

Enseñanza y aprendizaje significativo en una modalidad mixta: percepciones de docentes y estudiantes

*Significant teaching and learning in a blended learning: perceptions of teachers
and students*

*Ensino e aprendizagem significativa em uma modalidade mista: percepções de
professores e alunos*

María del Rocío Carranza Alcántar

Centro Universitario de los Altos, Universidad de Guadalajara, México

mcarranza@cualtos.udg.mx

Resumen

El presente trabajo se sustenta en la construcción de la problemática que identifica a las tecnologías como paradigma de cambio en la educación, dejando de lado que, si estas no se utilizan bajo un enfoque didáctico planeado y organizado, los resultados pueden ser contraproducentes. Los objetivos de la investigación fueron: conocer y analizar las percepciones que el estudiante tiene respecto al aprendizaje significativo que alcanza a través de los cursos mediados tecnológicamente y estudiar las percepciones que el docente universitario tiene con relación a las estrategias de enseñanza mediadas por tecnología que utiliza, todo esto en una modalidad mixta. El estudio se llevó a cabo en una universidad mexicana en la carrera de Derecho. La metodología es de corte cualitativo y se abordó bajo la perspectiva teórica de la fenomenología, para lo cual se diseñaron dos tipos de entrevistas semiestructuradas. Los resultados muestran que la falta de creatividad y retroalimentación por parte del docente ha sido un factor que merma el proceso de aprendizaje del estudiante. Finalmente se sugiere continuar con este tipo de estudios que conlleven a relacionar las modalidades educativas, las estrategias de enseñanza, la mediación tecnológica y el aprendizaje significativo.

Palabras clave: Estrategias de enseñanza; Aprendizaje Significativo; Modalidad Mixta

Abstract:

The present study addresses the problem that arises when technology is seen as a paradigm for change in education, without acknowledging that, when its use is not organized or structured according to an educational model, its results can be counterproductive. The objectives of this study were to find out and analyze student perceptions about the quality of learning that is accomplished via technologically mediated instruction, and to analyze the perceptions of university instructors about the technologically-mediated teaching strategies they use. A mixed-methods approach was used for the project. The study was conducted at a law school in Mexico. A qualitative method was used, within the theoretical framework of phenomenology, for which two types of semi-structured interviews were designed. The results demonstrate that a lack of creativity on the instructor's part and a lack of instructor feedback are two factors that diminish student learning. Finally, it is suggested that this type of research be continued, which entails studying the connection between educational methods, teaching strategies, technological mediation, and significant learning.

Keywords: Teaching strategies; Significant learning; Mixed methods.

Resumo

O presente trabalho baseia-se na construção do problema que identifica as tecnologias como um paradigma da mudança na educação, deixando de lado que, se não forem usados em uma abordagem didática planejada e organizada, os resultados podem ser contraproducentes. Os objetivos da pesquisa foram: conhecer e analisar as percepções que o aluno tem sobre o aprendizado significativo que atinge os cursos tecnicamente mediados e estudar as percepções que o professor universitário tem em relação às estratégias de ensino mediadas pela tecnologia que usa, tudo isso em uma modalidade mista. O estudo foi realizado em uma universidade mexicana na carreira de Advogado. A metodologia é qualitativa e foi abordada sob a perspectiva teórica da fenomenologia, para a qual foram desenhados dois tipos de entrevistas semi-estruturadas. Os resultados mostram que a falta de criatividade e feedback do professor tem sido um fator que reduz o processo de aprendizagem do aluno. Finalmente, sugere-se que continue

com esse tipo de estudos que envolvam a vinculação de modalidades educacionais, estratégias de ensino, mediação tecnológica e aprendizagem significativa.

Palavras-chave: estratégias de ensino; Aprendizagem significativa; Modalidade mista.

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Introduction

One of the most important challenges that higher education is facing today lies in the field of digital training, placing greater emphasis on training actions that combine traditional training with offline or online, which is also known as "Blended learning" or mixed modality; This has implied that those who develop in the educational context have the urgent need to update themselves and therefore take advantage of the benefits that, for teaching-learning processes, involve the use of information and communication technologies (ICT) .

