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High School Students' Perception on the Use of ICT in Learning Vocational Courses: A Survey

Ana Elisa Sousa*

Instituto Politécnico de Leiria, Escola Superior de Turismo e Tecnologia do Mar

Abstract: This study focuses on how students of vocational courses related to Information and Communication Technologies (ICT) perceive the use they make of technologies in their learning. A questionnaire survey was applied in classroom to 314 students from 4 private and public schools, with the aim of understanding if the students recognize benefits in the use of ICT in teaching and learning, by answering the 34 premises presented to them. Most students recognize benefits from the use of ICT in teaching considering it improves and facilitates learning. They recognize the need to improve the pedagogical use of ICT and that teachers from the scientific and sociocultural components still make little use of the technologies in the classroom. These students consider that the courses they take prepare them to integrate the labor market, indicating good practices in learning with and from technologies in the technical classes. The premises about the disadvantages and obstacles resulting from the use of ICT were the ones that gathered the lowest consensus among students. They consider that the use of ICT is essential in learning and preparing to work with ICT and in a broader sense to live in a society of information and knowledge.

Keywords: Students' perceptions, Information and Communication Technology; Learning; Vocational; Technical courses; Survey

Introduction

Recognizing the importance of technologies in learning is now unavoidable and it has been supported by the different governments of the different countries through projects and plans for education that include equipping schools with technological equipment, giving training to teachers in the field of Information and Communication (ICT) and providing students with skills in the field.

After understanding the importance of technologies in an information and knowledge society, vocational courses have been created in the field of ICT, which are capable of responding effectively to the demands of this society.

By viving a voice to the students of these courses, it is intended, with this research, to verify their perceptions of the use of ICT in learning, in order to understand if there is an enriching use of ICT in the classroom with effective benefits in learning, which have a future impact on the labor market and in a wider sense in society.

When we understand the reality of what is going on in the classroom and the students' perception of it, there are unparalleled clues to initiate educational policies that lead to teaching and therefore learning that makes ICT a permanent and enriching presence in the classrooms of our students.

Literature review

The integration of ICT in the teaching and learning process is indispensable to prepare students to integrate an active working life, involving a professional use of ICT. It is from this integration and from the way students use ICT that they will be more or less prepared to live in an information and knowledge society. This use, although it can take place in other spaces, finds in the school the proper place for an effective learning of the potential of technologies.

Corresponding Author's Email: *ana.c.sousa@ipleiria.pt

The observation of this reality is all the more important when we question: how can traditional methods continue to captivate, engage and inspire students when their life outside the school context has changed dramatically? (Costa, 2011, p.133). When young people grow up surrounded by media, school can not refuse such use. As Tapscott reminds us (2009) we are now facing a profile of young people very different from other past generations and this "Net Generation", which he himself designated as such in 1998, represents a huge challenge for the school, but a challenge it cannot ignore.

Despite the growth in the number of ICT equipment in schools, especially in recent years, most studies suggest that this increase is not synonymous with satisfactory use, or that technologies are not used to taking advantage of their full potential for learning (Cuban *et al*, 2001; Empirica, 2006; Selwyn, 2008; Almeida *et al, 2012*).

" In fact, not only are the rates of use of digital technologies in educational practices far below what would be expected, depending on the investments made, how blatant it is when the lack of north is used in relation to the type of use given" (Costa, 2011, p.135).

The need to prepare professionals capable of integrating the labor market and responding to an information and knowledge society has raised questions about the relationship between the use of ICT in the labor market and education.

In this regard Wellington (2005, p.28) recalls some questions underlying the discussion of this relationship:

1. Does the use of ICT in schools really prepare children for the job market? Should this be one of its goals?

2. Can we ever bring school and the labor market closer (eg, industry and employment) in a context of accelerating technological change? Unless schools have contact and keep up to date with the technologies in business, how can we expect students to be prepared?

3. Can general ICT skills be "transferred" from the school context to the workplace, which requires a higher level?

4. To sum up, can and should the use of ICT in education be led by the professional imperative, ie, preparing for employment?

