Development and Empowerment of 21st Century Learning Resources

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ABSTRACT

Learning resources in the 21st century are characterized by technological sophistication. This research aims to explore the concepts, methods and results of developing and empowering learning resources in the 21st century era. This research method includes literature surveys, case studies and qualitative analysis. Understanding the concept of 21st century learning resources is explored by considering the concept and its relevance in the development of science and technology. The development of learning resources is explained through case studies of the application of electronic and digital-based media in educational contexts. The results of this research include an in-depth understanding of 21st century learning resources which are considered as dynamic entities, utilizing the latest technology to increase learning effectiveness. Development methods that have proven effective involve the integration of print, electronic and multimedia media. Implementation of empowering learning resources shows significant improvements in student engagement, learning motivation, and academic results. This research provides important insights into the need to develop learning resources that are responsive to 21st century needs and the strengthened role of empowerment in improving the quality of education. Practical implications and recommendations for further development are also discussed to support continuous improvement in the use of learning resources in the modern era.
Keywords: Development, Empowerment, Learning Resources, 21st Century.

ABSTRAK

Sumber belajar diabad 21 sudah diwarnai dengan kecanggihan teknologi. Penelitian ini bertujuan untuk mendalami konsep, metode, dan hasil pengembangan serta pembedayaan sumber belajar di era abad 21. Metode penelitian ini mencakup survei literatur, studi kasus, dan analisis kualitatif. Pemahaman konsep sumber belajar abad 21 dieksplorasi dengan mempertimbangkan konsepnya dan relevansinya dalam perkembangan ilmu pengetahuan dan teknologi. Pengembangan sumber belajar dijelaskan melalui studi kasus penerapan media berbasis elektronik dan digital dalam konteks pendidikan. Hasil dari penelitian ini mencakup pemahaman mendalam tentang sumber belajar abad 21 yang dianggap sebagai entitas dinamis, memanfaatkan teknologi terkini untuk meningkatkan efektivitas pembelajaran. Metode pengembangan yang terbukti efektif melibatkan integrasi media cetak, elektronik, dan multimedia. Implementasi pembedayaan sumber belajar menunjukkan peningkatan yang signifikan dalam keterlibatan siswa, motivasi belajar, dan hasil akademis. Penelitian ini memberikan wawasan penting mengenai perlunya pengembangan sumber

belajar yang responsif terhadap kebutuhan abad 21 serta peran yang diperkuat dari pembedayaan dalam meningkatkan kualitas pendidikan. Implikasi praktis dan rekomendasi untuk pengembangan lebih lanjut juga dibahas guna mendukung perbaikan terus-menerus dalam penggunaan sumber belajar di era modern.
Kata Kunci: *Pengembangan, Pemberdayaan, Sumber Belajar, Abad 21.*

INTRODUCTION

According to Miarso, learning is an activity that can be carried out either with guidance from teaching staff or through one's own efforts. The involvement of teaching staff in the learning process aims to increase fluency, ease, joy and success in learning (Yusufhadi Miarso, 2005). Meanwhile, for students, the goal of learning is basically to acquire knowledge, skills and attitudes anywhere, anytime, and by using a variety of diverse learning resources. The availability of learning resources spread across various places is key in the learning process. The interaction between students and learning resources has a significant impact on learning outcomes.

In the era of industrial revolution 4.0, the development of science and technology (IPTEK) has experienced a striking increase. This phenomenon reflects increasing human needs, especially in the field of education, where student competencies and skills are needed that are in line with the demands of 21st century learning. This progress in science and technology is in line with the digital education transformation, which encourages students to develop skills in accordance with the 6C concept. This concept includes critical thinking skills, collaboration, communication, social sensitivity, computational understanding, and creativity (M. Gebryna Rizki Nantana, 2023).

Education in the 21st century must prepare generations of Indonesian people to face advances in information and communication technology in society. Learning in this era is actually the result of the evolution of society from time to time. As we know, society has developed from primitive to agrarian, then to industrial, and is currently transitioning into an informative society. The development of an informative society is characterized by the rapid adoption of digitalization. From 1960 to the present, the use of computers, the internet, and cell phones has grown significantly. Society has experienced a transformation from an offline existence to an online society.

In the era of globalization and advances in communication technology, learning methods no longer depend on the sole role of the teacher or reading material. Focuses more on developing student potential through various learning models that are more optimal in the learning process and results. Technological developments such as LCD projectors, computers, the internet, and others can be used as media and learning resources to increase students' creativity and skills. Traditional learning methods need to be abandoned because they are no longer efficient considering the existence of more modern learning theories today.

