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ELECTRONIC LIBRARIES AND BASES AS A MEANS OF DEVELOPING CRITICAL THINKING IN STUDENTS

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Abstract: *In the modern era of rapidly advancing technology, the role of electronic libraries and databases in the educational sphere has become increasingly pivotal. These digital repositories of knowledge not only provide students with unprecedented access to a wealth of information, but also serve as invaluable tools in cultivating and honing their critical thinking abilities. As educational institutions strive to equip the next generation with the necessary skills to navigate the complexities of the 21st century, the integration of electronic libraries and databases into the curriculum has emerged as a strategic approach to fostering critical thinking among students. In this article, we will explore the systems of modern libraries and their benefits to students.*

Keywords: *modern libraries, e-learning, e-books, advantages, critical thinking, new tools, websites, integrations*

Introduction: A library, regardless of its kind, is a medium for the learning process since information resources are actually learning sources. Therefore, it is related to students, who are the inhabitants of the education world. The main purpose of a library is to provide good quality information resources for them. With good quality information resources, it will lead to a good quality mental process and increase the quality of education itself. Now, the future generations are more likely to be students of higher education institutions. And the best way to access information resources is through critical thinking. Critical thinking is a high-level mental process that will produce a good conclusion or decision. This is a good quality of thinking and it is needed for the future generations themselves. Now, whether a library, particularly an electronic library, can have an effect on students' critical thinking, will be revealed in the scope of this study.

In modernity and simplicity, libraries now have an alternative form called an electronic library. An electronic library does not have a significant difference from the traditional library since it is a service system that provides easy access to information resources. But its implementation does not require printed resources and can be accessed through a computer and internet network. In line with the development of information technology, the information resources in an electronic library have a higher rate of changes than printed resources, which is the internet itself. This will be more practical than the traditional library and can be implemented in educational institutions, whether private or government. So, it will provide a conducive learning process and good quality education.

Above the rate of changes, future generations of this information age are required to have the ability to adapt themselves to new situations, conditions, and information quickly. This is due to the fact that children are the generations that will meet the final peak of the information age. The ability required is a hard task since it involves complex mental processes and requires a good quality education. One of the best ways to prepare future generations is through the learning process itself. Learning is a process that will lead to an adaptation to new knowledge. So, it is a matter of how to create a good quality learning process. One of the influential factors is the availability of the learning sources themselves, particularly a library. During this time, a library has become a traditional learning source and has been a culture for many educational institutions. A library may not be considered a static learning source since it follows the rate of knowledge development. But traditionally, a library has lacked quick adaptation to new knowledge due to printed information resources and sometimes limited space to keep numerous book collections.

In the modern world, information has become the major component of education throughout the world. It can be said that information is the educational environment and has a direct relationship with education and its quality. Information can firmly be considered as the raw material of the information age, which is an era dominated by a particular technological way of life called computerization. Computerization is a process or a way of life that uses computers or any kinds of electronic devices for many purposes or necessities. Computerization has led to information technology, an industry that directly handles information. Looking back at education, information technology has major implications on the educational process and its quality. It can be seen that the implementation of information technology in education will have a significant effect, particularly on the method of learning and the quality of education.

Purpose of the Study

The primary purpose of this study is to understand the concept 'critical thinking' and how it is enhanced through the various processes of electronic libraries. It is necessary to do this study as the teaching fraternity believes that the present generation of students has developed an aversion to reading - a fact that has led to a decline in thinking skills. If this is true, it is worth pondering over whether the fault is with the students or whether the fault lies in the teaching methods

employed. Another noteworthy point is that the method of reading itself is changing. Today's student is more likely to be found reading a 'webpage' rather than a book. A study of critical thinking in students as related to web-based reading is therefore very timely. It is possible that students are not actually reading 'less', but simply reading 'differently'. The technologies behind the 'different' forms of reading are worth mentioning. It is not too far to say that all forms of web-based reading are reliant on electronic libraries and databases. An understanding of the critical thinking process in regards to 'new' forms of reading is incomplete without an understanding of the impact of electronic resources. Given that it may be the 'way of the future', an examination of its effects cannot be limited to present-day students. It is therefore intended that 'students' throughout this research will very often imply 'future students' and a consideration of how vastly the educational environment is expected to change. Finally, from the perspective of the author, who is a teacher and researcher in web technologies, it shall be interesting to reflect on personal experiences within this research.

