Students as digital leaders in the classroom

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Summary. *Over the past few years, the growing use of technology in the classroom has left many teachers feeling overwhelmed by the new imperatives of classroom management. Contemporary educators are faced with the need to devote attention not only to teaching and curricular matters, but also to other areas for which they are often not as well trained, including issues of digital competence and the tasks of resolving technical problems that sometimes arise with electronic devices in the classroom. This drove the school Jesuïtes Bellvitge to draw a distinction between pedagogical and educational aspects on the one hand and technical tasks on the other. The aim is to make possible a greater focus of efforts on the ultimate goals of the teaching and learning process. The teacher acts as the classroom leader when it comes to educational matters, but in every class there is a group of students who play the role of «ICT experts», both taking charge of technical issues in the classroom and offering support to the teacher and their classmates. The objective of this article is to collect data from the participants in this ICT experts programme at Jesuïtes Bellvitge and to describe and assess the experience. The article concludes that this programme has allowed for a broader use of ICT resources in the school, with classes of different grade levels now able to incorporate them regardless of individual teachers' digital competence.*

Keywords: *ICT; digital leaders; ICTexperts; 1x1 Project*

Els alumnes com a líders digitals a l'aula

Resum. *En els darrers anys, l'ús intensiu de les tecnologies a l'escola, ha provocat que el professor de vegades es senti desbordat quan ha d'atendre la gestió de l'aula i no tan sols els aspectes d'ensenyament i aprenentatge curriculars sinó també altres, pels que sovint no està preparat, com són els relacionats amb la competència digital i la resolució de les incidències tècniques que es produeixen amb qualsevol dels dispositius de l'aula. És per això, que a l'escola Jesuïtes Bellvitge s'ha decidit separar els aspectes pedagògics i didàctics dels tècnics per tal de concentrar els esforços en la finalitat última del procés d'ensenyament i aprenentatge. El lideratge pedagògic de la classe el porta el professor però és un grup d'alumnes «ICT experts» el que a cada classe porta el lideratge tecnològic i fan de suport al professor de l'aula i als seus companys. En aquest article es pretén descriure i avaluar l'experiència dels ICT experts de l'escola Jesuïtes Bellvitge segons els seus protagonistes arribant a la conclusió que aquesta experiència, ha fet que l'ús de les TIC a l'aula es pugui estendre homogèniament en els diferents cursos amb independència de la competència digital docent del professor.*

Paraules Clau: *TIC; líders digitals; ICT experts; projecte 1x1*

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Introduction

Over the past few years, technology has taken centre stage in debates in the field of education. Some have wondered what it is that technology truly has to offer us. How can we benefit from it, and what are the risks and constraints involved?

Often these debates lead to the conclusion that technology in and of itself cannot truly be a driver of change and that technology alone is no guarantee of innovation. Instead, the keys to the sought after innovation and change in education are to be found in methodology, or in other words in how we apply technology to the processes of teaching and learning.

As Siemens (2004) observed, the digital era has brought with it new ways of learning and communicating, and consequently schools are faced with the obligation to adapt to meet the emerging needs of their students. A series of terms have been coined to describe this generation of students, with perhaps the most popular being Prensky's (2001) name «digital natives», although as the years have gone by other terminology has come to prominence, such as that of White and Le Cornu (2011), whose classification breaks technology users down into digital residents and visitors.

Managing this rapid technological explosion has often not been an easy task. School administrators have tended to opt for investments in hardware, expenditures that then had to be followed up with training for teachers. The aim of this professional training was not only to familiarise educators with the workings of digital tools and materials, but also, and more importantly, to show them how best to use these tools to meet students' needs, thus adapting the educational model to the realities of the 21st century.

It is clear, then, that teachers' digital competence has played a key role over the past few years in sparking these processes of innovation and change in schools, as the technological context calls for a rethinking of classroom methodology and consequently new ways of teaching.

The UNESCO ICT Competency Framework for Teachers (2008) underlines that the successful integration of ICT in the classroom depends on the teacher's ability to depart from tradition in the ways he or she structures the learning environment. Teachers must be able to use ICT in conjunction with new ways of teaching and to lead dynamic lessons that foster interaction, cooperation, collaborative learning and group work.

