

When the big picture is not enough

Luca Botturi, Ph.D.

Dipartimento formazione e apprendimento

Scuola universitaria professionale della Svizzera italiana (SUPSI-DFA)

Correspondence address

Piazza San Francesco 19

CH-6600 Locarno, Switzerland

T +41 58 666 68 28

E luca.botturi@supsi.ch

Abstract

As the social perception of risks connected to the digital world increases, educators are increasingly acknowledging the importance of digital and media literacy programmes within formal schooling. International, national and regional studies provide useful data about the penetration of digital devices and their use, and about young people's digital practices. Many prevention programmes are based on such data and suffer from potential "one-size-fits-all" bias. This paper compares 8 Italian urban private middle school classes on digital media use, digital practices, and the socialization of digital experiences. Results suggest that classes are different from one another, and each class has distinctive features that, if properly considered, would require an individualized approach for effective digital and media literacy education.

Keywords

Digital and media literacy, digital practices, socialization, critical incidents.

Introduction

Spring is when pre-service and in-service teachers studying in the Master's program in *Secondary education teaching* at my Department, in the Italian-speaking part of Switzerland, plan their final project. For in-service teachers, this usually includes an experimental part in a class they teach. In spring 2015 a brilliant Italian Language and Literature teacher proposed a project on social media for first-graders in middle school (6th grade, corresponding to age 11-12) in an urban area. According to recent figures from the JAMES (Willemse et al., 2014; Waller et al., 2016) and MIKE (Suter et al., 2015) reports, we expected at least half of the class to have a Facebook or other social media account, despite age limitations, and in any case we expected over 90% of them to own a smartphone. Upon her return in September, the teacher uneasily announced that none of the pupils in her class owned a smartphone nor had a social media account. She had to change her plan. This story shows that individual school classes can be very different from the "average class" when it comes to digital media. Was this class a one-of-a-kind exception or are such differences common? Is the "big picture" provided by international, national or regional reports enough for the effective design and delivery of digital media education? How important is charting the actual media penetration and practices of a class before working on media and technology literacy?

The increasing penetration of online digital technologies among teenagers has generated a new interest in digital literacy programs. Countries in which Media Education was not mentioned in the school curriculum, or where Informatics only played a minor role, moved towards new concepts of integration of digital competences development for their students, especially in lower secondary education (cf. for Switzerland: DECS, 2015; for Italy: MIUR, 2015). Under the broad label of digital literacy, such programs include digital skills (e.g.

using office applications or the email), safety and prevention from digital risks (from addiction to grooming, etc.), and leave space for creativity with digital media.

This paper focuses on the specific features of secondary school classes in digital media penetration and practices, and claims that (a) relevant differences from the “standard class” are not exceptional; and (b) effective media and technology education interventions should consider such differences at an early stage of planning, because relying *only* on the big picture can lead to ineffective interventions and to generating distress rather than fostering competences development.

The big picture: what national and international statistics tell us

The digital media practices of young people are in most cases invisible to parents, teachers, and adults in general. Fortunately, many regional, national and international studies help us to determine the role that smartphones and web services play in the daily experience of our pupils or children.

In Switzerland, JAMES (Willemse et al., 2014; Waller et al., 2016) and MIKE (Suter et al., 2015) provide useful and up-to-date data about the penetration of digital devices: for example, 98% of young people aged 12-19 own a personal smartphone, and half of them have a videogame console. The comparison with 2012 confirms the impression that digital media penetration is increasing (especially for tablets and gaming consoles) and practices are changing fast. For example (Willemse et al., 2014, p. 20), taking pictures has become a mainstream daily activity, while it was almost a niche hobby for youth before 2010; reading paper magazines has become obsolete, while reading online newspapers is also not quite common. Local and regional studies also provide useful data. For example, the project *Minori in Internet* (Mainardi & Zraggen, 2012), conducted in the Italian-speaking part of Switzerland, offered a rather complete and detailed picture of digital practices, and

supplied evidence for the development of *e-www@i!*, a program for the prevention of digital risks targeted to children aged 10-15 (ASPI, n.d.).

In Italy, the country in which this study took place, statistical data are collected by CENSIS, which found that 91% of young people in Italy use the Internet, and 85% own a smartphone (CENSIS, 2015). Other studies provide more focused insights on specific regions or issues. For example, Gui (2015, Table 1) found that 95% of secondary school students in Val d'Aosta owned a smartphone in 2015. The same figure was 63% in Lombardia in 2012. Gui also discovered that having parents with a lower education level is a predictor for more timely extended smartphone use.

At the international level, in 2015 OECD published *Students, Computers, and Learning*, a study that combines PISA 2012 data with computers use in schools and in free time. The report shows how different the digital media use profile can be in and out of school, and indicates that digital competences best develop when basic key competences in such subject areas as reading and Maths are present. Also, the results suggest that there is no direct correlation between digital skills and hours of computer use, but rather, the quality of computer use and the teachers' teaching style play a central role. This report also indicates that 98% of pupils in Italy have access to a computer (p. 36) and that they use the internet about 1.5 hours per day after school (p. 40).

The *International Computer and Information Literacy Study* (ICILS; Fraillon et al., 2014) is another recent study that sheds light on young people's digital competences – namely on Computer and Information Literacy (CIL). Based on data collected from 60,000 students from 21 countries (including Switzerland, but not Italy), its results show that

“higher socioeconomic status was associated with higher CIL proficiency both within and across countries. Female students had higher CIL scale scores in all but two countries (Turkey and Thailand). (...) The following variables had statistically significant positive associations with CIL in most countries: students' gender (female

compared to male), students' expected educational attainment, parental educational attainment, parental occupational status, number of books in the home, and ICT home resources" (p. 20).

92% of pupils in the ICILS sample have access to the internet and started using a computer on average at the age of 7 or 8.

Studies such as these contribute to a clearer understanding of the evolution of digital media practices among young people and of their impact. For example, we learn from such studies that socio-economic differences have an impact on media consumption. Also, gender also seems to play a role, especially when it comes to videogames (more broadly used by boys; Waller et al., 2016, p. 24) and violent or pornographic content (more present in boys' online experience; Waller et al., 2016, p. 44). The OECD report clearly shows differences between Europe and North America, and even more between Europe and Far-East countries.

Consistencies among these studies suggest important policy-making indications; discrepancies provide hints to formulate new relevant research questions. Their conclusions are paramount for policy makers, investors and researchers, but what do they suggest for teachers and educators? Exactly because they offer a broad statistical description of the situation, broad quantitative studies do not provide sound elements for local interventions: like a panoramic picture, they provide an overview, but no details; they help us generate a map of the territory, but do not provide enough elements to select the best path to follow. For example, the teacher mentioned in the opening paragraphs of this paper, according to both national and regional statistical evidence, should have expected an already digitally adept group of pupils, but this was not the case. What would have happened if she had proposed a set of activities on social media to that group? Most probably, she would have failed. In the same way, international, national and even

regional studies can inspire media and technology education interventions – but cannot be taken as a sound starting point for each and every implementation.

In countries where school curricula do not include *Media Studies* or *Informatics*, such as Switzerland and Italy, media and technology education often comes in the form special projects, possibly conducted with the help of external experts. In many cases, external experts – and in some cases even teachers – do not have data about the individual class before they actually start the activities, and rely on local, regional and national reports. This paper argues that, if we want to achieve effective digital media and technology education, this is not enough: the situation of specific classes, even in the same school, can be different from the general regional or national picture, in ways that are significant for the success of a program. Collecting data about individual classes can be worthwhile – if not necessary – in order to design, plan and carry out more effective interventions.

