TRAINING IN THE USE OF THE TECHNOLOGIES AND SELF-LEARNING EDUCATIONAL PURPOSES

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Abstract

The fast progress of Technologies of information and communication (ICT's) will keep on changing the elaboration, acquisition and transmission of knowledge; thus the implementing and promotion of training programs to develop skills and abilities related to the proper use of ICT's focused on didactic and self learning results imminent. Hence this paper describes the teacher education process that took place in Centro Universitario de Los Altos, de la Universidad de Guadalajara which was implemented after a diagnosis to detect deficiencies resulting in the need to provide teachers and students with solid and pertinent knowledge that reinforce their skills and abilities in the use of pedagogy and self management as well as adjusting teaching techniques to the new virtualization process realities and the importance of educating learners on the proper use of information presented through ICT's. Therefore a strategy was designed to train a pilot group of 29 teachers and 32 students whom in turn became `duplicators of this education experience to their peers thus ensuring to train 93 teachers and 167 students. Afterwards a new measuring instrument was applied to evaluate the impact of this project which measured if in educational daily practice technologies were applied with pedagogic and learning purposes; such instrument was composed of 12 items that took into account categories of common use of technologies, social nets, moodle platform for teachers; concerning students a revision of what technologies were used, their perception toward technologies used by teachers and the importance they give to ICT's in their learning process was made, at the end the initial diagnosis and the results from the measuring instrument previously designed were compared highlighting the benefits that this type of training renders on the teaching learning process.

Keywords: Technology, teacher education, self learning.

1 INTRODUCTION

Currently, higher education faces big challenges that demand quality in the teaching-learning processes; this situation is present in non-conventional modalities as well, therefore institutions direct efforts toward upgrading, modification and improvement of such processes aiming at the achievement of the planned objectives related to the quality of learning processes in the Educational Centers.

In order to achieve this purpose, it is necessary that the faculty community has a clear and concrete idea of the pretended goals when the use of the Technology is implemented as a mean in the already mentioned process.

From the above mentioned derives the need of teachers to be professionals and updated in the pedagogic-didactic, disciplinary, and the use of technology innovative fields. Furthermore, they should be trained for the challenges within the non-conventional modalities. Regarding the students, they have been involved informally in the non-conventional modalities only when supported by their previous knowledge, nevertheless, it is necessary not only to inform them but to train them on these educational tendencies in which technology is present and can be beneficial for their learning.

By the above and with the purpose of providing more quality to the teaching-learning processes in Centro Universitario de los Altos (CUALTOS) de la University of Guadalajara (U de G) a diagnosis to detect teachers and students deficiencies regarding the use of Technologies applied to the teaching – learning process was made. The result of this diagnosis reinforced the need to train them and provide them with solid and pertinent knowledge that ensures their skills and abilities in the use of tools, information and media that technologies offer. Parting from the results a training program was developed to cover such needs, pretending the development of pedagogic competences in the teachers and self-learning in students to be applied in all that is implied in non-conventional modalities.

Such training program allowed the upgrading of a pilot group of 29 teachers and 32 students, whom in turn were duplicators of their experience among their peers, resulting in the training of 93 teachers and 167 students. After that, an instrument that measured if technology was applied with pedagogic means and self-learning was applied to evaluate the impact of the program in daily practice; in teachers' case such instrument was composed of items that contemplated categories of common use in technologies, social nets and Moodle Platform; in students' case a revision was made regarding the type of technology they use, their perception of the use of technology by teachers and the importance they give to ICT's in their learning. At the end, the results of the initial diagnosis and the results of the measuring instrument after the training program were compared, highlighting the benefits that this type of training can give to the teaching-learning process.

2 BACKGROUND READING

Technologies imply diverse challenges in education due to the fact that they have had an evolution regarding the ways of perceiving, planning, implementing and evaluating the educative actions in a context increasingly demanding, for it is not enough to have innovative technological resources but it is necessary to train technology users and consumers (Edel, 2010)

In that sense, ICT's have become a backbone in educational actions, thus, teachers have integrated them in their professional activities and progressively in the teaching-learning processes, obtaining a transformation and new dynamic in the actual model on Universities in which, on occasions, the lecture and napoleonic scheme is based on the board pedagogies, speech and notebook.

