AWARENESS IN THE ONLINE USE OF DIGITAL TECHNOLOGIES OF ITALIAN STUDENTS

I. Corradini[1], E. Nardelli[2]

[1]*Themis Research Centre (ITALY)*
[2]*Dip. Matematica, University Roma "Tor Vergata" (ITALY)*

Abstract

In recent years, the topic of the responsible online use of digital technologies has become particularly relevant. The importance – for an appropriate use – of knowing the basic concepts and principles of these technologies is unfortunately too often neglected. In this paper we present the outcomes of a study based on the answers of 2.422 teachers involved in the Italian project "Programma il Futuro", whose main goal is to spread informatics culture in schools.

According to the teacher's perception, students generally have a scarce awareness level to risks (e.g., bullying, harassment, fraud, etc.) they are exposed to when online. In fact, 43% of the sample reports a low awareness, 37% average, 18% good and 2% very good. Parents and teachers have a key role in developing a responsible online behaviour of students, and educational activities are sorely needed to strengthen awareness.

Keywords: Digital Technologies, Awareness, Informatics.

1 INTRODUCTION

Programma il Futuro project ([1], [2]) has the goal to increase awareness in Italian schools both on the scientific principles of digital technologies and on the basic concepts for their responsible use. These goals are intertwined since for a conscious use of digital technologies it is fundamental to know how they work. The project has just completed its fourth year, and during school-year 2017-18 has involved more than 30.000 teachers and 2 million students, each of which has done an average of 15 hours of informatics.

Most students use digital technology extensively, but often they are not conscious of the risks they are exposed to. In fact, while Internet provides engagement opportunities for children, these have to face online risks of diverse nature (e.g. [3], [4], [5]) including content risks, such as porn images; contact risks, such as interacting with unknown people and cyberbullying; commercial risks, such as abuse of personal information.

Because of the pervasiveness of digital technologies, and given that children access online activities earlier and earlier in their life, it is wise to start educational actions aiming at developing in students a good awareness in the use of digital technologies since early school [6]. At present it is clear that digital competences are fundamental for developing digital citizenship [7] but these competences cannot be reduced to the technical aspects only, and they necessarily have to include transversal competences on social interaction (e.g.[8], [9]).

On the other hand, considering also the cyber risks and cybersecurity, is vital to invest on human factors awareness in order to make people use technology in an informed and responsible way [10].

In this paper we present the outcomes of a study on the student's online use of digital technologies and their risks awareness measured through their teachers' perception.

2 METHODOLOGY

The level of awareness has been investigated through a questionnaire sent to all the teachers involved in the project. We received 2.422 answers from teachers, belonging to all levels of schools (ranging from primary – with 59% of participants – to upper secondary). Most of the teachers (87%) have more than 10 years of job seniority, hence able to reliably evaluate their students' situation.

The questionnaire has explored the following areas:

ISBN: 978-84-09-05948-5

1 *For what activities students use digital devices*. The answering choices include the following options: to study, to communicate to friends and schoolmates, to be informed, to play games, to hear/download music and video.

2 *What means to be aware with respect to the use of digital technologies*. The answering options are: the sense of responsibility, understanding how digital technologies work, personal ability, critical approach, understanding the risks, use of updated versions, sharing experiences.

3 *How much students are aware of the risks on the Internet*, such as bullying, harassment, identity thefts, fraud, etc.

4 *The relationship between competence and risk exposition on the Internet* to understand their possible correlation.

5 *Who influences students most in the responsible online use of digital technologies*. The answering options include parents, teachers, friend/ schoolmates, official channels of communication as ministries and school magazines and not only social media channels.

6 *The role of educational initiatives (such as "Programma il Futuro" project)* to better increase awareness on this topic.

3 RESULTS

The outcome of the study highlights three key aspects:

- parents and teachers have a key role in developing a responsible online use of digital technologies by students;
- students generally show a low awareness of the risks they are exposed to while using online digital technologies;
- educational activities are sorely needed to strengthen awareness in the online use of digital technologies.

In the following subsections we describe the detailed results for each area listed above.

3.1 Area 1. For what activities students use digital devices

The results show that digital devices are used mostly to play (84%), to communicate/share with friends/classmates (57%), to listen/watch/download music (45%), to study (35%), and in just 17% of cases to get information (multiple answers were possible).