Method

This paper is based on data from a class assessment survey collected in 8 Italian middle school classes. Lower secondary education in the Italian education system is structured in three grades (I media, II media and III media), which provide subject-matter instruction based on a rather flexible curriculum, delivered by specialist teachers. From the point of view of digital technologies, Italian schools are historically poorly equipped, and they usually appear below-average in International reports about digital education (for example, OECD, 2015). Notwithstanding, two years ago the Government issued a new plan of action, the *Piano Nazionale Scuola Digitale* (PNSD; MIUR, 2015), which indicated a set of actions for the enhancement of schools' digital infrastructure and for the promotion of digital teaching and learning activities. The opportunities created by PNSD allowed many schools to move one step forward and to obtain funds to start digital innovation projects. At the same time, the rapid diffusion of smartphones among teenagers made digital and

media literacy a more relevant issue, which led many headmasters, teachers and parents' assemblies to look for prevention programs and experts for special projects in schools.

The 8 participating classes are 6 III media (8th grade, age 13) and 2 II media (7th grade, age 12), for a total of 241 students (128 boys and 113 girls; details are presented in Table 1). The classes belong to two different Catholic private schools in two distinct but similar urban districts in Milano, Italy. Both schools serve middle/high income families.

Table 1 – Grade, population and gender composition of the classes

CLASS CODE	GRADE	No. pupils	Male	Female
2A	II media	30	14	16
2B	II media	34	18	16
3A	III media	30	13	17
3B	III media	29	15	14
3C	III media	29	14	15
3D	III media	29	17	12
3E	III media	30	20	10
3F	III media	30	17	13
TOTAL		241	128 (53%)	113 (47%)

The survey was conducted in each class 2-3 weeks before a 2-hour awareness-raising session on the use of the internet by the author of this paper. Overall, the data collection took place between May 2015 and November 2016.

The survey took 10-15 minutes to complete and was administered online. The instrument is presented in Attachment 1. Its main goal was to identify the key points by which to guide the session, and it was composed of three sections (plus one additional section, whose data have not been used in this paper):

1. The first section was devoted to building a simple *profile of online media use*, which included both quantitative data (how often do you use the internet? Average hours of use per day) and qualitative data (e.g., most used digital device, most common online activities; most used apps and websites). The items in this section were taken from the quantitative reports mentioned above, and are common for studies in this domain.

2. The second section focused on the *socialization of online media*, i.e., the social context in which digital media comes into play. The items included in this section were inspired by items in the MIKE study (Suter et al., 2015), and in the Swiss EU Kids Online report (Hermida & Signer, 2013), which focus on the relationship between children and parents in digital media use. Questions concerned both the physical setting (being alone or with others) and the broader relational context (e.g., the presence of parental rules and the identification of a reference person with whom to discuss critical incidents online).
3. The third section included two open-text items, which prompted the student to describe *a positive and a negative online experience*, in order to identify relevant topics related to the internet behaviour of pupils. In the rest of this paper, I will refer to the descriptions of the online experiences collected in these items *critical incidents*. This simple open question section, in relationship with the other items in the instrument, introduces an original approach to the topic, along with the data analysis and the student class stratification (see below).
4. A fourth section – not related to this study – was about things that pupils wanted to learn about the internet, and measures that they already applied in order to reduce potential risks in their online behaviour.

For quantitative data (sections 1 and 2), frequencies were calculated for each response item. Qualitative data (section 3) was analysed through a grounded theory approach (Tarozzi, 2008). Each answer was labelled according to its main content, and this happened in three waves of progressive refinement of the labels, in order to identify meaningful clusters.

The data collected was then analysed first as a single sample of 241 respondents, and then segmented by student classes, generating a sort of *digital media class profile*. This

was done with the specific goal of identifying the distinctive features of each class. Are there relevant differences, or can we assume that digital media-related issues are more or less the same in each class? Can the same programme be implemented smoothly in all classes, or should peculiar features be taken into account?

The following sections present the key findings: at first, I emphasize similarities across the classes, which broadly correspond to the key statistical figures in national and international reports. I then focus on what makes each class unique in terms of (a) use of online media, (b) use of devices, (c) socialization of online media use, and (d) online experiences and critical incidents. The scope of this study is the specific analysis of these six classes, which are not intended as a sample of a wider universe. For this reason, no predictive statistics are used. Also, I will focus on macroscopic differences, which are relevant for the practice, without controlling for statistical significance.

Devices and frequency of use

The first impression that one gets by looking at survey results, is that national and international reports offer a rather reliable “big picture”. Indeed, the overall penetration of the internet in this study’s sample is actually 98% (i.e., 235 out of 241; the same proportion of the OECD report, just to name one), and connection to the internet happens mostly “every day” (Figure 1). Most pupils (45%) spend on average 1-2h online per day, with another relevant part of them (25%) that declare to stay online 3-5h per day, and about 22% that stay online less than 1h per day (Figure 2). These figures are not fully aligned with national reports, which describe young people as more intensive internet users (OECD, 2015, p.40-41), and are balanced across all classes, indicating that children attending private schools and their families possibly have a more moderate digital behaviour. The most used device for online activity is – no surprise – the smartphone (75%), followed by the tablet (42%) and the laptop computer (40%; Figure 3).