There are circumstances that lead to state that we are in front of a pedagogic model notoriously obsolete that has been exceeded by the new educational paradigms in which the use of technology is allowing to study in an experimental way and understand the thinking process with new meaningful learning. The above implies that the ultimate purpose of pedagogic intervention is to develop capacities to perform meaningful learning on his/her own, in a wide variety of situations and circumstances "learn to learn" (Coll,1990).

By the above, it is required to highlight the need to adjust pedagogies to the new realities in virtualization processes, the challenge then is to reconstruct the pedagogic paradigms in which the need to rethink and reinvent a new type of education practice. In the same way the institutions and educational systems are the ones that are in a gale of urgent reforms from the use of ICT's and the looming prospects.

Nevertheless, to accomplish this integration, the teachers have to learn to master and value that technologies are only a new instrument of knowledge representation and what is truly important is a culture of renewed learning. (Coll, 2008)

In this respect, Federov (2005) mentions the general characteristics and the cognitive process that refer to teachers and students, both have to maximize abilities according to the current requirements. The former to organize their teaching in a higher didactic level and participate in training activities to improve distance teaching approaches. The latter shall become a more active learner; a real protagonist of his own learning, able to reflect on his environment with a highly logical reasoning level for the search of solutions and the consolidation of values for team work. (Federov, 2005)

In this sense, the integration of ICT's has to be done in an explicit way, planned and systematic involving the whole organization and its members individually and collectively. Only then can it become a factor of change and improvement of the university. (Lindo M. I., 2010).

In the same way (Sangrá A. , 2004) points out that the incorporation of the ICT's in the educational institutions has gone through several states. The first is that of equipment in which universities are provided with the basic tools necessary for the use of technologies, even though the teachers don't acquire the necessary knowledge level or the abilities to use them. The second one is the training which main purpose is that the teachers acquire basic knowledge in the use of the ICT's that they have within their reach. The third stage is the pedagogic training, it is developed when the institution and the teachers have acknowledged that not only skills in technology use are necessary to achieve its educational aim, thus the incorporation of reflection on learning processes; hence techno pedagogic proposals are elaborated, such is the case of this Project.

In the need to train persons capable of using technology, policies, plans, school authorities and institutions have responded with computer literacy an analogous condition with the teacher's duty regarding technology. Due to fact that, in a society of information, what students really need is not

fundamentally information, but a training that teaches them to organize it and make it meaningful. We are then speaking of concrete knowledge acquisition and train them to face challenges that await in society through development and abilities acquisition such as searching, selecting and interpreting information to construct knowledge.

At the same time, it is necessary to understand that proliferation of creation possibilities and channeling of educational offers, highlight and Foster on student's development and learning, knowledge, and information management abilities.

The use of ICT's as a support practice through the development of strategies that allow to generate knowledge that may be applied in a direct way in students as main actors of the learning process; however, up-to-date teachers are centered on the use of knowledge of technology, under the presumption that technology by itself transforms educational practices, without generating an innovative reflection process that transforms them. (Nuez, 2009).

Thus, it must be considered that when technologies of information and communication are integrated in the university teaching world, it will generate deep changes, in the daily classes dynamic as well as in the formal and methodological approach, therefore it becomes necessary to reinforce, through training, the teachers' role, students' role and educational methodology in non-conventional environment and achieve that teachers integrate technology to their teaching process, besides setting a new communication scenario among teacher and student

3 METHODOLOGY

With the purpose of knowing the impact of "program of integral growth" a quantitative methodology was used through the application of two instruments. First, a diagnosis on the training needs of both teachers and students, and the second stage consisted on, once the program was developed and applied, an instrument to measure the impact of the program on educational practice.