In this sense and from the review of the literature related to the topics covered in this research originated reflections that show the need to conduct studies that allow to know how the strategies of teachers who are mediated by technology impact on meaningful learning of students in a mixed modality; situation of which there are few concrete results and advances at the national and international level, even though it represents one of the priorities and goals for the development of education via ICT.

From the above, this study is presented, which is based on constructivism as the main theory, supported by a position that addresses the construction of knowledge in man by himself (through relating previous ideas with new knowledge). as the participation or collaboration of others.

The research was carried out in a Mexican university in the semi-scholarized educational program of Lawyer, which is developed under a mixed modality; The objective of the study is to know and analyze the perceptions that the student has regarding the significant learning achieved through the technologically mediated courses, as well as to study the perceptions that the university teacher has regarding the teaching strategies mediated by the technology used. , all this in a mixed learning environment.

Theoretical Foundation

Constructivism and its implications in teaching and learning in a mixed modality

This work is based on the constructivist principles of the teaching-learning process and in order to avoid only a theory of development or learning as a theoretical frame of reference unique and excluding, we chose to select various theories that are also included in constructivism and In this way, we can take back from the set of explanations provided by the different theories, those aspects or parts that have and serve to understand and explain the teaching through strategies mediated by technology and meaningful learning and thus have an articulated and coherent vision of these processes.

To highlight the importance of constructivism and its relation to learning, teaching and technological mediation, reference is made to the following:

This tight synthesis of the constructivist conception, allows to locate the student as the promoter of their own learning, regulated by the mediating action of the teacher, from actions planned in the instruction, where the support technologies enable knowledge-generating interactions that are translated in learning outcomes. (Washington y Otros, 2010, p. 358)

With the above it can be considered that the constructivist perspective is post-epistemological and that is why it is so powerful to promote new methods of research and teaching; in such a way that this research is based mainly on three theoretical referents, all of them with a constructivist approach and of which a summary is presented:

Constructivism: Ausubel (1976); Coll and Others (1995); Guba and Others (1982), Pimienta (2008a), who agree that constructivist approaches to learning have determining implications for teaching and that learning is a process that is constructed. Therefore, the subjects are active people.

Significant learning: Ausubel (1976); Ausubel (2002); Bustos y Otros (2010); Castillo y Otros (2006); Diaz y Otros (2004), Ojeda (2007), Ojeda y Otros (2012), Palacios y Otros

(2004), Pimienta (2008b), who assume that there is a remarkable change in teaching, placing the student as the center of education and their effort to learn significantly.

Technological-educational mediation: Castells (2009), Fainholc (2010), Guglietta (2011) y Vygotski (1979) agree that through artificial mediated activity, psychological functions change, and that by using these tools the psychological activity of the individual is magnified in an unlimited way.

These constructivist positions have important implications for teaching and learning, and have been reinforced through the various studies presented by researchers such as Ojeda, 2007; Castillo, 2006; Coll, 2010; Díaz, 2010; Pimienta, 2012; Quezada, 2009, en Carranza y Caldera (2016), who agree on the clear relationship that exists between meaningful learning, constructivism and educational technological mediation.

