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Artículos Científicos

Capacitación docente en línea para atención de estudiantes universitarios con TDAH

***Teacher Training Course Online for the Care of University Students with
ADHD***

***Treinamento on-line de professores para atenção de estudantes
universitários com TDAH***

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Resumen

El propósito del presente estudio fue evaluar el impacto de una capacitación docente diseñada en un ambiente virtual de aprendizaje que tiene como meta proveer a los docentes de la Universidad Autónoma del Carmen (Unacar) de los conocimientos necesarios para atender a los alumnos que padecen trastorno por déficit de atención con hiperactividad (TDAH). Se realizó una investigación de tipo correlacional, con un diseño de tipo cuasi experimental de un solo grupo con pre y postest, transeccional. Teniendo una población de 227 profesores de tiempo completo, la muestra se conformó de 25 docentes pertenecientes a todas las dependencias de educación que integran la institución; la selección fue no probabilística. El instrumento para la recolección de datos fue un cuestionario que buscó conocer el nivel de actitud de los docentes. Se desarrolló un análisis por puntaje y, para probar si existió un incremento significativo en la actitud, se realizó la prueba *t* de Student entre la fase pre y postest. Los resultados obtenidos reflejan un incremento significativo por parte de los docentes en la actitud de inclusión hacia los estudiantes con TDAH y una mayor atención en la diversidad en el aula.

Palabras clave: diseño instruccional, profesionalización docente, TDAH.

Abstract

The purpose of this study was to evaluate the impact of a teacher training designed in a virtual learning environment, which aims to provide teachers at the Autonomous University of Carmen (UNACAR) with the necessary knowledge to serve university students who suffer from attention deficit hyperactivity disorder (ADHD). A correlational investigation was carried out, with a quasi-experimental design of a single group with pre- and post-test, transectional. The population is 227 full-time teachers and the sample was made up of 25 teachers belonging to all the education units that make up the institution; the selection was not probabilistic. The instrument for data collection was a questionnaire that sought to know the level of attitude of teachers. The analysis of the results of the attitude level instrument was developed by analysis by score, to test if there was a significant increase in attitude through the *t*-test between the pre- and post-test phase. The results obtained in relation to the level of teacher attitude towards university students with ADHD reflect a significant increase in the attitude of inclusion and attention to diversity in the classroom.

Keywords: instructional design, teacher professionalization, ADHD.



Resumo

O objetivo deste estudo foi avaliar o impacto de uma formação de professores projetada em um ambiente virtual de aprendizagem que visa proporcionar aos professores da Universidade Autónoma de Carmen (Unacar) o conhecimento necessário para atender os alunos que sofrem de transtorno de déficit de atenção e hiperatividade (TDAH). Foi realizada uma pesquisa correlacional, com desenho quase experimental de um único grupo com pré e pós-teste, transeccional. Com uma população de 227 professores em período integral, a amostra foi composta por 25 professores pertencentes a todas as unidades de ensino que compõem a instituição; a seleção foi não probabilística. O instrumento de coleta de dados foi um questionário que buscou conhecer o nível de atitude dos professores. Uma análise de pontuação foi desenvolvida e, para testar se havia um aumento significativo de atitude, o teste t de Student foi realizado entre a fase pré e pós-teste. Os resultados obtidos refletem um aumento significativo dos professores na atitude de inclusão em relação aos alunos com TDAH e maior atenção à diversidade na sala de aula.

Palavras-chave: desenho instrucional, profissionalização de professores, TDAH.

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Introduction

International and national policies on educational inclusion have promoted the development of new educational models that offer quality, equity and inclusion: education for all. This document addresses a teacher training course developed in a virtual learning environment whose objective was to promote the teachers at the Autonomous University of Carmen (Unacar) the necessary skills to provide care to university students diagnosed with the deficit disorder attention with hyperactivity (ADHD). For this, the training proposal was presented to the Department of Academic Improvement, in charge of attending the educational inclusion actions at the higher level as part of the strategies that are being developed at the university within the framework of the Institutional Development Plan 2017-2021 (Unacar, 2018b).

This document is organized into the sections of background and justification, study design, population and object of study, instrument, results, discussion and conclusions. The importance of the subject lies not only in the fact of training, but in the need to carry out an evaluation of the teacher training process in relation to ADHD. Therefore, a correlational

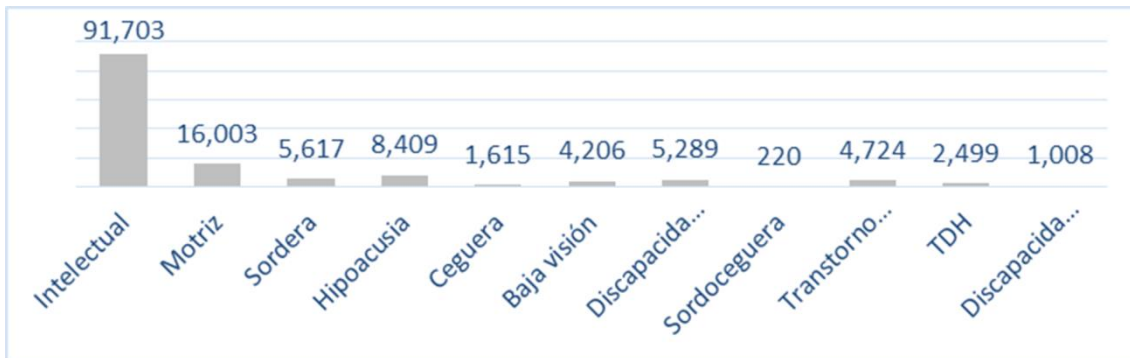
type of research was carried out with a quasi-experiment design. The universe of study was 227 full-time professors and the determined non-probability sample was 25 teachers assigned to the different Unacar faculties. To collect data on the teachers' attitude level, a questionnaire was used and the analysis of the results on the attitude level was developed by scoring. The significant increase in the teachers' attitude was measured with the Student's t-test in the pre and post-test phases, in order to evaluate the impact of the training.

Background and justification

Since the 1990s, the theme of integration and later educational inclusion has been present in the national discussion in Mexico and has made it possible not only to implement a series of measures to make the principle of the right to education a reality, but also to introduce a set of legal regulations and pedagogical guidelines to improve the first experiences of students with special educational needs in the educational field. In the last decades, the Mexican educational system has been immersed in constant changes, from the curriculum proposed by the educational inclusion discourse to what refers to the formation and training of the teaching staff. Educational institutions, at all levels, in accordance with the inclusion policy, receive students with a wide diversity of characteristics. Some of them have a diagnosis of special educational need or receive it during their training process. Faced with such a scenario, teachers, in many cases, present difficulties in making the student acquire the necessary learning for life.

