

PRE-TEENS AND TECHNOLOGY: AN ANALYSIS OF THE EFFECTS OF DIGITAL MEDIA ON MIDDLE SCHOOL STUDENTS IN THE MILAN PROVINCE.

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Introduction

The paper looks at the effects of technology and more specifically of digital media on junior youth, a terminology that identifies the group aged 11-15 years, which corresponds to the years of junior high or middle school, as it is called in Italy. This paper aims at contributing to the existing literature on the subject, by focussing exclusively on the middle school age and in the city of Milan. I therefore started with a review of the literature that looks at digital socialization, and then the existing literature on the relationship youth have with digital media. It was first necessary to study the process that brought to a democratization of information and that reached its apex with the spread of Internet, the development of 2.0 Web and social networks and the evolution of machines such as the personal computer and the smartphone, which can “bring the digital square” into people’s everyday life with the utmost thoroughness.

Afterwards, it was necessary to study the prevailing theories on the characteristics of today’s middle school students, who fall under the definitions of “Generation Z” and “digital natives”. The term “Generation Z” is relatively recent (around 2012) and refers to those born from 1996 onwards. This generation has been studied mainly by consulting firms and marketing agencies with commercial purposes and therefore academic literature on the subject is quite lacking both in English and Italian. The term digital natives on the other hand, coined by Prensky in 2001 to identify those who were born in a digital era, from 1980 onwards, has been vastly used in literature. It opened a paradigm of research in literature, aimed at either supporting or refuting the theory of digital nativity. Moreover, the main theories were analysed that look at the influence of digital media on people and specifically on the youth. I focused particularly on the theories of Turkle, Suler and others that examine the effect of digitalization on learning, on focus, on friendship, on self-perception and on behaviour in youth. Finally, I analysed the risks that the kids encounter online, based on research by consulting firms and research institutes such as Telefono Azzurro (an Italian helpline for children), Center for Generational Kinetics and Ernest&Young. Among the risks there are addiction to Internet and social media, nomophobia, sexting and cyberbullying.

Aims of the research

The primary goal of this research has been to study the effects of digital media on junior youth (defined as the age between 11 and 15) and the risks that this age group encounters online. The research was carried out by drafting and giving out a survey to middle school students and analysing the answers with R, a statistical software.

The specific goals of the field research were:

1. To verify whether the answers given by the sampled population of students substantiated the prevailing theories about Generation Z and digital natives;
2. To check if there is a causal correlation between the use of Internet and social media on one hand and the kids' ability to focus and their grades on the other;
3. To understand how digital socialization impacts on friendship and self-perception;
4. To highlight risk behaviours in the student sample

Description of work done

As I decided to focus on junior youth (11-15 years old), I turned to middle schools (corresponding to grades 6, 7 and 8) and tried to acquire a large sample of students. Beginning in March 2018, I contacted 12 middle schools, calling them on the phone and emailing the Secretaries and the Deans. Out of the 12 schools contacted, 3 schools accepted to collaborate: Istituto Breda (4 classes), Istituto Paolo Borsellino (3 classes) e Istituto Teodoro Ciresola (18 classes). Altogether, the survey was administered to 517 students. As I prepared the structure of the survey and chose the questions, I had to take into consideration some practical needs that set some limits to the quality and the structure of the survey itself. For instance, I had to choose a simple language that the students could understand and I had to take into account the duration of a school period (50 minutes) and the time needed to move to the IT lab and back to the classroom. I also had to take into account the theories from the literature that I wanted to test, and thus draft questions that would substantiate these theories. I therefore identified three main topics, which were drawn from the literature review and then then I went more into details with the specific questions. The three main topics were: (i) Generation Z, (ii) the effects of digital media and (iii) the risks for junior youth.

I first carried out a pilot project on about 20 students in order to test the quality of the survey, who were mainly friends and relatives. I then adjusted the survey based on their feedback and the difficulties they had found. Finally, I administered the survey to the 25 classes on the mornings of May 15th-18th and 21st-22nd.

