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Artículos científicos

La aplicación Biblioteca Digital como recurso tecnológico didáctico en las actividades escolares

The Digital Library application as a didactic technological resource in school activities

O aplicativo Biblioteca Digital como recurso tecnológico didático nas atividades escolares

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Resumen

En la siguiente investigación, de tipo cuantitativo, se presenta una aplicación denominada Biblioteca Digital, la cual tiene como objetivo presentar la frecuencia de uso y el tipo de información que consulta el estudiante durante el desarrollo de sus actividades escolares. Para ello, participaron estudiantes del nivel medio superior pertenecientes a la Universidad Autónoma de Nayarit. La muestra estuvo conformada por 79 estudiantes, los cuales fueron seleccionados mediante la aplicación del método no probabilístico por conveniencia. Para el acopio de la información se aplicó una encuesta conformada por preguntas de tipo cerrada y para el procesamiento de la información se utilizó el *software* SPSS, versión 19; luego, a partir de los datos recabados, se crearon tablas de contingencia que fueron interpretadas. Los resultados demuestran que la aplicación Biblioteca Digital fue un recurso electrónico aceptado por los estudiantes, pues les ofreció un apoyo para su desarrollo escolar. Por eso, se puede concluir que la tecnología constituye una herramienta electrónica potenciadora para la exploración de las habilidades y el

aprovechamiento del conocimiento y el aprendizaje continuo.

Palabras clave: biblioteca digital, educación, información, informática educativa, tecnología.

Abstract

The following research is of a quantitative type, and reveals the application called digital library, with the objective of presenting the frequency of use and the type of information that the student consults during the development of their school activities. The study area focuses on high school 14 belonging to the Autonomous University of Nayarit, respectively with students of the computer science subject, for the sample the non-probabilistic method was used for convenience, obtaining a sample of 79 students to survey. To collect the information, a survey consisting of closed-type questions was applied. For information processing SPSS version 19 software was used, where, based on the data presented, contingency tables were created for the interpretation itself. It is considered that the application called digital library is an electronic resource that is accepted by students, being of great importance for school development, technology can be considered an enhancing electronic tool for the exploration of skills and the use of knowledge and continuous learning.

Keywords: Digital library, education, information, educational informatics, technology.

Resumo

Na pesquisa quantitativa a seguir é apresentado um aplicativo denominado Biblioteca Digital, que tem como objetivo apresentar a frequência de utilização e o tipo de informação que o aluno consulta durante o desenvolvimento de suas atividades escolares. Para isso participaram estudantes do ensino médio da Universidade Autônoma de Nayarit. A amostra foi composta por 79 estudantes, que foram selecionados através da aplicação do método não probabilístico por conveniência. Para a coleta das informações foi aplicado um questionário composto por questões fechadas e utilizado o software SPSS, versão 19, para processamento das informações; Em seguida, com base nos dados coletados, foram criadas e interpretadas tabelas de contingência. Os resultados mostram que o aplicativo Biblioteca Digital foi um recurso eletrônico aceito pelos alunos, pois lhes ofereceu suporte para seu desenvolvimento acadêmico. Portanto, pode-se concluir que a tecnologia constitui uma ferramenta eletrônica potencializadora para a exploração de competências e utilização de conhecimentos e aprendizagem contínua.

Palavras-chave: biblioteca digital, educação, informação, computação educacional, tecnologia.

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Introduction

In the current context—where ICT constitutes an essential factor for the training of students known as "digital natives"—the participation of the teaching staff is crucial to achieve significant changes in the teaching and learning process (Didier, 2018) through more interactive tools that facilitate the learning process.

For this reason, in this research an application called Digital Library is presented, which offers academic and educational resources for the student community. The main objective is to determine how often students use this application and use the digital material available to help in their school activities.

ICT as educational resources

For new generations, technology is present from an early age and has been completely integrated into their lives. Therefore, it is essential to consider it in the development of your daily activities, since it is an integral part of your personal and social life, and contributes to the development of new skills (García et al., 2017 *)* .