To have a better overview of the situation, it is important to refer to the 2010 Census of the National Institute of Statistics and Geography (Inegi), which calculates that, at that time, in Mexico there were 5,739,270 people with some physical or mental difficulty in carry out activities of daily life (Ministry of Public Education [SEP], 2012). This is really worrying if you take into account that, of the total of these people registered with some physical or mental difficulty, only some educational needs were met. In such a way that it is evident that the strategies that the Government has implemented have not been sufficient for the attention of this sector of the population (see figure 1).

Figura 1. Total de alumnos que son atendidos por necesidad educativa especial en México



Fuente: SEP (2012)

In figure 1 it can be seen that the students who are served by special educational need in Mexico represent less than 5% of the total of people with some special need. This reveals several factors: insufficient attention from the corresponding authorities, as well as that teachers are not applying methodologies or are not looking for the necessary resources or the resources that have been implemented do not cover all schools.

Focusing more on this problem towards Campeche, it is considered that in 2012 there were a total of 1,646 regular basic education schools throughout the state, of which only 253 had the support of any special education service, either the Psychopedagogical Attention of Preschool Education (Capep), Resource Centers and Information for Educational Integration (CRIE) or the Service Units of Support to Regular Education (Usaer) (SEP, 2012) (see table 1).

Tabla 1. Total de escuelas de educación básica regular que en 2012 contaban con apoyo de algún servicio de educación especial

| Entidades | Total escuelas de educación básica regular por entidad | Total de escuelas de educación básica regular con algún servicio de educación especial | Porcentaje de cobertura |
|---------------------|--|--|-------------------------|
| Aguascalientes | 1429 | 521 | 36 % |
| Baja California | 2741 | 836 | 30 % |
| Baja California Sur | 792 | 262 | 33 % |
| Campeche | 1646 | 253 | 15 % |

Fuente: SEP (2012)

To support the previous data, it was found that in the state of Campeche there are only five CRIEs, showing the little support that exists for special education (see Table 2).

Tabla 2. Total de CRIE en Campeche en comparación con otros estados

| Entidades | CRIE |
|---------------------|------|
| Aguascalientes | 7 |
| Baja California | 6 |
| Baja California Sur | 4 |
| Campeche | 5 |

Fuente: SEP (2012)

On the other hand, it is not yet possible to have systematized and updated information at the upper and upper secondary level that reflects the national reality in this field: how many students with such needs study in institutions at that level, which careers they have access to and which are the conditions that accompany their educational walk. It is a reality that more and more cases are presented in basic education, and upper and upper secondary education must enable the entry of people with special educational needs and make the necessary adjustments in the teaching-learning processes so that can access different careers.

Now, as part of the background identified in the institution under study, Herrera, Guzmán, Salinas, Sánchez and Díaz (2018) set out as the main objective to know, from the perspective of the students of the Faculty of Educational Sciences, the opinion of these about Unacar as an institution that promotes educational inclusion. For this they used an instrument with a Likert scale. The information they obtained allowed them to conclude that this institution has implemented various strategies to address the promotion of values; However, they mention that, despite the years, of the goals, certifications, and accreditations reached, there is still a need to consolidate academic support programs designed for students with special needs, programs that are in line with and aligned with current educational reforms. Lastly, with regard to equal opportunities, they recommend increasing awareness strategies aimed at the entire university community and having constant updating of teachers to provide equal and quality service to students with different living conditions and thus achieving an education for diversity.

Thus, the proposal for teacher training for the attention of students with ADHD is generated; A training that, given the technological advances that have occurred in recent years, is proposed from a flexible perspective and with the ability to adapt to the needs of teachers (García, Jaña, and Yáñez 2019). As mentioned Vergara (2007):

[Information and communication technologies (ICT)] have allowed for the flexibility of distance programs and courses, especially through e-learning, which has facilitated interaction, access to information and other characteristics that the distance education of the first generations failed to satisfy (p. 112).

E-learning or virtual learning environments have been used for the training of adults. And according to works consulted in the use of this modality to give training, such as those carried out by García, Jaña and Yáñez in 2019 and that of Vergara in 2007, it is feasible to carry out the course in attention to special educational needs through a virtual learning environment.

It is necessary to seek that the teacher rethink their teaching and develop skills that internalize the concept of educational inclusion and that respond to the attention of students diagnosed with ADHD.

Taking into account the above, a proposal was made for a training course in a virtual learning environment that would have a significant impact on the knowledge that the teacher has in relation to inclusion, and in particular with ADHD. Training in a virtual

learning environment will be a tool for teachers who are immersed in formal upper and upper secondary education: it will allow them to train themselves, flexibly and according to the context in which they are, to further develop your sense of inclusion.

The premise of the Acarán de la Unacar Educational Model (2018a), as a public social good, is ratified by the institutional commitment that all citizens have access to its programs, as considered by the Institutional Development Plan 2017 - 2021 (Unacar, 2018b). With a model focused on the learning of its students and with a focus on competencies, Unacar highlights its social commitment: placing at the center of all teaching-learning processes the problems, needs and social change with which they necessarily have that students interact to learn (Unacar, 2018a). In this way, it generates the necessary conditions that favor access to quality upper and higher secondary education, through consistent strategies and actions.

Having said all of the above, the following objectives are set:

- Carry out the instructional design of the course in a virtual learning environment on inclusion and ADHD.
- Know the level of satisfaction about the training course in a virtual learning environment.

Study design

The purpose of this study was to evaluate the impact of teacher training designed in a virtual learning environment and implementation at Unacar. The proposed research model is correlational, according to Hernández, Fernández and Baptista (2010), who mention that in this type of research, data collection is used to test hypotheses, based on numerical measurement and statistical analysis, to establish behavior patterns and test theories. It is called this way since it is intended to know the relationship or degree of association that exists between two or more variables in a particular context. In this case, the dependent variable was the attitude of the teachers and the independent variable was the instructional design of the course in the context of the university already specified.