While each of these issues may lead to in-depth investigation, Wellington (2005), about the role of the school in teaching ICT for its use in the labor market, stresses the importance of a general understanding of the use of digital technologies... not forgetting the importance of teaching to prepare students for a world in which the use of ICT is widespread. The transfer of learning from a school environment to other contexts should be a central objective of teaching, in which schools must unequivocally try to bring technology and training into the industry.

The report "Survey of Schools: ICT in Education" (European Comission, 2013, p.126) concluded that the Portuguese students of the vocational courses are those who have a more positive opinion about the impact of the use of ICT in learning (Portugal – 3,19. UE – 2,98). According to the students the use of ICT in the classroom provides a better atmosphere between students and teachers and between the students themselves, as well as an improvement in the concentration, understanding and memorization of the subject. Most students agree that the use of computers as well as serving a entertaining purpose will be an essential asset in their future (European Comission, 2013, p.127).

ICT is perceived from a positive perspective, due to the multiplicity of possibilities offered at various levels (relational, learning, leisure, professional, among others) and at any age (Sallán et al, 2014, p.27-28). However, in recent years there have been some studies on the problematic uses of ICT in the personal and scholastic life of

young people (Rodriguez-Goméz and Meneses, 2018) that question whether there are and what are the effective benefits of using ICT in teaching.

Methodology

To guide this paper starting questions were asked that led to the need to investigate how ICTs are being perceived by students in vocational education:

1- Do the students of vocational courses related to ICT have a positive perception of the use of technologies in learning?

2 - Do the students of vocational courses related to ICT think that they are prepared to be a capable intermediate response in the ICT job market due to the quality of teaching they have had in their vocational courses?

3- Do ICT related vocational course students make a varied use of ICT?

4- Do students in ICT courses learn the subject more easily using ICT?

These issues led to the formulation of three major objectives that guided the paper:

a) To evaluate the representation that the students of vocational courses in the scope of TIC have of these.

b) To check which use of ICT practices have in school, (concrete conditions of use). In the school context, it is particularly important to assess the use and pedagogical integration of ICT in learning processes.

c) To analyze how to verify the appropriation of ICT by the referred students.

To carry out the study, we opted for the application of a questionnaire survey to 314 students, from the 10th to the 12th grade, from four schools, two from public and two from private education, which had, in 2012, vocational courses related to ICT.

We chose to apply the questionnaire to two public schools and two private schools to see if the students' perceptions would be different depending on the type of school they attended. That is, whether the distinct conditions of use and quantity and quality of ICT available in educational establishments would influence student perceptions. In Portugal, private schools generally have more and better quantity and quality of ICT equipment and their use is more enriched in private schools where parents pay for students to attend these schools.

Before being applied, the questionnaire survey was validated by the Direção-Geral da Inovação e Desenvolvimento Curricular (DGIDC), from Portugal, and then applied to Escola Profissional de Setúbal, Externato Cooperativo da Benedita, Escola Secundária Rafael Bordalo Pinheiro and Escola Secundária de Pombal.

The replies to the survey took place during the class period in the class room, and sought to verify the students' perception of the use of ICT in learning.

Results

Table 1: Students' perceptions regarding the use of ICT in learning (average) (Scale: 1=Totally disagree; 4=Totally agree)

