

Experience in the use of a technological platform for the transdisciplinary follow-up of university students with some type of condition and/or disability
Experiencia en el uso de una plataforma tecnológica para el seguimiento transdisciplinario de estudiantes universitarios con algún tipo de condición y/o discapacidad

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Summary. Inclusion is a continuous and dynamic process that requires a constant commitment on the part of all the actors in society. The main objective of this work is to present the results of a study that was applied to the follow-up of three university students diagnosed with autism during a school year, using a technological platform that allows the monitoring of students. At the end of the study, a questionnaire was applied with which it can be concluded that the use of the technological platform facilitates the personalized follow-up of students with some type of condition and/or disability that allows the implementation of strategies in a timely manner.

Keywords: Disability, Transdisciplinary follow-up, Technological platform.

Resumen. La inclusión es un proceso continuo y dinámico que requiere un compromiso constante por parte de todos los actores de la sociedad. El objetivo principal de este trabajo es presentar los resultados de un estudio que se aplicó al seguimiento de tres estudiantes universitarios diagnosticados con autismo durante un año escolar, utilizando una plataforma tecnológica que permite el seguimiento de los estudiantes. Al finalizar el estudio se aplicó un cuestionario con el cual se puede concluir que el uso de la plataforma tecnológica facilita el seguimiento personalizado de estudiantes con algún tipo de condición y/o discapacidad que permite implementar estrategias de manera oportuna.

Palabras clave: Discapacidad, Seguimiento transdisciplinario, Plataforma tecnológica.

1 Introduction

As part of their responsibility to society and recognizing the rights of students, universities must promote access for people with disabilities in equal circumstances.

People with disabilities must have access to an inclusive and specialized quality education, therefore it is important to support the training process of students with disabilities, allowing them to improve their skills, abilities and skills throughout the educational process, which starts from the moment the student enters the university until the end of it.

UNESCO defines inclusive education in its concept paper: “Inclusion is seen as the process of identifying and responding to the diversity of needs of all learners through greater participation in learning, cultures and communities, and reducing exclusion in education. It implies changes and modifications in content, approaches, structures and strategies, with a common vision that includes all children of the appropriate age range and the conviction that it is the responsibility of the regular system to educate all children [1].

Educational institutions must promote educational inclusion and for this they must have the following components: technological, technical and human support, teachers who must provide support and pedagogical monitoring to students, curricular adaptations and adjustments must be made. physical, to overcome the lags and difficulties in the academic trajectory of students with disabilities, thus favoring the development of skills on equal terms.

According to the United Nations Development Program, the global adult literacy rate with disabilities is just 3%, and just 1% for women with disabilities. The 1 billion people with disabilities are the world's largest minority, accounting for about 15% of the world's population. Therefore, it is urgent that they be fully integrated into society, which implies equal access to quality education [2].

Several investigations carried out in university environments have indicated that in addition to a receptive attitude towards the issue of disability, certain minimum conditions are also required that allow teachers to make

the necessary adjustments, in addition to a general awareness that people with disabilities they require certain conditions that institutions must provide to ensure equitable education for all.

Various investigations carried out in university contexts suggest that in order to create a truly inclusive environment, in addition to an openness towards the issue of disability, minimum conditions are required for teachers to make the necessary adjustments and an awareness that people with disabilities need conditions that institutions must grant to guarantee the education of all equally [3] [4] [5] [6].

The evidence from several studies coincides in recognizing the lack of knowledge of university teachers in relation to curricular adaptations and the scant training they receive in terms of disability and inclusive pedagogical methodologies [7] [8] [9] [10] [5]. Therefore, it is essential to implement policies at the institutional level in universities, with the aim of establishing and regulating the necessary supports, adaptations and definitions that teachers must carry out to provide an inclusive education to students with disabilities [11] [12] [5]. It is essential to take into account the particularities and differences in the contents of the subjects and careers that are taught in the same institution, to ensure that the needs of all students are met equitably [13].

In order to comply with the definition of inclusive education established by UNESCO, it is necessary to carry out a series of actions and measures. This implies proposing personalized follow-up plans for students with individual educational needs in higher education centers and improving academic attention as good university practices, the opportunity to systematize and identify difficulties of students with individual educational needs, monitoring learning and propose a teacher training plan to address diversity [14].

Information Technologies (IT) have become a critical component of universities in all areas: teaching, research and administration. They are a strategic element that provides support to the main university services [15].