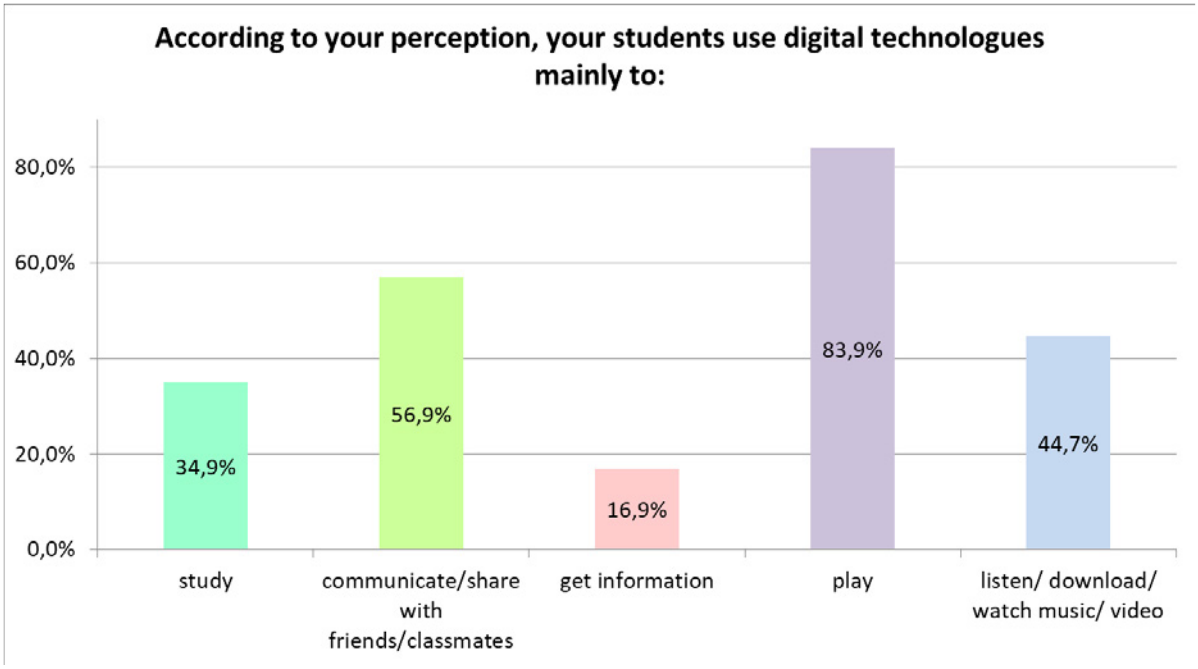

Figure 1. How students use digital technologies to go online.

Technological tools have a social significance for students, given that they permit to communicate with their friends/schoolmates and to share news. Moreover, the low value regarding the activity of getting information has to be interpreted in the light of the distribution of the involved teachers. More than half of the sample is represented by primary school teachers: clearly at this stage activities are not focused on searching information on the Internet.

3.2 Area 2. What means to be aware with respect to the use of digital technologies

To better understand the teacher's perception on students Internet risks awareness it is vital to start from the meaning that they attribute to the concept of "being aware with respect to the use of digital technologies". As you can see in Figure 2, answers show that the meaning is mainly associated to the element of risk. In fact, most of the teachers (73,1%) consider "being aware" as the knowledge of the risks related to the use of digital technologies, followed by "the ability of use digital technologies efficiently" (48,4%); "the sense of responsibility" (46,4%); "understanding how digital technologies works" (45%). Multiple answers were possible.

