EDUCATIONAL POVERTY AND ADOLESCENTS' LIFESTYLES IN USING INTERNET TECHNOLOGIES

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Abstract
According to Save the Children, the Italian NGO promoting humanitarian projects to help children in 117 countries, educational poverty is defined as “the impossibility for children and teenagers to learn, experiment, develop and freely foster their capacities, talents and aspirations”.

Educational poverty is a multifaceted problem; it is the result of several interrelated issues and, consequently, it can be assessed by integrating different indicators: early school-leaving rates, results on competences in school education (e.g. OCSE PISA), the educational and cultural context offered by the territory where children take part to recreational, sport, cultural extra-curricular activities. Internet technologies offer enormous potential for learning, and can therefore be an extremely important factor in reducing educational poverty.

In 2018, the Authority for Children and Adolescents of Palermo (Italy) has coordinated a research named “Habits and lifestyles of adolescents in Palermo” aimed at investigating the factors that can positively or negatively modify the level of educational poverty. Data on the services available for the adolescents and how boys and girls exploit the potentials offered by these services (i.e.: their habits and lifestyles) have been gathered. In this paper, we present the results of this research activity related to the availability and use of Internet and smartphones by the young adolescents.

Keywords: Educational poverty, educational technologies, digital divide, school, adolescents' lifestyles.

1 INTRODUCTION
Fifty years have passed since the birth of the Internet, and 30 years since the publication of the paper "Information Management: a proposal" by Tim Berners-Lee, which contained the founding principles on which the World Wide Web would develop in a few months, the technological innovation that more than any other has been able to take the Internet out of research laboratories and make it become a driving force for a transformation of society that, since then, has not stopped.

The magnitude of the changes brought by Internet and web-based technological solutions to people's behaviours were already evident a few years after the birth of the Web:

Progress in information technologies and communication is changing the way we live: how we work and do business, how we educate our children, study and do research, train ourselves, and how we are entertained. The information society is not only affecting the way people interact but it is also requiring the traditional organisational structures to be more flexible, more participatory and more decentralised. A new revolution is carrying mankind forward into the Information Age (Chair's conclusions of the G7 Ministerial Conference on the Information Society, February 1995).

Recent data on technology diffusion confirm those forecasts, at least in terms of numbers: according to the report Digital 2019\(^1\) published by the agency We Are Social in collaboration with the Canadian company Hootsuite, there are over 5 billion users of mobile devices (mobile phones, smartphones and tablets) in the world, about 4.4 billion internet users, and about 3.5 billion social media users, of which 93% access to social platforms from mobile devices. The same report states that the hours that a person spends on average on the Internet are twice as many as those spent in front of the TV, making it even more obvious how new technologies have radically transformed the way we live.

\(^1\) https://wearesocial.com/it/blog/2019/01/digital-in-2019
In light of such impressive numerical data, it is extremely important to evaluate the impact of technologies on society and, in particular, in educational contexts.

In fact, Internet technologies offer enormous potential for learning. However, understanding the impact of technologies on learning means trying to answer some questions: how are the technologies used in formal and informal learning contexts? Are children and young people guided to the use of technologies, or are they left alone in using their electronic devices? Who is in charge of promoting the digital competences required by the society in which we live?

All these questions directly bring us to the focus of this paper, which can be summarized by the following question: are the potentials of Internet technologies for education exploited to reduce educational poverty? Save the Children, the Italian NGO promoting humanitarian projects to help children in 117 countries, defines educational poverty as “the impossibility for children and teenagers to learn, experiment, develop and freely foster their capacities, talents and aspirations”.

Educational poverty is a multifaceted problem; it is the result of several interrelated issues and, consequently, it can be assessed by integrating different indicators: early school-leaving rates, results on competences in school education (e.g. OCSE PISA), the educational and cultural context offered by the territory where children take part to recreational, sport, cultural extra-curricular activities. Internet technologies, which are part of daily life of adolescents, offer enormous potential for learning, and can therefore be an extremely important factor in reducing educational poverty.