All of this requires a series of abilities that go beyond simple digital competence and have much more to do with classroom management. Thus, it is important to focus our efforts not only on reaching full digital competence, but also on classroom management and other connected issues. This means rethinking individuals' roles and functions, and it means reconsidering certain dynamics and the ways in which we spend our time.

In terms of roles, when it comes to introducing technology into the classroom the teacher is not the only source of information. The teacher's role here is no longer simply to transmit knowledge, but rather to act as a guide and a companion in learning. Students also take on new and more central roles like those identified by Prensky (2001) in his theory of association, which observes that students can specialise in searching for materials online and presenting them in class.

Members of this new generation, one that Gardner (2014) has labelled «Generation App», tend to see technology as an essential part of their lives, and it is also part of their learning processes. Thus, they have already developed digital skills and learning competences that schools must detect and further develop in the classroom. At the same time schools should also take advantage of the new roles students can play thanks to their ICT abilities and allow students with ICT expertise to act as leaders in the classroom.

The experiences of student ICT experts around the world

Our school's (Jesuïtes Bellvitge School) practice of using student ICT experts was begun at the same time as some schools in the UK were also creating programmes in which a group of students, there called Digital Leaders (DL), performed the same kind of role. Schools around the UK that have adopted this model of technology management have come together in a network that currently boasts 177 members, most of which are primary schools, although there are some secondary schools as well. The DLs in the UK operate much like our ICT experts: they offer support to both classmates and teachers in technology use. Additionally, DLs lead training sessions for teachers and are provided with a time and space for their work on a weekly basis. The programme has received the backing of companies like Toshiba and Microsoft, which have held meetings and conferences to train these students and to help them bolster their role within their schools. These programmes in the UK seem to be an outgrowth of the 1x1 initiatives that aim to provide each student there with a laptop computer, again much as was done in Catalonia under the eduCAT 1x1 project. However, as Bosco (2014) pointed out, upon close examination it is apparent that on the whole these programmes place more of an emphasis on providing schools with technology rather than on encouraging pedagogical reflection on how to use this technology in the teaching and learning processes. As Bosco (2014) writes, «the greatest weakness of ICT integration policies remains the lack of pedagogical consideration given to how they are used» (p.7). This is what makes initiatives like this DL project vital. It is worth highlighting an article published as a result of the conference on this topic held by Toshiba (2011), a text that argues that empowering students must constitute the cornerstone of any future policy to introduce technology into schools. The article maintains that the UK has taken a step backwards when it comes to investment in technology,

pointing to the disappearance in the very year the text was published of the British Educational Communications and Technology Agency (BECTA), which had been the leading entity in the country for the promotion and integration of ICT in education. The study concluded that student involvement was the only viable strategy left to give efficient support to the 1x1 programmes that had been implemented in many British schools.

The UK's Digital Leaders network continues to gain strength, as every year it organises a variety of national and international events, including the Digital Leaders Annual Summit and the British Educational Training and Technology show (BETT), where the students and teachers who lead these projects in their schools have the chance to exchange experiences and learn from one another. The presentation that Glyn Barritt made at BETT in 2013 was a great summary of the experience in the UK that put the achievements of these programmes into perspective. We might be able to replicate this success in our own country. If we were able to do so, it would be an indication that our efforts to affect profound change in our education system were beginning to bear fruit. Another similar programme has been implemented in Australia under the title Digital Leaders Australia-Empowering young people with Technology (OzDLs, n.d.).

Putting Jesuïtes Bellvitge School in context

Jesuïtes Bellvitge - Centre d'Estudis Joan XXIII is a Catalan school that **was founded in 1968 by the Jesuit Josep Ituarte i Mata** along with a group of Jesuits and laypeople who were committed to creating a quality educational centre in an emerging neighbourhood with few resources.

The school's website recounts how the school grew along with the neighbourhood, guided by a philosophy that shared the hopes and a splash of the utopian ideals of those who had moved to the area from around Spain in search of a better life for their families. From the very start, the school was dedicated to providing the neighbourhood of Bellvitge and the city of L'Hospitalet with academic, personal, social and Christian education.

The school's website also offers information on the students currently enrolled there, who currently number approximately 1700 all together, including all the levels of education the schools offers, from early years childhood education to primary and secondary school, as well as various levels of vocational and job training courses for both adults and younger students and continuing education classes for companies.

Companyia de Jesús has owned the school since 2014, and it is a member of the Jesuit Education network that is made up of the seven Jesuit schools in Catalonia.