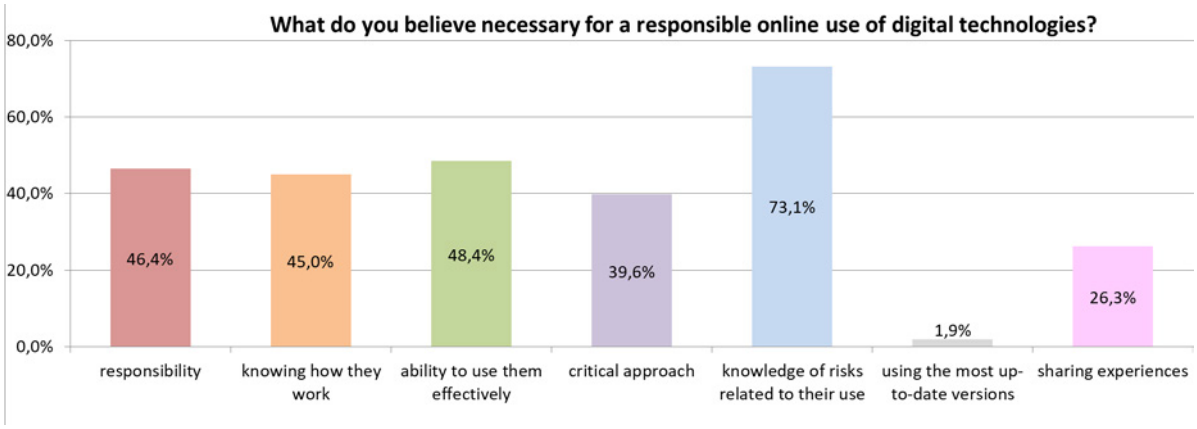

Figure 2. The meaning of "being aware."

These answers are particularly relevant because they affect the strategy actions that – according to the teachers – have to be implemented in their school (see section 3.1.6).

3.3 Area 3. How much students are aware of the risks on the Internet

A critical aspect has emerged from the analysis of the answers of this question. The results show that 43% of the sample reports a low awareness, 37% average, 18% good and 2% very good.

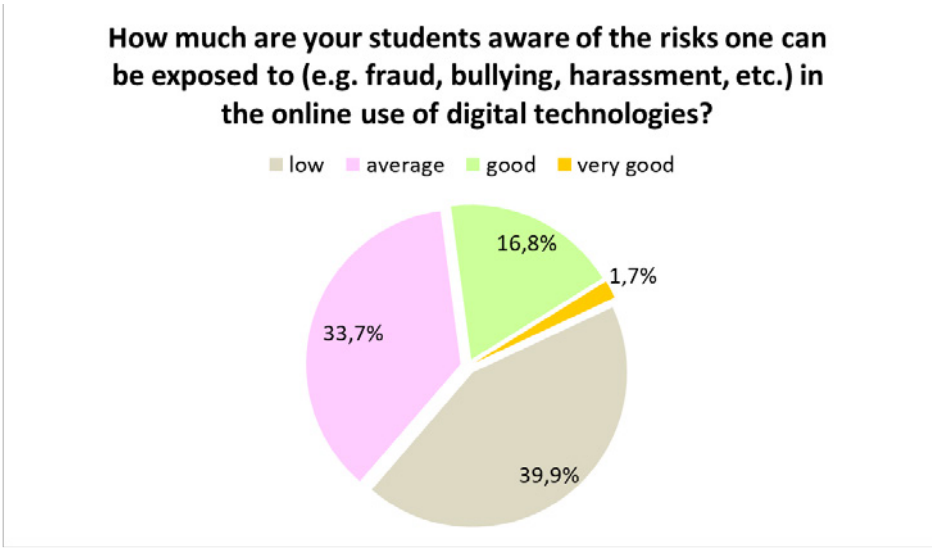

Figure 3. Level of awareness about the risks on the Internet.

Hence, generally students seem to lack awareness of the risks on the internet, although these topics are widely discussed in schools. Another important aspect is that in this question different online risks are considered, and not only cyberbullying. In fact, given the possibility of accessing online commerce also for young people, especially via smartphone, also commercial risks have to be considered.

3.4 Area 4. The relationship between competence and risks exposition on the Internet

Interesting considerations concern the relationship between students' competence and risk exposition. (area 3). The majority of teachers (55%) reports not to see any difference in the exposition to risks between competent and not-competent students.

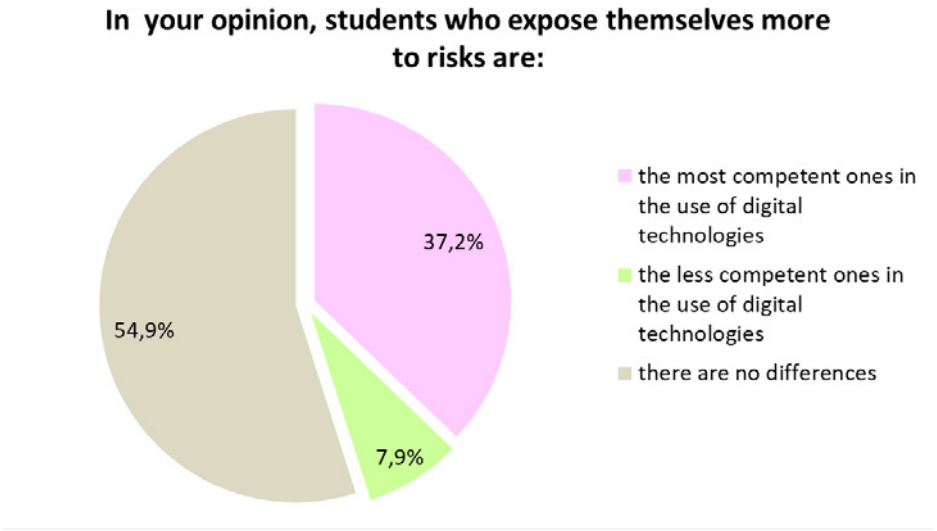

Figure 4. Competence and risks.