It has a quasi-experimental type design. In this regard, Hernández et al. (2010) mention that it receives this name because an independent variable is manipulated to observe its effect in relation to one or more dependent variables. They also comment that it

is a set of procedures or research strategies aimed at evaluating the impact of treatments and, therefore, allows a reduced number of participants per training group for teachers.

The research design is of a single group with pre and posttest. The effect is verified by comparing one and the other. This design serves to study the variations in certain variables that would change if they were intervened. Once again, for Hernández et al. (2010) transectional or cross-sectional research designs collect data in a single moment, in a single time. Its purpose is to describe variables and analyze their interrelation at a given moment. For this investigation a single group was taken.

Population under study

The institution under study provides upper and upper secondary education. It has 227 full-time teachers hired, who within their functions attend teaching, research, management and tutoring activities. Of this number, 207 have postgraduate studies, 177 with a disciplinary doctorate.

The sample identified was 41 teachers belonging to all the education units that make up Unacar. The inclusion criteria of the participants were those of being university professors and being active.

The exclusion criteria were, in the first place, those who did not want to participate; secondly, the default test was used; and finally, those teachers who started the training and did not finish it. In this way, the sample was made up of 25 participants.

Tabla 3. Distribución de la muestra

| Total | Femenino | Masculino |
|-------|----------|-----------|
| 25 | 20 | 5 |

Fuente: Elaboración propia

It is important to mention that the invitation to the participants of the course was issued by the Secretary of the Academic Function through the Directorate of Academic Improvement, after prior approval to carry it out; the selection did not require a probabilistic process for the constitution of the study sample.

Instruments

According to Martín (2018), the process that must be followed for the elaboration of a questionnaire, and that it is intended to follow here, is, first, the definition of the aspect to be measured, then the scale and integration of the items, the content, its organization, as well as the identification of biases in the study, the need for coding, the measurement of points, pilot tests, validation and, finally, the evaluation.

The aim was to know the level of attitude of the teachers. For this, the analysis of the results of the attitude level instrument was performed. A score analysis was applied to test if there was a significant increase in attitude using the Student's t-test between the pre and posttest phase. The instrument has a section entitled Regarding diversity in the classroom, with 12 items that were assessed with a Likert scale. The section named Teacher's perceptions of diversity in the classroom has six multiple-choice items.

After the pre-test, we proceeded to offer a teacher training course, which was taught with the support of the Directorate for Academic Improvement as part of the Institutional Training Day. The course was called Let's Talk About Inclusion and Let's Learn About Attention Deficit Hyperactivity Disorder in a distance modality. It was designed in accordance with the pedagogical approach proposed by the Institutional Department of Distance Education of the institution in question, which is based on the Acalán Educational Model (Unacar, 2018a) and the Unacar Teacher Training Program.

The objective of the training course was to develop competencies in teachers who integrate and encourage the participation and learning of their students diagnosed with ADHD, strengthening favorable attitudes and dispositions to promote transformations in educational practices. It was organized in four modules. The first module refers to the introduction of knowledge about inclusion and attention to diversity; module two deals with the regulations on inclusion in Mexico; The third module sought to strengthen attitudes and dispositions to promote transformations in educational practice; Information about ADHD is covered in the fourth module.

The second instrument refers to the attitudinal aspect of inclusion and ADHD, the operationalization of the attitude level, determined by five response alternatives corresponding to the Likert scale; here the same dimensions were handled. It was applied after the course. Three levels of responses were raised in relation to attitude. Although the score varies according to the dimension, a score is also categorized for an adequate,

partially adequate and inappropriate attitude. The first two instruments were validated at the judgment of two experts, namely: the clinical psychologist Reina del Carmen Tello Briceño and the Mtro. Juan José Díaz Perera, expert in the design of research instruments.

Similarly, a construct validation was performed, which in turn underwent two reviews; once this was done, the instruments were ready for piloting and for reliability. The reliability of the instruments was developed by piloting the instrument with a sample of 18 basic education teachers, given that the training proposal on the topic of ADHD was designed in the first instance for teachers at that level. However, before the Institutional Development Plan (Unacar, 2018b) and its guiding principles, the Department of Academic Improvement analyzed the training proposal and its agreement with the topic of inclusive education in higher education and ruled on the relevance of the course with its original design and authorized the development of training with higher level teachers, considering that it favors the awareness of teachers to address inclusion in university classrooms. The reliability of the questionnaire was by means of the Cronbach's alpha test and for the Likert scale type survey with the Kuder-Richardson 20 test, known as KR20.

Two desirable characteristics in any measurement are reliability and validity. When referring to any measuring instrument in the field of social and behavioral sciences, these two qualities are considered as key aspects of the so-called psychometric strength of the instrument. (Sierra, Negron y Santoyo, 2017).

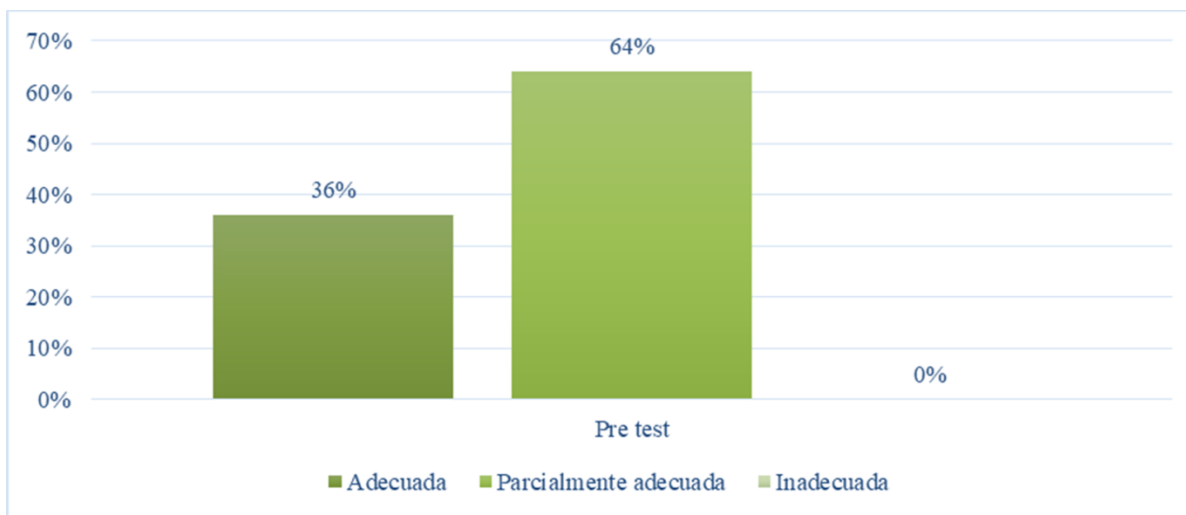
In Cronbach's alpha, the resulting description of the items or items is summarized with the term homogeneity: the degree to which a test or instrument measures a single factor, that is, the extent to which items on a scale are unifactorial. More precisely, the internal consistency coefficient will depend directly on the correlations between the items or items, that is, on the degree to which the items measure the same variable. The more homogeneous the items, the greater the value of internal consistency for a given number of items (Muñiz and Fonseca, 2019).

