Artículos Científicos

La importancia de utilizar herramientas y soportes de la comunicación en el proceso enseñanza-aprendizaje en el Instituto Tecnológico de Veracruz

Importance of Using Communication Tools and Supports in the Teaching-Learning Process in the Instituto Tecnológico de Veracruz

A importância do uso de ferramentas e suportes de comunicação no processo de ensino-aprendizagem do Instituto Tecnológico de Veracruz

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Resumen

La incorporación de las herramientas y soportes de la comunicación en el proceso de enseñanza-aprendizaje da la posibilidad de acceder a una gran cantidad de información. Y también ofrece la oportunidad de que el profesor abandone su actividad tradicional consistente en la transmisión de conocimientos y comience a dirigir sus esfuerzos hacia el aprendizaje del alumnado. La docencia, por lo tanto, se dirige hacia el desarrollo de procesos de aprendizaje con la finalidad de orientar al estudiante hacia la creación de su propio conocimiento a partir del conjunto de recursos de información disponible. De allí la necesidad imperiosa de que tanto en el aula como en el laboratorio y en el entorno del profesor se haga uso de ambos. El objetivo de la presente investigación es determinar el conocimiento y el uso de las herramientas y soportes de la comunicación de los docentes y estudiantes en la licenciatura en Administración e ingeniería en Gestión Empresarial que se imparten en el Instituto Tecnológico de Veracruz, dependiente del Tecnológico Nacional de México.

Palabras clave: comunicación, educación, herramientas, soportes.

Abstract

The incorporation of communication tools and supports in the teaching-learning process gives the possibility of accessing a large amount of information. And also provides the opportunity for the teacher to abandon their traditional activity consisting in the transmission of knowledge and begin to direct their efforts towards student learning. Teaching, therefore, is directed towards the development of learning processes in order to guide the student towards the creation of their own knowledge from the set of available information resources. That is why the imperative need for them to be used both in the classroom, laboratory and in the teacher's environment. The objective of this research is to determine the knowledge and use of communication tools and supports for teachers and students in the degree and

engineering in Business Administration in the Instituto Tecnológico de Veracruz, dependent of the Tecnológico Nacional de México.

Resumo

A incorporação de ferramentas e suportes de comunicação no processo de ensino-aprendizagem oferece a possibilidade de acessar uma grande quantidade de informações. E também oferece a oportunidade para o professor abandonar sua atividade tradicional que consiste na transmissão de conhecimento e começar a direcionar seus esforços para a aprendizagem do aluno. O ensino, portanto, é direcionado ao desenvolvimento de processos de aprendizagem, a fim de orientar o aluno para a criação de seu próprio conhecimento a partir do conjunto de recursos de informação disponíveis. Daí a necessidade urgente de que, tanto na sala de aula como no laboratório e no ambiente do professor, se utilizem de ambos. O objetivo desta pesquisa é determinar o conhecimento e o uso de ferramentas e suportes de comunicação para professores e alunos do Bacharelado em Administração de Empresas e Engenharia ministrado no Instituto Tecnológico de Veracruz, dependente do Instituto Tecnológico Nacional. do México.

Introduction

The history of communication supports and tools at the Instituto Tecnológico de Veracruz has been as follows: in the early 1970s there was an IBM 1130 computer that still used cards to punch and run programs, used for administrative activities and for academic areas. In 1992 the first PC was installed in the administrative area and later computers were introduced for engineering laboratories; Engineering in Computer Systems and Electronics had priority. In 2005, the Administrative Computing Laboratory was inaugurated for use by students of the Bachelor of Administration, and in 2010 the Business Simulator was implemented, which is used by students of the Bachelor of Administration and Engineering

in Business Management. for academic activities. Currently there is an internet network that communicates to all users on campus: students, teachers and administrators.