This result can be interpreted in a double way. On one side it is possible that competent students, open to a diverse and multiple use digital technologies, have a higher exposition to the risks on the Internet as a consequence of their self-confidence. On the other side, precisely the lack of competence could be the condition for a major exposition of the students to the online risks.

3.5 Area 5. Who influences students most in the responsible use of digital technologies

Figure 5 shows that parents (81,1%) and teachers (94%) have a highly positive influence on the online behaviour while friends/classmates have on one side a non-negligible negative influence, but on the other side a positive influence for the 42,5% of the sample.

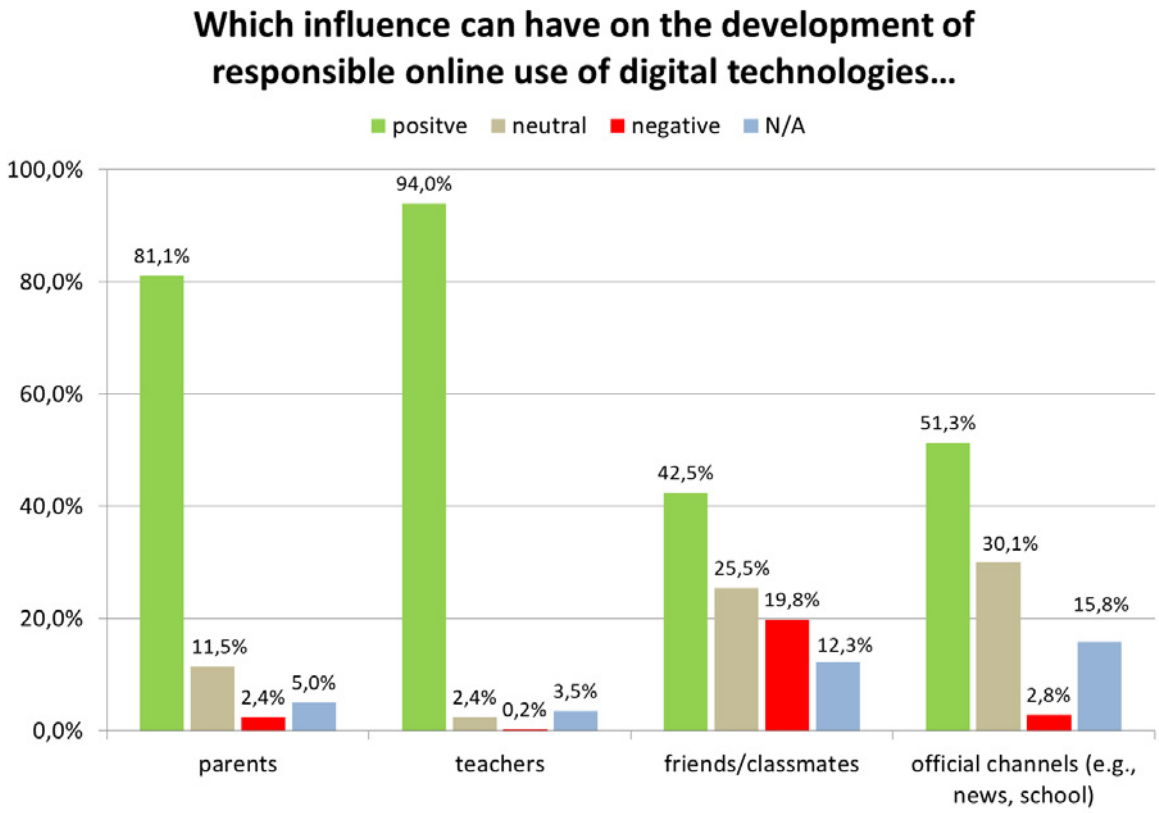

Figure 5. People influencing student's behaviour.