	Average
The internet facilitates communication with others	3.60
I use computers for different purposes (leisure and work)	3.52
Not all information on the internet is reliable	3.40
Knowing how to use the computers and the internet is indispensable for getting a good job in the future	3.39
Lessons are more interesting when we use ICT	3.38
Learning with computers is important to me because I need them for what I want to study later	3.32
The school I attend is well equipped with ICT	3.27
With the use of ICT in class I feel more independent in learning	3.25
With the use of ICT in classes I understand more easily and faster what I am learning	3.25
Nowadays the use of the computer and the internet is necessary for any day-to-day activity	3.25
With ICT I work more in a group with my colleagues and we help each other to complete the tasks	3.24
Teachers in the technical component use computers in all or almost all classes	3.22
With the use of ICT in the classes, I am more focused on what I am learning	3.20
The ICT training we receive at school is adequate to the needs of the labor market	3.20
The training I receive in this course is very positive, and therefore of great value for the rapid integration into the labor market or for further higher education studies	3.19
With computers and the internet we can do things (simulations of experience, see movies, etc.) that we could not otherwise	3.19
With the use of ICT in class I memorized the subject more easily	3.18
With the use of ICT in class I focus more on what I am learning	3.18
Sometimes when we use computers and the internet in class, my classmates and I end up distracting ourselves with other online content	3.13
It´s easier to learn from the internet than from books	3.12
With the use of ICT in class I participate more	3.11
With ICT I study better and I have higher grades	3.09
I think we should use the computer in every class.	3.09
ICT improves classroom environment	3.02
When I finish the course I want to pursue a higher education course or TSC related to ICT.	3.02
I chose this course because of the use of computers (ICT)	3.00
I chose this course because I find it easier to find employment in the ICT field	2.99
My school has a lot of educational software to help with the study of subjects	2.76
You need to know English well to surf the internet	2.74
The teachers of the sociocultural and scientific components use computers in all or almost all classes	2.74
The computers at my school are new and modern and the internet works well	2.68
Sometimes when we use the computers and the internet in classes the destabilization is greater caused by one or another colleague.	2.35
When we use the computer in class, it is the teacher who does almost everything (the students practically do not move)	2.30
When teachers use computers and the internet in classroom, it is more difficult to follow the subject	2.22
My parents do not like me surfing the internet	2.13

Of the 34 premisses, the majority of respondents tend to agree with 31 of them, albeit with slight differences in the degree of agreement. The premises that generated a more general agreement among the students have to do with the ease of communication that the internet provides. Secondly, the use of the internet for the purpose of doing work and for leisure is consensual among students, who have difficulty in highlighting only one use for the Web. The recognition that not all online information is reliable is a fact for students.

Among the highest levels of agreement is the recognition that the handling of these tools (computer and internet) is indispensable to get a good job in the future.

In this sense, students also point out that learning from computers is important because they need them to study, revealing the recognition of the importance of these tools for studies in both higher education and the realization of a TSC (Technological Specialization Course) and even "for any day-to-day activity." Students understand that they live in an information and knowledge society and that technologies are now unavoidable in everyday life. Thus, almost 40% of the students guarantee that when they finish the vocational course, they want to pursue higher education studies or TSC related to ICT. The rest prefer to follow, after completing their courses, a profession in the field.

With regard to learning in class with ICT, it seems that students feel that their use at school during classes makes them more interesting, even because schools are in their opinion well equipped.

With favorable perspective of the use of ICT, it is easy to understand why students consider that when they use technological equipment in class they feel more independent in learning (3.25) and understand more easily and faster what they are learning (3.25).

The advantages of using the technologies in the classroom are still present when students report that the use of these tools provides more group work and helps colleagues to complete tasks (3.24), a greater and voluntary effort in what they are learning (3.20), a higher concentration (3.18) and the memorization of subjects (3.18), even because computers and the internet make it possible to do things that would not be possible without them (3.19), although there is a tendency to agree that “sometimes when we use computers and the internet in class my classmates and I eventually get distracted with other online content” (3.13).

The use of ICT occurs mainly in practical classes, where teachers of these subjects use computers every day or almost every day (3.22), while the teachers of the sociocultural and / or scientific components seem to have a smaller use of these tools, once faced with the premise "teachers of the sociocultural and scientific components use computers in every or almost every class”, the students were reluctant. The poor use of ICT skills by these teachers is related to their degree of comfort, confidence, training, lack of time to prepare classes using technologies and availability of equipment in the classroom (Cuban *et al*, 2001, p.825-826; Costa and Peralta, 2007; Palak and Walls, 2009, p.437)

With regard to the training they receive at school and in particular in their vocational courses in the field of ICT, students consider that it is adequate to the needs of the labor market (3.20), and therefore "very positive and of great value for the rapid integration into the labor market or to further higher education studies” (3.19). Although, with the frequency of courses, students will gradually begin to think about the future and what they want to do when they finish high school (entering the labor market or pursuing further education) and consider their frequency to be positive for this dual purpose, the choice of course "because of computers (ICT)” or because they find it "easier to find employment in the ICT field, are not crucial factors in their decision making.