Justification

This research is necessary because the use of communication media and tools in the Bachelor of Business Administration and in Business Management engineering benefits new styles of learning and education, by facilitating communication from anywhere and at any time, and by giving greater autonomy, to mention just a couple of characteristics that have made these tools one of the most important in formal and informal education.

Theoretical framework

According to Muñoz, Rodríguez and Barrera (2013), "the improvement and efficiency of educational centers has been one of the main concerns of educational theorists and practitioners for several decades" (p. 100).

For Chase and Aquilano (1995, cited in Silva, Cruz, Méndez and Hernández, 2013), higher education institutions "must not only be effective, but must seek and achieve efficiency. Efficiency is obtaining the desired results and efficiency is achieved when a desired result is obtained with the minimum of inputs "(p. 105).

An innovative teacher is one who seeks training, who investigates and participates in this new knowledge society. He is also a teacher who adapts to lifelong learning and looks for strategies to acquire skills in the use of programs and applications that serve to innovate in his classes.

All higher education institutions must plan the integration of communication tools and supports, involving all those involved, such as: officials, teachers and students. And it is here that educational management and the use of communication tools and supports implies, in turn, the management of key processes that contribute to strategic decision-making, based on process modeling, preferably a automated process.

On the one hand, teachers and students need to incorporate the skills and abilities in the management of educational technology into their chores, and, on the other hand, they require not only appropriate educational strategies to enhance learning, but, of course, the

tools to achieve the objective of the teaching task. That is: the tools and supports of communication. Also, it is worth saying, the exercise of emotional intelligence is required.

Alfie and Veloso (2011) explain the following:

In the 21st century, teachers are in the context of the knowledge society, in which new technologies such as the Internet, with the super abundant production of information, have generated changes in all areas. Teachers must also be protagonists of these changes to go from simple spectators to transformers of society, incorporating "lifelong and lifelong learning" (p. 7).

They also affirm the following:

The teacher must have the competencies of being trained in the communication tools and supports necessary to favor in their students the acquisition of essential skills to become: competent to use technologies, search engines, analyzers and evaluators of information, problem solvers problems and decision makers, creative and effective users in the handling of productivity tools, communicators, collaborators, publishers, and producers, informed citizens, responsible and capable of contributing to society (Alfie y Veloso, 2011, p. 7).

Guided by the teacher, the student knows the teaching techniques, and expands his vision through the learning strategies, thanks to which he would have the opportunity to achieve his competence, always in relation to his experience, previous knowledge, skills and attitudes.

Methodology

The populations of two of the degrees of the Technological Institute of Veracruz, belonging to the National Technological Institute of Mexico, were considered, namely, the degree in Administration with a population of 379 students and the Engineering in Business Management with a population of 264 students. A method for calculating large samples ≥ 30 was used.

The calculation of the samples of each of them is as follows: a stratified sampling is used since the population of students of the Academic Department of Economic-Administrative Sciences is 643. For the sampling, this population has been divided into the

two degrees that serves the said department, as mentioned above, and in the age of the students that ranges between 16 and 35 years.

Teachers sought to apply a census to the total of these, which are 60.

- Sample for the degree in Administration:

$$N = \frac{Z^2 Npq}{NE^2 + Z^2\, pq} = \frac{(1.96)^2\, (379)\, (0.5)\, (0.5)}{(379)(0.05)^2 + (1.96)^2\, (0.5)(0.5)}$$

$$N = \frac{363.9916}{0.9475 + 0.9604} = \frac{363.9916}{1.6204} = 190.78 = 191 \text{ encuestas}$$

- Sample for Engineering in Business Management:

$$N = \frac{Z^2 Npq}{NE^2 + Z^2\, pq} = \frac{(1.96)^2\, (264)\, (0.5)\, (0.5)}{(264)(0.05)^2 + (1.96)^2\, (0.5)(0.5)}$$

$$N = \frac{129.36}{0.66 + 0.9604} = \frac{129.36}{1.6204} = 79.8321 = 80 \text{ encuestas}$$

Internet surveys were used and applied: the website www.e-encuesta.com was used for teachers and the survey for students was taken from the Open University of Catalonia, with the electronic address of http://ijedict.uwi.edu/include /getdoc.php?id01161&pubkic=true. In both cases, the survey was adapted according to the purposes of this investigation.