In 2018, the Authority for Children and Adolescents of Palermo (Italy) has coordinated a research named “Habits and lifestyles of adolescents in Palermo” aimed at investigating the factors that can positively or negatively modify the level of educational poverty.

A questionnaire has been submitted to 2100 boys and girls attending the third classes of secondary schools (aged 13-14 yrs. old) in the territory of the Municipality of Palermo, a town in the south of Italy with 670,000 inhabitants. Through the questionnaire, we have gathered data on consumer style, media style, style of leisure time use and specific indicators, on which the theoretical layout of the project has been built.

In this paper, we present the results of this research activity related to the availability and use of Internet and smartphones by the young adolescents. The idea behind this part of the research activity was to identify the characteristics linked to the use of technologies that can lead to a decrease in educational poverty or, on the contrary, that can increase imbalances and gaps (digital divide) between groups of students, based on the characteristics of the context (constituency in which the school falls; profession of the student's father and mother; level of education of the parents, etc.). For editorial reasons, we illustrate the most significant results achieved at the end of our work.

The perspective with which we have analysed the relationship between young adolescents, Internet technologies and educational poverty is that of Rosamund Sutherland, whose research on the use of technology in the classroom demonstrated how digital technologies can improve learning processes when students are guided by good teachers [1]; furthermore, her focus on education as a tool of democracy has helped us to analyse the relationship between technologies and schools from a social point of view, highlighting the risks of social injustice that arise from the digital divide [2].

2 FREQUENCY OF INTERNET ACCESS

The first data analysed is the frequency with which students access the Internet. The response categories to the question “How often do you use Internet?” were 5: never, less than once a month, sometimes a month, sometimes a week, every day. The data collected indicate very high levels of regular Internet access, as almost 90% of respondents access the network at least once a day, and 9.1% accesses a few times a week (see figure 1).
Data is in line with other statistics at national level; in particular, the 2018 survey "Aspects of daily life" by the National Institute for Statistics (Istat), with data referred to 2016, showed that the class of 11-14 year olds is among the most active in the use of the Internet, with percentages around 80%, surpassed only by those of the classes of young people aged 15-20 and 26-35. If we consider that these data are in continuous growth (the class of 11-14 year olds who regularly access the Internet had a growth rate of around 35% between 2006 and 2016), and taking into account that in the class 11-14 the percentage increases as the age increases, we can estimate that the data collected is in line with what reported by Istat.

The ratio between males and females showed a prevalence, although minimal, of female students (90.7% accesses the Internet at least once a day) compared to male students (87.4%), which is opposite to the national statistics, given that most of the statistical surveys carried out in recent years show that the percentage of men who regularly access the Internet is higher than that of women.

The frequencies of Internet access in the various districts of the city were also analysed, but the Freeman's Theta test did not reveal significant differences amongst districts with different socio-economic backgrounds. However, data showed that the percentage of students who use the Internet every day increases with the level of studies of the mother.

3 TOOLS USED TO ACCESS THE INTERNET

To better understand how the young people in Palermo use Internet, it is useful to start by knowing how students access the network. The information on the device used, read together with numerous studies in literature that have shown a correlation between the development of digital skills and the devices used to access the network, provides a useful element to understand if the habits of young people in Palermo represent a potential or an obstacle to the development of skills in the society in which we live.

The students were asked what tools they usually used to access the Internet. Figure 2 graphically shows the answers: the main tool used to access the internet is the mobile phone (about 93% of students), followed by home PC (41%), game console and smart TV (25%), tablet (16%) and only 6% of people uses PC at school.

Moreover, it was found that the number of students using only mobile devices to access the Internet is particularly high: in fact, 866 students (equal to 42% of the sample) use only mobile phones and 73 (3.6% of the sample) use mobile phones and tablets.