For the diagnosis of needs related to the use of ICT's with pedagogic and self-learning means, a sample that established the reliability grade of the results obtained was determined. To perform the calculation of the sample of the surveyed teachers and students the following formula was used.

$$n = \frac{k^2 * p * q * N}{(e^2 * (N-1)) + k^2 * p * q}$$

Where:

N: represents the size of the universe (total of law teachers and students in semi virtual program and nursing leveling program)

k: is a constant that depends on the assigned level of reliability. For this project the value of k is 1.96 with a reliability level of 95%

e: is the margin of error of the sample. For this Project and due to the value of reliability is 95% e=+/-5

p: = 0.5 y q = 1-p = 0.5

Among the results the following may be highlighted:

3.1 Teachers' Diagnosis

From a total of 29 surveyed teachers, 46% corresponds to feminine gender and 54% to masculine gender, an equilibrated result. 58% are less than 40 years old and 42% older than 41, relating the years of experience, it was observed that 50% had less than 10 years as teachers and the other 50% declared to have more than 10 years of experience. Ages and years of experience mark a relevant difference as teachers of more than forty and with an experience over 10 years might present apathy to receive training on the use of ICT's and even in using such tools, as far as faculty staff younger than 40 years old with an experience of less than 10 years might have motivation to learn more about technologies and be unaware of the way to apply the teaching strategies with pedagogical purposes.

Faculty staff has the knowledge and consciousness that in order to have a successful learning process in a mix modality, the use of Technologies of information and communication are required;

furthermore, the constructivist theory must be applied. (Construction of learning, takes its base in previous knowledge), thus, 96% of the respondents agreed to the theory and only 4% was inclined to the behaviorist theory. (Study and describe observable behavior, measurable and quantifiable arise as a problem)

There were several questions to identify the knowledge level and the stipulated utility to the various technological tools, which showed that the use of ICT's by faculty staff is very low. In the case of the virtual library tool only 27% of respondents said they use it and 73% said they didn't, in relation to social networks the results were very similar as 15% said that they used them and 85% that they didn't, the use of teaching strategies was also investigated, where 35% said that they use them and 65% did not. A high percentage did not know what might be the learning strategies and thus how to use them.

3.2 Students' Diagnosis

55% of respondents were identified as female while 45% as male, it was also observed that 54% of respondents are in an age range between 21 and 30 years, while 23% in a range of 31-40 years, and only 17% aged over 40 years. A significant proportion of students are young but there is a fair distribution of students in each grade of the various age ranges

Regarding the use of technological tools such as virtual libraries and social networks it was found that only 28% of the surveyed students use virtual libraries and 71% does not use them, and 57% use social networks and 48 % does not, the students have found the use of social media a tool that supports the learning process, and 8% of students consider that it allows them to be in touch with classmates for feedback, doing homework , research, educational exchanges, generate collaborative learning and sporadically get feedback from the teacher.

3.3 Training Program

Based on the above results, the development of a training program that would enable the development of teachers' pedagogical skills and provide students with skills that will ensure skills and abilities in the use of information for self-learning and that enabled them to successfully carry a methodology consistent with unconventional arrangements was suggested.

The training program was conducted in two stages, in the first participated 29 teachers and 32 students, who, in a second phase, were the duplicators of the training experience among peers, thus 93 teachers and 167 students were trained.

This program was designed based on the constructivist theory, proposing to train faculty members on how to integrate ICT in their teaching with a focus on the academic needs of students, for it is not enough with the educational platform as a real ICT integration involves actual changes in the teaching-learning models, which should be focused on a model of flexibility and innovation in teaching.

Training topics were also inserted to increase knowledge on the means and tools that students' use, such as social networks, virtual libraries, email, information sources, types of technology, among others, in this way the teacher could best support students according to their interests and needs, the teacher will be a better guide and facilitator. Finally, the necessary information that will allow the guidance of students in the safe and ethical use of the internet (plagiarism) was provided to the teacher, identification of reliable and useful sources for the development of research

In the case of students, it was proposed to train them in management and time management, office and internet package, providing basic information on the theory of constructivism, on how to implement it, what learning strategies exist and how to apply them to achieve significant knowledge. Ethics in the use of information and communication technologies and the identification of reliable sources of information (where to look, what to look for, how to search and information management) were issues highlighted in the training program. Finally the student was provided with tools and knowledge that enabled the development of their learning through a self-managed process.

After the training, a tool to evaluate the impact of the courses that teachers and students received as part of this training project was designed and implemented, and had as objective that technologies would be applied with pedagogical purposes in the learning process and should be reflected in their daily practice.

The instrument applied to teachers consisted of 12 items that included commonly used categories of technologies, social networks, moodle platform, to students the technologies they use, their perception of the teachers' use of technologies and the importance given to the technologies in their learning.