Information systems have changed the way organizations operate. Through its use, improvements are achieved: they automate processes, facilitate the manipulation of information for the decision-making process, facilitate the achievement of competitive advantages through their implementation within organizations [16].

Specifically, in the educational field, having a platform that facilitates the individualized follow-up of students and is accessible to teachers and decision makers, would enable the analysis, design, and implementation of an academic support and monitoring program intended to accompany students. students with any condition and/or disability.

The main objective of this work is to analyze from the perspective of the users the use of a technological tool for the personalized follow-up of students with some type of condition and/or disability in a class period. The users considered for its use are teachers, parents, psycho-pedagogical area, medical area, administration managers and decision makers.

The technological tool was developed in the laboratory of the Research and Development Group for Inclusive Technologies and Educational Innovation (GIDTIITEC, by its Spanish initials), at the Autonomous University of Baja California Sur (UABCS, for its Spanish initials).

2 Methodology

For this study, the tool presented in [17] was used, which is focused on monitor-ing university students with some type of condition and/or disability. This tool allows personalized monitoring of students and the interaction of those who participate in the teaching-learning process. Figure 1 shows the interaction scheme of the users of the platform.

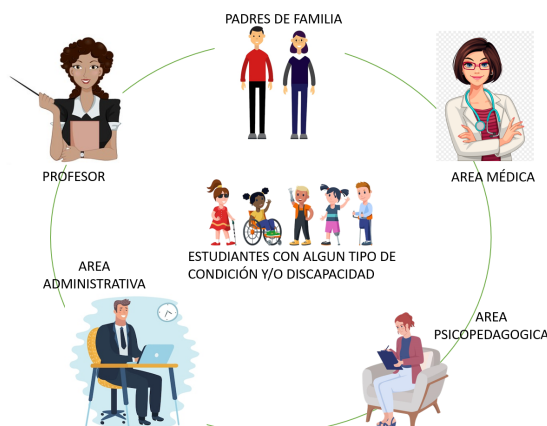


Figure 1. Platform user interaction scheme.

In order to obtain initial information about the acceptance of the tool a 4-stage study was designed: 1) Selection of participants, 2) Training of users, 3) Use of the platform, and 4) Evaluation of the results. Below each of the stages is de-scribed in detail:

The first stage consisted of:

1. Select a group of students with some kind of condition and/or disability enrolled in some degree of Academic Department of Computer Systems (DASC, for its Spanish initials): Engineering in Software Development (IDS, for its Spanish initials), Engineering in Computer Technology (ITC, for its Spanish initials) and Bachelor of Administration of Information Technologies (LATI, for its Spanish initials).

2. Three students were selected: a second-semester IDS degree student; a sixth semester ITC degree pupil; a sixth semester IDS degree student. The three students of the male sex between the ages of 19 and 23, diagnosed with Autism.

3. A meeting was held with the teachers who imparted the subjects in the groups of the selected students, a total of 19 teachers. They were assigned an account for their login to the platform. The meeting was attended by a teacher from the special education area, who was also assigned an account for his entry into the platform. Figure 2 shows evidence of the meeting held with the teachers who participated.

4. A meeting was held with the parents of the selected students, where they were informed of the test that would be carried out and they agreed. They were assigned an account to enter the platform.



Figure 2. Face-to-face meeting with participating teachers.

During the second stage, training for the use of the technological platform was carried out for the users who participated in the semester. The training was carried out in a hybrid way, to facilitate the participation of all users. Figure 3 shows evidence of the training meetings that were held.

The third stage consisted of the use of the technological platform during a semester of classes by the users who entered the platform:

a) Teachers recorded incidents and strategies, which could be consulted by other users of the platform. Through the platform they could also consult the student's academic record.

b) The special education teacher was able to record recommendations and useful information that could be consulted by teachers during the teaching-learning process.

c) Parents were able to check their child's progress and performance at any time.

Finally, the fourth stage consisted of the evaluation of the results. At the end of the academic semester, a questionnaire was applied that allowed knowing and interpreting the perception of users regarding efficiency and acceptance of the technological platform.