This statistic differs from the national statistics: the 2018 Istat survey "Aspects of daily life" indicated 21.6% as the average percentage of those who use only the smartphone to access the Internet, and 26.2% as the maximum percentage (attributed to the class of users aged between 15-17 years old). If on one hand this discrepancy between the data collected and the national data can be assumed to be due to the growth of the smartphone market between 2016 (the year to which the Istat data refer) and 2018, such a high difference would require further investigation, which are not, however, subject of this paper.
The data on the use of the PC at school to access the Internet, given that it occupies the last place, may be of concern. The data could be particularly alarming when compared to the fact that - according to what was said before - Internet has become a place where young people live every day and the access to the net is mainly by individual tools, thus limiting the comparison between peers, especially in educational activities. Such a marginal percentage could represent a wake-up call on the difficulties of the school system in accompanying students in the development of those skills that are contained in the concept of digital literacy, which Richard Lanham already in 1995 defined as "the ability to understand information whatever the instrument used to represent it" [3]. It is not a question of teaching students to use computers and digital devices, but rather of guiding them to use the Web in an appropriate and critical way, analysing the information they read, evaluating it and re-elaborating it [4], so as to encourage the development of technology based learning processes.

4 ACTIVITIES CARRIED OUT ON THE INTERNET

The results on the levels of Internet penetration among young people and the fact that access to the network takes place mainly according to a very private and individual form, such as the experience of use via mobile phone, confirm, therefore, that the network is now part of their daily lives, so it becomes essential to understand how young people use the network and the way in which they move within it. In this way, it is possible to understand the role that the Internet can play in formal and informal learning settings and to implement suitable actions to direct young people towards a didactically effective use of the network.

The students were asked how often they carried out, in the 3 months preceding the survey, some of the activities that are considered most common on the Net; results are presented in the graphs in figure 3.

The data show how the majority of the students habitually use Internet to access social networks (83.5% - a result obtained by grouping the answers Always and Often) and only 2.6% have never used it for this purpose.
Among the activities regularly carried out on Internet, viewing of streaming videos (72.9%) and television programmes (58.4%) rank high; among the activities carried out with less frequency there are, instead, the reading of online news and the consultation of information sites, and the production of photos, videos and music to be shared through social networks.

Specifically, less than 1 out of 10 habitually reads online news (8%), and about 1 out of 4 are those who have declared to read them often (26.3%); these data are well in line with national statistics: according to the latest statistical yearbook of Istat in 2018, only 11.2% of young people aged 11 to 14 read at least one newspaper in a week. Nevertheless, the percentages of those who have never read news online (18.8%) and those who claim to do so occasionally (46.9%) need educators’ attention.

Slightly better are the data relating to the consultation of information sites, which is now considered one of the most widespread practices among students to carry out school research assigned by teachers. Compared to the previous case, although there is no considerable increase in the number of students who regularly consult information sites (9.3% compared to 8%), the percentage of those who frequently do so improves (39.8% compared to 26.3%), and especially the percentage of those who have never done so decreases (4.9% compared to 18.8%).

The results show, therefore, that among all the activities proposed to students, those that are carried out with the lowest frequency are those that have the greatest educational potential; if on the one hand this seems to indicate the need to develop greater awareness among students about the potential offered by technologies, on the other hand the most relevant data can be captured when you read the very high percentages of students who use social networks: we are facing a phenomenon of very wide diffusion among young people, and rather than questioning about the opportunity or not to allow young people to access social networks, the educational community should ask itself how to exploit social networks to promote informal educational paths.

Differences in Internet usage patterns by gender were then analysed. Females use social networks more frequently than males, who prefer a more ‘traditional’ use of the net: playing and watching streaming videos. These data confirm what is already known in the literature, considering that the gender difference characterizes the acceptance or not of a certain technology, and therefore their use [5][6]. At the same time, a greater propensity for females to use social networks exposes them to...
informal types of learning based on the use of social networks, including connectivism, the pedagogical theory on which the Massive Open Online Course (MOOC) was developed [7][8][9].

