

# ICT Training for Special Education Frontline Professionals

A Perspective from Students of a Master's Degree on Special Education

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**Abstract**—A large number of special education professionals agree on the fact that Information and Communication Technologies (ICT) is an important tool for teachers and students to overcome barriers and promote the acquisition of skills. ICT can promote school and social integration by diminishing the obstacles for students with Special Education Needs (SEN). A correct educational implementation of ICT depends strongly on the teacher's awareness of the possibilities of their application and his/her training and capacity to adapt to the differentiated learning styles that he/she encounters in his/her teaching of SEN students. However, the lack of or no training on ICT is one of the most frequently pointed reasons for not using or for misusing the potential that ICT can offer to the education of pupils with SEN as pedagogical tools or as individual Assistive Technologies (AT). The findings of a survey conducted with teachers attending a Master's Degree on special education, balancing the acquisition of general ICT skills and facts on specially oriented ICT solutions for students with learning disabilities, will be reported here. The educational support provided by trained and specialized professionals at ease with basic ICT skills and assisted by specialized means and techniques constitute a form of aid for the student who needs to see his/her disadvantage reduced or overcome.

**Index Terms**—ICT, SEN, Special Education, Teacher Training

## I. INTRODUCTION

A statement by Mary Pat Radabaugh (a former employee with the IBM Disability Support Centre) often cited by authors on the field of special education and ICT research, illustrates the simplicity that materializes the potential that ICT represents for those that for some circumstance are deprived of a full participation in their daily living:

*"For most people technology makes things easier. For persons with disabilities, technology makes things possible"* (Radabaugh, 1988)<sup>1</sup>.

It's frequently plead that the use of ICT accrue benefits to the teaching-learning process, not only by means of communication of available knowledge, but also by the motivational load that triggers the youth of today who live swamped with technological innovations. Indeed, there

are numerous European and International studies that substantiate the benefits of the association of education with technology, with conclusive evidence of improvements in participation and performance [1][2][3][4][5] (and many others).

The concept of inclusion reports to the physical, social and academic insertion of the student with SEN in regular classrooms, assuming that heterogeneity between students is a very positive factor for the learning experience of all, enriching it and making it more proficient [6]. The inclusive perspective searches for a school for all and for each one and demands an individualized and customized educational response to the specific learning needs of each student.

A school that pursues a full incorporation of students with SEN, and therefore an inclusive school, must recognize and satisfy their particular needs, coping with different learning paces and styles, experiences, the relationship of the individual with his/her environment, through curricular adaptations, diversified pedagogical strategies and good management [7]. It must strive for equal opportunities, minimizing disabilities in a way that the SEN student can make the school and social pathway the less restrictive possible, as stated in the 2004 UNESCO Salamanca Declaration [8].

Fonseca [9] emphasizes that it is crucial to provide children with SEN with a specialized educational intervention, as means and special care varies according to the specific needs of each one, for the full development of their capabilities. The educational support provided by trained and specialized professionals, assisted by means and techniques also specialized, constitute a form of aid/support for the student who needs to see his/her disadvantage reduced or overcome.

ICT reveals itself, in this way, as a powerful tool, in a manner that can diminish the disabilities and incapacities of the students with SEN, promoting the school and social integration [7]. With students with more severe problems/conditions, that possess a disability causing dysfunction, ICT can act as an individual assistive technology, resolving functional problems, towards compensating or substituting the affected function that could be sensorial, motor or cognitive.

However, the applicability of ICT in Special Education doesn't run out in its role as an Assistive Technology, as in regular education, but maybe with more relevance, ICT assumes itself as an important tool at the service of teachers and students to overcome barriers and promote the acquisition of skills.

