POTENTIAL OF LEARNING OBJECTS IN THE EDUCATIONAL PROCESS: A FOCUS ON TUTORING AND MOTIVATION

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Abstract: This study uses an action research approach to examine the incidence of learning objects (LO) in the tutorial work with high school students. A quasi-experimental, transectional and descriptive design is used. The sample includes 894 students from four high schools in the System. of Higher Secondary Education (SEMS) of ``Universidad de Guadalajara``. Three information collection instruments were used: a rubric and a weighted checklist for the evaluation of OA, and a survey to determine the degree of satisfaction regarding the usability of the OA in the tutorial work, a statistical analysis was carried out. descriptive using Excel tools, as a result, the relevance and application of learning objects in the tutorial action can be guaranteed, not only because they awaken the students' motivation for the various topics, but because the scalability of the LOs themselves that makes them in excellent tools for adaptive learning.

Keywords: Learning objects, tutorial work, high school students.

ININTRODUCTION

In the digital era, the integration of information and communication technologies (ICT) in the educational field has significantly transformed the way in which we teach and learn., orOne of the digital resources that has gained relevance in this context are learning objects (LO).since andThese autonomous and reusable resources have emerged as a promising tool to enrich the educational process and improve the quality of teaching (López, sf).

Learning objects are units of digital content that contain structured information and are presented in various formats, such as videos, animations, interactive presentations, simulations, among others. These objects are designed to address specific learning objectives and can be used in different

contexts. educational, such as online courses, virtual classrooms or as a complement to face-to-face teaching (UCC, 2018; Samboy, 2018).

In the Mexican educational system, specifically at the high school level, teachers who serve as tutors require materials that facilitate their work and that serve as support in the generation of strategies and activities to meet the objectives of the tutorial action; how to guide students at a vocational, academic and human development level in general, tutors are teachers with different profiles and training, so it is complex to specify a profile and although this diversifies the knowledge that tutors have, they They also serve students with different needs in their groups; not all of them have knowledge and skills focused on didactics, support and the use of educational technology (SEMS-UdeG, 2003; SEMS-UdeG,2010;SEMS-UdeG, 2021), the work of the tutor in the Higher Secondary Education System (SEMS), is regulated through the document "Tutoring in the Higher Secondary Education System of ``Universidad de Guadalajara``" (Martínez, Prieto, Alcalde, García, Ramírez and Preciado, 2017), which refers to four lines of work: academic guidance, vocational guidance, guidance for human development and family guidance.

Now, with regard to the inputs for the tutor's work, according to the report of the Tutoring Coordinators of the SEMS Educational Guidance Unit (2021), tutors do not always have adequate didactic material for working with adolescents and parents, who also respond to a generation inserted in the digital age that allows them to carry out their work and counteract the problem situations they face on a daily basis in each of the lines mentioned in advance, so it is considered that due As the increasing availability of digital resources and widespread access to the Internet have facilitated the creation and distribution of learning objects, these resources offer significant advantages, such as the possibility of adapting to different learning styles, allowing interactivity, encouraging self-learning and promoting the active participation of students.

Despite their growing popularity, it is essential to understand the real impact that learning objects have on the educational process. Although numerous potential benefits have been reported, rigorous research needs to be carried out to empirically evaluate their effectiveness and determine how can be optimized to improve the acquisition of knowledge and skills, the objective of this study was to investigate the impact of learning objects in the educational process, by evaluating learning results and measuring student motivation, it is sought determine whether the use of learning objects has a positive effect on the achievement of educational objectives and on the intrinsic motivation of students.

The findings of this study could have significant implications for teaching practice and the design of learning environments, understanding how learning objects can influence the educational process will allow educators to make informed decisions about their integration into pedagogical practices and improve the quality of education, in general this research aims to explore the impact of learning objects on the learning and motivation of students, so we sought to obtain empirical evidence on the effectiveness of these digital resources and their potential to transform the educational process for the benefit of students.

METHODOLOGY

In this research, it was decided to use an action research approach, considered a very rich methodological option. This approach allowed the generation of knowledge, while providing concrete answers to the problems

identified in the educational field (Colmenares, 2012), following Martínez (2009), cited in Guevara Alban, Verdesoto Arguello and Castro Molina (2020), it is recognized that the action research method implies a new vision of the human being and science, more than a process with different techniques, the design used It was quasi-experimental, transectional and descriptive (Hernández-Sampieri, Collado, and Baptista 2014), this type of design focuses on investigating the incidence of one or more variables in a population, in this case, we were interested in investigating the relevance of the learning objects as part of the accompanying strategies in the tutorial action of high school students.