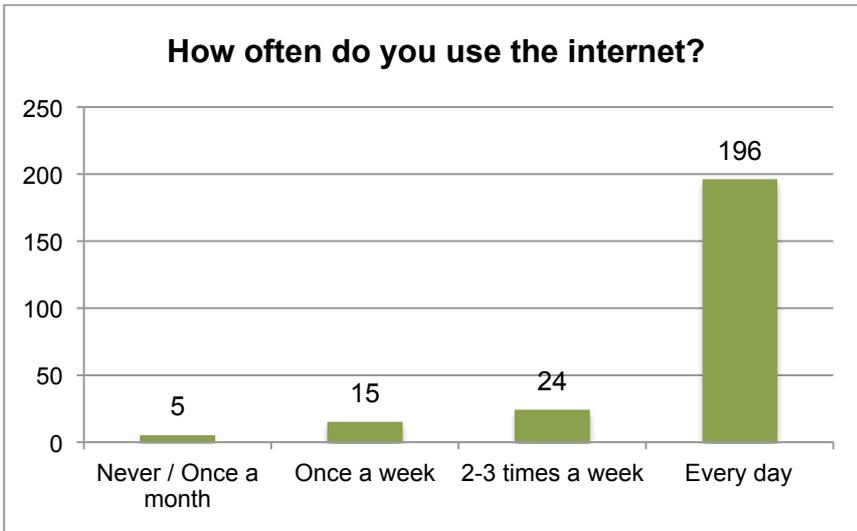


Figure 1 - Frequency of use of the internet

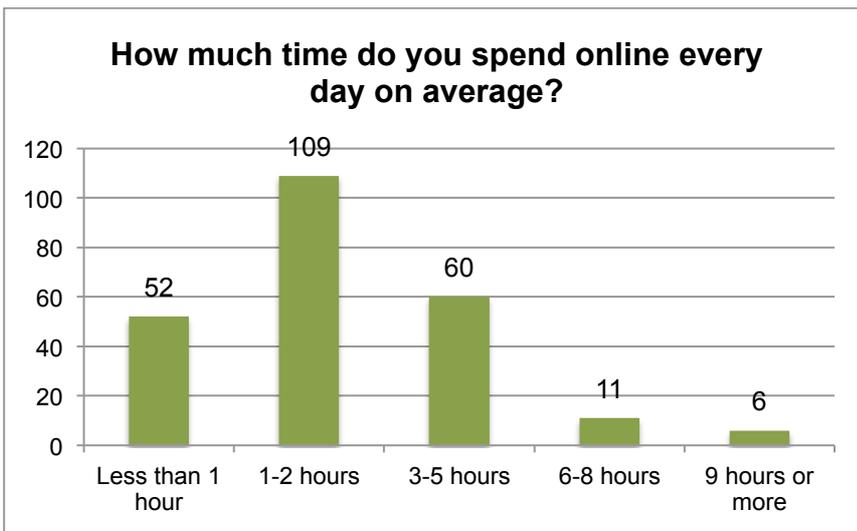


Figure 2 - Average time spent online per day

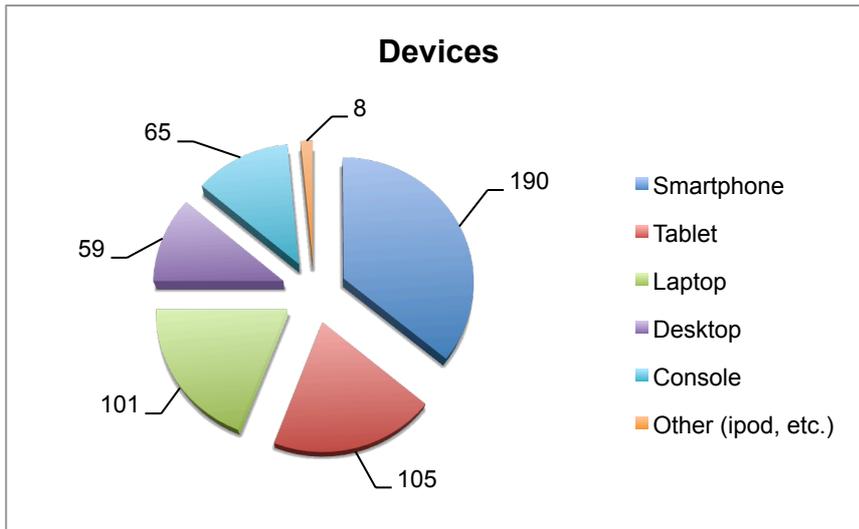


Figure 3 - Devices

As indicated above, data about connection time, connection frequency, and availability of devices, match the results of international and national reports. Nonetheless, already at this purely descriptive level, a finer analysis reveals differences among classes. Figure 4 presents the average connection time per day in two III media from the same school: two-thirds of the pupils in 3E stated that they spent 1-2h online, and another third less than 1h (only one answer is 3-5h); on the other hand, in 3B, most pupils were online 3-5h, with only one-third indicating 1-2h.

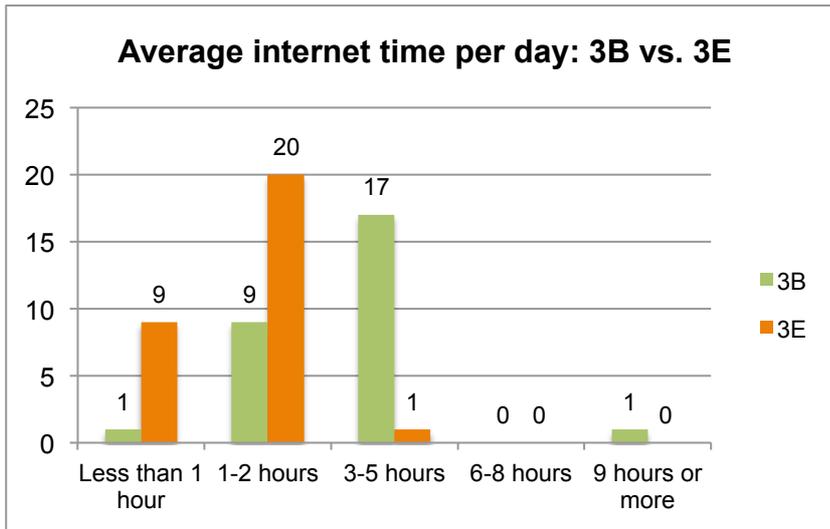


Figure 4 - Time online per day: 3B vs. 3E

While these figures do not impact much at a statistical level when all classes are grouped, they make a big difference when it comes to actually working with the two classes. A digital literacy intervention in 3E will meet a rather homogeneous group of moderate internet users (actually, below average), where most pupils spend most of their free time offline. In 3B, on the contrary, the educator would find a group of pupils that spend most of their free time online, with two exceptions: one pupil who is less often and for a shorter time online, and one who is basically always connected (9+h).

I use the internet for...

What do young people do online? Responses (Figure 5) indicate that the most common online activities are texting (messaging) and video and music download/streaming, followed by information search. Somewhat less frequent but still rather popular activities are videogames (about half of the respondents), and posting on social media. Reading the news and writing emails are rather uncommon practices, and discussion forums, shopping and other activities are residual.