<sup>1</sup> Study on the Financing of Assistive Technology Devices and Services for Individuals with Disabilities, A Report to the President and the Congress of the United States, March 4, 1993 National Council on Disability:  
<http://www.ncd.gov/newsroom/publications/1993/assistive.htm>

Sancho and Hernández [10:148] summarized this idea by saying that *"The use of ICT enables varied answers, because it allows different types of presenting information, diverse ways of expression and learning and various forms of involvement, in response to the complexity of facets of learning and teaching."*

Winnebrenner [11] adds that the effective use of technology in the classroom shortens the gap between potential and performance, especially in regards to students who struggle to learn. BECTA, in its 2007 Annual Review, adds that ICT also reduces the gap between students with high and low performance, helping more students to be successful in learning and motivating and supporting those most disadvantaged and destitute of interest. The discussion about the usefulness of ICT in the education of SEN students is already a concern for many European governments as present in the 2001 to 2003 reports of the European Agency for Development in Special Needs Education (EADSEN) in which it can be read that *"Most countries agree that access to ICT can reduce inequalities in education and that ICT can be a powerful tool in supporting educational inclusion. [...] The digital resources that could be developed within the education systems of countries (OECD, 2001) may seem particularly promising in education of students with special educational needs."* [13:44].

However, several authors clarify that the mere presence of technology presents no automatic effect in obtaining benefits and that the key factor is not the technology itself but the pedagogy used and the interaction between teacher, student and content [7][10][14][15]. They reinforce, also, that one should seek to take advantage of the unique characteristics of technologies and not merely replicate the traditional methods of teaching, because only then will you get proven advantages of its use [7][11][12][16][17][18]. Lobato Miranda [17], in her review of several studies, emphasizes that the completion of these activities only with the introduction of technology does not produce visible positive effects in students learning. The continued use of computers in school only to support the acquisition of traditional skills is a waste of time and technology [11].

For ICT to succeed in helping those who strive in their school path, it has to be adequate to the particular needs of these students and supported by professionals aware of its potential and in possession of the skills that allow an effective use of technology. However, the means are not always available and/or appropriate to the needs of students with or without special learning needs. Additionally, there is a lack of training of teaching and non teaching staff, to support these students who are many times deprived of adequate equipment and specialized professionals.

## II. REASONS FOR THE STUDY

As seen in the introduction, we can assume that this research tries to rise to discussion the issue of teacher's and other professionals specialized ICT training, whose work is to support the school path of students with SEN, either from a more functional or from an academic point of view.

It is proven that ICT is an added value for the education of the majority of students in regular school with or without SEN, being efforts made, nationwide, to equip all

schools and students with computers and broadband Internet connections so that everyone has the resources available for a proficient teaching and learning process. But are the teachers, especially the ones that support students with particular learning needs, endowed with the skills that allow them to take advantage of the potential of ICT as a tool for working at the service of student and teacher? Are the initial college courses or the courses provided by companies that market products for SEN sufficient to offer enough skills for primary ICT supported approaches?

In this perspective, we believe that it is necessary to frequently survey the training needs of special education frontline professionals so that the managers and implementers of training tailor the training course to the real training needs of those looking for a way to optimize their work, so that those who depend on it are not impaired in any way.

## III. THE STUDY

For this research an exploratory-descriptive study was conducted through survey using a questionnaire on possessed ICT and training needs for special education skills applied to a class of students in a Master's degree in Special Education in the Cognitive and Motor areas. The group of respondents was composed of 19 female individuals, with different spans of work experience. The professional group consisted of 8 Special Education teachers, 1 educational support teacher, 2 Basic Education (1st Cycle) teachers, 6 Kindergarten teachers and 2 Socio-cultural Animators. Of the whole group, 47,4% of the individuals was responsible for direct support to students with SEN and the remaining dealt with these pupils in regular educational contexts. One should stress the demand for training of those that deal with students with SEN in regular educational contexts that include other children without SEN.

The questionnaire was composed of multiple-choice questions that inquired about regular and specialized ICT Skills, ICT training background, and ICT use for management, materials creation and pedagogical purposes. In addition, respondents were asked their opinions and beliefs about the use of ICT with SEN students.