The study was carried out in 4 high schools of the Higher Secondary Education System (SEMS) of ``Universidad de Guadalajara`` (UDG), specifically, students from High School Number: 14, High School Number: 11, Vocational High School and Regional High School of Casimiro Castillo. The sample was selected intentionally or by convenience (Latorre, Rincón, Arnal, 2003), with the aim of guaranteeing that it was representative of the population and with high levels of trust.

As for the data collection process, three instruments were used: the rubric for OA, the weighted checklist for OA and a survey designed in Google forms. The rubric and the weighted checklist were used so that the disciplinary experts, in didactics and pedagogy, as well as the technologists, evaluate the OA designed before their implementation. These instruments attached to the international quality guidelines for the design of OA, considering didactic and technological criteria, the survey was integrated with 23 items and was applied through Google forms. The Likert scale was used as a scaling method, where participants had to indicate their degree of satisfaction in the usability of the OA in the tutorial work.

STATISTIC ANALYSIS

The process of systematization and analysis of the information was carried out through descriptive statistical analysis, using the Excel tool, descriptive techniques were applied to understand the structure of the data, detect behavioral patterns and summarize the data using characteristic numbers and graphs. This study was based on an action research approach, with a non-experimental, transectional and descriptive design, an intentionally selected sample corresponding to four high schools of ``Universidad de Guadalajara`` was used and three instruments were used to collect information. ; a rubric and a weighted checklist for the evaluation of OA and a survey to determine the degree of satisfaction regarding the usability of the OA in the tutorial work, the processing of the information was carried out through statistical analyzes of a nature descriptive.

RESULTS

The information retrieval process was carried out through a Google form in which students were asked to evaluate the usability of the learning objects in the tutorial work, from their own perspective and based on their experience. by exploring the LOs and carrying out the activities that each one.

The information collected regarding the number of LOs designed has been graphed based on the line of tutorial action to which they correspond, as well as at the time of the tutorial action in which it has been implemented, the information collected from the form was downloaded to Excel for processing so that the following analysis was obtained: the total sample was 894 students from 4 SEMS high schools, specifically High School Number: 14, High School Number: 11, Vocational High School and Casimiro Castillo Regional High School, as you can appreciate, (in figure 1)The sample was practically balanced between men and

women, only 1% of the population preferred not to indicate their sex, the age range that predominated among the participants is between 15 and 16 years (see figure 2), which could be considered as students of the first 3 semesters, although as can be seen (in figure 3), the bulk of the sample is in the first or second semester, that is, they are at the time of the entrance tutoring, so it is considered important to address elements that give them identity as university students.
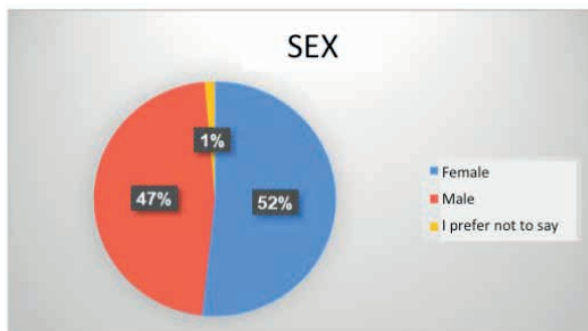

Figure 1.Sample sex
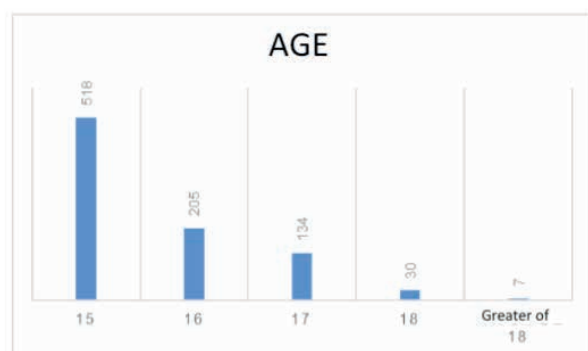
Fountain: Own creation

Figure 2: Age of participants
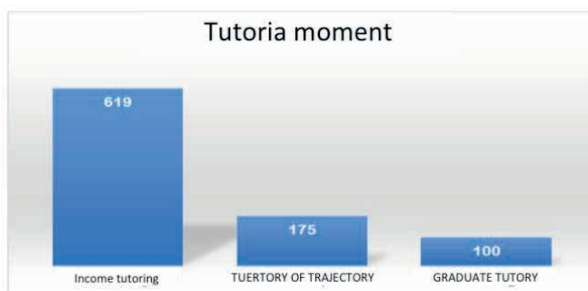
Fountain: Own creation

Figure 3: Moment of the tutorial in which the participants are

Fountain: Own creation

In addition to basic demographic data, the form included 23 questions so that participants could evaluate their experience once they had explored the AOs and completed the activities included in each of them. As can be seen in Table 1, the average of all the criteria and elements evaluated by the participants is above 4, where the maximum would be 5, since the questionnaire responses were weighted from 1 to 5. This means that the Users considered each of the LOs relevant to favor their training process, in addition to considering that the support strategies favor the tutorial action.