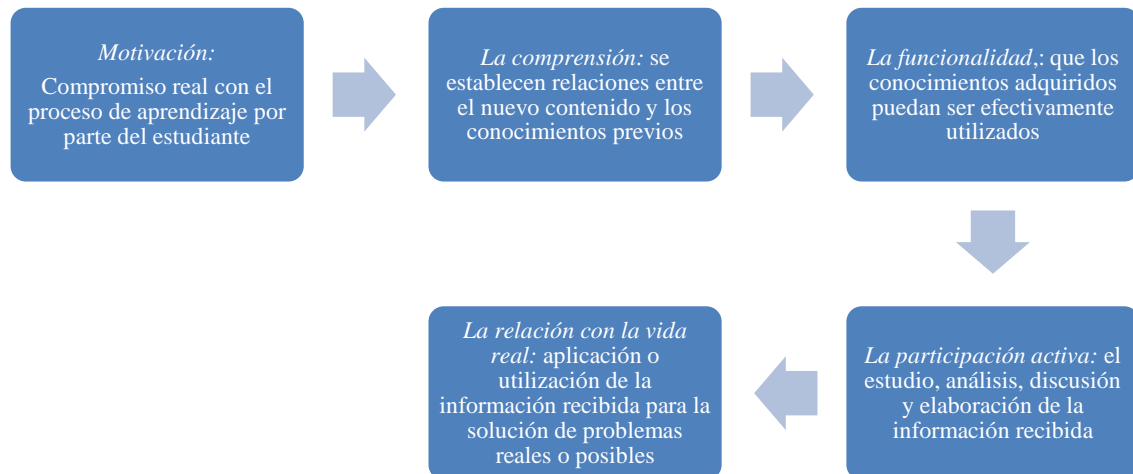
Therefore, if this research is basically about teaching strategies mediated by technology and its relation to meaningful learning in a mixed modality, it can be said that the direct application of constructivist theory is in the mediation process that the teacher performs. in the social environment that constitutes the school and for this case also the modality in which it is carried out, where what is expressed through the contents of the programs favors the construction of knowledge from the significant learning acquired by the students. And it is precisely this interaction that benefits the private and personal process.

Meaningful learning and its dimensions

On the other hand, meaningful learning can not be considered as a question of all or nothing, but of degree, that is, it is not possible to design an evaluation activity to know if the student has achieved significant learning or not, which is to detect the degree of significance of the learning carried out through activities and tasks that can be addressed or resolved from different degrees of significance of the contents involved in its development or resolution (Coll, 2010). Based on the above, it can be ensured that in order for meaningful learning to take shape, a series of actions and / or cognitions is required in each of the students. These actions can be called

significant learning dimensions, which are summarized in the following graph, which were taken as a reference for the analysis of the results of this research.

Figure 1. Dimensiones del aprendizaje significativo



Conceptos extraídos sobre las dimensiones del aprendizaje a partir de los conceptos presentados por Coll, (1990) y Zarzar (2000). Creación propia.

The specific aspects of the dimensions are detailed below:

- Motivation, it can be assured that the greater or lesser degree of significance of learning will depend in large part on the strength of that tendency to learn significantly.
- Understanding: the construction of meaning is intended, for which it is necessary to look for the relationship between previous and new knowledge. It is a very special agreement that is often called understanding the contents.
- Functionality, or functional learning, is one that allows us to use the knowledge acquired to solve problems in different contexts. Therefore, if these reasoning processes are activated, the student will be able to find the functionality of the acquired knowledge.
- Active participation begins when the student assumes an active role and works on the information received. It is integrated by different moments in which the student reflects on his own process: analyze assess, act and detect the difficulties and the means to solve them, besides drawing conclusions that will help him to face other learning challenges.

- The relationship with real life is reflected in the satisfaction of real needs for students and reflect a greater degree of significance.

Therefore, and according to the theories exposed in the theoretical framework of this work, knowledge is then constructed from individual experiences, hence the importance of analyzing the ideas and perceptions that the university teacher has in relation to the strategies of education mediated by technology that uses a mixed modality, as well as to inquire about the perceptions that the student has regarding the significant learning that reaches through the technologically mediated courses.

Methodology

The research design was carried out with a qualitative approach; Likewise, to approach the object of study, it was considered appropriate to do it from the theoretical perspective of phenomenology, since it is focused on capturing the point of view of the social actors, for this case the teachers and students, defined with their own categories. From the above, the intention is to know the meanings of the experience they have had from their context with respect to strategies mediated by technology and meaningful learning in a mixed course.