The application of the instrument was carried out on a sample of 139 students of different careers in which teachers who participated in the training courses teach. This sample represents 66.6% of CUAltos educational programs, which correspond to the careers of Nursing, Business and Administration, Veterinarian, Computer Literacy, Psychology, Law and Law in its semi schooled mode.

4 RESULTS

Results from the assessment instrument on the use of ICTs in the CUAltos showed the following: in relation to the item on the use of social networks, the increase was notorious and significant, because in the post-implementation of the program training, besides using networks teachers also implemented them as part of their teaching strategies, as shown in Figures number 1 and 2.

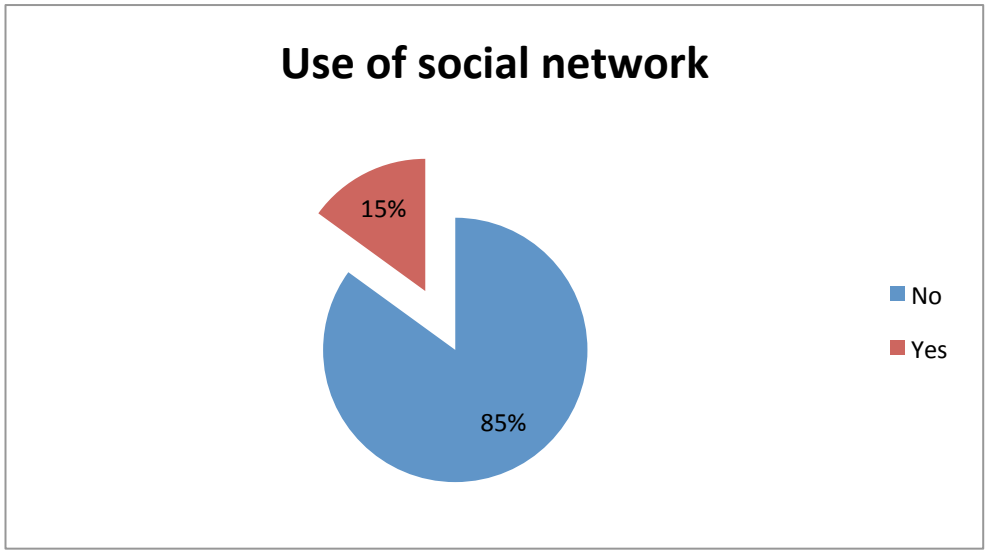

Fig. 1. Use of social network by teachers before teachers' training program.

