

## Student's Perception about Online Interaction, Access and Publishing Content for Academic Use

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### ABSTRACT

In this document we show preliminary results of the Students' perception about their level of ICT competencies in public secondary schools in Veracruz, Mexico. It was a quantitative study using a survey applied to 979 students from two schools. Survey was composed of 72 items. Preliminary results indicate a low level of ICT use in the students of secondary schools in the city of Veracruz related with online interactions, access and publishing content for academic use.

**Keywords:** ICT, secondary schools, teaching-learning, online interaction, ICT skills, digital divide, digital natives.

### INTRODUCTION

In recent years, ICT has taken an important role in our society and are used in a multitude of activities. ICT are already part of most sectors: education, robotics, public administration, employment, business, health.

The use of Information Technology and Communication (ICT), leading to our current information society, represents one of the most refreshing proposals for current education systems, through which key project elements around the transformation of various processes in traditional formal education (Galindo, 2011).

The technological advance developed in the last two decades in terms of communication / information, makes clear that social life is changing significantly the degree of also get involved in educational institutions despite the strength of its integrated systems on them (Galindo, 2011).

In this article, we particularly deal with gaps in competencies or skills using ICT, analyzing the factors that explain the skills and characteristics that may determine different levels of ICT competencies.

### Theoretical framework

*ICT and secondary education.*

The case of ICT also raises an issue of particular relevance: the so-called digital divide. This term is used when considering the differences between different groups of people, in their knowledge and mastery of new technologies. These differences may be influenced by socioeconomic factors (for example, there is strong contrast between the developed countries and third world), or other issues such as age and gender. Regarding the latter, it may be of interest exposed by Prensky 2001, who speak of the natives and digital immigrants. So, we can say that Information and Communications Technology (ICT) is an educational tool unprecedented (Pantoja, & Huertas, 2010).

Never before, the students had received such a volume of information. However, information is not equal to knowledge, so ICT only can help to improve education for students if teachers know how to take advantage. The problem is that ICT are an underutilized resource in teaching and their integration could open the door to a new era of education. ICT has only just come to the classroom, but it points the way to a profound transformation of the educational model that will involve both students and teachers (Pantoja, & Huertas, 2010).

Therefore, an increasing number of countries have accepted the need to introduce compulsory education in a formative dimension that provides young people with the necessary keys to understand the technology.

#### *Factors explaining the gaps in ICT skills.*

Digital Divide concept is not only related to ICT access, but also with the ability to use these technologies; ie, skills or abilities that the population need to acquire for the use of ICT and their effective use in different areas such as: entertainment, communication, education, etc. (Matamala, 2015).

The gap is not only limited to physical access, but also to how people use ICT. Such gaps, is what has been called gaps second order (Matamala, 2015), so this refers to the proper use of ICT in all areas.

Generational changes have shown that not all human beings are able to incorporate the order of the material discourse that build ICT: they are not just teachers, to name a collective considered central to our society who refuse to arrival at use and application of ICT in the classroom or your life. It has been already shown that generational changes do not always get along with technologies, especially if they affect significantly on the processes of socialization and training of human beings (León & Caudillo, 2014).

Today in Mexico, the digital divide is made up of about 70% of the total population with large asymmetries depending of ICT penetration in urban and rural areas; whereas in 630 major urban areas 30% of its population has Internet access in rural areas only 6% of its population (5.9 million households) have a computer and 3% are connected to Internet. According to the National Statistical Institute of Mexico (INEGI), these data are due primarily to the lack of financial resources (INEGI, 2013).

We can establish that there are gaps in ICT competencies of secondary school students as socioeconomic level, years of computer use, frequency of computer use and level of confidence in the use of computers, coinciding with the factors that have been identified in previous studies about gaps in the use of ICT (Matamala, 2015).

Some key elements to promote ICT competencies and also reduce Digital Divide could consider including computers in the early years of teaching and promote students' confidence in using computers (Matamala, 2015).

#### *Digital natives.*

The popular concept of "digital natives" came in 2001 when a new media analyst wrote an article titled "Digital Natives, Digital Immigrants". The purpose of this study was to analyze the changes among college students due to the influence of technology. Prensky, the author, proposed a distinction between citizens who were born after the digital revolution and those who had done before (Crovi, 2010).

His proposal evolved and eventually led to the digital natives identify with those who were born and raised in times of internet (Crovi, 2010).