Population and sample

The sample was established from the population that corresponds to the 18 teachers who taught the courses in mixed modality with support in the Moodle platform of the career of Lawyer, in a public university in Mexico, as well as 100% of the students participated in these classes.

Prior to determining the sample, the courses that were available on the Moodle platform were analyzed in a general way, which were classified into three types: those that are used only as a data repository; those that included activities and had an average instructional design and the so-called integrals, because they were considered with a high level of instructional design.

In such a way that it was decided that the sample would be represented by three of the 18 teachers who taught the classes, each of them corresponded to one of the types of courses

registered in the platform, it was also agreed that in order to obtain the opinion of the students, three students who had participated in one of the three course models will be interviewed.

The inclusion criteria were defined as follows:

For teachers: having designed one of the mixed modality courses on the Moodle platform. It should be noted that not all teachers who teach classes in this modality have designed the courses. They also had to be professors of the law degree in the mixed modality at the University where the research was carried out.

For students: to be an active student of the Law degree in the mixed modality at the University where the research was carried out and to have studied some of the subjects designed on the Moodle platform, which means that they had to have carried out the designed activities by their teachers during classes.

Regarding the exclusion criteria, it was determined that anyone who did not meet the inclusion criteria could not participate in the sample.

Method of data collection:

Two guides of semi-structured interviews were designed based on the theoretical referents, one for the teachers and another for the students, which were elaborated with the purpose of obtaining data through a dialogue between the researcher and the interviewee. According to John Creswell in Alvarez-Gayou (2009) considers that this type of work can be carried out under the phenomenology approach if information is obtained from those who have experienced the phenomenon they are studying, generally through interviews; in agreement as this investigation was done.

In the case of teachers, the interview consists of 13 open basic questions, which seek to analyze the perceptions that the university teacher has in relation to teaching strategies mediated by technology that uses a mixed mode, as well as the relationship that these they have in the learning of the students.

Among the main questions stand out the knowledge that the professor has in relation to what are the strategies of teaching mediated by technology, and how he applies them in a mixed modality, as well as his perception regarding how they influence the learning of his students.

For the students, the interview also consists of 13 open basic questions with which it is intended to study the perceptions that students have of the courses in the mixed modality and the relationship with their significant learning, highlighting the questions directly related to the activities that their students have. teachers ask them and how they can motivate them and support them in their development as lawyers.

For the collection of data, we worked with the criteria of rigor established by Guba and Lincoln (1982), which conditions their credibility, so that for this study the criteria of consistency and neutrality were applied.

Results and Discussion

The results obtained were analyzed, as already mentioned before, from a theoretical perspective of phenomenology, since the points of view of the social actors represented in this research have been captured.

To perform the data analysis the ATLAS.ti computer tool was used and it was executed based on the methodology proposed by Varguillas (2006), that is, there is a primary contact with the document (organization, classification and initial readings of the information); preparation of the document; analysis (construction, denomination and definition of categories of first and second order and creation of networks) and analytical interpretation (description of findings or theorization)

In order to carry out the analytical process, first, we worked on the coding of the information obtained in the six interviews conducted. The codes of analysis for this investigation involved in the study were intentionally generated and in close relation with the concepts reviewed in the theoretical section of this work; the above in order to achieve the desired systematization for the analysis of the points of view of the social actors involved in the research. In this context, the key

codes that are reviewed below obey to categories configured in the state of the art presented by the research, in conjunction with the objectives associated with the work, although after the analysis of the data a category appeared, represented by numerous comments expressed during the interviews.

To that end, it was initially coded according to the dimensions of meaningful learning in relation to teaching strategies mediated by technology used by the teacher, categorizing each of the opinions expressed by the interviewees (students and teachers), in the motivation, understanding, functionality, active participation and the relationship with real life.

As previously mentioned, during the analysis of the interviews and after the different points of view expressed by the social actors involved in the research, it was possible to identify a new category recognized as feedback, which is based on the idea of interaction between effect and cause, since in every process and social system a circular exchange of information is recognized between at least two parties, which helps to organize that system. Without this response capacity generated by feedback, there is no possibility of maintaining a system in equilibrium (Román, 2009).