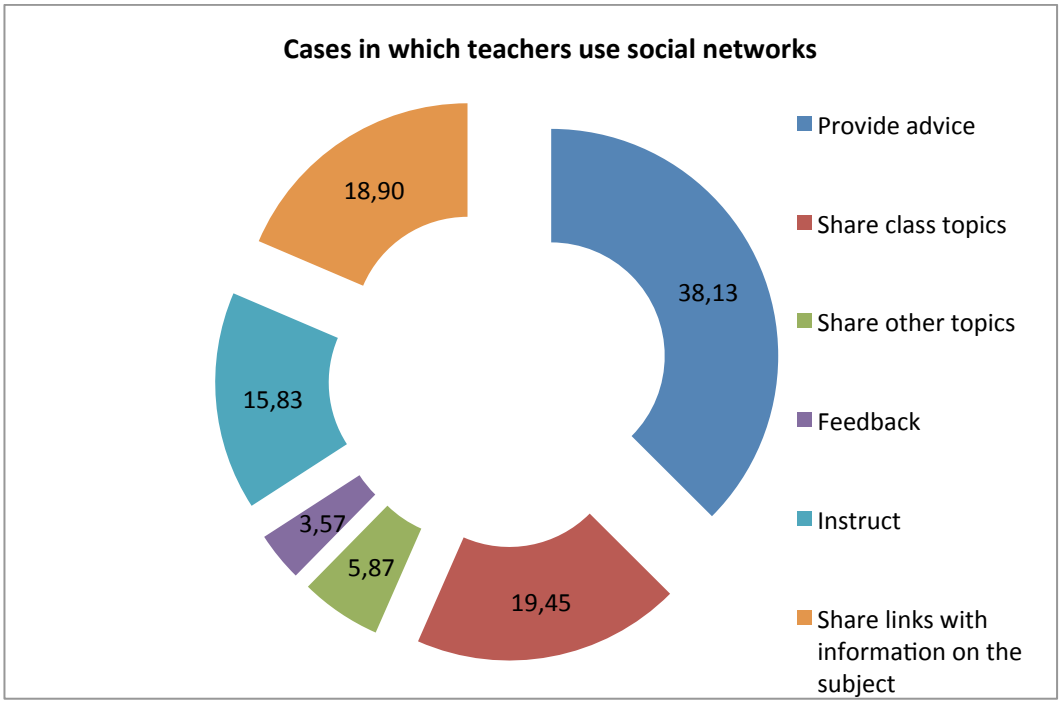

Fig. 2. Teachers' use of social networks after the teachers training program.

On the use of various technological tools used by teachers and by students also increased, now some tools like Google Docs, Prezy, MindMeister, Blogs are included, but the most used is still Power Point, as shown in Figure number 4.

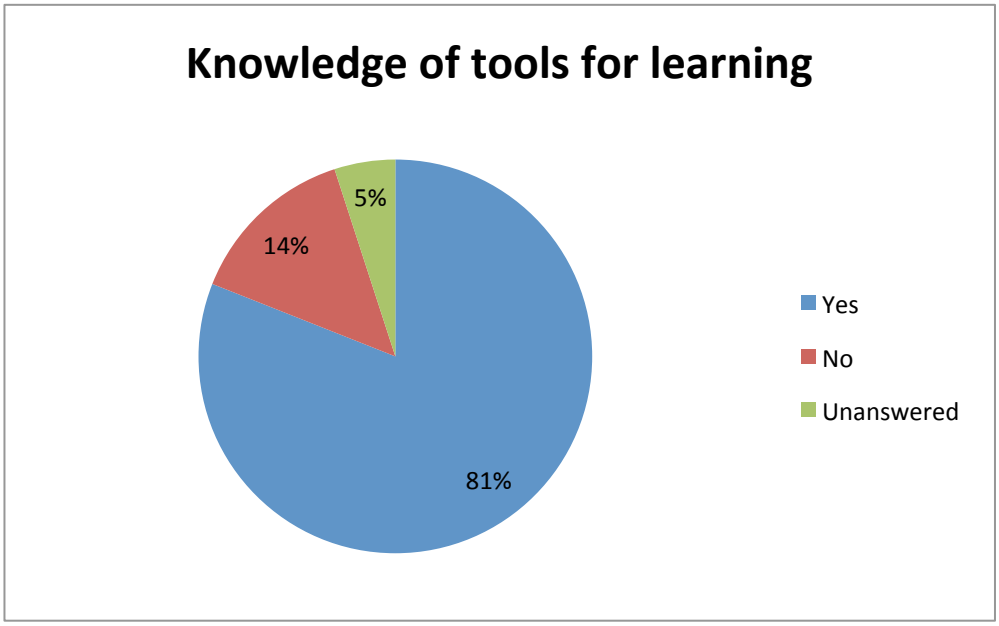

Fig. 3. Knowledge of tools for learning before the teachers training program.