The additional analyses carried out showed a statistically significant correlation between the activities carried out and mother’s level of studies. It has been observed, in fact, that the percentage of those who regularly consult Internet sites for information increases as the mother’s level of studies increases. Furthermore, those whose mothers have no qualifications are disadvantaged. The distribution is similar with regard to the reading of news on the Internet, although in this case are disadvantaged both those whose mother does not have a qualification, and those whose mother has obtained an elementary school diploma. It is interesting to note that, as the mother’s qualification grows, the percentage of respondents who download and distribute music, videos, etc. via the network decreases. Since the question was not aimed at knowing the skills to perform certain activities, but rather the habit to perform them, it is conceivable that this result is justified by a greater awareness of respondents whose mother has a medium-high qualification on risks (e.g. virus, but also violation of copyright law) to which these activities are being exposed. There would be a need for further investigation to confirm this hypothesis.

5 USE OF PC AT SCHOOL AND AT HOME

With the question described in the paragraph "Tools used to access the Internet", we have seen how the Personal Computer remains the second most used tool to connect to Internet, especially at home, since the use of the PC at school has recorded very low percentages.

We therefore wanted to investigate this data, asking the students how, in the 3 months before the survey, they used the personal computer at home, and placing this data in relation to the use made at school. Figure 4 shows the results obtained, and specifically the distribution of the frequencies with which the students used the computer at school at the request of the teachers, at home to do their homework, and at home to play and for other pastimes.

![Figure 4 Frequency of use of PC at school and at home in the 3 months preceding the survey.]

The analysis of the data shows that, in the 3 months preceding the administration of the questionnaire, almost 80% of the students did not use the computer in the classroom; computer at home is used to study more than twice as often, since 45% of the students said they used it - in the 3 months preceding the interview - often or always to study (the corresponding percentage for computers at school stops at 20%). In addition, less than 60% say they have not used computer at home to play or for other pastimes, or have done so occasionally.

The results highlighted here are consistent with the other data from the survey. In particular, the fact that students use computers at home to study more than they do at school reflects the fact that they use PCs at school on a few occasions, and with a much lower frequency than at home.
Similarly, the fact that almost half of the students say that they use their home computer frequently or always to study, despite the fact that almost all of them use their mobile phones primarily to access the Internet, suggests that the computer is still considered a more practical tool than the mobile phone when it is necessary to carry out study activities in which the small screen of a smartphone could be a problem.

Finally, it is understandable that the computer is no longer the preferred entertainment tool for young people (as it was for generations of student a few years older), given that smartphones and consoles have already surpassed PCs as a device for playing; however, is still high the percentage of students who use the computer regularly to play (more than 40%), probably also in this case for the energising characteristics of computer monitors.

Stratifying data according to gender of the respondents (see figure 5), it emerges that the percentage of females who use the computer at home to study is greater than that of males, and that on the contrary the percentage of males who use the computer at home to play is greater than that of females and it confirms what has already emerged in the previous paragraph.

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6 DECLARED INTERNET SKILLS

The paragraph "Activities carried out on the Internet" aimed at investigating what students do on Internet, without investigating aspects related to their digital skills; this latter aspect was instead investigated through the question presented here. Obviously, digital competences (real or perceived by the students) can influence the activities carried out on the web, but the analysis of these relationships goes beyond the scope of this paper and is therefore not deepened in this paper.

Students were asked to indicate their level of competence with regard to some areas that are playing an increasing role in the digital era: management of privacy and contacts, with particular regard to social networks; management of online information, both with regard to copyright and the ability to distinguish fake news; technical management of photos, videos, texts; shop online. The results to the question are summarised in figure 6.