However, once the analysis was done, it was found that this category could be subsumed within the first of the codifications, the motivation, because the reasoning expressed by the interviewees has shown that the feedback directly influences the motivation of the students. , as you will see in the following results.

The motivation

The interviewees pointed out that teaching strategies mediated by technology are important, especially those such as reading and research, which can provide them with knowledge in relation to their subject; however, they emphasize that the main motivation comes from themselves, because in this modality it is important to be well motivated to be able to work with technology, organize time and above all be aware that the learning they want to achieve will depend on them; They declared the following:

"...Yes, the courses are well structured and leave us learning activities that motivate us to learn more and investigate in depth ... "

"... I believe that it is already everyone, that is that (SIC) is already nomas (SIC) that has a desire to overcome and want to study"

"... Reading gives me everything, that is, if I read I am on the other side of the subject, and just the way they put me to present what I read helps me".

For their part, the teachers during the interview expressed the importance of motivation and showed their interest so that from the platform they can be motivated and support their teaching-learning process; in this sense they pointed out that:

"...If they are careful in the development of their activities, if they are dedicated they will not have to study even for a knowledge verification activity therefore that is the main motivation, of course the weighting in points ... "" ... the combination between the asynchronous way of reaching an agreement; letting him develop his own skills and abilities and send them in writing and the feedback that can be had in practical cases, I think it's fundamental".

The feedback, as already mentioned, has been taken as part of the motivation that the students receive, because in the six cases treated for this research, the importance of this aspect was mentioned so that the student could continue with enthusiasm his activities, on the one hand, the need of the students to feel supported by the teacher and this in turn indicates at all times that is aware of the importance of carrying out this activity. The students say that:

"...Counseling with teachers can help us to clear up the doubts that at a given moment we have, because there are even authors that differ from the same concept and feedback, either face-to-face or on the platform, helps us to know more and motivate ourselves to continue studying ... "

"... A teacher who does not know the form of this modality (does not feed back), hardly organizes his platform and that reduces our learning ..."

"... They should take into account (the teachers) that as the self-management (the course), they have to be giving feedback, which they do not do and that discourages us to continue doing the tasks..."

The presence of this concept does not only refer to the work that is currently practiced in classrooms, but also to the expectations of executing technology-mediated activities within its teaching-learning process. Students continue to consider that this section of feedback helps them not only to increase their knowledge and know whether they performed well or not the requested tasks, but motivates them at all times, in addition to influencing them to continue delivering their activities in a timely manner. and they manifest:

"...Many teachers do not even enter the platform, if you do it right or wrong, you know (SIC), but then I think, I just send the task and since at the end it does not review it, nor will it realize, and this makes we are not motivated or learning ... It is nothing more to use technology, there must also be a personalization with the teacher."

The feedback is, according to Román (2009), is a quality criterion for teaching in virtual education and specifically says that feedback is necessary for the student to control their own study process. On the other hand, the mixed modality has an important influence on the motivation or demotivation that the students have in front of their learning process. The students point out that:

"... Sometimes the blended degree is motivating with all the support of the technologies we have because it is fabulous, because this form of learning works because it gives you mobility, but it does imply a greater degree of responsibility "

"... I am good at the semi-coached system on a personal level, only if there is not much socialization between colleagues and we do not have much rapprochement because we do not know other points of view and that makes us individualists ..."

"... The organization of time, that is what fails and discourages us, that is (SIC) and if the teacher measured the time it takes us to do all the tasks that he leaves us and then he will have to review them because he would think about it, it's nothing else I leave you and I leave you tasks ... "

"... In technology there is only one but when we see each other we can clear doubts and that complements what we learn..."