The researchers Carmines and Zeller (1979, cited in Quero, 2010) consider that, as a general rule, the reliability should not be less than 0.80. Taking the above into account, an acceptable range was reached here, as a reliability of the Likert scale instrument of 0.944 was obtained.

Results

Regarding the results of the variable that refers to the attitude of the teacher in relation to the dimension on inclusion and attention to diversity in the classroom in the pretest phase, it is observed that 36% of teachers maintain an attitude adequate on the subject (see figure 2).

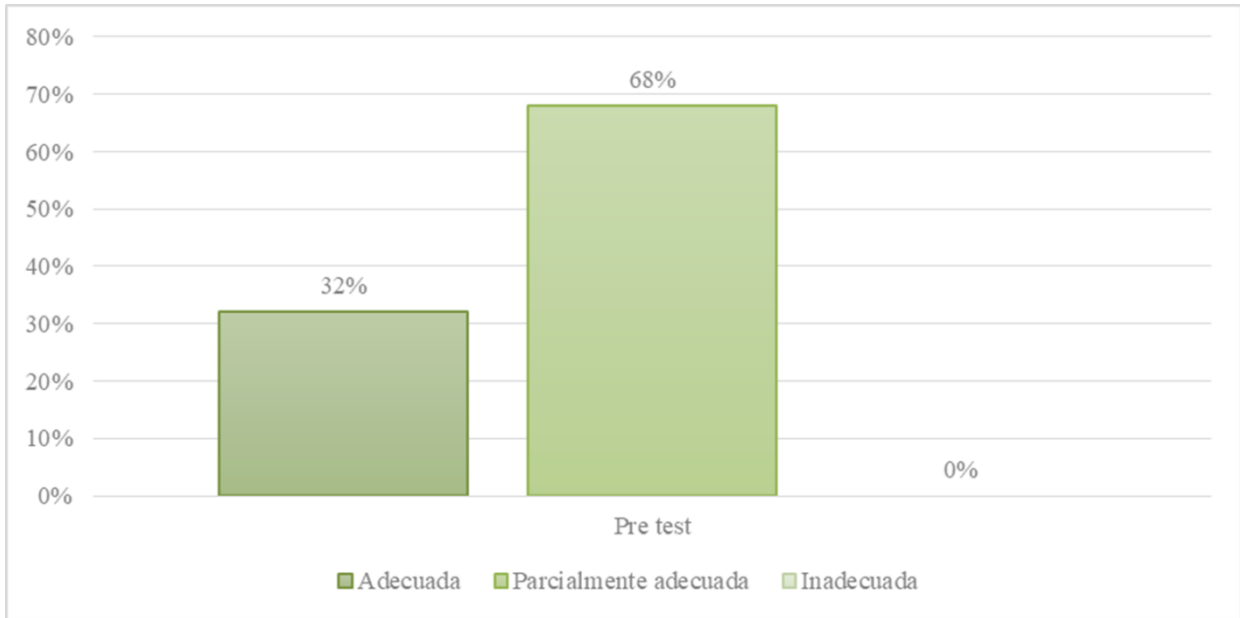
Figura 2. Actitud de los docentes sobre la inclusión y atención a la diversidad en el aula



Fuente: Elaboración propia

An analysis of attitude was also carried out in the dimension on the normative framework of educational inclusion: 32% of teachers have an adequate attitude in this regard (see figure 3).

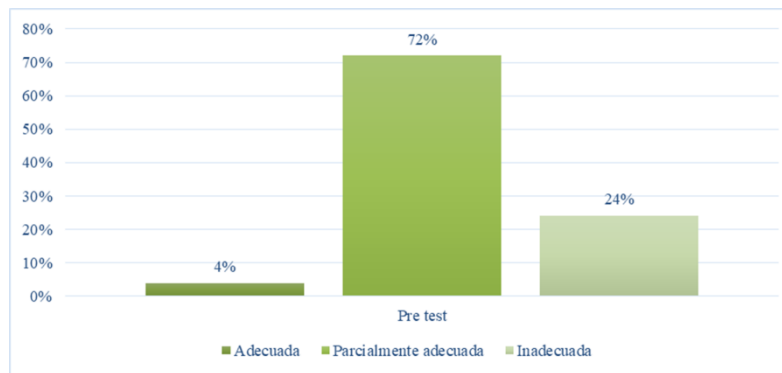
Figura 3. Actitud de los docentes sobre el marco normativo de la inclusión educativa



Fuente: Elaboración propia

The results of the same variable are presented below, but in relation to ADHD. Thus, it was obtained as a result that only 4% of teachers had an adequate attitude, while 72% had a partially adequate attitude (see figure 4).

Figura 4. Actitud de los docentes sobre el TDAH



Fuente: Elaboración propia

In contrast, the post-test results regarding the teacher's attitude variable in inclusion and attention to diversity in the classroom show that there was an increase: now 56% of teachers have an adequate attitude.

As mentioned above, the objective of this study is to know the level of attitude of teachers in relation to students with ADHD. To arrive at an answer, the results of the

attitude level instrument were analyzed; A score analysis was applied to test whether there was a significant increase in attitude using the Student t test between the pre and post phase of the 25 members of the study sample.

In this it is found that the significance value is less than 0.05 ($0.000 < 0.05$), so it is accepted that there is a significant difference in the means of the results before and after the training course in a virtual learning environment in the teacher attitude at a 95% level of reliability.

Tabla 4. Estadística descriptiva del pre y postest de la variable de la actitud

| | | Media | N | Desviación estándar | Media de error estándar |
|--------|---------|-------|----|---------------------|-------------------------|
| Part 1 | Pretest | 6.52 | 25 | 1.122 | 0.224 |
| | Postest | 7.92 | 25 | 0.862 | 0.172 |

Nota: N = Número de participantes en el estudio.