In this sense, the epistemological and methodological value of ICT offers the possibility of significant change through a wide range of curricula, teaching and evaluation methods that address the educational dynamics of training programs, which promotes the empowerment of students and allows them to take control of their own learning process (Padilla-Beltrán *et al* ., 2014). In other words, technology is a resource that can increase the efficiency of learning when used with the explicit purpose of improving the process of educating students. In addition, it provides access to databases and facilitates communication on various topics (Salinas, 2020). Consequently, educational institutions, which were traditionally the only sources of information, no longer play this role exclusively (García *et al* ., 2017).

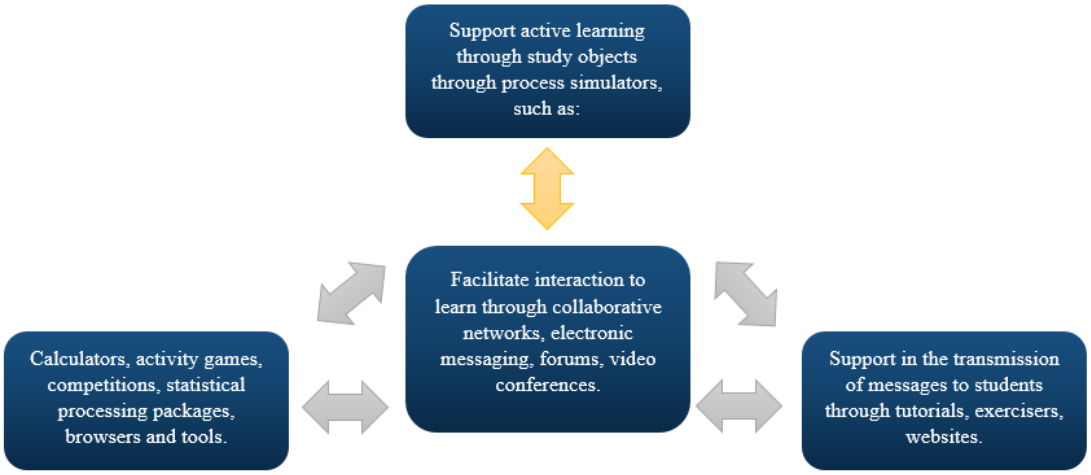
However, the incorporation of ICT as mediators in the knowledge construction process does not imply the elimination of the teacher's role; On the contrary, it allows teachers to fully develop their didactic and leadership functions, managing content effectively and creating adaptive strategies according to changing circumstances (Suasnabas *et al* ., 2018).

ICT and the student

The use of ICT facilitates group work and allows students to actively participate in their own learning process, which requires the reorganization of the pedagogical strategies used. Therefore, one of the main challenges lies in the development of new learning environments that use collaborative platforms, virtual spaces, computer networks and other useful tools to address the overwhelming amount of information available on the Internet (Comboza et al., 2021) . . This generates significant changes in various aspects of educational systems, since ICT are fundamental pedagogical tools that facilitate communication and collaboration between students (García et al., 2017), who have become *familiar* with them, especially since arrival of the internet (Guerrero, November 19, 2020).

In this context, higher education institutions and national research centers that provide access to modern content, materials and learning environments have been integrated into the international educational sphere. This involves the participation of students, teachers and researchers in a global technological environment (Laxague and Bedolla, 2018), through various approaches to enrich learning environments and support academic activities (figure 1).

Figure 1. Student learning environments through ICT



Source: own elaboration based on the information consulted

From the above, it can be indicated that technologies in teaching contribute to equal opportunities for students and professional updating constantly (Gómez, August 30, 2019). To do this, however, the student must commit to their own learning through the development of skills that allow them to understand and take advantage of the resources available on the Internet (Roca, 2020), while the teacher must design didactic strategies that facilitate and stimulate this learning. process (Falla *et al* ., 2021).