This is an interesting result given that younger share online practices and information with each other and on social networks. Hence, notwithstanding the dominant stereotype of a bad influence from a peers ("Bad company corrupts good character"), a positive friendship can instead be a supportive means for a proper behaviour on the Internet.

3.6 Area 6. The role of educational initiatives

Educational initiatives are considered by the teachers as a priority measure to better increase awareness on the responsible use of digital technologies. Given their perception on the lack of risks awareness of their students and the importance of understanding how digital technologies work, it is not a surprise that Programma il Futuro project is highly appreciated.

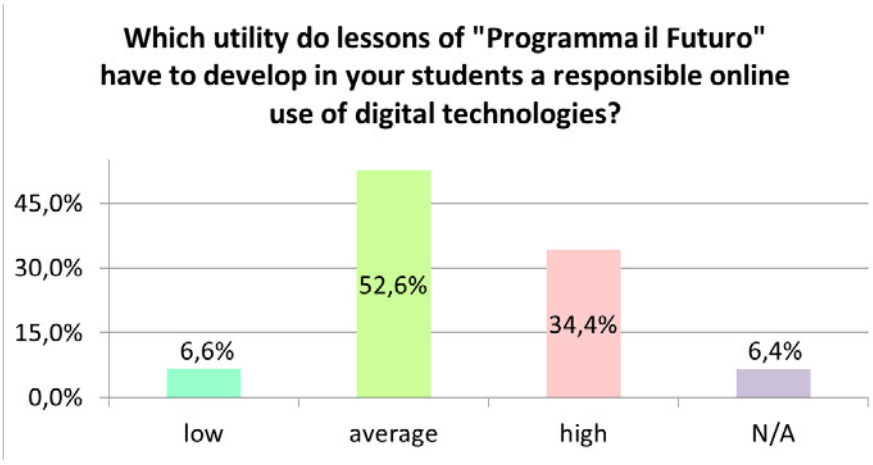

Figure 6. Utility of Programma il Futuro lessons.

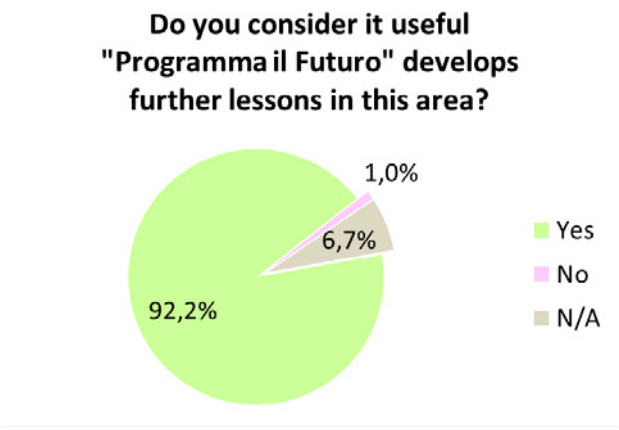

Figure 7. Need for further initiatives.

As you can see in Figure 6, 87% of the sample considers positively the lessons made available by Programma il Futuro. Moreover, as shown in figure 7, 92% of teachers think that more training lessons focusing on this theme would be highly desirable.

4 CONCLUSIONS

In this study we have investigated the concept of a responsible online use of digital technologies in Italian school students, measured through their teacher's perception. The sample of the study is involved in the Programma il Futuro project ([1], [2]), a national initiative addressing both the knowledge of the scientific basis of computer science and the responsible online use of digital technologies. Although most students use digital technologies extensively, they often are not conscious of the risks they are exposed (e.g. cyberbullying, harassment, identity thefts, fraud). Being aware with respect to the online use of digital technologies is mainly associated to the knowledge of the risks on the Internet. It is therefore necessary to develop digital competences in the large sense of the term, that means not only technical use but also a critical and socially responsible use, as also stressed by the updated definition of digital competences by the European Commission [8].

Parents and teachers have a key role in developing a responsible online behaviour of students, and, as emerged by the answers of teachers, to better increase risks awareness it is fundamental to promote educational activities in schools, since early years [6]. The project is following up on some new activities on this topic.

ACKNOWLEDGEMENTS

We greatly thank teachers and students involved in Programma il Futuro project. We acknowledge the financial support of Engineering, TIM; CA Technologies, De Agostini Scuola, SeeWeb. Rai Cultura, the culture department of Italian national public broadcasting company, is a media partner of the project.

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