On the part of the teachers, during the interview they have expressed that this modality can bring important benefits and that yes the student can be motivated through the use of the technologies:

"... I try to design my course with images, colors, whatever, because I like to integrate as many senses as possible so that the student feels good ... "

"... This modality allows each of them to learn in a unipersonal way, in a meaningful way and that they know that it is more important to identify a learning criterion from their own level of knowledge and teaching..."

Although the teacher considers that the modality supports so that he can design different activities and that support the student's learning, the biggest challenge of motivation remains the student himself, that is, the teacher may or may not design courses to look for the student to be motivated and learn in a better way, but as the reviewed theories indicate, the final decision will depend on how motivated (he alone) is or feels the student to learn.

Comprehension

In the same way, understanding understood as that which puts reality into a gradual process that runs simultaneously to the enrichment of previous knowledge, because it is not a question of suppressing it, but of using it, revising and progressively enriching it; In this sense the students agree on the topic of structuring the courses and especially the activities and / or strategies used by the teachers that help them to make this relationship between previous knowledge and new knowledge. For this matter the students have expressed:

".. With the activities that the teachers teach you to read everything, it is reading and reading and therefore you acquire learning ... Although sometimes it is so much that you only answer what the teacher left you and that makes us not understand all the theme"

"... There are some that make us a preliminary activity and that tell us to look for the meaning of something, terms or things like that, one begins to search and begins to relate

one things, sometimes with what one already knows, because one begins to link some ideas with those we already had and if we (SIC) help a lot... ”

Once again, the interviewees agree that the technologically mediated strategies that the teacher uses in a mixed course are important, but that they are not fundamental for learning to be achieved, because finally, if the student decides to study and tries to understand and relate their knowledge, it will do so, maybe ask the teacher for support, but this will not determine that the learning process has been achieved.

Contrary to the opinion of the students, the teachers insist that the design of the activities and the strategies mediated by technology that they use will be fundamental for the student to achieve a compression in relation to what they have learned, for this purpose a professor thinks:

“...We regularly base it on the sequence of objectives, we use the sequential elements in order to see how the first objective pays the second ... They are asked through an exercise to make (SIC) a balance of five or six or other activities that they had and can see the beginning of the course, and how they obtained the knowledge in the end and this reflecting it with the real situation that is an integrating case, that is, they see the final result of the course comparing it with their preliminary or diagnostic activities (SIC) to see the advance of knowledge ... ”

“... First I try to elaborate at least one activity by thematic content either preliminary learning or learning and at least one integrator of each for each thematic content and an integrating case that meets or that is useful (SIC) the integrating activities that has developed, that is, to put into practice each and every one of the contents, that is one of the strategies that has worked for me ... ”

“... Well, I ask you to make conceptual maps, continuing with the same thing I tell them that reading and summarizing is not the same as organizing a conceptual map, because to make a conceptual map you have to understand it... ”

For its part, the mixed modality again appears as an important aspect to develop understanding in a student, they say that being self-managed allows them to develop the ability to remember what they already know and in turn relate it to what they are learning, trying to understand the knowledge acquired; In the case of teachers, they recognize the complementarity that this modality implies, in which they can make use of technology and reinforce knowledge in face-to-face classes.

One of the students pointed out:

“...This modality helps us to be self-managing, we seek information and we are capturing and understanding it according to our level of each one, that is (SIC), our conscience, that is (SIC) each one has a capacity to grasp, and as we are going reading then everyone is assimilating...”

The teachers assured that:

“...Online feedback is made through the platform and in-person the topics are taken or retaken to be feedback also by both teacher and students and there is confirmed or clarified doubts that have not been clarified in the virtual, and that helps them understand the knowledge...”

This information reaffirms that the type of strategies used through technology is important, trying to provoke in the student the comprehension of new knowledge and relating it with the ones that already have to generate understanding in the treated topic, however, it is not possible to ensure that it is essential for this to happen.

Functionality and relationship with real life

In this sense, the students interviewed agreed that finding the functionality to their knowledge will depend on the type of practices or exercises that teachers indicate them to perform, for this case the technologies, modality and strategies used by their teachers are important for them can relate what they learn to real life.