Digital libraries today

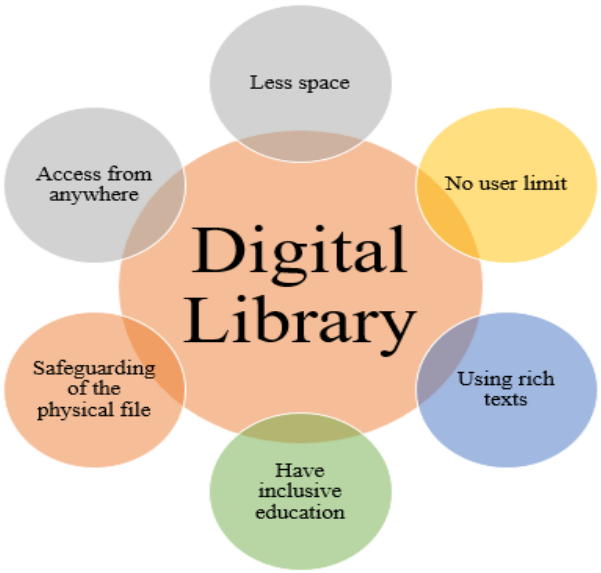
Digital libraries currently allow us to retrieve all types of documents and information through online electronic catalogs that rest on library management systems, which is part of the global development for the dissemination of culture and knowledge (Castillo-Celis et al . ., 2021). In other words, a digital library is a student-oriented consultation, learning and support tool, as it provides content and services in a digital format organized to benefit users (Lartiguez et al., 2020 *)* .

Information services in a library, therefore, act as a bridge between collections and users (Morales, 2018). Often when people think of a library, they associate it with finding books on topics such as literature or learning theory. However, these spaces offer not only physical books, but also online databases, electronic journals, e-books, audio and video content, etc., which is why they have achieved considerable popularity in the last decade.

Benefits of digital libraries

Digital libraries or open access databases are beneficial for users, since they provide a variety of digitized content that they can access easily and quickly when they need to carry out academic work (Flores et al., 2021). Another of their advantages is that, compared to physical libraries, they save money and accessibility, since they can be accessed anytime, anywhere, from a computer or mobile device. This allows users to find and access information without having to physically go to a library or archive (figure 2).

Figure 2. Advantages of digital libraries



Source: Own elaboration based on Gomariz *et al* . (November 8, 2020)

Finally, users can search, download and save digital documents on their devices, meaning people don't have to worry about losing information.

General objective

The objective of the following research was to know the frequency of use, as well as the type of information that the student consults and downloads in the Digital Library application for the development of their school activities. Likewise, describe its importance and benefits within the academic community.

Research question

What benefits does the digital library provide to improve the student's educational process during the school year?

Method

The research was quantitative, as it involved participation in objective and specific activities through measurement and quantification mechanisms (Jiménez *et al* ., 2022). In other words, the generation of knowledge was sought through the interpretation of the changing material and sociocultural needs of reality (Molina and Garza, 2021). Specifically, quantitative methods and statistical inference were used to extrapolate the results of a sample (Rus, January 1, 2021). To do this, we worked with students belonging to the upper secondary level who were presented with an application called Digital Library, which offers book consultation and download services.

Sample

For the sample, the non-probabilistic method was used for convenience. This approach is characterized by a dedicated search for a qualitatively representative sample through inclusion in the population. That is, in addition to intentionally selecting the individuals among them, they satisfy the characteristics of interest to the researcher (Hernández and Carpio, 2019). Specifically, a sample of 79 students was obtained.

Research instrument

To collect the information, a survey was used, a technique in which standardized questionnaires are used to consult individuals or study groups on a wide variety of topics, such as attitudes, beliefs, opinions, consumption patterns, habits, dominant biases and intentions. of voting, among others (Katz *et al* ., 2019). These surveys consist of closed-type questions that provide predefined response options. They are particularly useful in self-interview questionnaires, as they simplify the process for respondents and, therefore, are highly recommended in official statistical projects (Silva, 2021).

The questions asked included age, gender, time spent using the digital library, field of knowledge consulted in the digital library, frequency of use of the application, downloading books from the digital library and benefits that it brings to their educational process.

Information processing

software , version 19 , was used to process the information. From the data collected, contingency tables were created and interpreted.