Scope of the Study

This research is aimed at investigating the feasibility of using internet-based sources such as electronic libraries and databases to develop a critical thinking culture in students. The research was conducted to find out whether internet sources can be a replacement for conventional libraries to inculcate critical thinking in students. The notion of developing a critical thinking culture is expected to produce students who are well-equipped with knowledge as well as the ability to analyze and evaluate the knowledge that they have. Critical thinking is an important element to produce knowledgeable students. Without the ability to think critically, students tend to just accept and regurgitate information without really understanding and internalizing it.

Speaking from the view of higher learning institutions in Malaysia, the local university students are the main focus of this research. We believe that with the identification of a feasible tool to develop a critical thinking culture, the higher learning institutions can produce better future leaders for the nation. This will be the result of having graduates with an advanced intellectual aptitude to shape and develop the country.

Research Questions

The following are the research questions that have been outlined based on the above objectives:

- What are the changes in seeking information, study, and learning behavior among students due to the use of web-based resources?

- What is the impact effectiveness in terms of acquiring information and learning for students who use web-based resources compared to those using traditional resources?

- What is the association between the use of electronic libraries and databases with the development of critical thinking among students?

Discussion.

The main goal of this study is to compare the electronic libraries and databases with traditional resources provided in the learning environment for developing students' critical thinking. The study aimed to evaluate the impact of web-based resources in developing critical thinking among undergraduate students at the International Islamic University Malaysia. It was undertaken with the belief that new web-based resources had significantly changed the way people seek information, communicate, and learn. Those changes have potentially affected higher education with promises of more efficient and effective ways for students to develop their skills and knowledge. In order to assess the changes and their impact on critical thinking, it is important to have a comparison made with earlier traditional resources. This study would also try to identify the level of critical thinking among students and its association with the use of electronic libraries and databases. It is expected that the findings of this study may provide useful insights to academicians and educationists on the role of web-based resources in nurturing quality learning and the development of students' intellect.

Critical thinking encompasses a multifaceted set of cognitive abilities that enable individuals to analyze information objectively, evaluate its credibility and validity, and form well-reasoned conclusions. It involves questioning assumptions, identifying biases, recognizing logical fallacies, and considering alternative perspectives. Electronic libraries and databases provide students with unparalleled access to diverse sources, including academic journals, scholarly articles, primary sources, and multimedia materials. This abundance of information allows students to engage in in-depth research, explore multiple viewpoints, and develop a nuanced understanding of complex topics.

Furthermore, electronic resources facilitate the development of critical thinking skills by providing students with opportunities to:

1. Analyze and Evaluate Sources: Electronic databases often include tools and features that assist students in evaluating the credibility and reliability of sources. For example, many databases provide information about the author's credentials, publication date, and peer-review status, enabling students to assess the quality and relevance of the information they encounter.

2. Compare and Contrast Perspectives: Electronic libraries offer access to a wide range of viewpoints on a single topic, allowing students to compare and contrast different arguments and perspectives. This exposure to diverse viewpoints helps students develop a more balanced understanding of complex issues and encourages them to consider alternative viewpoints.

3. Identify Bias and Logical Fallacies: Electronic resources provide students with opportunities to identify bias and logical fallacies in arguments. By critically examining the

language used, the evidence presented, and the underlying assumptions, students can develop the ability to recognize flawed reasoning and unreliable information.

4. Synthesize Information and Form Conclusions: Electronic databases allow students to access and synthesize information from multiple sources, enabling them to form well-informed conclusions based on evidence and critical analysis. This process of synthesis encourages students to develop their own perspectives and articulate their reasoning effectively.