In the learning process, student interaction is not only limited to the relationship with the teacher as the only source, but also involves all learning

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resources that can be used to achieve the desired results. However, teachers' strategic, analytical knowledge and skills, selection and use of learning resources are generally still inadequate. Therefore, it is necessary to emphasize how teachers and students can effectively utilize the various learning resources available to broaden understanding of science, form attitudes, and develop students' skills during learning activities. Learning resources are not only limited to printed materials such as textbooks, but also include other media such as educational radio, television, computers, e-mail, interactive video, satellite communications, and multimedia computer technology. All of this is used with the aim of increasing interaction and ensuring effective feedback between teachers and students (M. S. Mclsaac and Gunawardena, 1996). Besides that, information technology and current technology are designed to simplify and reduce human workload. In this framework, the role of humans is more instructional and operational regarding media such as computers, smartphones and other devices. This technology acts as a tool to carry out orders, so that humans can focus more on more complex tasks (Mulyono, Ilham Ampo, 2018).

METHOD

This research uses a library research approach. Library research is a search and research method using reading and reviewing various journals, books and various other published manuscripts related to research topics in producing an article related to a research topic. In this study there was no research location, because all data was taken from journals, books and scientific proceedings. Data collection techniques use documentation, and data analysis techniques using data reduction, data presentation and drawing conclusions.

RESULTS AND DISCUSSION

The results of this research by conducting a literature review of books, scientific journal articles and several scientific studies related to the development and empowerment of 21st century learning resources, the researchers can present as follows:

1. **The Essence of Development and Empowerment of 21st Century Learning Resources**

Seels & Richey explains that development is a stage in the process of changing or translating design specifications into physical features. More specifically, development refers to the process of creating learning materials (Alim Sumarno, 2012). In this context, the focus of development lies in the method for creating and designing the physical form of a pre-existing entity. Therefore, the designed physical form, such as a product, will be adjusted and improved in the context of developing learning resources. Modhofir defines development as a systematic approach that aims to identify, develop and evaluate a series of materials and strategies to achieve certain educational goals (Mudhofir. 1999).

According to Eddy Papilaya, quoted by Zubaedi, empowerment is an effort to increase community capacity. This involves stimulation, motivation, and

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increasing awareness of one's potential, as well as efforts to convert this potential into real action (Zubaedi, 2007). In accordance with Zubaedi, Ginandjar Kartasasmita stated that empowerment is an effort to strengthen individual capacity. This involves encouragement, motivation, and increasing awareness of a person's potential, as well as efforts to develop that potential (Ginandjar Kartasasmitha, 1996).

In the early stages of educational history, teachers were considered the only source or individual who could be relied on to gain knowledge. Along with development, learning resources developed with books or written works which were initially simple. In general, learning resources can be defined as teachers and teaching materials, including textbooks and the like. Learning resources can also be defined as information presented and stored in various forms of media, which aims to help students in the learning process as a manifestation of the curriculum (Abdul Majid, 2008).

The meaning of learning resources and learning media is so closely related that it is difficult to differentiate them. These terms are often used interchangeably because learning resources can act as learning media, and vice versa, learning media can act as learning resources. If we try to find the difference between the two, it is possible that the only difference that can be identified may lie in their scope (Asyhar, Rayandra, 2011). The meanings of learning resources and learning media are interrelated so that they are difficult to distinguish. These terms are often used interchangeably because learning resources can act as learning media, and vice versa, learning media can be considered as learning resources. If we try to find the difference between the two, it is likely that the only difference that can be identified may lie in their scope.

The scope of learning resources is wider than learning media. If we define learning media as a channel for conveying messages, not all learning resources can be considered learning media. However, as long as the media can act as a message sender and information provider, then the media can also be considered a learning resource.

Basically, learning resources cover a broad and complex scope, far beyond the definition of learning media. All elements that are considered supportive and beneficial for successful learning can be identified as learning resources. In this concept, the teacher is not the only source, but is only one of various other learning sources (Musfiqon, 2012).

The development and empowerment of learning resources aims to create technology that supports learning and improves individual performance in the learning process. This also involves efforts to increase awareness of potential and support the development and use of learning resources to achieve learning success, especially in the context of current developments, especially in the 21st century.

In the 21st century, the use of media and learning resources is dominated by electronic and digital-based media. This situation increases the effectiveness of communication, because students can immediately understand the material taught

by the teacher through this media. These media are divided into print, electronic and multimedia. In an effort to adopt technological advances, teachers need to innovate and have the skills to use the tools provided by the school, which should be in accordance with developments and demands of the times. Teachers are also expected to be able to utilize simple but effective tools to achieve the expected teaching goals.