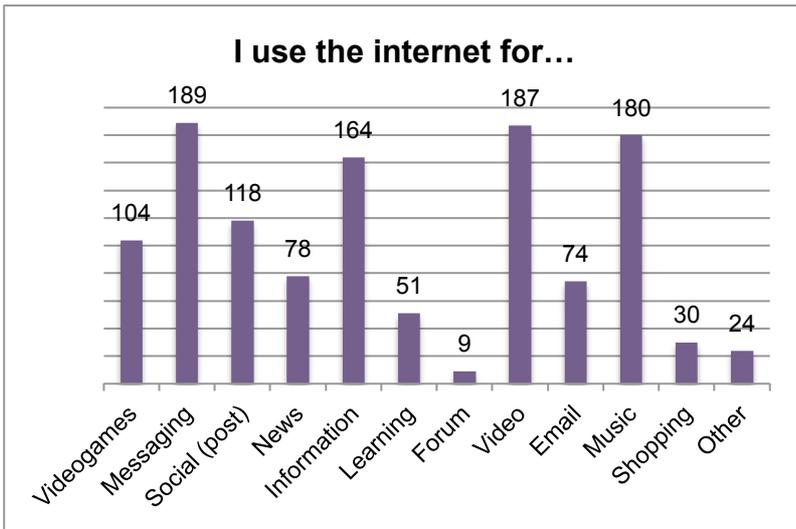


Figure 5 – Internet use

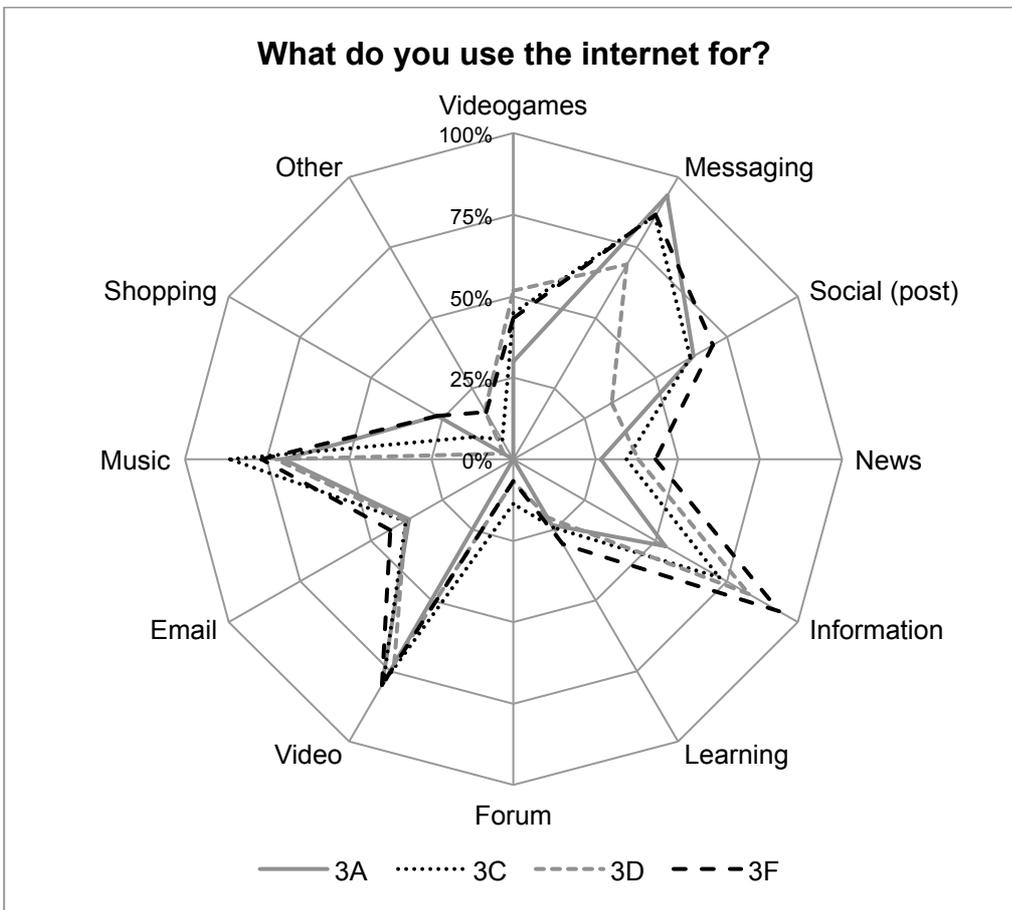


Figure 6 – Internet use across 4 classes

Again, the general figures match the official ones – still, if we have a closer look to single classes, relevant differences emerge. Figure 6 presents data from 4 classes in the same

grade (III media). 95% of pupils in 3A, 3C and 3F mention messaging (i.e., applications like WhatsApp), so that this would possibly represent a very good starting point for an activity on privacy or respect. In 3D, however, messaging is mentioned only by 65% of pupils. In the same way, values on the “information” axis vary from 93% in 3F to 53% in 3A – so that a learning activity about information sources, search engines or Wikipedia would find a different background and eventually acquire a different meaning in the two groups. Of course, a sound digital competences programme would include all topics, and also prepare pupils for situations they have not yet or not often met. Nevertheless, understanding what practices are actually shared by the group and identifying relevant issues for discussion are key points in order to make such a programme engaging, useful and to achieve long-term impact.

What apps and services do they use?

Differences in what pupils do online are reflected in the apps or services they use. The list of apps that respondents mentioned was elaborated as word clouds, where a larger text size indicates a higher frequency. Four of them are displayed in Figure 7.

The first impression is rather obvious: WhatsApp and Instagram are the most widely used apps, followed by YouTube. But similarities among the four classes end here.

Let's consider 2A and 3E (bottom row): the former class presents a rather wide spectrum of apps, indicating that pupils have different digital lifestyles; in the latter, we can assume a more homogeneous digital experience, maybe divided in two groups (videogame players and youtubers' followers) with only a few exceptions. Also, 3E includes a high number (about 50% of pupils) of PlayStation players, mostly engaged with FIFA; the PlayStation was not mentioned by 2A respondents, which on the other hand includes a rather large group of Clash of Clans players, who might also play together in a class clan, consequently sharing also the online chat which is part of the game. Moreover, many

mention Google, providing a useful hint for introducing the topic of search engines and information literacy issues. YouTube is also more widely used, suggesting that video and movies might be an engaging topic for a learning activity on media and media languages.

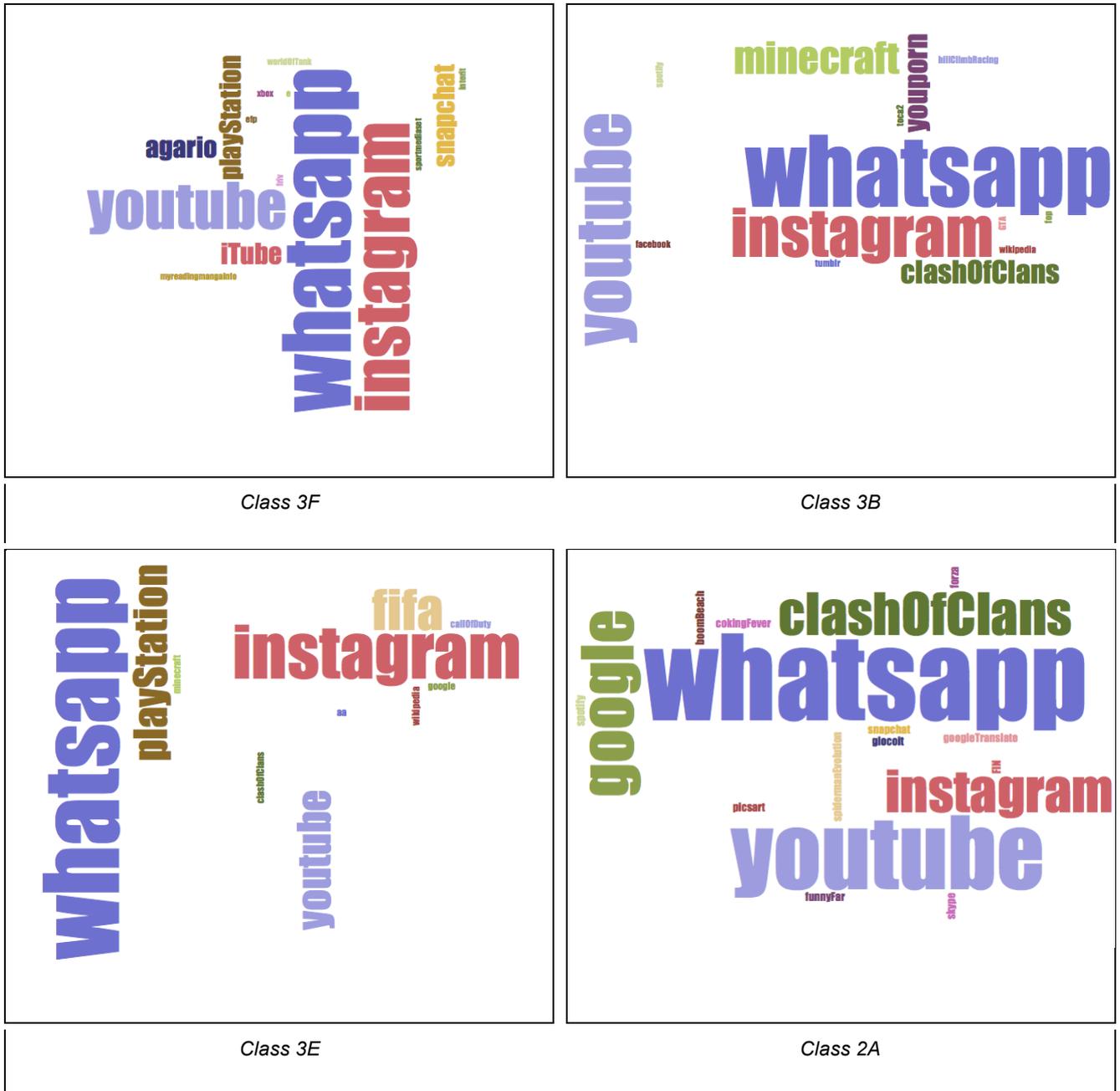


Figure 7 - Word clouds of most used apps and services in (clockwise from top left) 3F, 3B, 2A, 3E.