Results

The results of the applied surveys are presented below.

Results of surveys applied to teachers

This section shows the results of the surveys applied to the teachers of the Department of Economic-Administrative Sciences, which is in charge of the careers of the Bachelor of Administration and Engineering in Business Management, from the National Technological

Institute of Mexico, Technological Institute of Veracruz , Mexico. The survey was applied to 60 teachers: 54 answered, a figure that represents 90%.

The results of the studied items are presented below.

Communication

First, 87% of respondents do know the tools and supports of communication and 13% do not. Likewise, 43% consider that they use between 50% and 65% the communication tools and supports in their class. And 93% of those surveyed believe that technological resources favor the acquisition of learning thanks to the environments of the various virtual communities; the remaining 7% do not believe in this.

The results of the applied survey show that a significant, although not a majority, percentage of teachers use new technologies through mobile devices to communicate with their students. This information is presented graphically in Figure 1.

Figura 1. Docentes que utilizan las nuevas tecnologías mediante dispositivos móviles para comunicarse con sus alumnos
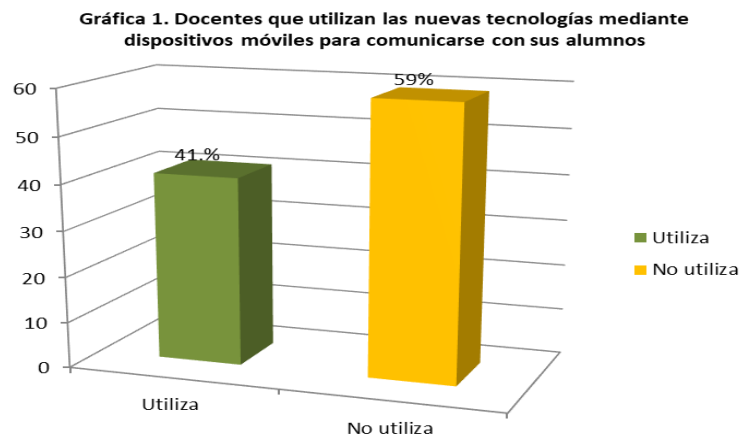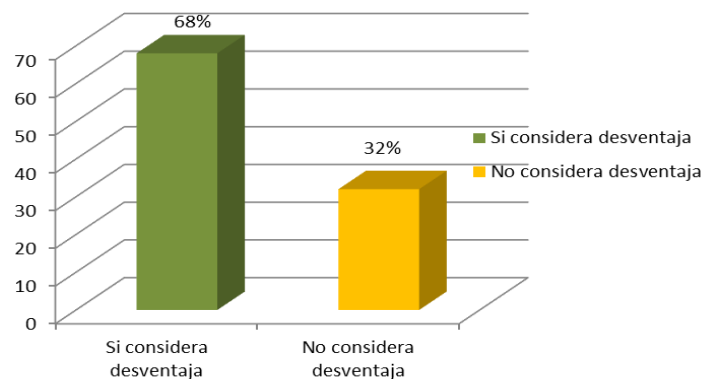

Fuente: Elaboración propia

Teaching processes

In this area, 87% of the respondents mentioned that the importance of the use of technological resources as didactic support in teaching processes is necessary and 13% consider it optional.

The results obtained in the research allow us to highlight that teachers consider the lack of availability of equipment and materials in the use of communication tools and supports as a disadvantage for their teaching activity, as presented in Figure 2.

Figura 2. Docentes consideran desventaja la falta de disponibilidad de equipos y materiales en el uso de herramientas y soportes de la comunicación

Fuente: Elaboración propia

However, 74% feel excellent to good confidence when using technological means in front of a group.