Results

Application Description

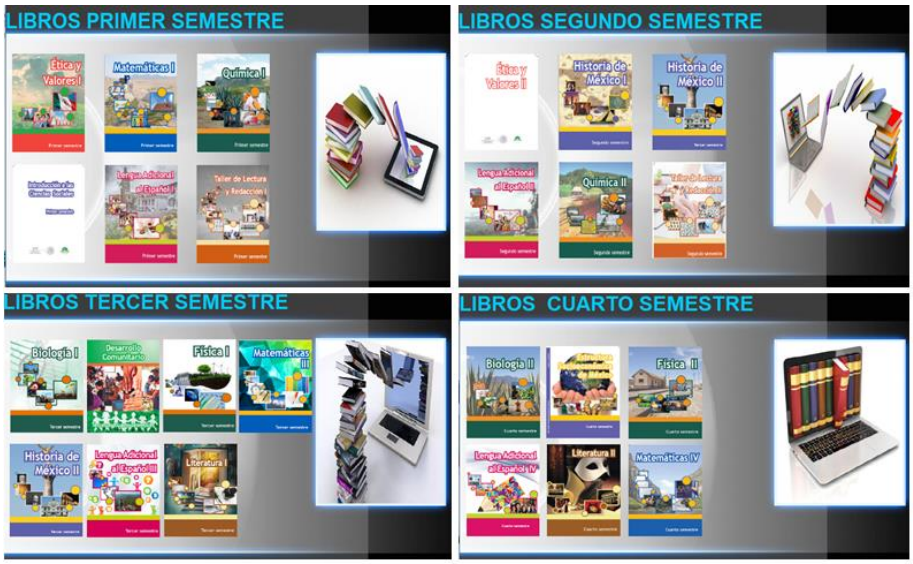
Below is a graphic description of the Digital Library. It is worth mentioning that this was developed with the Autoplay Media Studio *software* , version 8, personal edition. Once the application is started, the main application window is displayed (figure 3).

Figure 3. Main window of the Digital Library

Source: self made

In the previous figure you can see that within the main window the presentation and consultation options for various digital books in the library appear, which were loaded by default for consultation and download in PDF format. Books are available in the application for students studying from the first to the sixth semester (figure 4).

Figure 4. Digital books for consultation

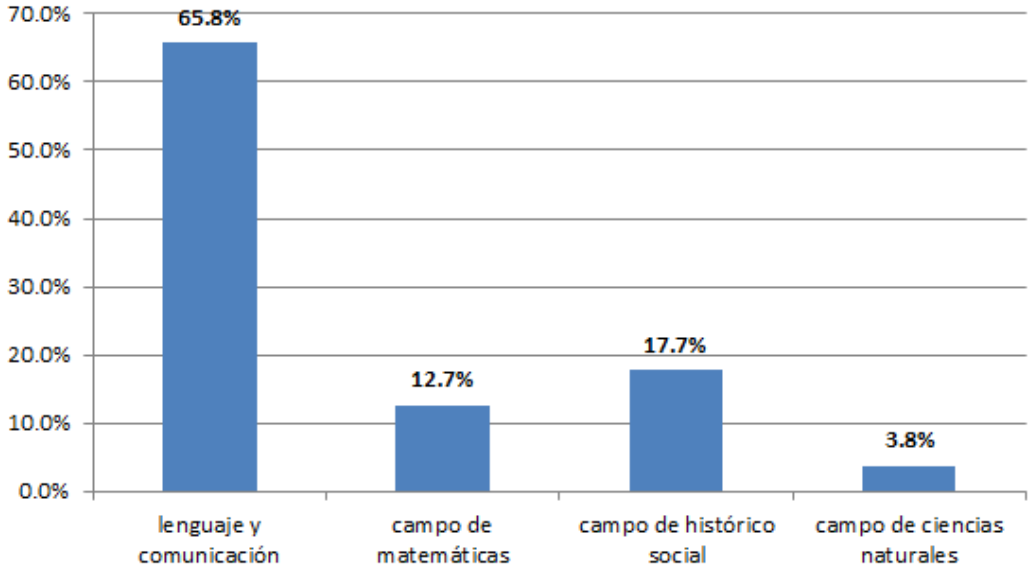


Source: self made

The results obtained from the survey applied to the students are presented below. The average ages of the students who use this application are between 15 and 25 years old (72.2%), 26 and 35 years old (12.7%), 36 and 45 years old (12.7%) and over 46 years old (2.5%). Regarding gender, 67.1% women and 32.9% men.