In 2010, the school's administration made a big push to use technology to spearhead change when it joined the Catalan Education Department's 1x1 pro-

gramme at the secondary school level. Students and teachers in the first year of ESO (secondary education, which in Spain starts in 7th grade) were provided with laptops, whiteboards and digital books as the first part of a change that would be implemented throughout the school. The school made a large investment in technology, installing Wi-Fi throughout the centre and gradually placing digital projectors in all the classrooms, as well as providing each teacher with a laptop, thanks to a prize awarded to the school by the Barcelona Chamber of Commerce.

As the school began to make more intensive and widespread use of technology in all of its classrooms and academic subjects, it became apparent that having just one teacher who has charged with managing all the technical aspects of the school's activities (troubleshooting and addressing problems of digital competence among students and teachers) was not sufficient. That's why the student ICT expert programme was begun.

With all of this in mind, this study was undertaken with the following objectives:
1. To describe Jesuïtes Bellvitge's experience with implementing student ICT experts in its classrooms.
2. To gather information on students' and teachers' perceptions of the role of these technological leaders in the classroom.
3. To identify how teachers, students, ICT experts and the head of this project (the school's Knowledge and Learning Technology Coordinator) believe the creation of this role has benefitted the school.

Methods

This research was conducted using a humanistic interpretive approach wherein the objective was to describe an educational experience using mixed methods, or in other words incorporating both qualitative and quantitative data.

Participants

The participants in this study were the students, teachers and administrators at the school Jesuïtes Bellvitge. The participants included:
– 113 total students, 30 of whom were ICT experts (10 girls and 20 boys, all of between 11 and 16 years of age) (average age: 13.1). 23 of these experts were ESO students (seventh to tenth grade), while seven were fifth or sixth grade students.
– 83 students who were not ICT experts, all of between 10 and 16 years of age (average age 13.03). 75 were ESO students, while 8 were fifth or sixth grade students.
– 18 teachers (6 men and 12 women) with a mean of 19.25 years of teaching experience. 22% are primary school teachers (specifically fifth and sixth grade), and 78% are secondary school teachers. Of all the teachers in the sample, only two have no relationship with ICT experts, as they report making very little

use of ICT tools in their classrooms. Thus, there are 16 teachers in the sample who do make use of these experts (6 men and 10 women). On average, they have been working with classroom ICT experts and with the school's Knowledge and Learning Technology Coordinator (also the head of the student expert programme) for 3.5 years.

Instruments

This study was conducted using a survey that was distributed to the secondary school students, who were grouped according to whether or not they acted as ICT experts. The survey consisted of both closed and open questions that were divided into the following areas: tasks and functions of the ICT experts, when these tasks are carried out, assessment of the experience, benefits offered by the programme, keys to success, limitations and suggestions for improvement.

Secondly, another survey was administered to the teachers participating in the study. It was also made up of both closed and open questions, again divided into the following areas: origins and motivations for the programme, goals, tasks and functions of student ICT experts, classroom organisation, keys to success, limitations and suggestions for improvement.

Procedure

This study was carried out during the 2014/2015 academic year. This means that at the time when the data were collected, four academic years had passed since the start of the project.

It should be noted that the overall participation in the sample was 25.6% of the population studied, as the school has a total of 480 ESO students (of whom 34 are ICT experts) and 35 teachers. Thus, the study is subject to a limitation in that the response rate of student ICT experts was far above that of their other classmates. Nevertheless, the objective of this study was not to compare the opinions of these two groups of students, but rather it was to collect data on perceptions in general, a fact that reduces the impact of this possible sampling bias.

Results

The results section below is structured to reflect the various objectives of this study. Firstly, in order to be able to **describe the experience of establishing the student ICT expert programme in the classroom at Jesuïtes Bellvitge**, an interview was conducted with the school's Knowledge and Learning Technology Coordinator, who also acts as the head of this project. The interview paid special attention to the origins of the project, the motivations for undertaking it, the project's objectives, the procedure implemented and the expected results.