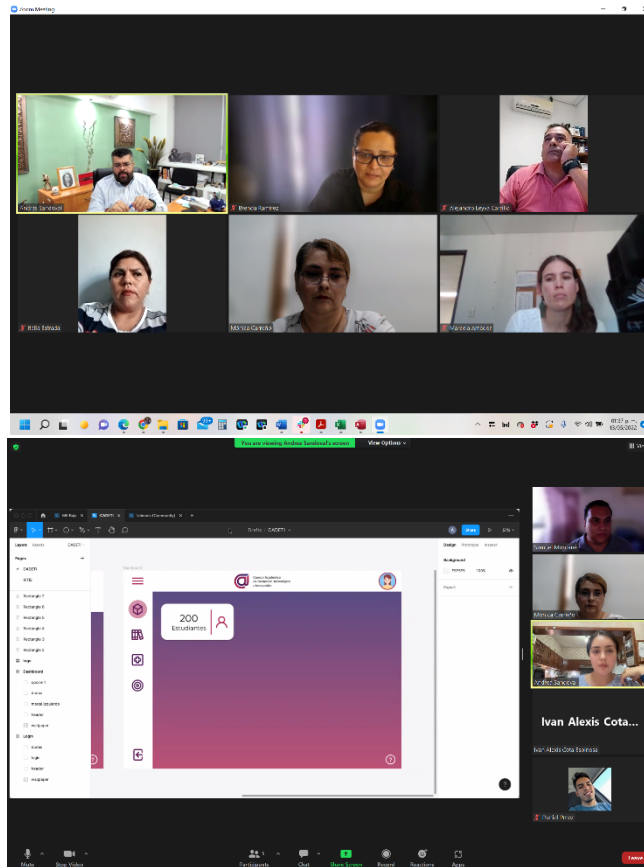


Figure 1. Evidence of user training meetings.

3 Results

The questionnaire applied at the end of the academic semester showed the following results among the most important:

The first section of the results corresponds to the existence or not of difficulty in managing the platform. The technological platform must be intuitive and easy to use. The interface must be clear and have easy navigation so that all users can use it without difficulty. Figure 4 shows the graph for usability and user experience. The results indicate that 80% of the users consider that the technological platform has a friendly interface and there is no difficulty in its operation. 16% of users state that there were few problems in handling the tool. And only 4% indicate that the tool is not easy to use.

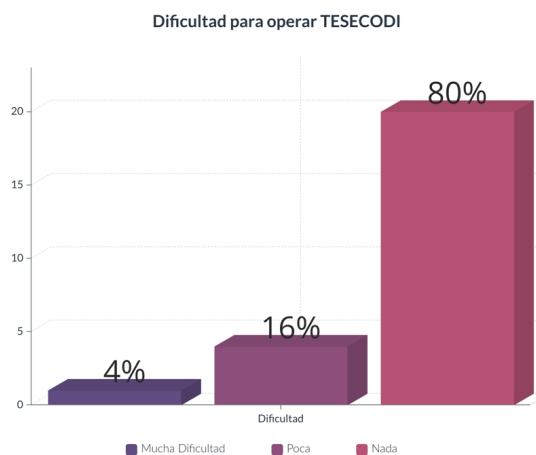


Figure 4. Graph showing the result for usability and user experience.

The second section of the results corresponds to the functionality and characteristics of the platform; it must have the necessary functions to meet the objectives of transdisciplinary monitoring. It must allow the registration and monitoring of student progress, the registration of strategies, the communication between users and the monitoring of activities and appointments.

Figure 5 shows the graph for functionality and characteristics of the technology platform. The results show that 76% of users consider the platform very useful for monitoring students with some type of condition and/or disability, 24% of little use. No user considered that the platform is not useful.

Figure 6 shows the graph for communication functionality between users. The results show that 68% of the users consider that the platform is very helpful for communication between teachers, parents, the psychological area and the head of the academic department. Compared to 28% of users who consider it to be of little help for communication. 4% consider that the platform does not help them in communication between users.

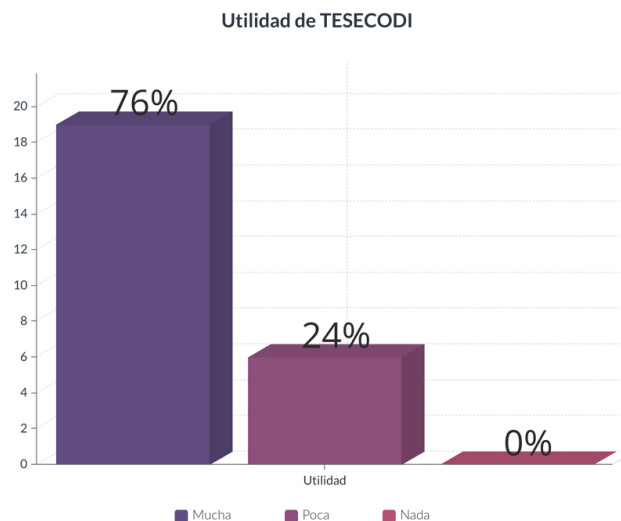


Figure 5. Graph that shows the result for the functionality and characteristics of the technological platform.