Students claim to have very high skills on some activities; in particular, 81.4% of the respondents claim to know how to change the privacy settings of their profiles on social networks (joining the answers "Much" and "Enough"); 83.8% is the percentage of those who claim to know how to recognize what information (photos, videos, texts, etc.) can be shared on the net; the percentage even reaches 93% when it is about knowing how to delete or block an undesirable user from the list of contacts.

The percentage tends to decrease when students are asked whether they are able to recognize fake news: 68.4% of young people respond positively to this question, although only 18.1% feel very
confident about this activity. It should not be surprising that 60% of young people feel very or quite capable of making shopping online, since studies in this field have shown that this is the generation that, more than others, shows a growing interest in e-commerce. Finally, students are almost equally distributed among the four levels of competence when it comes to more technical activities, such as modifying digital content (photos, videos, texts, etc.) created by other people.

The self-confidence shown by students when they claim to know how to manage many of the functions related to social privacy could derive from their continuous social frequency, which puts them in an attitude of control over them, without, however, a real awareness of the risks they face, especially in the face of continuous changes in privacy policies associated with social, or new social to which students adhere. In fact, official statistics report that 1 in 4 teenagers is not aware of the problems related to privacy on social networks.

Students look more careful when it comes to fake news. In this case, their greater uncertainty could come from a greater awareness of the problem thanks to a widespread campaign in the traditional media and, above all, thanks to numerous specific activities implemented at schools. It is, therefore, an example of how schools can activate a virtuous process on the use of technologies when they know how to regain the leadership role that belongs to them.

Finally, it was analysed how the percentages of the competences declared by the students vary according to mother and father's qualifications. In 4 areas among those explored (recognizing fake news; recognizing information that can be shared; changing privacy settings in social media; online shopping) we observed an increase in the declared competences when the mother's level of studies increases, confirming, also in this case, the key role played by the mother in the education of the sons.

7 CONCLUDING REMARKS

Internet technologies offer enormous potential for learning, and can therefore be a very important factor in reducing educational poverty. In this paper, we have analysed the relationship between middle school students in Palermo and Internet technologies.

The analysed data, if on the one hand confirm that there are now very few students who do not access the Internet, on the other hand have highlighted, among the most critical factors, an extremely limited use of computer tools at school: among all the tools used by students to connect to the Net, the computer at school is still used in a marginal way, and in the 3 months preceding the administration of the questionnaire, almost 80% of students had not used the computer in the classroom at all.

The percentages confirm the difficulty, already highlighted not only of the Italian school system, but widespread at a European level, in guiding young people in the acquisition of those skills that are the basis of a critical and conscious use of technologies, which are called digital literacy, and that can allow a social and cultural growth of young people, thus removing them from the risks of educational poverty. In this regard, the European Commission states:
“We need to strengthen children’s and young people’s critical thinking and media literacy, so they can judge and overcome the ever-present threats of fake news, cyber bullying, radicalisation, cybersecurity threats and fraud. Even the youngest children are in daily contact with digital technologies yet do not understand the risks, and parents worry about inappropriate content and risks but do not know how to address them.” [10].

The risks we face are well summarised in Hargittai’s thought [11]: digital gaps between individuals arise not only in relation to access to ICT but also in terms of their ability to use it, since “certain skills affect their ability to benefit from the Internet”.

And we want to close this paper with a reflection on those that fall within the marginal percentages: for example, 1.8% of students who rarely access the Internet or have never done so; or 2.6% who have never connected to a social network; or 5.7% who have never seen a video streaming. Using the Internet means having greater capacity to inform oneself, greater opportunities for personal growth (school, cultural, social, etc.), greater opportunities to access to the services; in other words, it means having the tools for greater participation in the democratic life of a country and Europe.

If such potential were to be denied for lack of economic resources (e.g. to buy devices and broadband connections), then the digital divide would affect the poorer classes, not only on the educational level, but creating a situation of profound social injustice such as those denounced by Rosamund Sutherland.

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