With regard to **the project's origins**, the Knowledge and Learning Technology Coordinator, recounted how

during the 2009-10 school year when Jesuïtes Bellvitge joined the Educat 1x1 programme, the school took on a commitment to making more intensive use of technology in its classrooms. The process since then has not been an easy one, not only because it is a large school whose teachers vary greatly in terms of digital competence, but also because the school was faced with technical difficulties, not to mention the range of levels of digital competence of the students themselves. This situation gave rise to dissatisfaction and concern among teachers, many of whom complained that they were spending more time coping with technical problems than teaching class. The coordinator summed up the situation by saying that «Although we had an IT department, the teachers wanted to have a technician in class. This request arose because the teachers were often dealing with problems stemming from their own or their students' lack of technical knowledge, and because they felt these issues needed to be resolved quickly.»

Meanwhile, the school's IT department was receiving a large number of requests for support, which meant that they could not respond in as timely a manner as needed.

According to the coordinator, the school decided to respond to this situation during the 2010/2011 academic year by «experimenting with selecting two student ICT experts per classroom to collaborate with the school's Information and Communication Systems department and with me in order to offer technical support in the classroom and to act as liaisons between the department and the rest of the students».

In terms of **objectives**, the project's initial goals have been broadened over the years to reflect the conclusions of the project reviews that are conducted after each academic year. These objectives can be broken down into three areas:

The coordinator defines **the role of these ICT experts** and identifies six of the main kinds of tasks that they carry out. These experts act as:

– Technicians (serving the teacher and their classmates): troubleshooting when there are simple technical issues with computers.
– Teachers (offering training): showing their classmates how to use a range of software.
– Representatives: receiving guests from outside the school in the name of their classmates or their grades.
– Researchers: learning about software before explaining it to their classmates, or seeking out solutions to any frequent problems in the classroom.
– Spokespeople and critics: holding meetings with professional technicians and with the school's head of innovation, as well as with technicians from Jesuïtes Educació.
– ICT coaches: helping classmates with any difficulties they may have with programmes or with the school's digital environment.

Additionally, the coordinator stressed that «in order for a student to carry out these roles, he or she must set an example of proper use of ICT both inside and

Table 1. Objectives of the ICT expert project at Escola Jesuïtes Bellvitge

Teaching/learning	Human resources	Resources
Improve work in the classroom by offering technical support to classmates in teachers in their use of laptops and the Wi-Fi connection, and in accessing and using the school's online platform and accessing and using e-books.	Free the teacher from the need to solve technical problems in the classroom, allowing him or her to maintain pedagogical leadership while students take the lead in technical matters.	Collaborate in improving the use of the digital resources that the school makes available to students.
Make it possible to carry out techno-pedagogical projects in core subject classrooms by offering support and training to other students in the use of digital tools and offering technical support to the teacher.	Support the students who have the greatest difficulty using technical tools.	Collaborate in optimising the timetable of the TRESOR coordinator, as well as the time set aside for the implementation of techno-pedagogical projects by teachers.
Improve the following competences of ICT experts: linguistic and audio-visual communicative competence, autonomy and personal initiative, social and citizenship competences, use of information and the competence of learning how to learn.	Free the school's technical service department from having to deal with certain habitual problems, and optimise the department's work and that of the TRESOR project coordinator.	Explain the school's innovation projects to students.
To spark change in the teacher's role, a necessary part of the school of the 21ˢᵗ century. Students and their learning become the centre of activity.	Free teachers from having to receive training in the use of all the digital tools in the classroom.	

outside the classroom. These students must not have any history of abuse of ICT».

The coordinator explained that the ICT experts take an active role during class time by lending support to their classmates and teachers, and that they even sometimes offer to stay behind to help during recess or after class.

In terms of the **keys to the project's success**, the coordinator points to the students' high degree of motivation as a critical factor. She says «the students feel valued thanks to the responsibility we've given them. In their words, they feel special, and this brings out the best in them. In general, they make an effort to learn how to do research and how to come up with ideas and make improvements».

However, the coordinator believes that the project has yet to fully address some of the organisational issues related to finding time and space for meetings. «I would like to hold a monthly meeting with the various groups so that they can learn from one another,» she says. «However, not enough of my timetable is devoted to this project, and it's also hard for the students to take on that kind of commitment. That makes it difficult to find times to meet that don't conflict with exams, field trips or other school activities».

Secondly, a survey was conducted in order to **gather data on students' and teachers' perceptions as to the role of these technology leaders in the classroom**. The results were as follows:

The student ICT experts had an average of 2.16 academic years of experience in their roles, and all were asked to rate their own level of digital competence on a scale of one to five. The average rating was a 4.3. Meanwhile, the teachers gave themselves an average rating of 3.9 for digital competence.