Collection, compilation and processing of data to describe and interpret the reality of actual perceptions, skills and training needs of this focus group were conducted. The results were subjected to descriptive analyses in order to provide a global perspective on general ICT skills and a focused perspective on specific skills worked upon.

## IV. RESULTS

All the respondents showed they were interested in the pedagogical use of ICT with students with SEN. In particular, 63,2% of the respondents revealed high interest in this matter, 31,6% good interest and 5,3% indicated reasonable interest. They also agreed (5,3%) and fully agreed (94,7%) that ICT offers significant educational benefits and that it can help students with learning disabilities overcome the obstacles imposed by their disabilities (89,5% fully agreed and 5,3% agreed – one missing answer). Almost all of the respondents (89,5%) believe that ICT is a factor of increased motivation and participation for students with learning problems.

These answers were confirmed by 94,7% of the respondents that are motivated for the use of ICT in education of students with SEN and who think that ICT training in this

area is of major importance for their work in supporting the education of these students. The same percentage of respondent acknowledges that special education professional training encourages the use of ICT with these pupils.

The majority of the respondents said that they had frequent and long-term use of the computers, mainly for elaboration of written class materials and for administrative functions. Their answers stated that the use of the computer in direct intervention wasn't so frequent, although 31,6% made educational activities at the computer with high frequency and 10,5% made it with reasonable frequency.

The question about the respondents ICT training background was a cumulative multiple-choice item (more than one answer could be chosen). In this section the results showed that 52,63% of the respondents received their ICT training in their higher education. Also, 26,32% said that they had attended training courses at their work schools, and another 26,32% at Ministry of Education training courses. An equal percentage of respondents stated that they were autonomous learners. Only one respondent had complementary or specialized training in ICT.

When asked about specialized training for pedagogical application of ICT, 36,8% said that they attended some type of pedagogical use of ICT training. In the specific SEN oriented ICT skills 89,5% said that they hadn't attended any sort of training in the use of specific SEN pedagogical software. As regards training in Assistive Technologies, the situation is slightly more positive, although 84,2% of the respondents never had training in this area.

About their global ICT skills, the majority (73,7%) said that they had reasonable skills in computer use.

In the detailed inquiring about ICT skills all of them indicated the need for more general (Operating System and Productivity Tools) and specific SEN ICT training (Specific SEN software, Accessibility Options of the Operating System and Assistive Technologies).

Each area of training needs had available a classification from high priority to low priority: in specific software for SEN, 78,9% classified it as high priority; the classification of high was given in 63,2% of the cases for Assistive Technologies; in general educational software only 10,5% classified it as a high priority; and general ICT received 21,1% of high priority classification.

In the screening of confidence in the use ICT the survey showed that only 21% of the respondents have confidence in their technological abilities and that only 5,3% feels they have sufficient ICT training for and efficient response to the needs of students with SEN. Only 10,5% feels that their ICT knowledge is updated.

When asked about the available ICT for SEN training courses 68,5% think that the offer of specialized training isn't enough and only 21% agrees that the actual training courses satisfies their needs.

## V. DISCUSSION

The results seem to confirm other studies that conclude that special education teachers support the use of ICT as a useful tool in the education of students with learning disabilities. For their greater proximity to the educational process, teachers are clearly defenders of the use of ICT in

education as shown in various studies, particularly in the survey conducted with Italian teachers by Benigno, Bocconi and Ott [19] and with Swedish teachers by Brodin and Lindstrand [16]. In the first study there is recognition of 75% of respondents of the potential of ICT in fostering inclusion and, in the second, of 79%. This inclusive potential is recognized by EADSEN [12][13] in their 2001 and 2003 studies, already mentioned, which call for their effective use, encouraging the resolution of the factors impeding its use.

All respondents agree that ICT constitute a valuable educational tool and a way to facilitate access and participation, thus contributing for the full inclusion of these struggling students, being this the major concept defended by several authors worldwide. Florian and Hegarty [14] realized that inclusion is a feature that defines ICT and added that they act as equalizers to be used in overcoming barriers for all students, but especially for those with disabilities, in any context where learning takes place. Abbott [20] and Schlünzen and Junior [18] added that ICT can provide greater independence to the students and can unravel their hidden potential.