Likewise, 35% consider that the use of communication tools and supports in class are a support tool, an alternative for teaching the various contents.

However, as seen in figure 2, 68% of the respondents consider the lack of availability of equipment and materials as a disadvantage in the use of communication tools and supports in the classroom.

On the other hand, 59% of teachers would like to meet and learn from websites related to new communication tools and supports; 66% of teachers would like to know and learn the use of educational platforms for new communication tools and supports, and 67% would like to know and learn the use of specific software for new communication tools and supports.

Continuing with the research, this shows that teachers consider it necessary to receive special courses, as shown in Figure 3.

Figura 3. Docentes consideran necesario cursos especiales de formación en el uso de herramientas y soportes de la comunicación
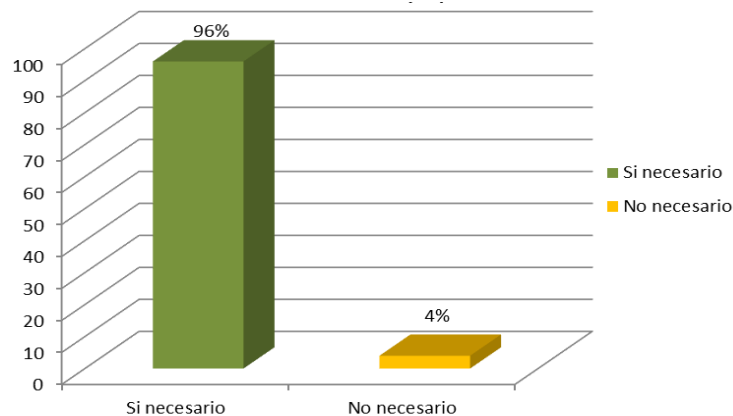
Fuente: Elaboración propia

Results of surveys applied to students

Communication

Almost all of the respondents (99%) use the Internet (they access websites, e-mail and other Internet services).

Regarding the time they dedicate to it, 11% of the respondents connect less than three hours a week (websites, e-mail or other network services), 25% connect between four and seven hours a week, another 25% connect between 8 and 12 hours a week, 21% spend between 13 and 20 hours browsing weekly and, finally, 18% connect more than 20 hours a week.

Most (66%) almost always use computers and other communication tools when giving presentations in class, and 34% of respondents sometimes use them.

It should be noted that 45% of respondents have never established online communication with classmates to carry out any academic activity.

Of the respondents, 66% have almost always had the opportunity to work as a team. And of the total, 58% of the participants have sometimes had the opportunity to work as a team outside of school hours, supported by the use of communication tools and supports.

The research showed the level of communication that exists between the teacher and the students through email, which is shown in Figure 4.

Figura 4. Estudiantes que han enviado un *e-mail* a un docente para aclarar dudas
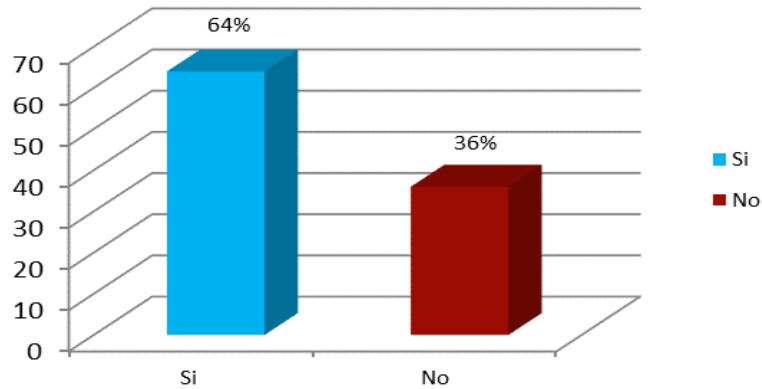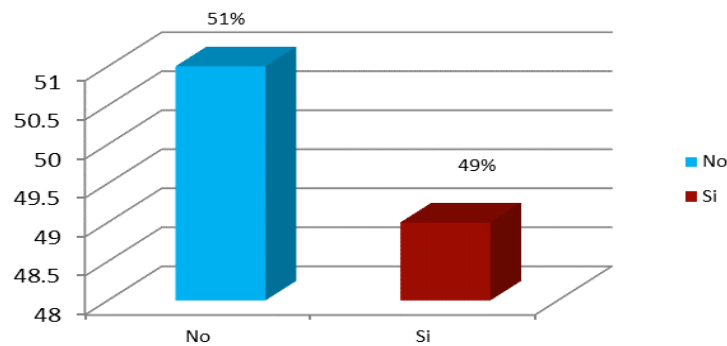