The young generation has been born immersed in the development of new technologies, produced during the last decades of the twentieth century, is the generation of digital natives. Those people is clearly identified by the use of social networks, computer games, Internet, cell phone or instant messaging as an integral part of their lives (León & Caudillo, 2014).

In addition, the uses of ICT is altering people in many ways, the mindset of this generation has changed and is different from their elders. By contrast, people who are not born immersed in this environment of new technologies, but they are forced to use them, are called technological immigrants. This is a generation that, we could say they naturally not speak the language of the new technologies (León & Caudillo, 2014).

If for these technologies are digital native mother tongue, for the digital immigrant is a foreign language, and hence multiple times prove a certain accent. These differences between the native and digital immigrant pose a challenge from an educational point of view and protector, because often parents and teachers are overwhelmed by smaller in handling new media (Crovi, 2010).

So, it means there are huge differences between the current generations, because the teachers who are teaching to the students do not born with these technologies. And the new generation of teachers should learn how to use ICT to teach. In this sense, also the digital native should learn how to study using this technology.

Therefore, it is very important to study the situation that we are experiencing in the schools about the process of incorporating ICT in the teaching-learning method. Also is relevant to take in consideration new studies dedicated to understanding the forms and processes to operate in environments characterized by teachers who were forced to adapt to the use of technology with students who were born with it.

In this sense, the analysis of ICT competencies in students and teachers was established as a mechanism to help understand and define strategies for improving the quality of education strategies and thereby reduce the digital divide.

**METHODOLOGY**

The origin of this report came from a research project between two Mexican universities: Technological Institute of Sonora (ITSON) and Veracruzana University (UV) in order to make comparative analysis between the perceptions of students at the secondary level. For this reason was considered secondary schools in Sonora and Veracruz. In Table 1 shows detail information about the sample of 979 students.

The quantitative instrument was composed by 178 items. However, in this document we will show the preliminary results of just 72 items of the secondary schools in Veracruz city. In this document we present the results of two dimensions: On line interaction and Access and Publication of Contents.

The results were obtained using the statistical program SPSS 21. The analytic strategy used was to show the descriptive statistics of the overall results with respect to the frequencies in selected dimensions.

Table 1. Statistic by gender

Name of institution	Gender		Total
	Male	Female	
Industrial Technical School # 1 (ITS #1)	264	323	587
Secondary General Miguel Alemán #5	188	204	392
Total	452	527	979

**RESULTS**

*Online interaction*

In Figure 1 and Table 2, we show the results about online interaction (OL) dimension. By type of activities used by students regarding the dimension of online interaction in the first item related to use of e-mail and virtual forum to exchange academic views with peers and teachers, the perception of the students about the competencies level, showed 43.1% consider themselves as no competent, meanwhile 56.9% of the students consider themselves as competent students.

Referring to the item of use social networks to exchange academic information considered 42.8% students consider themselves as no competent and 57.2% of students consider themselves as competent students.

The item using discussion forums to ask questions and research problems, was selected by 49.3% students consider themselves as no competent and 50.7% of students are auto considered as competent students.

On the other hand, operating working groups to develop research online, in terms of the range of percentages as in the previous case the results are very similar and that this time the results were more balanced, with 49.1% students consider themselves as no competent and 50.9% of students consider themselves as competent students. Referring to use software for sharing information on the network with peers and teachers, the result obtained was by 43.3% students consider themselves as no competent and 56.7% of students consider themselves as competent students.

Regarding using the Chat and online discussion forums to discuss academic papers, the results show 47.3% students consider themselves as no competent and 52.7% of students are auto considered as competent students.

In item, use telecommunications for interaction, publishing and collaborating with other students, an incidence of 46.3% students consider themselves as no competent and 53.7% of students consider themselves as competent students.

As to online Work collaboratively with other students, the frequency of percentages presents results of 46.6% students consider themselves as no competent and 53.4% of students consider themselves as competent students.

In the case of communicate information through digital media as Chat, online forums, among others, the range of percentages exhibits behavior of 40.2% students consider themselves as no competent and 59.8% of students consider themselves as competent students.

To connect with students from other parts of the country itself and other countries, showing a full turn to all results, with 64.7% students consider themselves as no competent and 35.3% of students consider themselves as competent students.

For the Item about manage platforms for interaction with peers and teachers, 62.2% students consider themselves as no competent and 37.8% of students consider themselves as competent students.