Hence, the acceptance of computers as allies and recognizing their value in the work with students with SEN by special education professionals seems not to pose as an obstacle, contradicting their regular education colleagues where still 1/5 of European teachers have doubts or denies any benefits in the use of ICT in education [4].

These professionals share the concept that ICT is a strong motivational tool for students with learning problems as supported by numerous studies [2][5][14] [21], just to mention a few.

We noted that a large percentage of professionals had acquired ICT skills in their higher education studies but at the same time feel they aren't prepared for an adequate work with students with learning disabilities, reinforcing the idea that some have ICT skills but don't know how to apply them in an educational manner. We concur with Abbott [20] that part of problem frequently lies not on the non-use of technology but rather on its misuse.

Almost all the respondents revealed a frequent use of computers to help managing administrative tasks. This issue is of great importance and we must note that, indirectly, by simplifying the teacher's management duties, ICT also contributes towards a good attendance of students with SEN.

The biggest slice of training provided comes from higher education studies, but all the respondents reveal lack of training and ask for more training, leading us to think that even recent graduate teachers don't possess enough ICT competences and that there is a need to re-educate them as Peralta and Costa [22] stated in their synthesis of an international research.

Confidence in their skills is also an issue that has to be worked on [4][22], substantiated by adequate training, given that only a minority of respondents has confidence in their ICT skills regarding their insufficient training.

By way of conclusion we remark that, despite poor training, most professionals attach great importance to training in order to respond more effectively to the needs of their students.

Research evidence presented by studies conducted with professionals, students and direct observation is conclu-

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sive that ICT helps demolish barriers for people with physical, visual, hearing, cognitive and even psychological impairments is undeniable.

These respondents are fully aware that ICT has the potential to empower the student to act beyond becoming a mere spectator and play a more active role in promoting/facilitating their work in a constructive manner about their educational background and developmental process. ICT enables, therefore, above all, full participation in school life, so that pupils with SEN feel more capable and integrated in the classroom, with real feelings of belonging to the school, which contributes to a rich citizenship experience, as witnessed by the students with SEN themselves in the study of Pereira [23].

## VI. CONCLUSION

The study was conducted with a small group of respondents so we can only infer about their training needs and draw some assumptions that might underlie a training model without the pretension of major generalizations.

As observed in their own perceptions, professionals that work with students with special educational needs don't possess enough skills for a proper and optimized use of ICT with those pupils under their responsibility. They lack general ICT skills but their major training need is in the specially oriented solutions for special educational needs on specific software and Assistive Technologies.

In our perspective, and from the results obtained in the questionnaire, we think that it is necessary to prioritize and provide basic ICT skills before advancing towards a profound and much needed training in the use of specific ICT tools for the access, participation and inclusion of students with problems and disabilities that impair their possibilities for regular school attendance.

To handle this need, the primary training on the educational use of ICT should take place in higher education teacher training settings, after the acquisition of basic skills. In-service training and special education courses must have ICT strategies in their curricula so that special education professionals can be enabled to use one more essential tool available to them.

We consider that, within the spectrum of knowledge required by a professional to conduct his/her activities to support students with learning problems, basic skills in specific oriented ICT for SEN should be included so that when he/she faces a technology that accompanies a young person with impairments, he/she is able to plan a first intervention/assessment. And, more important, we must consider that a correct educational implementation of ICT strongly depends on the teacher's training and capacity to adapt to the differentiated learning styles that he/she encounters in his/her teaching of SEN students.

At a time when we are experiencing the implementation of the inclusive school, research on the inclusion of students with SEN in schools with the support of ICT presents itself as an area of research and intervention with unquestionable interest. ICT has the potential to empower students, promoting/facilitating the full apprehension of their educational background and developmental process.

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