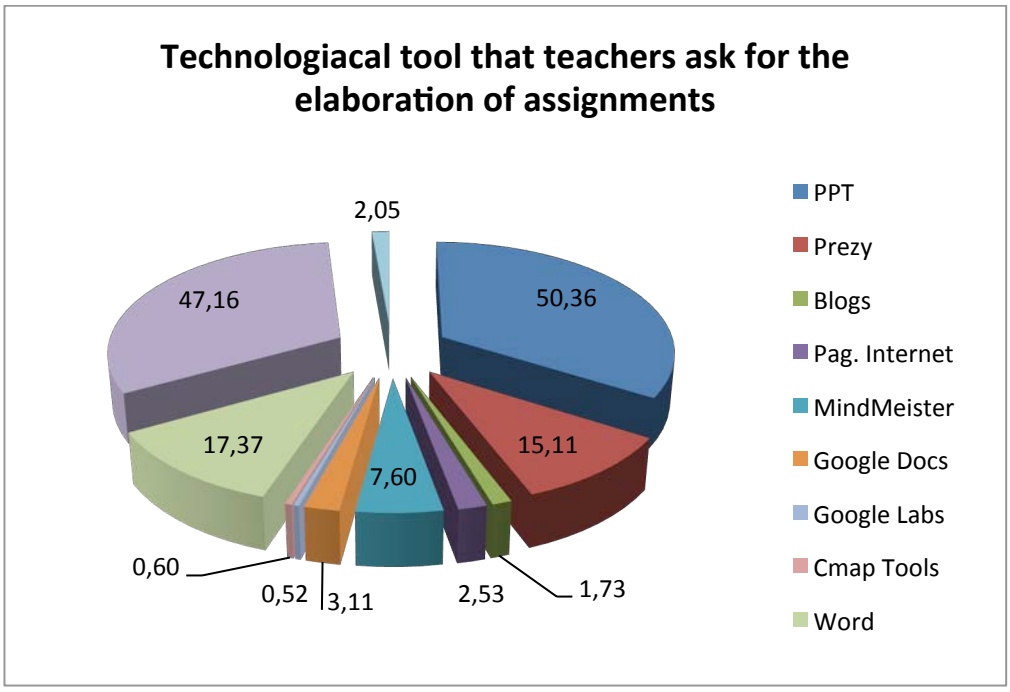

Fig. 4. Use of technological tools for assignment elaboration.

Similarly, students were asked if during the semester they could notice a change in the use of technologies, primarily in the case of the teaching strategies used by the teacher, to which more than 60% answered that they noticed the changes, and between teachers performing actions include the type of technologies used to provide counseling throughout the course as well as instructions and materials processing with technology, according to the text shown in figure 5.

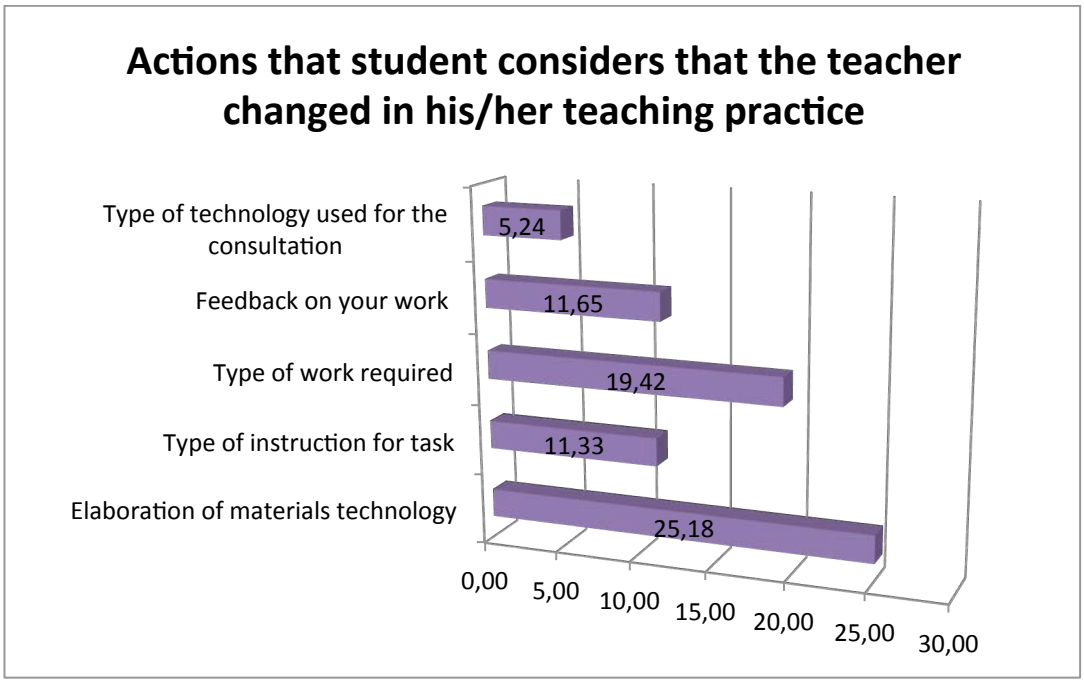

Fig. 4. Changes in teachers practice with technology use.