The premisses with the lowest levels of agreement are related to negative aspects arising from the use of ICT. The lack of agreement of the students shows that they do not agree with their parents not liking their children to surf on the internet (2.13); that the use of computers and internet in the classes makes it difficult to follow the subject (2.22); that the use of the computer in the classroom is an exclusive practice of the teacher (the students

hardly move) (2.30) and that the use of the computer in class causes a greater destabilization caused by one or another colleague (2.35).

Discussion and Conclusions

Most students recognize advantages in the use of ICT both in terms of ease of communication and in the use of computers for leisure and educational purposes.

Although, in practice, students often fail to consolidate this dual aspect of ICT, as an instrument of training and work, such as leisure and communication, students recognize that technologies provide them with this diversity of uses.

The dispersion of students in class is pointed out by teachers as an obstacle to the more frequent use of ICT. It will be important for students to recognize the adquate spaces for entertainment and communicational activities and educational activities, as is the case in the classroom. Only when they recognize this, can there be a common benefit of using ICT, both for the teacher and for the student.

The preparation of these students to enter the labor market and to be a capable response in an information and knowledge society is ensured by learning in the technical classes of their courses. However, this lack of ICT learning extends to sociocultural and scientific subjects.

Of course, not at any price, only when its use allows learning to be more autonomous and attractive, which facilitates understanding of what students are learning.

The comparison with other studies (Alves *et al*, 2012; Abrantes *et al*, 2013; Alves and Rodrigues, 2014) do not reveal great differences between the use of technological resources in the subjects of the sociocultural and scientific component of the ICT courses and the subjects of the scientific-humanistic courses. Thus, the field of the course does not seem to be decisive for a greater and more enriching use of ICT.

Taking into account the specificity of the courses in the field of ICT which are in their genesis the preparation of intermediate technicians to meet the demands of the labor market in this field, it would be expected that there would be a more diversified and differentiated use of the other courses, which is only significant in the technical subjects, and the knowledge acquired here is not applied in interdisciplinary contexts.

In spite of this, these students consider that ICT learning in their courses enables them to have the skills to work in an information and knowledge society and to be a capable response to their challenges.

Students have a favorable perception of the use of ICTs because they enable them to focus on themselves rather than the teacher, although pedagogically oriented learning should never be neglected.

The advantages of using ICT in the teaching and learning process are not only recognized by the students but also their broader use of ICT is desirable.

The type of educational establishment that students attend does not alter their perceptions about the use of ICT.

The findings revealed the students' perceptions towards the use of ICT. This information would help teachers to practice better ICT integration in the classroom and the current perceptions of students on ICT policy for the stakeholders/government.

Some limitations of this paper are related to the empirical study of a quantitative nature, which implies the loss of a deeper and contextual analysis of the statistical data, which could be favored by interviews with a part of the sample. It could have been beneficial as a way to prove or reject some conclusions.

The use of 314 students from schools with specific economic, demographic and social characteristics may hamper the generalization of the conclusions of this research to other school contexts, teachers and students, and therefore are conclusions that are considered relevant, but valid for the sample of this investigation.

As suggestions for future research it would be interesting to develop a study about different practices of the use of ICT in the classroom, to identify those that guarantee more positive attitudes and are of greater interest, both by teachers and students.

How other spaces of the school (resource centre, library, multipurpose room) can contribute and favor the relationship of the actors of the educational process with ICT. In general, it would be important to develop further, in-depth investigations with vocational course students, which are still a subject rarely used in research.

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