Fuente: Elaboración propia

Likewise, to determine if the existing difference is significant between the pre and posttest phases, the results were analyzed using the unilateral Student t test, and it was found that the posttest is greater in this regard than the pretest (Table 5).

Tabla 5. Prueba de muestras emparejadas *t* de Student del pre y postest en relación con la actitud

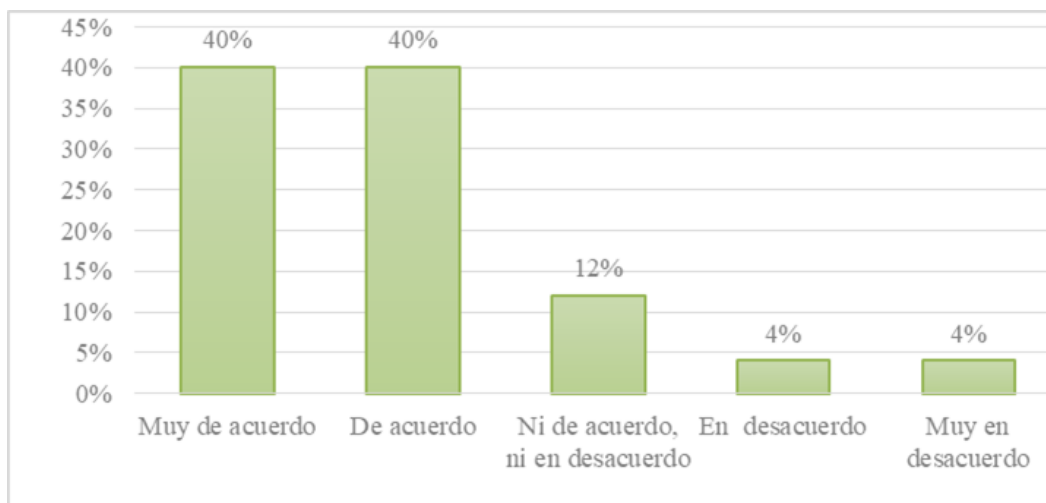
| | Diferencias emparejadas | | | | | <i>T</i> | <i>gl</i> | Sig. (bilateral) |
|------------|-------------------------|---------------------|-------------------------|---|----------|----------|-----------|---------------------|
| | Media | Desviación estándar | Media de error estándar | 95 % de intervalo de confianza de la diferencia | | | | |
| | | | | Inferior | Superior | | | |
| Pre Pos | -1.400 | 1.291 | .258 | -1.933 | -.867 | -5.422 | 24 | .000 |

Fuente: Elaboración propia

Therefore, it is concluded that the training course in a virtual learning environment does have significant effects on the knowledge and attitude of teachers in relation to students with ADHD.

Regarding the independent variable, which refers to the training course "Let's Talk About Inclusion and Know About Attention Deficit Hyperactivity Disorder" in a virtual learning environment, the evaluation of 25 teachers who took the training in relation to with the presentation of the program of the subject in a complete way. Of these, 80% agreed and strongly agreed (figure 5).

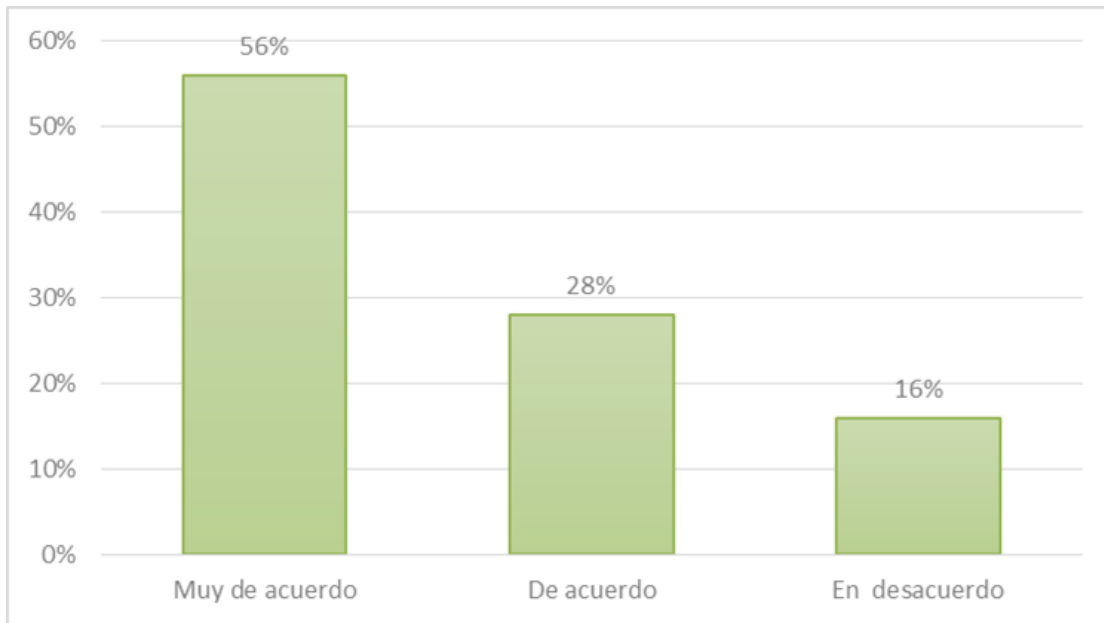
Figura 5. Percepción de los docentes de la presentación de capacitación



Fuente: Elaboración propia

Regarding the work methodology presented in due time and form by the course facilitator, 84% of the teachers expressed a favorable opinion, while 16% expressed disagreement (figure 6).