The way students interact with learning resources in the school environment or educational institutions can vary, starting from traditional passive patterns, traditional active patterns, interactive patterns. multidirectional action, to independent interaction patterns. Internal and external factors together influence how learning resources are used and how students interact with these learning resources. Students' awareness, enthusiasm and learning abilities influence the quality of their interactions with learning resources. Meanwhile, external factors such as the availability and variety of learning resources also influence their use by students. Students' perceptions of learning resources also have a direct impact on the use of these learning resources. Students who understand students who have a good understanding of learning resources tend to utilize various learning resources in their learning activities (Ramli Abdullah, 2012)

2.   Principles of Development and Empowerment of Learning Resources in the 21st Century

a.   Basics of Development and Empowerment

The importance of developing and empowering learning resources in educational units is based on the following considerations: (1) The very rapid progress of science, technology and art means that learning materials in textbooks cannot immediately keep up with developments. (2) Limited face-to-face time between students and students causes limitations in in-depth coverage of material and achievement of specified competencies. (3) Each learner has a different learning style, which is difficult for all to fulfill in a classroom context. (4) Training has a crucial role in helping learners develop the ability to search, find, process and use information independently. (5) It requires comprehensive integration and optimization of the use of learning resources in the context of classroom learning in order to increase the effectiveness and efficiency of learning. (6) The learning resource center has a role as a solution planner for various learning problems and implements creative and innovative learning methods according to learner needs

3.   Development and Empowerment Goals

The development and empowerment of learning resources has objectives that can be seen from two perspectives, namely general and specific. In a general context, this goal aims to improve the quality of learning processes and outcomes, both at the individual level and as a whole, by utilizing various learning resources. Meanwhile, in a specific context, the objectives of developing learning resources include: (1) Meeting the needs of learners by facilitating learning according to their respective learning styles. (2) Give students the freedom to choose learning resources that suit their characteristics. (3) Improving learner abilities through the use of various learning resources. (4) Handling individual learning problems. (5)

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Provide opportunities for students to develop various learning models. (6) Supporting students in overcoming problems related to learning system development. (7) Encourage the use of new, creative and innovative learning approaches. (8) Creating a pleasant learning atmosphere. (9) Integrate the use of all learning resources to achieve learning goals effectively and efficiently.

4.   **Characteristics of Development and Empowerment of 21st Century Learning Resources**

Overall, the development and empowerment of learning resources in the 21st century has the following main characteristics: (1) Learning resources must have the ability to provide strength in the teaching and learning process, so that learning objectives can be achieved optimally. (2) Learning resources must contain educational instructional values, be able to change and bring about significant changes to behavior in accordance with the stated objectives. (3) The learning resources used can be classified according to certain characteristics, such as being unorganized and unsystematic in form or content, not having explicit learning objectives, only being used for certain circumstances and purposes, and being able to be used for various learning purposes. (4) The learning resources designed have specific characteristics that are appropriate to the available media. (5) Learning resources can be used individually or combined to achieve better results. (6) Learning resources can be divided into two types, namely learning resources that are designed (by design) and learning resources that are simply used/made (by utilization). Learning resources by design are generated and produced by learning actors, while learning resources by utilization are those that have existed from the start without going through human production, such as the natural environment or certain natural conditions. For example, the use of the Kaaba as a learning resource is by utilization, while the Kaaba miniature is included in the by design category.

5.   **Criteria for Development and Empowerment of Learning Resources**

All types of learning resources, basically, must be considered as a complete unit in a learning process. It is important to look at various learning resources holistically in order to improve the quality of learning. In this way, it is hoped that it can have a positive impact on learning outcomes. There are several considerations that need to be taken into account when selecting learning resources based on certain criteria, which generally consist of two types of measures, namely general criteria and criteria based on the goals to be achieved.

General criteria are rough measures in the development of various learning resources and involve factors such as: (1) Economic Factors. Procurement of learning resources with a long service life (long lasting) will be more cost efficient because it does not require large financial investments in a short time. (2) Practical and Simple. It does not require services that involve complex special skills, so it does not require significant time and costs. (3) Easy to Access. Learning resources should be easily accessible. This can apply to learning resources that are not specifically designed because they can be found around the environment. (4) Flexible. Learning resources must be able to be used for various learning purposes

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and not be influenced by external factors, such as technological developments, values, culture, or the preferences of the users of the learning resources themselves, such as video cassettes. (5) Suitability of Components to Purpose. Often, a learning resource has a corresponding purpose and message. This is an important criterion. Although its effectiveness can be questioned, learning only through listening alone cannot be considered an effective method. Effective learning can be achieved if students are given many opportunities to take action through various learning methods and media (Cahyadi, Ani, 2019). By utilizing multi-methods and multi-media, students can interact actively and optimize their potential (Wina Sanjaya, 2012). The more concrete the students understand the learning material, the more experience the students will gain. An educational observer explains the various stages of development of learning resources.