The **tasks most often cited by the student ICT experts** are listed here in descending order of frequency:
– Solving technical problems for classmates (90%)
– Providing support to the students who have the most trouble using digital tools (70%)
– Explaining how to use certain ICT tools (66.7%)
– Solving technical problems for teachers (50%)

– Suggesting ICT tools to use in classwork (50%)
– Others (10%)

The **teachers** were also asked what tasks the student ICT experts most often carry out, and their list was topped by solving technical problems for classmates (81.3%), followed by solving these problems for teachers (68.8%) and then by providing support to the students who have the most trouble using digital tools (56.3%). Teachers also cited some other tasks, including: explaining how to use certain ICT tools (50%), suggesting tools (31.3%) and suggesting ways to complete classwork with technology (25%).

The results as to **when these students act to help their teachers and classmates are as follows:**

Most ICT experts carry out their tasks during class time (with 93.3% reporting that they help their classmates and 90% saying that they help their teachers).

Another valuable factor, and one that could be included among the **keys to the project's success,** is the fact that most of the student ICT experts feel that their teachers value the contribution they make (83.3%).

Information on the benefits that teachers, students, ICT experts and the head of the project believe that this classroom ICT expert project offers the school was collected via a questionnaire administered to students and teachers, and via the interview with the project's manager, the school's Knowledge and Learning Technology Coordinator.

In the interview, the head of the project broke down some of the programme's benefits categorising them by groups of beneficiaries. This breakdown is displayed in the table below:

The programme's manager believes that the project has helped teachers make greater use of technology in the classroom as they know support is available to solve technical problems and can thus concentrate their own efforts on teaching. This also makes it easier for teachers to innovate, and it encourages them to play a greater role in the school's innovation campaigns involving digital tools, as they are aware that the ICT experts can support them should any technical issues arise.

Table 2. Benefits of the ICT Expert project according to the project's coordinator

For ICT expert students	For other students	For teachers
Improved social competence: better relationships with classmates and teachers	Classes with fewer technical problems	Help and support in the management of activities with ICT resources.
Increased self-esteem. In the words of the students «Being an ICT expert makes you feel special because you are serving others»	Availability of help, inside and outside school	Possible to use ICT tools that the teachers themselves have not mastered
	Students with fewer social abilities have a person of reference other than the teacher	
Improved technical knowledge	Makes it possible for all the students in a grade to engage in the same techno-pedagogical projects, regardless of the individual teacher's digital competence	
More opportunities to speak in public and improve oral competence		
Learn to have a different view of the school		

Table 3. Benefits of the ICT experts programme according to the ICT experts

	Entirely disagree	Somewhat disagree	Somewhat agree	Mostly agree	Entirely agree
I learn more about technology	3.3%	0%	26.7%	16.7%	53.3%
I learn how to speak in public	3.3%	13.3%	30%	16.7%	36.7%
I feel my classmates value me more	10%	23.3%	26.7%	13.3%	26.7%
I feel my teachers value me more	10%	23.3%	20%	20%	26.7%
I feel more motivated to be in class	6.7%	33.3%	20%	16.7%	23.3%
I have more relationships with my classmates	13.3%	30%	23.3%	16.7%	16.7%
I have a better relationship with my teachers	10%	16.7%	30%	20%	23.3%

Meanwhile, the **student ICT experts** observe that performing this role in the classroom is beneficial to them personally. The benefit they find the most valuable is learning more about technology (26.7% somewhat agree; 16.7% mostly agree; 53.3% entirely agree). They view learning to speak in public as the second most valuable benefit (30% somewhat agree; 16.7% mostly agree; 36.7% entirely agree). The third most important way they benefit is in a better relationship with their teachers (30% somewhat agree; 16.7% mostly agree; 36.7% entirely agree). The next most important benefit, with similar percentages to the previous one, is a feeling of being more valued in the eyes of classmates and teachers. Most of the students believe that this activity helps them to form relationships with more of their classmates (23.3% agree; 16.7% mostly agree; 16.7% entirely agree). Finally, it should be noted that a large percentage of these students believe that having this role in the classroom motivates them, with only 6.7% entirely disagreeing and 33% somewhat disagreeing with the statement «It makes me feel more motivated in class». In other words, many

students believe that taking on this responsibility has had a positive effect on their attitude in the classroom and on their overall approach to school. In fact, one fifth grade student wrote that being an ICT expert was «the best thing that had happened to her at school».