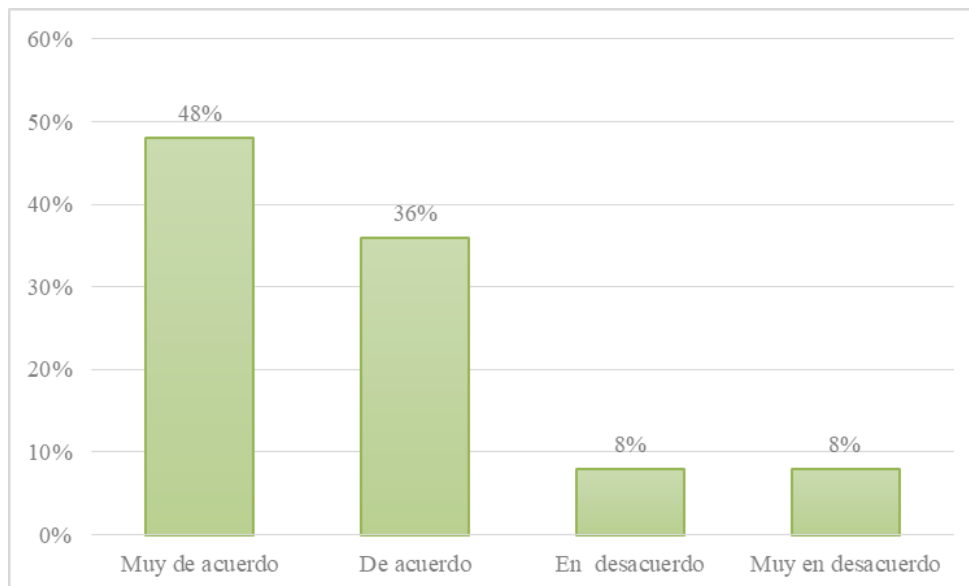
Figura 6. Metodología del trabajo



Fuente: Elaboración propia

Corresponding to meeting the course's learning objectives, 84% of the participants considered that the objectives set were met during the course, while 16% expressed disagreement and strongly disagree (see figure 7).

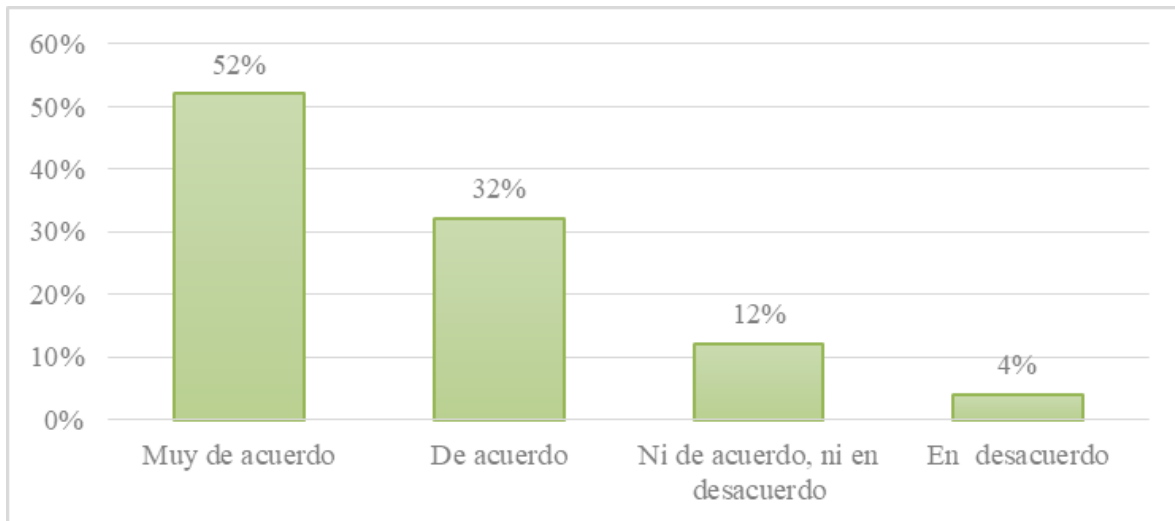
Figura 7. Percepción del docente sobre el cumplimiento de los objetivos de aprendizaje planteados en el curso de capacitación



Fuente: Elaboración propia

The interaction between participants in the virtual learning environment that allowed collaboration and cooperation between the tutors participating in the course was considered by 84% as good. It is also observed that 12% considered not to agree or disagree with what was stated (see figure 8).

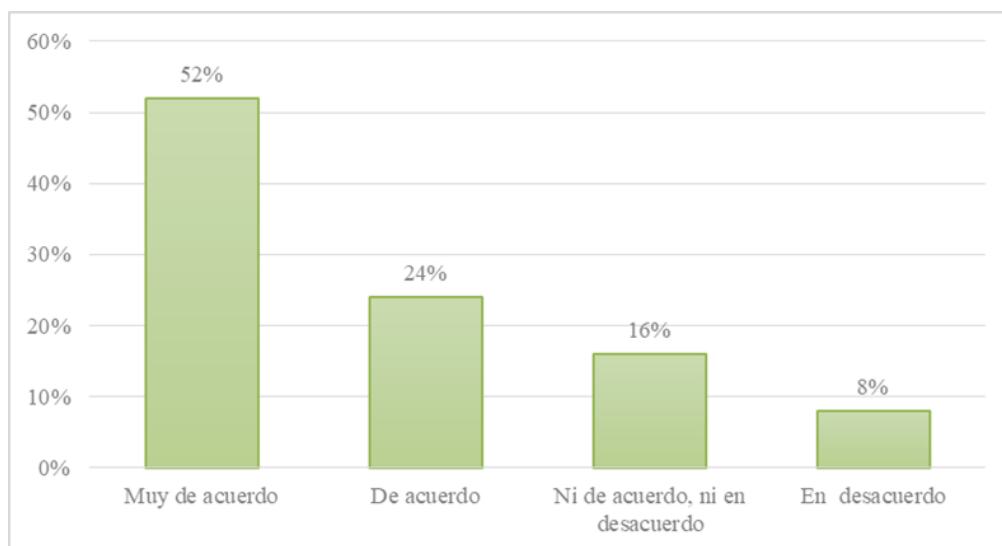
Figura 8. Interacción entre los participantes



Fuente: Elaboración propia

On the other hand, 76% considered the materials used in the course as favorable, such as texts, videos, hypertexts, since they supported the achievement of the learning objectives (Figure 9).