Class 3B presents a still different situation: here Minecraft appears, revealing a relatively large group of players of this virtual world – possibly enough to propose an exploration of the game and think of experimenting it as a learning tool in a guided activity. A few

respondents mention YouPorn, indicating that the issue of inappropriate content and pornography is potentially an issue here.

Finally, 3F has again a rather varied set of apps and services, with the important presence of Snapchat, an app that is prone to generating sexting issues. The presence of iTunes (a music and video downloader) might indicate potential over-average skills.

Understanding the apps and services in use in a class is paramount for any digital literacy intervention: they are what pupils mean when they say “the internet”, and they are most appropriate starting point to understand their digital experience. Too often teachers and educators assume that pupils use the same set of digital tools as they do, are simply unaware of what their students do online, or dismiss teenager’s favourite tools as trivia or trash. The data presented in this paper suggests that, while remaining within the borders of national and international statistics, single classes develop a sort of “digital social profile”, where some practices are more spread out than others, some apps are used and others are unknown or discarded. This suggests that we might conceive a school class as a micro-community, in which practices and tools diffuse.

Rules and references: the socialization of online behaviour

An often overlooked issue about digital practices is students’ social environment, i.e., with whom young people share their experiences, both in terms of “doing things together” and of “telling what happened”. Studies from the ‘80s and ‘90s on the impact of TV clearly indicated that parental mediation was a key element in the impact of watching TV, for examples in relation to violent content (Desmond et al., 1985; Desmond, Singer & Singer, 1990; Decnaeck, 1998). More recent literature on mass media impact indicates that the media are part of a broader socialization process, where content and messages interact with other social agents both at the cognitive and affective levels (Kelly & Donohew, 1999). Also, studies on digital literacy and skills seems to suggest that more structured

scaffolding leads to the development of sounder digital competences (Greaves, Bradley & Holley, 2012), and is required in order to move from “digital bravery” to “digital maturity” (Jones, Johnson, & Gruszczynska, 2012).

The large majority of respondents in this study indicate that when they connect to the internet they are physically alone (90%). 56% of them communicate with others through chats or texting services. One item in the survey asked what pupils do when something exceptional happens on the web (we would say, a critical incident, either positive or negative; see Figure 8). When faced with unusual, potentially risky or exceptional situations online, most pupils refer to peers (74) or parents (43). No single pupil over 241 respondents indicated teachers as reference persons. These data indicates that digital experiences are only partially socialized, mostly with peers and in some cases within families – practically never within the formal school environment. This is a cause of the invisibility of teenagers’ digital practices for adults, and an additional reason for collecting data from pupils in order to assess the actual conditions of any digital literacy development programme or activity.

In this case as well, classes present different socialization profiles. Figure 9 presents the same chart with the values of 3 classes. The largest group of students in 2B has parents as their main reference, while students in 3C prefer peers. On the other hand, over one third of 3E pupils declare that, when something exceptional happens (supposedly negative, in this case) they disconnect, possibly preferring denial to discussion.

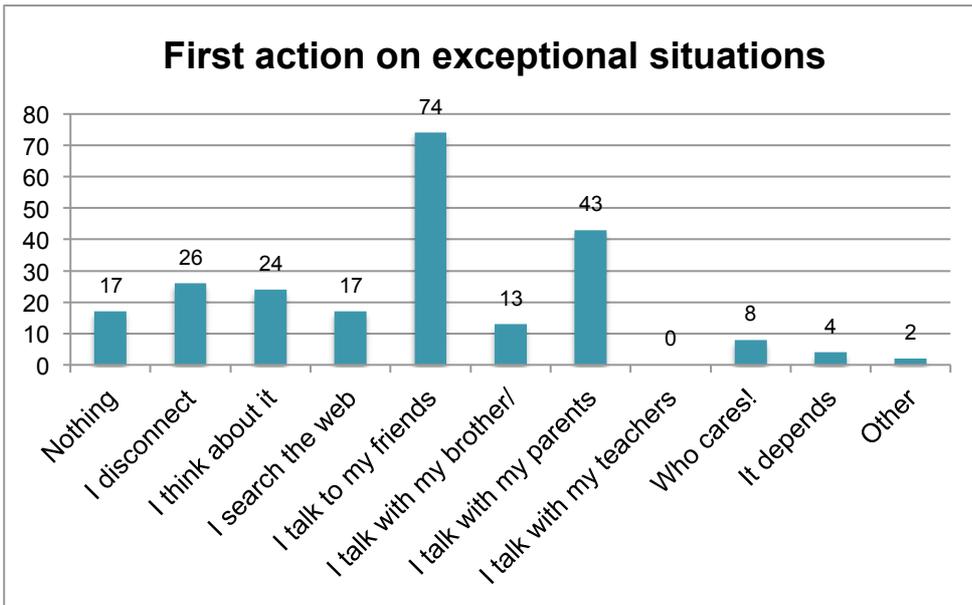


Figure 8 – First action (and involved reference persons) in digital critical incidents (general data)