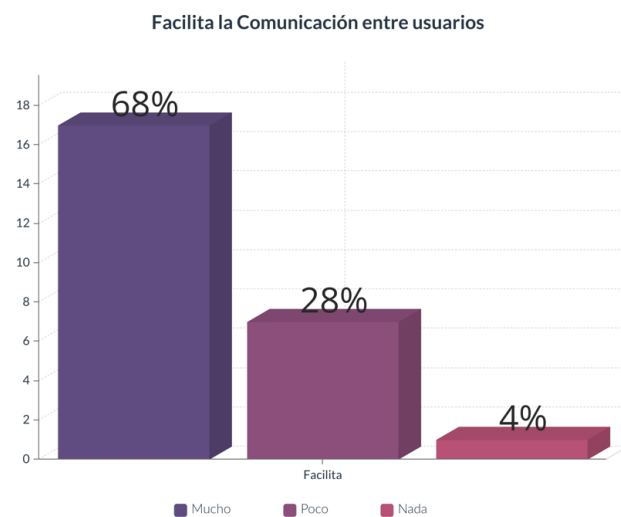


Figure 6. Graph that shows the result for the functionality of communication between users.

The third section of the results corresponds to the security and privacy of the platform, which must comply with adequate security and privacy standards to protect student information. You must have data protection measures in place and ensure that confidential information is adequately safeguarded. Figure 7 shows the graph for security and privacy of the technological platform. The results show that 84% of users consider that the platform complies with the security and privacy of the information stored. 16% consider that security and privacy is not great. No user considered that the platform does not have security and privacy standards.

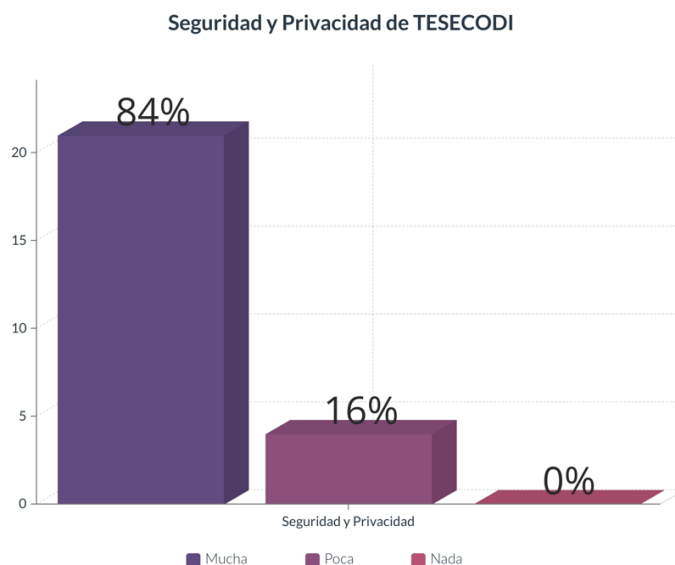


Figure 7. Graph that shows the result for the security and privacy of the technological platform.

4 Conclusion

The process of inclusion in students with disabilities is constituted as an emerging field that requires a global change in culture and a greater involvement of all the actors involved. [18]. The technological platform developed allows a better interrelation between the different people involved: university, teachers, parents, experts in special education, to support the teaching-learning process.

The experience of using the technological platform has proven to be highly beneficial in the educational field. Through this tool, a personalized monitoring of students has been achieved, allowing a detailed analysis of their academic progress, and offering the possibility of designing and implementing support pro-grams adapted to individual needs.

In addition, the platform has facilitated communication and collaboration between teachers and decision makers, which has contributed to greater efficiency and coordination in the implementation of educational strategies.

The technological platform has demonstrated its ability to foster inclusion by providing equal opportunities and support to students with different conditions and disabilities.

In short, the experience of using the technological platform has been essential to improve the quality and educational equity, promoting personalized learning and promoting the academic success of all students.

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