Fuente: Elaboración propia

It is also noteworthy that 61% of respondents have never contacted a teacher via e-mail to express ideas that they would not dare to say face to face in class.

Figure 5 presents the results of students who have taken online courses.

Figura 5. Estudiantes que no han tomado ningún curso *online*

Fuente: Elaboración propia

Delving further into the topic, 68% of respondents positively value their ability to use computer programs, as they believe they are capable of executing them on their own. Along the same lines, 90% of the respondents consider that they can use the Internet browser without help (example: search for weather information or download music files).

Finally, 74% of those surveyed consider that they confront the use of communication tools and supports with great confidence in their university studies.

Teaching processes

During their academic performance, 69% do their jobs more frequently using a computer at home and 26% do their jobs more frequently using a computer at university.

Figure 6 shows the frequency with which teachers make requests to use communication tools and supports for students.

Figura 6. Docentes que piden a los estudiantes utilicen las herramientas y soportes de la comunicación
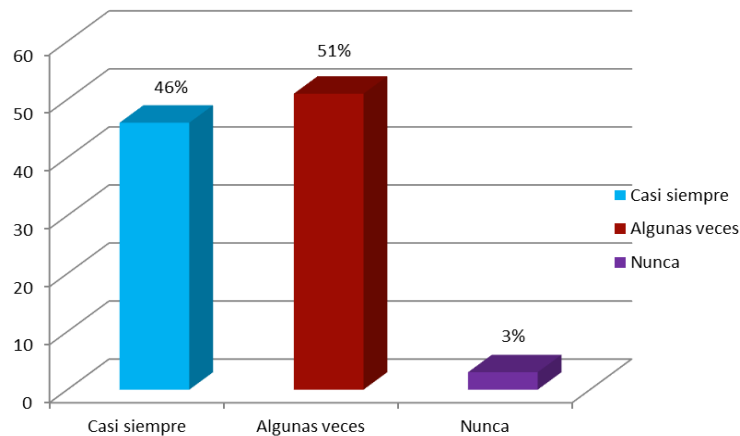
Fuente: Elaboración propia

In addition, 52% of respondents sometimes use the web pages of their university library to consult the online catalog, possible databases, or download materials that they use in their academic activities; 38% never use them. While 58% almost always turns to the Computer Network to obtain resources that they can use in their academic work.

Regarding its ability to execute different tools, 55% of the participants consider that they can make a spreadsheet by themselves (for example, use Excel to make a document that has simple numerical data); 90% consider that their ability to use any email program is high and does not require the help of someone else (for example, using Outlook Express to send a document or an attached image). Likewise, 59% of the respondents consider that their ability in graphics programs is good and they can execute them alone (example with Paint to manage the size with the color of an image). Even 48% of students consider that they could run page creation programs on the Internet with a little help (example: create your own web page with Frontpage). Lastly, 95% of the respondents consider that their ability as a presentation manager is high and can do it alone (in Power Point create a short presentation

with slides) and 88% mention that they can consult bibliographic databases without supervision, that is, alone (example: finding an article on a topic of interest).

However, almost all the participants (98%) consider communication tools and supports to be very important and important in their future profession.