The rest of the students who are not ICT experts list the following benefits of having a student ICT expert in class:
– Classes proceed with fewer technical problems (13.3% entirely agree, 25.3% mostly agree, 49.4% somewhat agree, 8.4% somewhat disagree, 3.6% entirely disagree).
– There is someone to ask when you have a question (30.1% entirely agree, 27.7% mostly agree, 31.3% somewhat agree, 8.4% somewhat disagree, 2.4% entirely disagree).
– Less time is wasted on technical issues (16.9% entirely agree, 21.7% mostly agree, 33.7% somewhat agree, 19.3% somewhat disagree, 8.4% entirely disagree).
– The teacher gets help from the ICT expert to use technology in class (26.5% entirely agree, 39.8%

Table 4. Comparing the benefits of the programme according to ICT experts and the benefits according to students who are not experts

	Entirely disagree		Somewhat disagree		Somewhat agree		Mostly agree		Entirely agree	
	Non-ICT expert students	ICT experts	Non-ICT expert students	ICT experts	Non-ICT expert students	ICT experts	Non-ICT expert students	ICT experts	Non-ICT expert students	ICT experts
Classes proceed with fewer technical issues	3.6%	0%	8.4%	13.3%	49.4%	30%	25.3%	30%	13.3%	26.7%
Classmates have someone they can ask questions	2.4%	0%	8.4%	6.7%	31.3%	30%	27.7%	26.7%	30.1%	36.7%
We waste less time because of technical problems	8.4%	0%	19.3%	13.3%	33.7%	30%	21.7%	30%	16.9%	26.7%
The teacher asks the ICT expert for help when using ICT in class	2.4%	13.3%	7.2%	3.3%	24.1%	16.7%	39.8%	36.7%	26.5%	30%

mostly agree, 24.1% somewhat agree, 7.2% somewhat disagree, 2.4% entirely disagree).

The biggest difference between the two groups is that 11% of the students who are not experts disagreed with the statement to the effect that «classes proceed with fewer technical problems», while none of the ICT experts expressed disagreement with this statement. Additionally, there doesn't seem to be consensus as to whether teachers ask for help when using technology, but in general there is a lot of agreement as to the benefits that this experience offers in the classroom.

In addition to these answers, both the ICT experts and the other students made a series of comments about their experiences with this project, including some remarks highlighting positive aspects and others suggesting areas with room for improvement.

One **positive aspect cited by the ICT experts** is that the programme has helped them **develop their own digital competence**. In other words, they report that acting in this capacity in school has helped them learn how to resolve technical problems outside the classroom as well. They also highlight the benefit of facing challenges that put their abilities to the test every time they face a problem.

Others point to what the project offers them in emotional terms. Along these lines, the ICT experts report that the experience helps them form relationships with the classmates, with younger students (during occasional activities) and with teachers, and that their role both helps them earn the trust of their classmates and gives them the chance to share what they know with the rest of the class.

They also appreciate that the programme gives them an opportunity to do something they enjoy at school.

Some student ICT experts are pleased that some meetings and activities are held during school hours, which allows them to miss class. The school has determined that the programme's benefits outweigh the negative consequences of having a group of students miss a day or a few classes. The schedule of activities for ICT experts varies from year to year and depends on the projects with which they are involved, but the school tries to limit the activities to two per term and to ensure that they don't conflict with other projects or field trips.

The rest of the students express appreciation for the support they get in their classes, and they note that they are able to get help from their classmates instead of from technicians with whom they feel less comfortable. They also believe that technology is used more often in their classes thanks to the project.

One way in which the **student ICT experts say the project could be improved** would be providing them with more training. They would like to have more meetings and projects and to work with tablets. Meanwhile, students who are not ITC experts believe more ITC experts are needed in the classroom, especially when they are learning to use new programmes. They also suggest that the ICT experts be given a test of digital competence, as they have sometimes found that

the experts were unable to help them or lacked the necessary technical knowledge. Additionally, they suggest that the role should rotate to give more students a chance to do it.

Finally, from among the benefits cited by **teachers** it is worth highlighting that 43.8% somewhat agreed that since the start of this programme they have participated more in classroom innovation projects, while 12.5% mostly agreed and 18.8% entirely agreed with this statement. The rest of the teachers somewhat (12.5%) or entirely disagreed (12.5%).