In the other hand, about the item using technology platforms where doubts with teachers and classmates are clarified, I got the same incidence of the above two cases showing some degree of non-competition this time represented with 61.5% students consider themselves as no competent and 38.5% of students consider themselves as competent students.

About the item of using digital formats to communicate information to various audiences, 56.1% students consider themselves as no competent and 43.9% of students consider themselves as competent students.

Use free software to work with teachers and students in learning, was selected by 54.2% students consider themselves as no competent and 45.8% of students consider themselves as competent students.

Finally, the item use using social networks to collaborate with students and teachers in sharing videos, comments, Chat, among others, returning results to the frequency on the above results favoring competition among students, with 42.3% students consider themselves as no competent and 57.7% of students consider themselves as competent students.

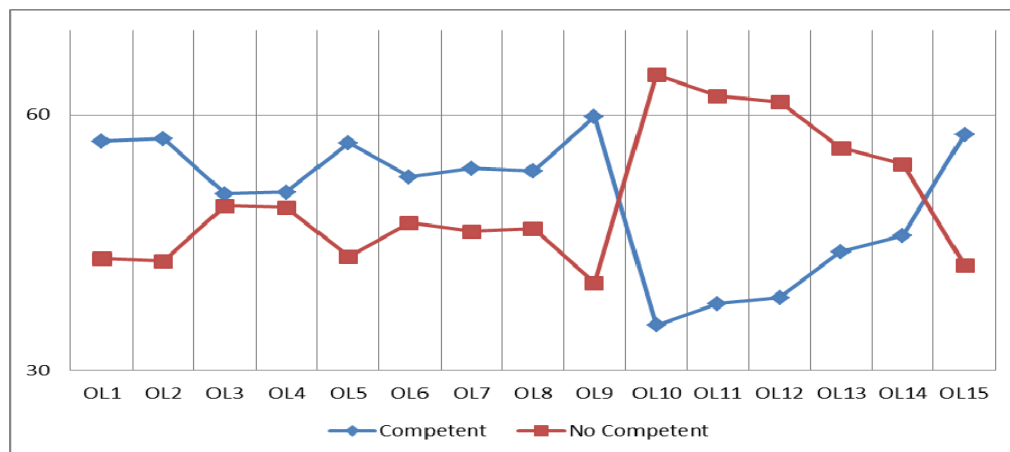


Figure 1. Competencies Online Interaction.

Table 2. Competencies On-Line Interaction.

	No Competent	Competent
OL1 Use of e-mail and virtual forum to exchange academic views with peers and teachers.	43.1%	56.9%
OL2 Use social networks to exchange academic information.	42.8%	57.2%
OL3 Using discussion forums to	49.35	50.7%

ask questions and research problems.		
OL4 Operating working groups to develop research online.	49.1%	50.9%
OL5 Use software for sharing information on the network with peers and teachers.	43.3%	56.7%
OL6 Using the Chat and online discussion forums to discuss academic papers.	47.3%	52.7%
OL7 Use telecommunications for interaction, publishing and collaborating with other students.	46.3%	53.7%
OL8 Online Work collaboratively with other students.	46.6%	53.4%
OL9 Communicate information through digital media as Chat, online forums, among others.	40.2%	59.8%
OL10 Connect with students from other parts of the country itself and other countries.	64.7%	35.3%
OL11 Manage platforms for interaction with peers and teachers.	62.2%	37.8%
OL12 Using technology platforms where doubts with teachers and classmates.	61.5%	38.5%
OL13 Using digital formats to communicate information to various audiences.	56.1%	43.9%
OL14 Use free software to work with teachers and students in learning.	54.2%	45.8%
OL15 Using social networks to collaborate with students and teachers in sharing videos, comments, Chat, among others.	42.3%	57.7%

#### *Access and publishing content*

In Figure 2 and Table 3, we show the results about access and publishing content (AP) dimension. For the dimension access and publishing content, in the item related to evaluate academic content and electronic bibliography from Internet in the distribution percentages detail the results with 48% students consider themselves as no competent and 52% of students consider themselves as competent students.

While using technology platforms for accessing content, presents a similar balance with 47.6% students consider themselves as no competent and 52.4% of students consider themselves as competent students.

Continuing with the analysis of results in the item of publish academic content in educational blogs, is represented by a corresponding result to 57.5% students consider themselves as no competent and 42.5% of students consider themselves as competent students.