Regarding the questioning to students about the importance of technologies for learning most of them pointed several options, among which are: to represent their knowledge, as a mean of communication, as a learning strategy and to classify information.

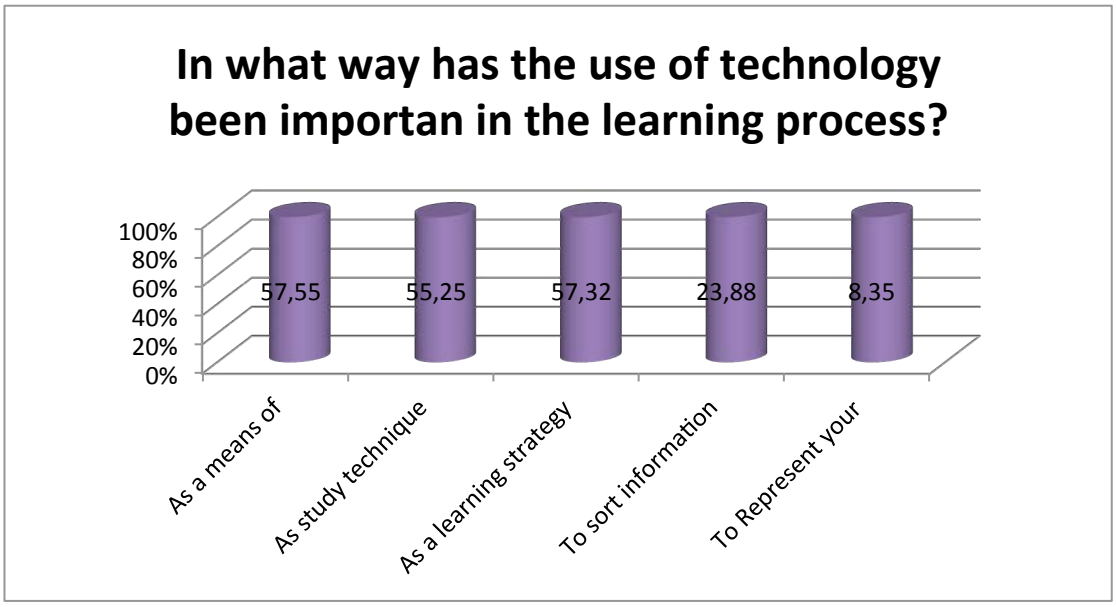

Fig. 6. Use of technology in learning process.

Other results shown refer to the type of social networks used by teachers, standing with 63% Facebook, followed by YouTube, Twitter and Linked in, in relation to the use that teachers make of the Moodle platform, was an important improvement as 70% use it to provide feedback, 66% use it for testing and sharing documents, forums and wikis are beginning to be used, yet there are still few teachers who do so.

5 CONCLUSIONS

It should be noted that when the technologies of information and communication are inserted into the world of university education deep changes are generated in the dynamics of daily classes as in the formal approach and methodology, so it is necessary to strengthen the role of the teacher, student and educational methodology in virtual environments through training and achieve that teachers incorporate technology into teaching and learning process, and set up a new scenario of communication between teacher and student.

In this sense we agree that "The integration of ICT must be explicit, planned and systematic, involving the whole organization and involving its members individually and collectively. Only then can it become a force for change and improvement of the university "(Lindo & Arbelàez Gomez, 2010).

In this situation, it is required to emphasize the need to adjust pedagogies processes to new realities where hybridization of education is performed, the challenge is to reconstruct the pedagogical paradigms that accelerate and deepen the need to rethink and reinvent a new type of educational practice.

That is why teachers must be trained not only in the use of ICT to support their practice, but through the development of strategies to generate knowledge that can be applied directly on the students as main actors in the teaching and learning process.

Similarly, students also know the technologies and their use and should be trained into taking advantage of them to support their learning, a situation that allows an integral growth.

According to the results presented, the training processes help the incorporation of ICT as teaching and self-learning tools, hence the importance of educational institutions to count on consolidated planned programs and training that allow both their teachers and students to progress in redefining educational practice, and especially in the modification of the teaching and learning processes supported by technology giving them a sense of quality and innovation

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