That is to say, specifically for this matter the students assured that yes the strategies that the teacher uses are fundamental so that they can know where they can apply the knowledge they are acquiring, they say that:

"...With the platform you can not practice, or everything you see can be practical, but from the theory, that does not help us at all ... "

"... That is, the programs of the platform are in line with reality, when there are reforms in some laws because they do not leave them there to study them, but it is not enough and it helps us to go to the class so the teacher can tell us the examples of what he let us do on the platform, but I think that if he left behind activities that made us practice, that would help us more to know where to use what we learned ... "

"... This modality is rather a theoretical career, not practical, it would be complicated to take the practice because here you do not have time to practice because you have to study a lot, and if you put practice to it, you would have to spend all day dedicated to that, answering forums, then an activity, then another, and you live on the platform..."

The use of technology has been an element that, they believe, has truncated the practice of the knowledge that they are acquiring, that is, they can understand and know what to use it for, but technology-mediated strategies have not allowed them to implement those knowledge, the feeling of the students is that because they can see the teacher they can ask and confirm where to apply what they learned.

For their part, the teachers showed awareness of the importance of having the strategies they use so that the student can relate what they learned to real life, they agreed that didactic activities can be designed to help the student know the functionality of their knowledge, manifest:

"...Well, create activities so that they may be obtaining information that lets them know about the validity and updating of the issues that are being addressed (SIC) ... "

"... I always try to tell them where they can apply that knowledge that I am talking to them, that is what I do in the face-to-face class to reinforce what they have learned"

"... It is precisely this ability to solve problems in real life that I try to teach them, that nothing else comes in the codes but that they have to learn it by asking their professors, asking some other professionals, because in many cases they are problems of interpretation and application of legal norms and the rule is there, they saw it, they already explained it probably already memorized it but they need additional knowledge to be able to put it into practice that is what I usually use..."

Contrary to what the students expressed, in this section the teachers assure that they try to design strategies mediated by technology that help the students to find the functionality of their knowledge, this through discussion forums, requesting the resolution of practical cases or through questionnaires in which they have to show what is what they learned and where they will apply it.

However, the perception that the student showed in relation to whether these strategies help to relate their knowledge to real life is different, because they assure that only in some occasions some practice of this type is carried out, so that in reality it does not impact on their learning.

Active participation

For this aspect, the students of new account agreed that the strategies that the teacher uses to guide them are important, but they are not fundamental for them to have an active participation in their learning, they point out:

"... They let us read and then activities in which we have to analyze what we learned and put them in pictures or compare the information, although we finished learning even in the face-to-face session, where we solve doubts ... But in the end if you do not want to do it because you do not and that's it..."

"... I realize that some of my colleagues are just macheteritos and prepare for the exams, but as the platform does not require you to prove that you analyzed or summarized it, because you only learn the concepts, machete them and in the exam they take out a hundred, but they never analyzed (SIC) what they were writing ... That the teacher did not see, he did not even realize because on the platform that can not be seen ... "

"... If the teacher gave us readings to analyze then that was enough for us to work, well if you want, because many of my classmates did not do it and the teacher did not even notice ... It also helps us when they put us to expose, there we learn much in the theoretical part, although the truth only of that subject ... "

"... On the platform they point you to read, you have time to study a subject, they mark you bibliography, but you can consult what you want and then you have to analyze what you found to be able to see what is useful and what is not..."

In the case of teachers, during the interview they showed that it is in their interest that the student can develop their own activities, analyzing the information and trying to build it themselves, through concept maps or forums, in which asks them to analyze an issue, they say:

"... Well, when I structure my course on the platform, I open some forums, I leave an interesting question that can be commented during the whole course, I charge them that the topic we are looking at, keep an eye on the news etc. If you see something related to the topic, upload it and comment on it, I also ask you to search the internet for topics or articles related to the topics we are looking at and then discuss them in class ... "

"... Well, with the activities that I leave you have to understand what are the key ideas, each of the things you are looking at and then explain them and I also sometimes let them make PowerPoint presentations where they have to explain how they analyzed the topic and explain it and discuss it with the group".