5. Engage in Collaborative Learning: Electronic libraries and databases can facilitate collaborative learning by providing platforms for students to share and discuss research findings, engage in peer review, and work together on projects. This collaborative approach encourages students to challenge each other's ideas, refine their arguments, and develop a deeper understanding of the subject matter.

In addition to the aforementioned benefits, electronic libraries and databases offer several practical advantages that contribute to the development of critical thinking skills. These advantages include:

Accessibility: Electronic resources are accessible from anywhere with an internet connection, allowing students to conduct research and engage in critical thinking activities outside the classroom.

Searchability: Electronic databases offer sophisticated search tools that enable students to quickly and efficiently locate relevant information.

Currency: Electronic resources are often updated regularly, ensuring students have access to the most current and relevant information.

Multimedia Content: Electronic libraries offer a variety of multimedia content, such as videos, podcasts, and interactive simulations, which can enhance students' understanding and engagement with complex topics.

It is important to acknowledge that the effective utilization of electronic libraries and databases requires guidance and support from educators. Librarians play a crucial role in assisting students in developing the necessary research skills and critical thinking abilities to navigate the vast information landscape. By providing instruction in information literacy, research methodologies, and critical analysis techniques, librarians can empower students to become independent and discerning learners.

Results and Analysis.

At the heart of this phenomenon lies the inherent nature of electronic libraries and databases, which transcend the traditional confines of physical book collections. These digital repositories offer students a vast array of resources, spanning academic journals, scholarly articles,

primary sources, multimedia content, and more. This expansive access to information empowers students to engage in deep, multifaceted research, allowing them to explore diverse perspectives, challenge existing assumptions, and delve into the nuances of complex topics. By encouraging students to critically analyze and synthesize information from a multitude of sources, electronic libraries and databases cultivate the essential skills of critical thinking, such as analytical reasoning, problem-solving, and evidence-based decision-making.

Moreover, the interactive and dynamic nature of electronic resources further enhances the development of critical thinking. Many digital platforms incorporate features that facilitate active engagement, such as advanced search functions, interactive visualizations, and collaborative annotation tools. These features enable students to navigate the vast expanse of information with greater efficiency, identify relevant and credible sources, and engage in collaborative discourse with their peers. This interactive approach fosters a deeper level of engagement, as students are required to critically evaluate the validity, reliability, and relevance of the information they encounter, ultimately strengthening their critical thinking abilities.

Additionally, the accessibility and flexibility offered by electronic libraries and databases play a crucial role in fostering critical thinking. Students can access these resources from anywhere, at any time, allowing them to engage in research and analysis seamlessly, even outside the confines of the traditional classroom setting. This flexibility encourages independent learning and self-directed inquiry, as students are empowered to explore topics that align with their own interests and curiosities. By taking ownership of their learning process, students develop a greater sense of agency and a deeper investment in the development of their critical thinking skills.

Furthermore, the integration of electronic libraries and databases into the curriculum provides educators with valuable opportunities to design learning experiences that explicitly target the cultivation of critical thinking. Instructors can incorporate activities and assignments that require students to navigate these digital resources, evaluate the credibility of sources, and synthesize information to formulate well-reasoned arguments. This intentional approach to integrating electronic resources into the learning process ensures that critical thinking is not merely a byproduct, but a central focus of the educational experience.

It is important to note, however, that the mere availability of electronic libraries and databases does not automatically guarantee the development of critical thinking. Effective integration requires a comprehensive approach that includes explicit instruction on information literacy, source evaluation, and critical analysis. Educators must guide students in navigating the complexities of the digital landscape, helping them develop the necessary skills to discern reliable information from misinformation, and to critically engage with the content they encounter.

Conclusion

In conclusion, the integration of electronic libraries and databases into the educational landscape has emerged as a powerful means of cultivating critical thinking among students. By providing access to a vast array of information, facilitating interactive engagement, and offering flexibility in the learning process, these digital resources empower students to explore, analyze, and synthesize knowledge in ways that foster the essential skills of critical thinking. As educational institutions strive to prepare students for the challenges of the 21st century, the strategic incorporation of electronic libraries and databases into the curriculum stands as a pivotal strategy in nurturing the next generation of critical thinkers.

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