Something negative is that more than half (67%) almost always think that other students at their university copy and paste information from the Internet that they then use in their work without citing the source.

Regarding the characteristics of the surveyed population, 34% of the respondents are male and 66% female; 61% of respondents are between 16-20 years of age, and 38% are between 21-25 years of age. Finally, 62% belong to the Bachelor of Administration and 28% to the Engineering in Business Management.

Discussion

The campus internet server is insufficient for all educational areas and spaces, given that the surface is 20 hectares. The teacher is resistant to change, because 35% consider that communication supports and tools are for alternative use. Teachers argue that there is a lack of training due to a lack of financial resources.

Students do not have the necessary equipment to access the Internet and digital platforms. Only 52% of students use campus web pages for their academic activities.

Strengths

The vast majority of students (95%) can work at home or outside the institution. Similarly, 98% of students consider the use of communication tools and supports to be important for their profession. Teachers use communication tools and supports and are willing to use them more.

Weaknesses

Teachers mention lack of availability of equipment and materials in communication tools and supports.

Of the total of the participating students, 67% of them only consult sources and do so to copy and paste, without citing the sources.

For future research, it is suggested to carry out the study in other higher education institutions to compare the results.

Conclusions

Communication tools and supports are important because they facilitate communication from anywhere and at any time. In the present investigation, 78% of teachers almost always make use of communication tools and supports. In addition, 41% use mobile devices to communicate with their students.

On the other hand, 99% of students use the Internet (34% are men and 66% are women). Regarding the time they dedicate, 89% use communication tools and supports four hours or more a week, and 65% of them send emails to teachers to answer questions about a job.

These tools undoubtedly benefit new styles of learning and education. In this regard, 35% of teachers consider that communication tools and supports are an alternative support for teaching; 87% do know the tools and supports of communication. It is noteworthy that 66% of teachers would like to know educational platforms; 96% consider necessary special training courses on communication tools and supports, and 43% of teachers use communication tools and supports between 50% and 65% in their class.

Across the desk, 52% of students use web pages from their university library for academic activities.

In addition to all of the above, the results obtained here support the idea that these tools allow greater autonomy, since 95% of students use the tools at home or at university and 58% have had the opportunity to work as a team outside. of class.

It is also worth highlighting that 87% of teachers consider that the use of technological resources is necessary, 74% feel excellent to good confidence when using technological means in front of the group. Teachers mention in 78% the disadvantage of the unavailability of equipment and materials in the use of communication tools and supports.

On the other hand, 58% of the students use the Internet to obtain resources for academic activities, and 67% suggest that they only copy and paste without citing the source. More than half of the students (64%) confidently face the use of communication tools and supports in their studies and 98% consider the use of communication tools and supports to be important in their profession.

It is possible to increase the use of communication tools and supports in the future in the teaching-learning process to streamline learning environments for the formation of not only pedagogical competences, but for a lifetime.

Contributions to future lines of research

As future lines of research, it is proposed that, through the training of teachers, didactic materials be generated in educational platforms that facilitate the student's teaching-learning process. Generate online courses and diplomas inside and outside the educational institution. That teachers can become certified and become online tutors. And facilitate the use of virtual platforms for distance education.

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Escritura - Revisión y edición	Bertha Conde Carreño, Perfecto Gabriel Trujillo Castro, Marina Cecilia Pérez Castillo, Sonia Báez Lagunes, Selene Magdala Ramos Cortés. Todos igual.
Visualización	Sonia Báez Lagunes, principal; Perfecto Gabriel Trujillo Castro, igual
Supervisión	Sonia Báez Lagunes.
Administración de Proyectos	Perfecto Gabriel Trujillo Castro.
Adquisición de fondos	Bertha Conde Carreño, Perfecto Gabriel Trujillo Castro, Marina Cecilia Pérez Castillo, Sonia Báez Lagunes, Selene Magdala Ramos Cortés; todos Igual.