULM, 1 (1): Banjarmasin.

Mohamed, A. M. (2023). Investigating the Benefits of Multimodal Project-Based Learning in Teaching English to International Students. International Journal of Educational Innovation and Research, 2(2), 114-129.

Rosyddin, Anggun A. Z., Johan, R. C., & Mulyadi, D. (2022). Inovasi pembelajaran Sebagai Upaya Menyelesaikan Problematika Pendidikan Indonesia. Jurnal UPI, 19 (1), 44-53, https://doi.org/10.17509/jik.v19i1.42679

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Pengertian dan Manfaat Blended Learning Bagi Mahasiswa diakses di situs https://it.telkomuniversity.ac.id/blended-learning-adalah/ pada Sabtu, 05 Oktober 2024.