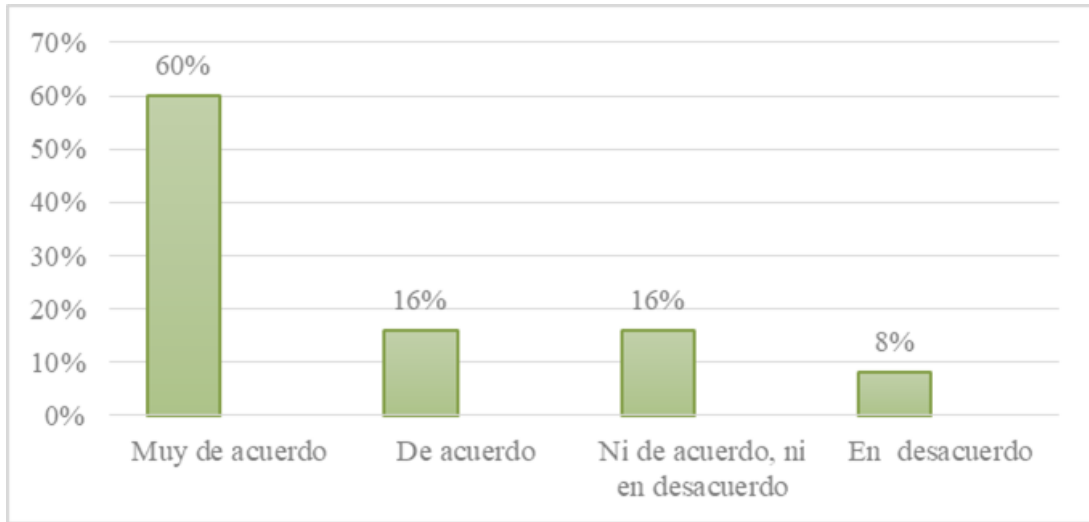
Figura 9. Percepción de los docentes sobre el apoyo de los materiales en el logro de los objetivos de aprendizaje



Fuente: Elaboración propia

It is also highlighted that 76% of the participants considered that the activities programmed in the course responded appropriately in favor of the learning objectives, while 16% did not agree or disagree and 8% considered that they did not favor the learning objectives. learning.

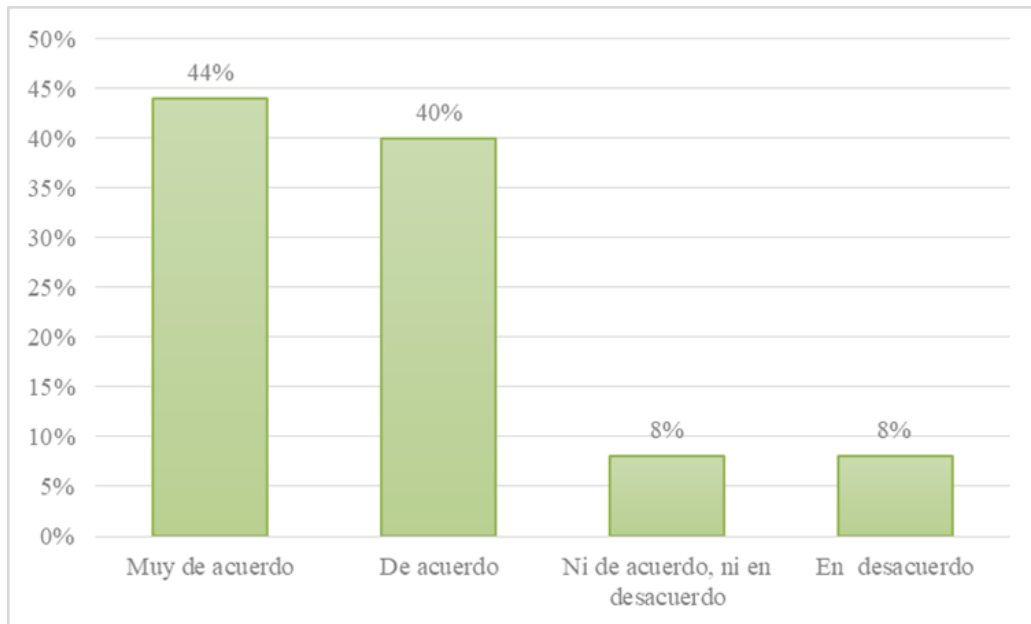
Figura 10. Percepción de los docentes sobre el diseño en pro de los objetivos de aprendizaje



Fuente: Elaboración propia

Likewise, the relevance of the planned learning activities such as readings, documentation work, research, concept maps, comparative tables, forums and others were considered by 84% of teachers as favorable to achieve the proposed learning (figure 11).

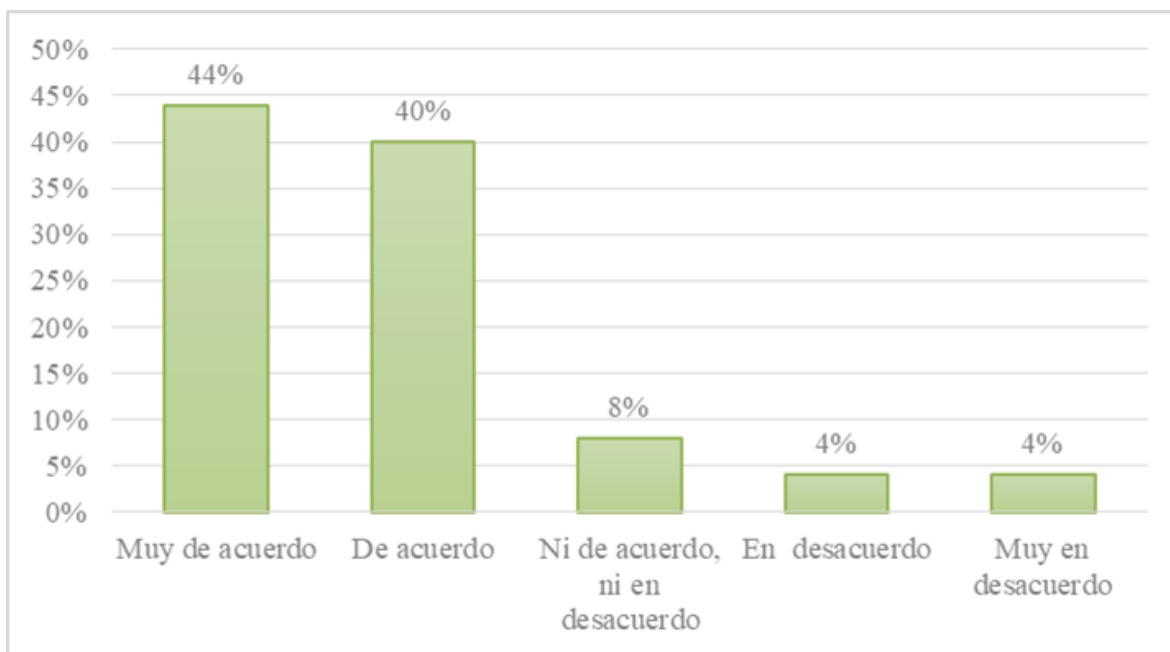
Figura 11. Pertinencia de los materiales del curso



Fuente: Elaboración propia

Regarding the sources of information used for the development of the training course, 84% of the participating teachers considered them updated and pertinent with the content addressed (figure 12).