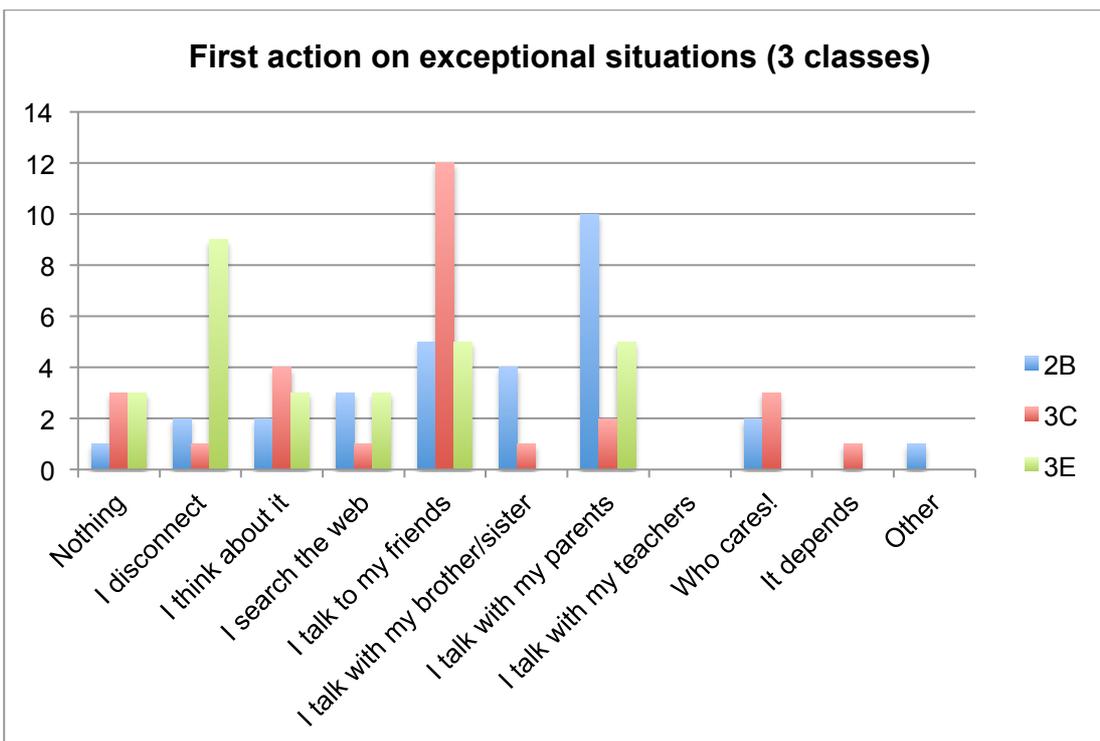


Figure 9 - First action (and involved reference persons) in digital critical incidents (3 classes)

The relationship with parental rules for the use of the internet is another interesting indicator of differences in the socialization of digital experiences. Overall, a little less than a half of the respondents (103) indicate a positive attitude towards rules, either because

they have them and they find them useful, or because they do not have them but would prefer to. Others (114) enjoy not having rules, or have rules that they do not find useful.

This also varies considerably across classes (Figure 9): in 3B 26 pupils over 29 indicate that they prefer having no rules; on the contrary, in 2B 21 over 31 enjoy having rules or would like to receive them. Of course, such differences describe two very different social settings, which would require a different approach to online risks and safety.

The meaning of digital experience

The third section of the survey asked pupils to describe one positive and one negative online personal experience, called here *digital critical incidents*. The answers' short texts underwent three waves of classification following a grounded theory approach, and were finally clustered in two levels:

1. On the first level, each critical incident was tagged by reference domain (Table 3), where each incident could reference to only one domain. Reference domains are the same both for positive and negative experience, namely:
 - a. Leisure: the experience refers to free time, including hobbies, sports, learning for pleasure, etc. (e.g., "When I read anime online...")
 - b. School: the experience refers to formal schooling (e.g., "I use the online translator for homework")
 - c. Relationships: the experience refers to friends, relatives, parents or other social relationships ("I can talk to my relatives abroad")
 - d. Generic: the experience is generic and does not reference any specific context (e.g., "when I search information..." or "When the computer crashes...")
2. On the second level, each critical incident was classified by content topic, where each incident could address one or two topics. Topic descriptors are different between positive (Table 3) and negative experiences (Table 4).

Table 2 – Domains for positive and negative critical incidents. “[NONE]” indicates that pupils declared not to recall any positive or negative experience. “EMPTY” indicates no response was provided.

Domain	Positive experiences	Negative experiences
LEISURE	83	50
SCHOOL	48	7
RELATIONSHIPS	42	49
GENERIC	44	66
<i>TOTAL</i>	<i>217</i>	<i>172</i>
EMPTY	15	22
[NONE]	9	47

Table 3 – Topic descriptors for positive critical incidents

Topic	Freq.	%
SCHOOL LEARNING	14	4%
INFORMATION	69	22%
SPORT	14	4%
VIDEO	25	8%
FILM	11	3%
MUSIC	21	7%
EBOOK	1	0%
COMICS	1	0%
YOUTUBE	8	3%
WIKIPEDIA	7	2%
VIDEOGAMES	17	5%
DIGITAL SKILLS	7	2%
CREATIVITY	4	1%
POST	3	1%
PHOTOGRAPHY	9	3%
COMMUNICATION	38	12%
DISTANCE (OVERCOME)	20	6%
MEETING PEOPLE	10	3%
SAVING MONEY	3	1%
TRANSLATIONS	14	4%
MAPS	2	1%
DEVICES	3	1%
SHOPPING	4	1%
CIVIC ENGAGEMENT	1	0%
[NOTHING]	9	3%

Table 4 – Topic descriptors for negative critical incidents

Topic	Freq	%
CRASH	36	15%
VIRUS	23	9%
ADDICTION	11	4%
FAILURE	5	2%
PORNOGRAPHY/INAPPROPRIATE CONTENT	46	19%
UNKNOWN	12	5%
INSULTS/THREATS	23	9%
FRAUD (IN SHOPPING)	9	4%
BAD COMMUNICATION	11	4%
SHAME	5	2%
BULLYING	2	1%
IDENTITY THEFT	3	1%
SEXTING	4	2%
INFORMATION THEFT	2	1%
ARGUING	6	2%
WRONG MAPS	1	0%
DISTANCE (TOO BIG)	1	0%
HASTE	1	0%
[NOTHING]	47	19%

The three tables are highly informative. At a first sight, they indicate that pupils more easily recall positive rather than negative experiences: 20% of pupils declare they cannot think of negative experiences – the web is in general experienced more as an opportunity than as a threat. Second, the largest part of positive experiences refer to free time (83 vs. 48 in the school domain). Positive experiences mostly refer to finding useful information and videos, or communicating with distant relatives or friends. This indicates that schools are offering too few opportunities for a positive encounter with technology.

On the other hand, most negative experiences are generic, i.e., do not refer to a specific context and can happen in any situation. The school context is very seldom mentioned here, indicating that, at any rate, schools offer a safe context. Many negative critical incidents refer to technological issues (device failures like crashes or viruses, with the

consequent disappointment or stress). Another large part refers to undesired contact with pornography or inappropriate content (mainly gore), and to insults, threats, arguing and bad communication. Technology addiction is also mentioned as a personal risk.

I believe that data about critical incidents is most useful when it comes to address a class and propose digital competences activities, as they provide a relevant common ground on which the discussion can start, activating meaningful prior experiences and addressing felt issues. For example, if leisure is the main reference domain for positive experiences with technology, it can be awkward to start off by emphasizing the importance of digital technologies for learning or for the future profession (a topic that can of course be discussed at a later stage).

Here are as well, the differences across the classes are astonishing. Figure 10 shows the domains for positive critical incidents in three classes: following the overall statistics, *leisure* is the main one for 3A, but this is not the case for 3B, where *relationships* has the highest frequency, so that we can consequently expect a more spread use of social media or chats. Unexpectedly – at least for most experts – 3D pupils most often indicated critical incidents either *generic* or related to *school*.

The same differences are to be found in the topics mentioned for positive experience. For example, in class 3E, 17 pupils out of 30 describe experiences related with information search and retrieval, presenting the Internet as a place where you can find answers to questions. The second highest frequency value is for communication. In class 2B, on the contrary, the largest group of critical incidents is about music, video and videogames (15 out of 34), indicating that the internet is used mainly as a repository of (free) multimedia content and entertainment.