Elements evaluated by students in all LOs	Half
How did you feel when using the teaching material?	4.15
Help of teaching materials to establish learning goals	4.13
The structuring and ease of monitoring of the teaching material	4.16
The inclusion of examples and practical activities	4.00
The structure and ease of monitoring of the teaching material	4.16
Useful tools to monitor your learning	4.12
Encourage interaction with other students and share their doubts	4.07
Ease of practicing what has been learned	4.12
Support to achieve your learning goals in terms of tutoring	4.10
Stay motivated and interested in the topic	4.07
As an aid in your learning process	4.07
The topicality and relevance of the content	4.06
The usefulness of examples and practical cases for understanding the topic	4.09
The possibility of practicing and applying what has been learned	4.10
The ease of reviewing and re-viewing the contents of the material	4.07
Support in understanding and long-term retention of knowledge	4.07
Degree of satisfaction and possibility of recommending its use to other students	4.10
Learning objectives were met	4.08
Utility and interactivity of the material	4.04
Adaptation to your skill level	4.13
Material feedback helps improve your knowledge	4.11

Usefulness of additional materials	4.10
The ability to personalize your learning experience	4.15

Table 1. Criteria evaluated by students

Source: Own creation.

As can be identified in thefigure 4, the majority of students felt very satisfied or satisfied with the general structure and functionality of the LOs, they even considered them as useful tools to reinforce knowledge, favor their training process and interaction with their classmates. However, the number of students who maintain a neutral posture becomes relevant, so it is considered necessary that in subsequent applications an item be added referring to the reason for the answers with a value of 1, 2 and 3, which Although they are minimal, it is important to identify areas of opportunity for updating materials.
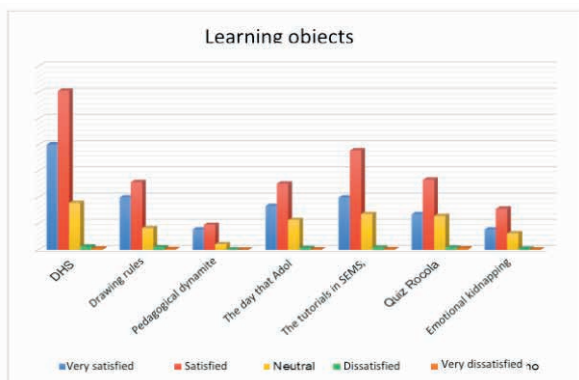

Figure 4: Comparison between learning objects

Source: Own creation

By analyzing the informants' responses, it was possible to identify the general level of satisfaction with having used the different learning objects, as well as the capacity they consider that the LOs have to help them achieve their academic goals.(figure 5), given that the adaptability of LOs favors the possibility of personalizing the learning process, which means that LOs have high potential as a tool to promote adaptive learning.
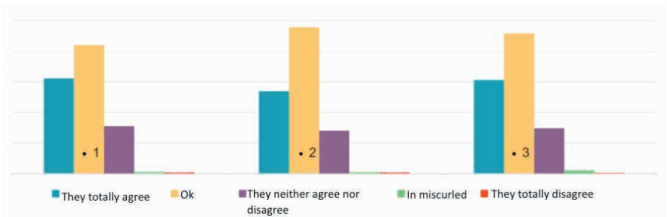

Figure 5: Comparison between satisfaction with the teaching material, goals and personalization of learning

Source: Own creation

The results of this study demonstrate that LOs used in tutorial scenarios are viable and versatile, both in the tutorial action and in the students' learning process. These educational materials allow students to set and achieve their learning objectives, follow clear and well-structured instructions, learn from practical examples and activities, monitor their progress, interact with other students, practice what they have learned, and stay motivated and interested in the subject.

In addition, it was found that students who used these LOs have a better understanding of the topic, can practice and apply what they have learned, and have the possibility of reviewing the content when they need to. They also perceive the usefulness and interactivity of OAs, as well as their ability to adapt to their skill level. Students recognize the feedback that the materials provide and appreciate the additional resources that allow them to personalize their learning experience. In general, the analysis of the evaluation results indicates that the LOs have been effective in supporting the learning and tutoring processes of students, as they have facilitated goal achievement, improved understanding, promoted motivation, and provided a personalized and adaptive learning experience, these findings highlight the importance and potential of incorporating such LOs into educational settings to improve overall learning outcomes. student learning.

DISCUSSION

Student feedback on the strengths and areas for improvement of the LOs highlighted its effectiveness in goal setting, ease of follow-up, applicability to real-life situations, interaction with peers, contribution to achievement of learning objectives, motivation and content relevance, areas for improvement included the need for better tracking of learning progress, personalized content and greater long-term retention and understanding, recommendations to address these areas of opportunity include encourage students' interest in self-directed learning, incorporate retention strategies such as memory games, and diversify the range of LOs to cater for different learning styles.