Figura 12. Percepción de los docentes con relación a la fuente de la información



Fuente: Elaboración propia

It can be seen that the teacher's perception regarding the course reached an average percentage, less than what they would have liked to have, however, it is believed that due to the little familiarity they have about this type of course, the adequate use of technologies and different tools that provide this modality. Despite not knowing the subject, they showed an attitude of learning and did not resist change to offer a better educational quality to their students. With these results the guidelines are given to improve in future projects.

Discussion

This section addresses the most relevant ideas that were obtained after applying the teaching strategy. As it is known, at this point the results have already been evaluated to answer the research question, which was established in order to know how a teacher training course impacts in a virtual environment around ADHD.

What is a fact is that more and more children are diagnosed with ADHD, and we must bear in mind that this disorder prevails until adulthood, therefore, the teachers of upper and upper secondary education at Unacar, in compliance of the premises of the Acalán Educational Model (Unacar, 2018a), they must be able to understand the concept of inclusion and serve students with these characteristics.

The main objective of this research was to evaluate the impact of teacher training designed in a virtual learning environment in relation to knowledge and attitude about inclusion and ADHD.

The variable on attitude in the pretest, and taking into account the same dimensions as in the first, it was obtained as a result that 36% of teachers had an adequate attitude; in the second dimension, only 32% had an adequate attitude, and in the last dimension regarding students with ADHD, 4% of teachers maintained an adequate attitude. Sevilla, Martín and Jenaro (2018) state that the teacher is always influenced by certain factors, generates certain concepts or expectations, and is predisposed in attitude towards the student to work with him, since he tends to value the student's ability when he knows Their environment is commonly, or they do not know about the disorder and they think how little can be done for them and, consequently, they reduce their expectations until they think that they will only reach the lowest expected levels.

After applying the strategy and carrying out the posttest, the following results were obtained. In the first dimension, on inclusion and attention to diversity, it was found that 56% of teachers acquired an adequate attitude; in the second dimension, on the regulatory framework, 76% of teachers had an adequate attitude, and in the last dimension, on ADHD, 66% of teachers showed an adequate attitude. With this, the research question can be answered and it can be verified that the course designed in a virtual learning environment as a strategy significantly influences the teacher training process to respond to the current demands of education.

It is evidenced that there is a significant difference in the teachers' perception regarding the course: 80% of them agreed with the presentation of the program at the beginning of the course, 84% mentioned that the methodology was presented in due time and form, 84% said the objectives of the course were met, 84% said that there was a good interaction between the participants and 76% considered that the materials and activities were relevant. It cannot go unnoticed that older teachers are not familiar with virtual learning environments, therefore they showed some difficulty, and yet managed to conclude it. This research coincides with the work of Trillo (2017), who states that with the use of a platform significant improvements are obtained in the acquisition of skills and generates a sustained improvement in the acquisition of learning and thinking skills.

Currently, the situation of education challenges teachers to develop new skills, thoughts and arguments that imply taking a position on new aspects that imply new challenges. Therefore, it is important that interpretation, analysis, evaluation, explanation and self-regulation are developed not only as separate skills. And this is achieved through this training course that takes into consideration all those aspects, integrating them through the design called analysis, design, development, implementation and evaluation (ADDIE), which allows generating significant new learning experiences that the teacher It incorporates inside, with the intention of being able to put them into action in the classroom.

Similarly, most teachers recognize that when students are valued and understood, they can have a positive attitude that can serve to improve student performance. And that this topic should be included in the teacher update / training.

Finally, the limitations identified in the study focus on the initial interest that higher-level teachers have in training in the use of tools that allow handling and working with students with ADHD. After the training, as it has been exterminated, the participants have changed their attitude in relation to the subject. There is undoubtedly a growing need to train higher-level teachers due to the increasing number of students with this disorder who are reaching higher education levels.

Conclusions

It is recommended to implement many more awareness strategies to the entire university community. Count on the constant updating of teachers to provide an equal service and quality education to students with different living conditions and thus achieve an education for diversity.

Among the comments on the relevance of the course, one was about the time that was given to carry out the activities, since many mentioned that due to the workload, it was a little difficult for them to carry them out and deliver them on time. Similarly, it is suggested to take into account the complexity of the tasks and the clarity of the instructions. This can be considered for other teacher training courses. It should be considered that teachers must be aware of their work, that they be creative, that they seek new strategies and methodologies. That it orients and accompanies teachers with a program for inclusion and attention to diversity, taking into account the different needs of the students that appear within the classrooms, and that it is a teamwork, with responsibility.

Based on the research, it is necessary that all professionals who are related to the education of this country, at all levels, from basic to upper secondary and higher, are trained and updated with reference to the issue of inclusion and attention to diversity, since the cases presented in schools are increasing, and in order to comply with the parameters of the Sectoral Education Program (Official Gazette of the Federation [DOF], December 13, 2013) it is necessary to professionals with sufficient knowledge and attitudes to adequately serve their students, thus offering quality education for all. In this way, two of the objectives of said program are addressed, which propose strengthening the quality and relevance of upper secondary education, higher education and training for work, with the ultimate goal of contributing to the development of Mexico to through greater coverage, inclusion and educational equity among the population for the integration of a fairer society (DOF, 13 diciembre de 2013).

Virtual learning environments are undoubtedly a tool that opens up many training opportunities for teachers, since it makes them more attractive and interesting, as well as being always available, allowing them to adapt to their times, since they can mark their own study patterns and can interact with a variety of people from different places, countries and cultures who have a common interest in a particular field. It also opens up the

possibility of covering various topics of interest that are nowadays the focus of education in our country.

It is also important that the educational policy or the institutions encourage the incorporation of the courses in a virtual learning environment, the improvement of the networks and the Internet service, as well as the necessary supports and that no complications arise when taking them to cape. Regarding the ADDIE instructional model, we can say that it is important to keep track of each procedure so as not to make mistakes that may be reflected at the time of course implementation. It is also essential to carry out the registration of the rubric or the evaluation instruments that have been determined for the formative evaluation as summative to make sure that all the activities or processes carried out meet the objectives of the proposed course.

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