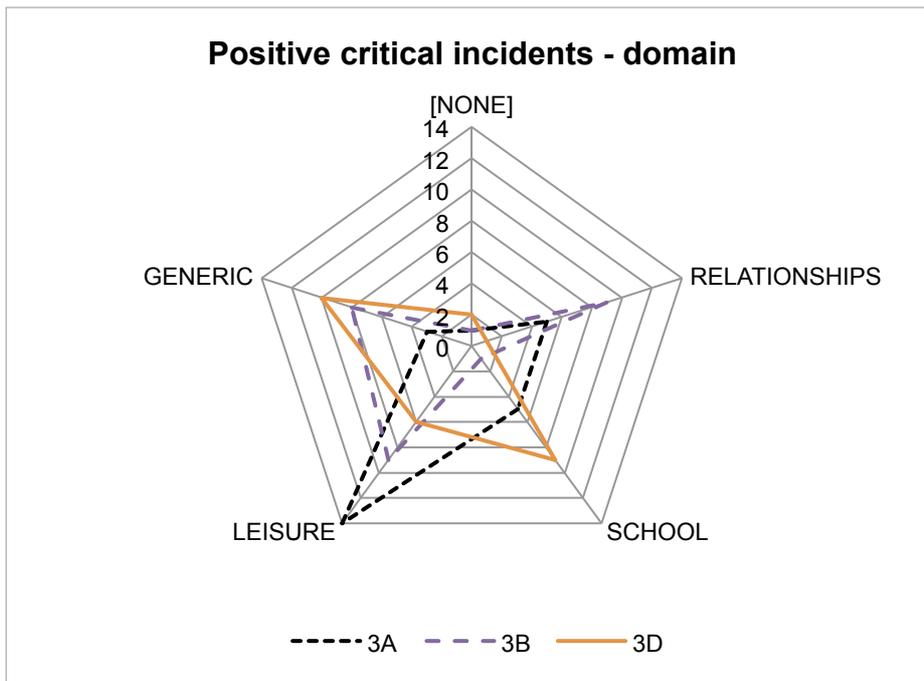


Figure 10 - Domains of positive critical incidents, 3 classes

The largest share of negative critical incidents were classified under the “generic” domain, indicating that such experiences “happen”, and are in most cases not related to specific activities. They include technical failures, network issues, but also encounters with inappropriate content and unknown people. Class differences are again striking – and even more relevant as declared negative incidents express felt open issues and identify potential learning readiness.

Figure 11 illustrates such differences: the big issue in 2A is relationships over the web, and in fact the main issue for pupils in this class was balancing their online and offline social life, including the management of “flamed up” situations and online arguments in WhatsApp groups. For teachers dealing with digital competences development, the correct assessment of this issue can provide a crucial element for an effective frame of the learning activities and for motivation. On the other hand, pupils in 3E mentioned several negative critical incidents related to entertainment situations – mainly inappropriate content or intrusion of strangers in open chats, or simply waste of time.

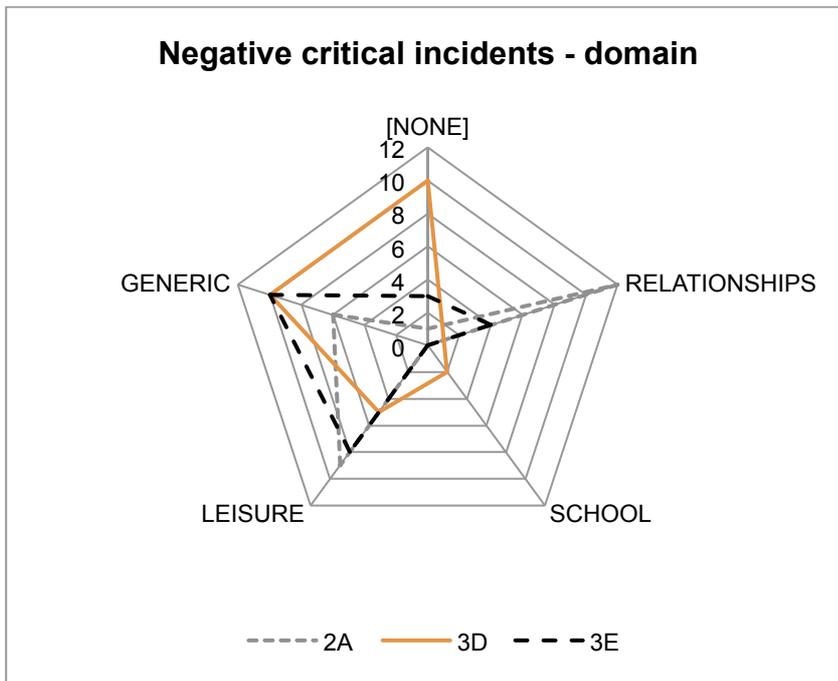


Figure 11 – Domains for negative critical incidents, 3 classes

The analysis of topics for negative experiences also provides interesting insights. Overall “pornography and inappropriate content” is the most mentioned topic (19%), followed by crashes (15%) and viruses (10%), which generate anxiety for remaining disconnected. At class level, we find that in 2A, for example, pornography is the key negative issue for one third (10/30) pupils – making it a major issue in the class. Any serious programme on digital media should tackle this issue in that class. On the contrary, pupils in 3C, despite being one year older, do not describe many negative incidents, and only 2 indicate pornography as a source of distress. Implementing the same programme in this class as in 2A would possibly generate more distress than relief. In 3F, we find a still different situation: pornography is mentioned by one third of the class, but computer crashes as well. These pupils will likely be interested in learning to mastering a technology which seems “fragile”, and we can assume that proposing technology literacy as a first step would engage them.

Conclusions

Broad statistical studies with accurate sampling provide extremely useful insights on the evolution of our relationship with digital technologies. The PISA/OCSE and ICILS reports, as well as national and regional ones, are a valuable source for policy makers, companies and academics, as they provide an accurate and reliable “big picture”.

For teachers and educators, whose challenge is engaging with a specific group of young learners, such big picture can only be the background against which they have to find out the distinctive traits of their group or class. The data presented in this paper provides evidence that individual classes from the same school and social group can present relevant differences in terms of device use, connection habits, online practices and experiences. They differ both in their behaviour and in the meaning they attach to it, and in the degree of homogeneity inside the group as well.

When it comes to implementing a specific intervention related to digital media and technologies, we cannot assume that the class or group we meet would just fit into the general scheme: we cannot think of standard classes and standard issues. Some classes have specific felt issues that should be addressed, some have none or not yet; some have clear topics which would favour engagement, others are heterogeneous and will require differentiation. The examples discussed throughout the article provide suggestions about what data is relevant for tracing a portrait of a class' digital experience, and I hope the survey instrument presented in Attachment 1 can be of inspiration.

Such a claim might seem a consequent conclusion of the long-standing dialogue or debate between quantitative research and action research in education (cf. Thomson, 2015), and its implications might seem trivial. Of course, gathering data to make a digital profile of a class would be the first step in any action-research project design. Also, this is indicated as a good practice for any teaching, and a key assumption for sound instructional design

(Smith & Ragan, 1999; Morrison, Ross & Kemp, 2004). In a less structured form, it happens almost naturally for experienced teachers, who conduct continuous observation of their pupils. Nonetheless, this is not often the case for digital literacy education, for at least three reasons: (a) in many cases the digital behaviours of pupils are invisible to teachers, because they mostly happen out of school and are not usually shared with adults; (b) in some countries, digital competences are not taught by a subject matter specialist, so that observation itself can be a challenge; and (c) external experts who collaborate with teachers in digital competences development might not have the opportunity to see the class in advance or collect data. Some ideas about useful data to collect are provided in Attachment 2, at the end of this article.