The application of designed LOs in tutoring scenarios demonstrated several types of motivation for students, such as interactivity, attractiveness compared to traditional materials, the sense of competition and game elements, autonomy in the pace of learning andaccessibility for review, while favoring tutorial action, in both directions. Below, in Table 2, some of the qualities and benefits identified in the LOs that support the argument of their relevance in the tutorial action are presented.

Quality	Benefit
Interactivity	Offer a variety of activities and resources to support learning. This can make learning more interesting and motivating for students.
Autonomous Learning	Promote autonomous learning, independence and self-assessment in your learning process. This can help students become more responsible for their own learning.
Adaptability	Learning materials adapted to your needs and learning rates. This can improve students' understanding and retention of the material.
Accessibility	LOs allow students to access learning materials anytime, anywhere, allowing them to study and learn at their own pace.
Usability and intuitive navigation	It is an important aspect to improve the tutorial action in high school students since it allows students to access and effectively use learning resources, with clear navigation to help students find the information they need.
Multimedia resources	Include a variety of multimedia resources, such as images, videos, and audio, to help students better understand and retain information.
Feedback	Feedback must be instantaneous to help students better understand concepts and know if they are making progress.
Safe and collaborative environment	Provide a safe and collaborative environment in which students can share their thoughts and questions with their peers and tutors.
Starting point for discussions and activities	The learning objects must be used as a starting point for discussions and activities in tutoring sessions to help students understand and apply the concepts.
Evaluate the impact	Regular assessments must be conducted to measure the impact of learning objects on student learning and make adjustments accordingly.

Table 2: Qualities and benefits of Learning Objects

Source: Own creation

These characteristics align with the proposals of Callejas, Hernández and Pinzón (2011) on the flexibility, adaptability and modularity of learning objects designed for tutoring. The satisfaction expressed by students in terms of flexibility, motivation and personalization indicates that the designed learning objects meet these characteristics and are efficient and affordable resources. Research has shown that the use of OA can improve students' academic performance. increase motivation and interest in learning, as well as improve learning efficiency, some studies have also found that the use of OA can reduce the study time needed to reach a certain level of understanding, and increase long-term retention. information deadline. However, it has also been pointed out that the use of LOs does not automatically guarantee better learning, so it is considered important to take into account that the quality of LOs and the way in which they are used are critical factors in their effectiveness.

In the application of the designed LOs, various types of motivation were identified that the students mentioned such as being interactive, more attractive than traditional

learning materials, which could motivate them to participate and learn more actively; that allowed them to learn at their own pace and based on their individual needs, which can motivate them to take responsibility for their own learning and develop a sense of autonomy, students saw LOs as a game and competition with themselves and with their peers since they included game elements such as tests, challenges and interactive games, which could motivate students to learn and overcome goals that they also considered accessible because they could consult them several times to be able to review a topic or remember knowledge.

For all of the above, it is possible to consider that learning objects are a useful tool in tutorial support, although it is important to keep in mind that their effectiveness will depend on the appropriate design and use, therefore, the application of OA in the tutorial action is highly relevant as part of the support strategies to promote tutorial action, given that it has the capacity to improve the effectiveness of learning and increase the satisfaction and motivation of students, as well as a resource for the tutor, capable of addressing problems related to the training and development of pedagogical and mentoring skills; guidance and support to manage difficult situations or conflicts with students; an opportunity to collaborate and learn from other tutors; support to manage and overcome personal and professional challenges that may affect your role as a tutor; an indispensable factor for the evaluation and feedback necessary to favorably influence your practice as a group tutor.

CONCLUSIONS

The use of OA in tutorial scenarios for high school students has demonstrated several qualities and benefits that support its relevance in tutorial actions, including interactivity, promotion of autonomous learning, adaptability to individual needs, accessibility, usability with intuitive navigation, multimedia resources, instant feedback, provision of a safe and collaborative environment that serves as a starting point for discussions and activities that can improve academic performance, motivation, interest in learning and learning efficiency, without However, it is important to consider that the quality of LOs and their appropriate use are critical factors in their effectiveness, the interactive and personalized nature of the learning objects guarantees a more attractive educational experience, which satisfies the individual needs of the students, this is aligns with the objectives outlined in the SEMS tutorial action program through the use of learning objects.

To improve future research in this area, it is recommended to include a questionnaire for teachers to collect their perspectives on the use of OA, in addition, the incorporation of a quasi-experimental design would allow observing learning outcomes before and after the implementation of OA. learning objects, since this way it provides empirical evidence that the use of learning objects in tutoring sessions for high school students can contribute to improving learning results.

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