Likewise, students were asked how many hours they dedicated to the Digital Library application. The results show that 3.8% dedicate less than one hour, 31.6% between one and two hours, 38% three to five hours, 16.5% five to 8 hours, and only 10.1% do not know how many hours dedicated to the platform. In addition, they were asked what field of knowledge they consulted: 65.8% consulted works on language and communication, 12.7% on mathematics, 17.7% on the field of historical and social, and 3.8% on natural sciences (figure 5).

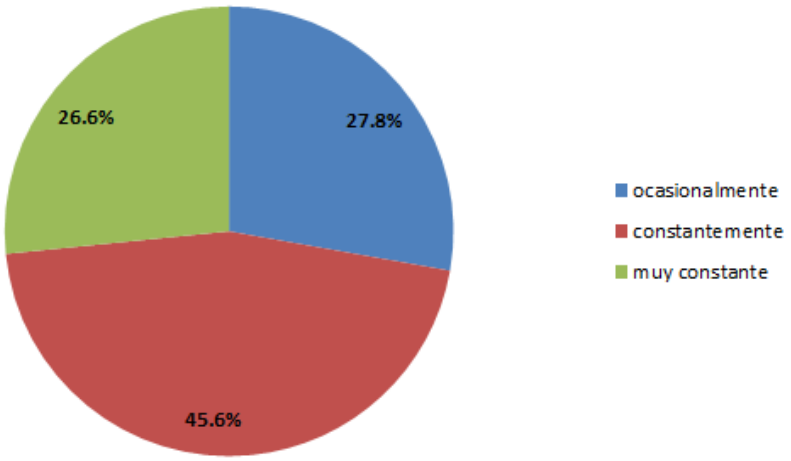
Figure 5. Query of the field of knowledge



Source: self made

Regarding the frequency of use of the application, the results were the following: 27.8% occasionally, 45.6% constantly and 26.6% very constantly (figure 6).

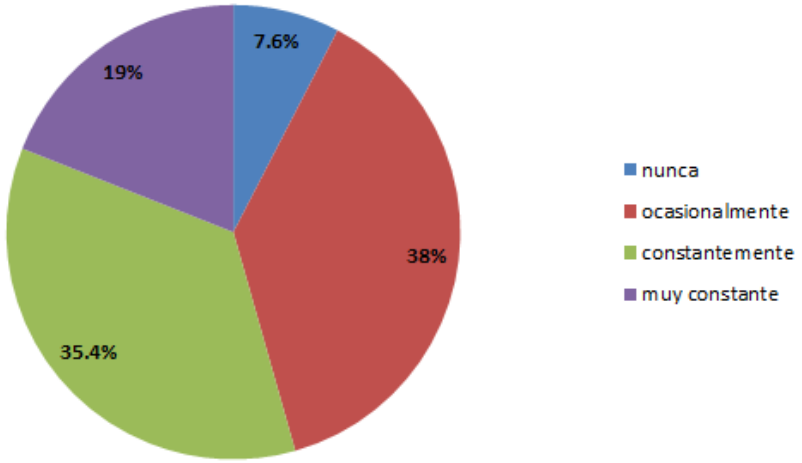
Figure 6. Using the application



Source: self made

Similarly, they were asked if they had downloaded books from the Digital Library: 7.6% never do so, 38% occasionally, 35.4% constantly, and 19% very constantly (figure 7).

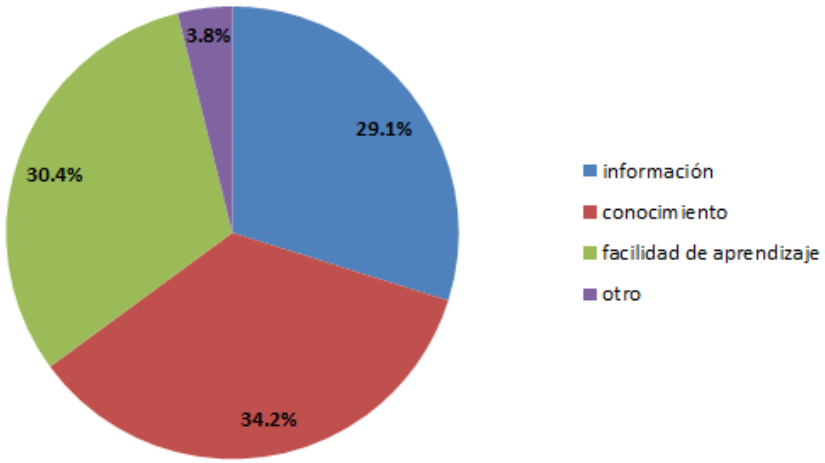
Figure 7. Have you downloaded books from the digital library?