I hope that this article provides a contribution towards a more accurate learners analysis, complementing and building upon the figures that broad statistical studies provide, in order to design and deliver more effective digital literacy education to young people.

References

- ASPI (no date). *E-www@i! Web page*. Retrieved on March 8th, 2017 from <http://www.aspi.ch/index.php?node=307&lng=1&rif=cfa1240f0d>
- CENSIS, 2015. *12° Rapporto Censis-Ucsi sulla comunicazione*. Roma: CENSIS.
- Decnaeck, S., 1998. *Les Enfants et la television. Resultats et tendances de la recherche*. Geneve: Service de la recherche en éducation, Département de l'instruction publique, Republique et Canton de Genève.
- DECS, 2015. *La scuola che verrà*. Bellinzona: Dipartimento dell'Educazione, della Cultura e dello Sport.
- Desmond, R. J., Singer, J. L., & Singer, D. G., 1990. 'Family mediation: Parental communication patterns and the influence of television on children'. In: J. Bryant, ed, *Television and the American family*, Hillsdale, NJ: Lawrence Erlbaum, 293-310.
- Desmond, R. J., Singer, J. L., Singer, D. G., Calam, R., & Colimore, K., 1985. 'Family mediation patterns and television viewing: Young children's use and grasp of the medium'. In: *Human Communication Research*, 11, 461-480.
- Fraillon, J., Ainley, J., Schulz, W., Friedman, T. & Gebhardt, E., 2014. *Preparing for Life in a Digital Age*. Springer Open.
- Greaves, L., Bradley, C., & Holley, D., 2012. 'Learning journeys: exploring approaches to learner digital literacy acquisition'. In: *Enhancing Learning in the Social Sciences*, 4 (2), 1-17.
- Gui, M., 2015. 'Le trasformazioni della disuguaglianza digitale tra gli adolescenti: evidenze da tre indagini nel Nord Italia'. In: *La società contemporanea*, 69, 33-55 [special issue on *Studenti 2.0. La Rete tra riproduzione sociale e disallineamento culturale*].

- Hermida, M., & Signer, S. (2013). *Wie Eltern ihre Kinder im Internet begleiten. Regulierung der Internetnutzung durch Eltern*. Erstellt im Auftrag des nationalen Programms Jugend und Medien.
- Jones, H., Johnson, P. & Gruszczynska, A., 2012. 'Digital literacy: digital maturity or digital bravery?'. In: *Enhancing Learning in the Social Sciences*, 4 (2), 1-3.
- Kelly, K., & Donohew, L., 1999. 'Media and Primary Socialization Theory'. In: *Substance Use & Misuse*, 34 (7), 1033-1045.
- Mainardi, M., & Zraggen, L., 2012. *Minori in internet*. Bellinzona: SUPSI.
- MIUR, 2015. *Piano nazionale scuola digitale*. Roma: Ministero dell'Istruzione, dell'Università e della Ricerca.
- Morrison, G. R., Ross, S. M., & Kemp, J. E. (2004). *Designing Effective Instruction*. Wiley/Jossey Bass Education (4th edition).
- OECD, 2015. *Students, Computers and Learning: Making the Connection*. PISA, OECD Publishing.
- Waller, G., Willemse, I., Genner, S., Suter, L., & Süss, D. (2016). *JAMES. Jugend, Aktivitäten, Medien in der Schweiz*. Zürich: ZHAW.
- Willemse, I., Waller, G., Genner, S., Suter, L., Oppliger, S., Huber A.-L., & Süss, D., 2014. *JAMES. Jugend, Aktivitäten, Medien in der Schweiz*. Zürich: ZHAW.
- Smith, P. L., & Ragan, T. J., 1999. *Instructional Design*. New York: John Wiley & Son (2nd edition).
- Suter, L., Waller, G., Genner, S., Suter, L., Oppliger, S., Willemse, I., Schwarz B., & Süss, D., 2015. *MIKE. Medien, Interaktion, Kinder, Eltern*. Zürich: ZHAW.
- Tarozzi, M., 2008. *Cos'è la Grounded Theory*. Carocci, Roma.
- Thomson, P., 2015. 'Action research with/against impact'. In: *Educational Action Research*, 23 (3), 309-311 (editorial).

Attachment 1. Survey

You are

Male / Female

SECTION 1

How often do you use the internet?
(one answer only)

Never / Once a month / Once a week /
2-3 times a week / Every day

How much time do you spend online
every day on average?
(one answer only)

Less than 1 hour / 1-2 hours / 3-5 hours /
6-8 hours / 9 hours or more

Usually I go online with
(multiple answers possible)

Smartphone / Tablet / Laptop computer /
Desktop computer / Console / Other (iPod, etc.)

I use the internet for...
(multiple answers possible)

Playing videogames
Messaging
Posting on social media
Reading the news
Looking for information
Learning new things
Discussing on forums
Watching videos
Reading and writing emails
Listening to music
Shopping
Other

What are the websites, apps, games or services
that you use most often?

[open]

SECTION 2

When I go online, I am usually
(one answer only)

Physically alone, and I browse on my own
Physically alone, but connected with others
With friends
With my parents or other adults

When something good or bad happens online,
the first thing I do is...
(one answer only)

Nothing
I disconnect
I think about it
I search the web
I talk to my friends
I talk with my brother/sister
I talk with my parents
I talk with my teachers
Who cares!
It depends
Other

Do your parents give you rules about
the internet and digital technologies?
(one answer only)

Yes, and I appreciate it
Yes, but I would prefer they don't
No, but I would like them to do so
No, and I'm fine with it

SECTION 3

Describe one positive experience you had online [open]

Describe one negative experience you had online [open]

SECTION 4

What do you pay attention to, when you are online? [open]

What would you like to learn about digital media and the internet? [open]

Attachment 2. Key class profile information

This checklist presents the key elements that, according to the experience discussed in this article, are relevant in order to get a digital class profile.

Online media use

- Average time spent online per day/per week
- Most used devices
- Most used apps/websites

Answers to these items will provide an “objective” profile of the class: is this class a group of advanced internet users? Is the class homogeneous or are there different profiles? What are the most used apps? Is there a group of videogamers? Do pupils share virtual experiences with each others (e.g., they are in the same online groups)?

Socialization of online media

- With whom is the online experience shared?
 - in presence of (physical proximity) / at a distance (virtual proximity)
 - in “regular situations” (everyday use) / in “special situations” (when something special or exceptional happens online)
- Are rules given (by parents, teachers, etc.)? How are they perceived?

These items provide information about the social environment in which the online experience is perceived, including the existence or absence of reference adults.

Critical incidents

What do pupils perceive as exceptional (positive or negative) events online? Pupils will identify here situations in which they feel uncertainty or elation, i.e., that they are ready to share or to discuss exactly because they are not “normal”. Also, this will help learning about critical incidents that might have had impact on the whole class (e.g., flaming in the class group, insults, or the diffusion of pornographic material).

Questions

What direct questions do pupils ask about their digital life? Such questions provide a direct entrance to the discussion about online media, and can suggest the initial approach. Some questions might be more technical, others more related to security and social behaviour, others might address historical or economical aspects.