Referring to organize, process and discriminate the information gathered from the Internet to communicate results indicates that there are similarities with respect to the degree of competitiveness and incompetence with only 49.8% students consider themselves as no competent and 50.2% of students consider themselves as competent students.

On the other hand the same way as above in item publish academic work through some means: website, slideshare, etc. showing slight similarity 49% students consider themselves as no competent and 51% of students consider themselves as competent students.

Use educational platforms to send jobs mark the same features as the previous results only marking contrary no difference favoring competition, shows a result of 50.6% students consider themselves as no competent and 49.4% of students consider themselves as competent students.

As for handle virtual communication channels (messaging, forums, Weblogs, Wikis, etc.) to share content denotes a different distribution of results obtained with 45.9% students consider themselves as no competent and 54.1% of students consider themselves as competent students.

Finally the next representative for the item web pages operated to upload academic papers value was different from the previous case due to the difference that most percentage was not competent for the option with 53.2% students consider themselves as no competent and 46.8% of students consider themselves as competent students.

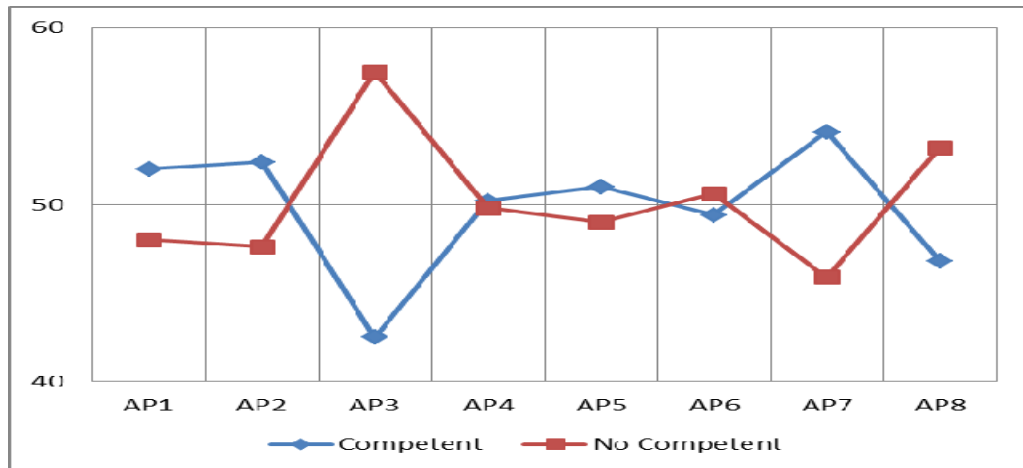


Figure 2. Competencies Access and Publishing Content

Table 3. Competencies Access and Publishing Content

	No Competent	Competent
AP1 Evaluate academic content and electronic bibliography from Internet.	48	52
AP2 Using technology platforms for accessing content.	47.6	52.4
AP3 Publish academic content in educational blogs.	57.5	42.5
AP4 Organize, process and discriminate the information gathered from the Internet to communicate.	49.8	50.2
AP5 Publish academic work through some means: website, slideshare, etc.	49	51
AP6 Use educational platforms to send jobs.	50.6	49.4
AP7 Handle virtual communication channels (messaging, forums, Weblogs, Wikis, etc.) to share content.	45.9	54.1
AP8 Web pages operated to upload academic papers value.	53.2	46.8

## CONCLUSIONS

Today ICT is fundamental to improving the quality of teaching tools, but only if students know how to take advantage, have the proper training and have the necessary resources.

Children and adolescents who currently entering educational institutions were born in the digital age; in it the development of ICT has led to the emergence of novel communication styles and cognitive skills, facilitating the creation of new dimensions in the categories of author and reader that have enabled the construction of a new subject of knowledge (Navés, 2015).

There is a low level of ICT competencies in the students of secondary schools in the city of Veracruz. Apparently the students are in the process of developing of these skills. However, they require increase the frequency and forms of ICT use for academic purposes, greater interaction between peers and teachers in the exchange of views and dissolving of doubts, as well as increasing the use of educational platforms, blogs, web pages, etc., for the publication and exchange of educational content.

In this sense, we find that, students still do not have a high level in the use of ICT for education purposes, which implies a deficiency in the cost-benefit ratio for society. Technological change globally has become a paradigm that appears to regulate the growth of countries; the level of ICT use in education represents a great opportunity for individuals to the path of knowledge and its inclusion in the Current society characterized by a self-learning management supported by the application of digital skills.

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