Source: self made

Finally, they asked what the Digital Library contributes to their educational process: 29.1% provide information, 34.2% knowledge, 30.4% ease of learning, and 6.3% another type of learning (figure 8).

Figure 8. What does the digital library give you?



Source: self made

Finally, regarding the question "What benefits does the digital library provide for improving the student's educational process during the school year?", it can be noted that this resource offers very useful information for school development, which facilitates understanding of the subjects and motivates the student to continue with their improvement. In addition, this type of technology can promote collaborative work to achieve objectives.

Discussion

As already mentioned, the application was designed to allow students to consult and download books, ensuring that they can carry out their academic tasks at the institution. In this sense, it is observed that the most frequent users of this application are women, aged between 15 and 25 years, which indicates that these people are familiar with this technology and find it easy to use. Additionally, students consult the app for three to five hours a week (38%), followed by those who use it for one to two hours (31.6%). This suggests that the app is widely accepted and very useful. Following this line, Torres and Cobo (2017) maintain that educational technology is concerned with taking advantage of instructional and audiovisual resources designed to improve educational environments.

Regarding the most consulted field of knowledge in the digital library, language and communication lead with 65.8%, which makes sense due to its relationship with computer technology. Furthermore, the historical-social field stands out with 17.7%. This reflects a constant frequency of use during the week to develop work, research, among other academic purposes.

On the other hand, students regularly download e-books to satisfy various needs, both inside and outside the institution. They carry with them valuable and essential information to understand subjects or carry out research projects related to other classes, which highlights the usefulness of this type of tools, which offer constant support and strengthen knowledge and continuous learning. This differs from the point of view of Gómez (2008), who considers that these materials represent the way in which students access knowledge, which underlines the variety of significant resources that a digital library can contain, such as catalogs, software *programs* , among others.

Still, it is evident that the digital application provides students with knowledge and facilitates the learning process. In addition, the tool is oriented towards use and performance, maintaining students' attention and promoting the development of self-taught skills in study and research. It also promotes teamwork and initiative in problem solving, which contributes to the formation of critical thinking.

In this sense, Zapata-Gallegos *et al* . (2021) argue that technologies are transforming continuing education through a variety of resources, such as online books, mobile technology, digital assessment, and social learning. This defines a new era of knowledge based on digital tools that are available to both teachers and students, expanding the perspectives and strategies that lead to education with a transformative social impact in the digital educational environment.

Conclusion

It can be concluded that the Digital Library application has become an electronic resource widely accepted by students, as it has played a crucial role in their academic development. This once again confirms the original objective of this tool, which is reflected in its constant use and the preference for consulting information related to the field of language and communication due to its link with computer technologies.

Therefore, it can be stated that technology must play an essential role in all aspects of education, since it has become a tool of daily use. In addition, ICT facilitates various aspects of education, such as task management through applications used by students, making them indispensable resources in an online class environment. Ultimately, ICT has come to simplify the lives of students and revolutionize the way they communicate and share knowledge through a variety of media.

Future lines of research

Currently, with the advancement of technology and digitalization, we live in a globalized and interconnected world through the Internet, which has driven significant progress in the field of education and has opened new opportunities to transform teaching methods. and learning. Therefore, education and digital tools raise the following lines of research:

- Management and planning of strategies to improve education through the support of ICT.
- Carry out research to provide the good use of ICT among teachers and students.
- Blended learning (*B-Learning*) in face-to-face and virtual spaces, and in synchronous and asynchronous modalities.

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