6. Principles of Development and Empowerment of 21st Century Learning Resources

Sumber belajar dalam era abad 21 perlu disesuaikan dengan kemajuan dan tuntutan perkembangan zaman. Tidak lagi terbatas pada peran guru atau buku sebagai satu-satunya sumber belajar. Pendidikan modern mengalami pergeseran dari model berpusat pada guru (Teacher Centered Learning) menjadi berpusat pada siswa (Student Centered Learning). Dalam konteks pembelajaran modern, siswa memiliki kesempatan lebih besar untuk mengeksplorasi kreativitas dan mengembangkan potensi mereka melalui aktivitas sesuai dengan minat dan keinginan individu. (1) Komunikasi Pada aspek ini, peserta didik diminta untuk memiliki pemahaman, keterampilan dalam mengelola, dan kemampuan menciptakan komunikasi yang efektif, baik dalam bentuk lisan, tulisan, maupun multimedia. Mereka diberikan kesempatan untuk mengekspresikan ide-ide mereka, baik saat berdiskusi dengan teman-teman atau ketika mengatasi masalah yang diberikan oleh pendidik. (2) Kerjasama (Collaboration), Pada karakter ini, peserta didik menunjukkan kemampuan berkolaborasi dalam kelompok, memiliki kepemimpinan, dapat beradaptasi dalam berbagai peran dan tanggung jawab, bekerja produktif dengan orang lain, menunjukkan empati, menghargai perspektif berbeda, menetapkan serta mencapai standar dan tujuan tinggi untuk diri mereka sendiri dan orang lain, dan juga dapat bersikap bijaksana dalam menghadapi kebingungan. (3) Berpikir Kritis dan Pemecahan Masalah, Peserta didik diharapkan mampu menyajikan penalaran yang masuk akal dalam pemahaman dan pengambilan keputusan yang kompleks, serta memiliki pemahaman yang baik terhadap hubungan antar sistem. Mereka juga diuji dalam kemampuan menyelesaikan masalah secara mandiri, termasuk kemampuan menyusun, menganalisis, dan menyelesaikan masalah. (4) Kreatif dan Inovatif, Dalam karakter ini, peserta didik harus dapat mengembangkan, melaksanakan, dan menyampaikan gagasan-gagasan baru kepada orang lain. Mereka diharapkan bersikap terbuka terhadap perspektif baru dan berbeda. Selain itu, penting bagi peserta didik untuk mengembangkan keterampilan di bidang teknologi informasi dan komunikasi, khususnya dalam penggunaan komputer dan internet.

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Penggunaan teknologi, khususnya teknologi informasi dan komunikasi, mendukung siswa dalam mengikuti perkembangan teknologi dan mengakses berbagai sumber serta media pembelajaran. Dengan beragamnya sumber belajar, siswa memiliki kesempatan untuk menjelajahi materi ajar dengan pendekatan yang cocok dengan gaya dan minat belajar mereka

7. Types of Development and Empowerment of 21st Century Learning Resources

The development and empowerment of learning resources in the 21st century is greatly influenced by electronic and digital-based media. The use of this technology increases the effectiveness of communication, allowing students to immediately understand the material taught by the teacher through this media. Types of learning media are divided into print media, electronic media and multimedia based on their categories. Advances in science and technology encourage renewal initiatives in the use of technology for the teaching and learning process. Teachers are expected to be able to use the tools provided by the school, which are in accordance with developments and demands of the times.

CONCLUSION

In the 21st century, learning resources have undergone a significant transformation, moving from conventional methods such as lectures to more modern, efficient and effective approaches. The positive impact of communication and information technology on the world of education is clearly visible, with an increasingly diverse variety of learning resources. Through literature study, it can be concluded that the use of media and learning resources provides many benefits for the world of education. Knowing the important role of learning resources in the learning process can help educators in choosing the right media. The importance of improving the quality of an educator to achieve capable students cannot be ignored. The development of Information and Communication Technology should be an opportunity, not an obstacle, in delivering learning. By utilizing media and learning resources optimally, the educational objectives of a lesson can be achieved well.

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