Most teachers somewhat (50%), mostly (25%) or entirely (12.5%) agree that since the start of the ICT experts programme they have been more **willing to allow students to use ICT tools in class, even when they don't have full command of them in technical terms**. Only 12.6% disagree with the statement (6.3% somewhat, and 6.3% entirely).

A large majority of teachers (87.6) agree or entirely agree that since the start of the ICT expert programme students feel more involved in their projects. The rest (12.4%) somewhat disagree or entirely disagree with this statement.

An identical percentage (87.6%) of teachers agree or entirely agree that **the ICT experts foster proper use of technology in the classroom**. The rest (12.4%) disagree or entirely disagree with this statement.

With regard to their role as teachers, 75% agree that the presence of the ICT expert **relieves teachers of the responsibility to further their knowledge about all digital technologies used in their classroom.** The percentage in agreement goes up when it comes to the statement «The ICT expert relieves teachers of the responsibility to resolve the technical issues that arise in the classroom», with which 87.6% of teachers somewhat or mostly agreed.

Of the teachers in the survey, 81.4% agreed that the student ICT experts had improved their **social and communicative abilities,** while 93.8% agreed or entirely agreed that these **students' motivation and self-esteem** had improved.

None of the teachers reported not feeling comfortable with the presence of student ICT experts in class.

Other benefits cited by the teachers include the possibility afforded them to **create groups of students with common interests** that cut across various class groups (n=1). Others mentioned the advantage of having a **person of reference** in class who they could ask for help with technical issues (n=1), and the fact that a **very positive relationship** formed between the older and younger ICT experts (n=1).

The teachers believe that this project works well thanks to their own awareness of the presence of these students and their efforts to **give the students recognition, empower them and allow them to play a central role** (n=4). They also believe it is important to have **the right technological resources** (n=1), especially in terms of quality rather than quantity and to be willing to carry out projects that involve **innovative uses** of ICT (n=2). They also stressed the importance

of the project's **leadership** and coordination (n=6), the **training** offered to the ICT experts and the students' **motivation** (n=2).

In terms of areas with room for improvement, the teachers mentioned **resources** (n=2) and additional **training** for ICT experts in the use of some specific tools (n=1), in more activities (n=1), outside of school hours (n=1) and for a longer period of time (n=1).

Conclusions

The results of this study make clear that all the participants in this programme view it as having benefits. This is evidenced by one of the most important pieces of data collected here, which is that most of the teachers reported taking part in more classroom innovation projects and making greater use of ICT tools, including tools they themselves had not fully mastered in technical terms, since they had had they help of the ICT experts. This represents a step toward overcoming one of the biggest weaknesses of policies to integrate ICT into school pointed out by Bosco (2014), namely the lack of pedagogical reflection on the use of technology.

Most teachers report that the presence of the student ICT experts in their classrooms frees them from the need to resolve all the technical issues that arise, an observation that was also made by the coordinator in charge of the project. Despite the changes involved with having student leaders to deal with ICT problems in the classroom, 100% report feeling comfortable with the practice and do not believe that it represents a threat to their authority or to their image as teachers.

As UNESCO (2008) observed, the introduction of ICT into the classroom does not come about thanks to the digital competence of the teacher, but rather thanks to the teacher's capacity to structure the learning environment and to stimulate cooperative interaction, collaborative learning and group work.

Everyone from the teachers, to the students in general, to the ICT expert students in particular and the coordinator of the project agreed that the student ICT experts had exhibited improved social and communicative competence and better relationships with their teachers and classmates. They also agreed that students who participated in the project showed increased self-esteem and motivation.

Finally, the students, the teachers and the coordinator all agreed that the technical functioning of the classrooms had improved in that less time is wasted addressing technical issues. Additionally, teachers are able to consult a person of reference for help and to resolve their technical questions and those of their students whenever they are using digital tools or resources. Thus, this programme has a wide range of benefits to offer, a conclusion that echoes the positive assessments of previous projects along these lines such as the Digital Leader Network (2017).

Future research should go beyond a case study and include a comparative study of the results of different schools so as to determine the elements leading to the success of the programme and any limitations and weaknesses that may be detected. In this way, it would be possible to create some guidelines to expand this project to other schools.

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