The modality appears repeatedly, emphasizing the importance of face-to-face in two senses, in the positive aspect related to the complementarity that this modality grants, by having the opportunity to be face to face with the teacher and to be able to question what may be. On the other hand, the negative question was not made, in the sense that the use of technology is still limited by teachers, since in many cases they still do not use the resources that this type of platform offers to design strategies that support the student in the learning process.

At the end of the interview they were asked two similar questions to all the interviewees in relation to whether they consider that the mixed modality is superior to face-to-face, all agreed that it is, mainly because they require a greater effort to mix the technology and a Professor said:

“As strategies in the use of technology is superior to face-to-face without doubt, the problem is no longer in the tools or in the system, it is already in the techniques, in the strategies that the students themselves use in order to learn or be able to have significant learning through this modality, but definitively superior tools (SIC) to face-to-face”.

A student added:

“...It is noticeable when a teacher is specialized and when it is not, you can see the ease and development of the teacher fully in the classroom, for example there are teachers who do not share the idea of technology even in this modality and do not carry it out, We tell them that because they do not use the platform and they say they do not know very well, they do not like it, they do not care or they are struggling with technology, but if they should be trained for this type of course, I consider that all teachers they must be specialized in the use of technology mainly...”

Both teachers and students highlighted the virtues of the mixed modality when mentioning that technology can be used in order to design strategies that support student learning, and at the same time it is possible to have face-to-face classes where doubts can be clarified in relation to the elaboration of tasks or the knowledge acquired.

For technology-mediated strategies to directly influence students' meaningful learning, more than an instructional design is required, since it is also important to understand what type of learning one wants to promote or support in order to improve the student's learning process. through strategic planning that allows you to combine technology with teaching activities.

Conclusions

From the results it was possible to verify the little information that exists in relation to the impact and the influence that the strategies mediated by technology have on learning, especially in non-conventional modalities. Given these conditions, it is advisable to continue inquiring about the state of the educational modalities that are mediated by new technologies, particularly regarding the relationship they have with respect to student learning, as this represents one of the priorities and goals for The development of education via ICT, however, there is not enough research to corroborate these actions.

It also follows from the foregoing that there are significant challenges for the adoption of technology since most academics are not using ICT in a meaningful way for learning and teaching, nor to organize their research. That is, teachers do not use technology with the vision of generating significant learning in the student body, a situation that should be considered as a focus of attention for educational institutions.

Another of the recommendations that stand out from the results refer to communication between teachers and students, a situation that becomes fundamental especially in non-conventional modalities. At this point, the feedback that the teacher must make to the students once they send their activities to the platform and who hope that in a timely and accurate way they are answered by their teacher, is constantly highlighted. In this aspect it is notorious, from the interviews, that the teacher is aware of the importance that the feedback has, but it is also reflected the little interest that is had towards this situation, perhaps due to the lack of time on the part of the teacher. teacher or ignorance in the handling of this type of activities.

It is concluded that institutions of higher education must be committed both in the incorporation of technologies in their classrooms, as in the training of their teachers and especially in the use of these tools for pedagogical purposes, at the same time that their efforts are see focused on getting students to be effective learners, autonomous and above all practice self-management in the best way. With these results we intend to establish an empirical benchmark for decision making in higher education institutions in which the characteristics studied here are shared, and thereby support and meet the challenges that ICT education is demanding today.

Finally, it is necessary to specify that more depth is required in this type of studies, since it was identified that the lack of creativity on the part of the teacher for the use of teaching strategies mediated by technology has been a factor that does not help the student in the process of learning and, above all, to encourage the generation of new problematic situations from the findings that lead to in-depth research regarding the teaching-learning process in this type of modality, which could improve its effectiveness in society and certify the quality of the programs in mixed modality, as well as guarantee the teaching and the significant learning of the students.

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