Technologies utilized

I decided to analyse the data, which I had previously collected through the survey, using the programming language and environment R. I chose R mainly because it allows printing plots easily and with flexibility, while modifying the different parameters. I used pie charts, bar charts, scatter plots, bubble charts, boxplots and histograms. Furthermore, I used some statistical computing such as mean, median, Gini index and correlation coefficient. Finally, I saved the graphs as jpeg files using the given R function.

I discarded the use of a paper survey and opted for an online survey, which made the collection and the analysis of data easier and faster. I then chose to use Google Form and assigned "multiple choice" answers to all the 47 questions of the survey. I chose to use Google Form to draft the survey and to collect the answers because it is a free service offered by Google on the Cloud, that is intuitive and easy to use also by those who take the survey. Google Form allows the admin to save and later download the data as xlsx, csv, pdf and other files. I downloaded the data so that I could clean the data with Microsoft Excel before uploading them into R. I mainly had to standardize answers that were slightly different or that contained spelling mistakes. I also grouped similar answers in the character "other" (non-standardized answer) and attributed a numerical score to answers, in order to transform them into numeric values to calculate statistical indexes.

Findings and results

With regard to the first initial goal, it was possible to test some theories from the literature on the characteristics of Generation Z and digital natives. The research confirmed their fears and ideals, their use of digital devices and their uneasiness when it comes to detach themselves from their devices.

As for Prensky's theory (2001) that states that digital natives prefer an interactive learning method, it was only partially confirmed by data.

Regarding the second goal of this paper, i.e. investigating the relationship between use of social media and internet on one hand and the kids' ability to focus and their grades on the other, the analysis of the data collected from the sample did not show any linear correlation between the characters. This doesn't rule out the possibility that other relations may exist, but the results yielded by the sample don't confirm the theories analysed in the literature review on the topic (Rideout, Kirschner & Karpinski and Junco & Cotton).

In regard to the effects of digital media on pre-teens' social life, friendship, self-perception and behaviour, the analysis of the data collected didn't show any linear correlation between the usage frequency and the levels of loneliness (Brandtzaeg), nevertheless, Turkle's "Goldilocks" theory was indeed confirmed.

Suler's theories on social media use and self-perception did not find evidence in the analysis of the data collected from the sample population.

Finally, a few risk behaviours stood out within the student population that took part in the survey, among which:

- Potential addiction to internet (device use over 8 hours per day and high level of loneliness)
- Potential addiction to social networks (updating one's profiles over 4 times per day)
- Sexting and consequent privacy breaches
- Dating strangers met online

However, only small percentages of the student population showed these potentially dangerous behaviours, and this is a good sign of a healthy relationship with digital media overall in the population.

Nevertheless, what was more striking was the frequency of bullying and its implications:

- 32% of the students in the sample stated to have experienced bullying
- 34% of victims stated that they remained silent and didn't ask for help or shared what had happened with anyone
- 60% of the students didn't know that their school had a Student Counsellor, whose job is to support victims of bullying

These findings should encourage teachers and parents to consider bullying as a serious problem in pre-teens' lives and take action to raise awareness in the kids on how to face it successfully.

Skills acquired and challenges faced

This paper has allowed me to develop technical, research and planning skills. I developed technical skills related to the use of R, particularly the functions for plotting of R objects. The research skills I

acquired were based on the writing of the literature review, drawing from literature both in English and in Italian. Finally, I developed experience in planning field research, by independently contacting 12 schools and carrying out the survey in three schools, 25 classes and a total of 517 students. A serious challenge I had to face was that the timing of the survey coincided with the INVALSI exams (which is an exam middle school students must sit in April). Thus, I had to postpone the administration of the survey in May. This difficulty was overcome thanks to the collaboration of the three schools, which accepted to be part of the research. These three schools were always supportive and proactive, and I am very thankful for their help.

Extract of bibliography

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