

FROM EDUCATIONAL CONTEXTS TO ADDICTIONS: THE ROLE OF TECHNOLOGY IN TEACHING METHODOLOGIES AND IN PREVENTION AS AN EDUCATIONAL FUNCTION

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Among the effects of neoliberalism, the diffusion of technologies, in negative the advance of individualism on the sense of community, is to be pointed out. Learning and cognition processes are influenced by the environmental experience, as technology has created a new environmental space to experience among digital natives. On the other hand, nowadays, technological addiction is an educational problem not to be underestimated given its pervasiveness and diffusion among teenagers. The purpose of this article is to examine some positive and negative effects of technology on teenagers' life styles. From a methodological perspective, it will be provided a systematic review of the existing literature on both technological addictions, by examining negative effects on adolescents' mental health, and on educational strategies aimed at promoting positive effects through the analysis of the relationships between technology and learning processes. By comparing empirical studies and international experiences, it can be

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suggested that education plays a key role in preventing behavioral addictions and promoting physical and mental wellbeing, given that the effective and guided use of technology could represent a precursor of positive and stable attitudes towards healthy habits and learning processes.

1 Introduction

One of the axioms of neoliberalism professed by Friedman (1962/2009) is the choice of individuals to follow their selfish interests, so that everyone can reap the maximum benefits in a free global market. If this individualism does not assert itself, and consequently growth diminishes the only possible explanation is that the market is not yet enough (utopically) free. Contemporary sociologists (Klein, 2014) see in the three characteristics of neoliberalism: deregulation, privatization and a reduction in social spending, the causes of exasperated individualism, isolationism and the crisis of contemporary society. According to some (Boas & Gans-Morse, 2009), one of the products of this socio-economic context is the technology now pervasive to human existence.

Contemporary 'techno-logia' creates and exchanges meanings and social interaction, and it participates in the building of identity (Di Lorenzo *et al.*, 2013). Technology is an environment in which individuals can experience, likewise writing is an extension of the human mind; it combines experiences of a real and virtual world, and it determines cognitive, emotional and relational re-construction among digital natives. The fascination of technology is expressed through the creation of new cultural objects that leads to redesign the world, to redefine the categories of space and time and new forms of interpersonal relationship (Limone, 2012). The digital technologies used in learning environments, in particular social media and network environments, are redefining both social relationships and the modes of knowledge exchange, offering not only the architecture for user participation, but also true methodologies performing teaching that can pose new challenges to educational systems (Pireddu, 2014).

According to literature, it is possible to identify a dual attitude towards technology: on the one hand, technology is considered an indispensable educational tool for individual; on the other hand, it could led to the development of different forms of addictions, and it overlaps with the other already-known forms of behavioral addictions (Young, 1999). Therefore, the need arises to construct a complex epistemology of *digital culture*, which responds to the modern dynamics emerging from the virtual, sometimes degenerating towards an unprecedented phenomenology of intolerance.

2 The Study

A systematic review of the existing literature was adopted to search for articles in the main international databases (Google Scholar, PsycInfo and Sco-

pus) on the issue of technological disadvantages among adolescents and on the relationships between cognitive abilities and prevention strategies, using, in English and in Italian, just the terms “Didactic methodologies”, “Educational prevention”, “Media education” and “Technology addiction” as keywords. Following the Prisma guidelines (Moher *et al.*, 2009) a systematic literature review process has been conducted: the literature search is followed by an evaluation of the titles and abstracts based on the research idea that although the evidence scientific relationships draw a strong relationship between technological dependence and adolescence, it is equally true that prevention and education to health and sport can reverse this trend, that is to make adolescents responsible users and not just passive users (identification). Bibliographic research and evaluation for the inclusion of publications was conducted independently by the two authors. The disagreements have been solved through a critical discussion, coming to full agreement between them. Regarding the inclusion and exclusion criteria, articles were selected in peer reviewed journals, books or book chapters in English or Italian that aimed to describe or evaluate the dimensions and variables expressed in the above-mentioned research idea (screeneng). All publications that dealt with addiction only in general, and those publications whose complete format (Relevance) could not be found were excluded. The time limit for the year of publication has been set for the last 10 years, so the articles have been selected since 2008. For the inclusion of the contributions, a qualitative summary of the most relevant information was also conducted with comparisons between the various publications without carrying out a quantitative analysis in the meta-analysis format.

Eligibility	951 of records identified through database searching	26 of additional records identified through other sources
	↓	
	937 of records after duplicates remove	
	↓	
Screening	937 of Publications evaluated on basis of title and abstract	658 of Excluded publications on the basis of inclusion and exclusion criteria
	↓	↓
Identification	279 of Publications evaluated in full version	98 of Excluded publications on the basis of inclusion and exclusion criteria
	↓	↓
Included	181 of Publications included in the qualitative synthesis	

Fig. 1 - PRISMA Flow Chart of the selection process

The process of inclusion of studies in the systematic review is described in Figure 1. After the elimination of duplicates, the research identified 951 studies consistent with the research idea. Subsequently on the basis of the title and the abstract 658 were excluded because they were not relevant. Of the 279 with full text 181 they met the inclusion criteria. Literature identifies teenagers, who need to search for new experiences and sensations, perceived as out of the ordinary, and to engage in adventurous and dangerous situations (*Sensation seeking*), as the most vulnerable to the tempting features of technologies, which represent risk factors of the onset of the above-mentioned addictions. In adolescence impulsivity, considered as a personality trait, plays a risk factor in developing a pathological disorder (Shaw et al., 2006). On the other hand, emotional intelligence decreases vulnerability to disparities and, therefore, becoming a protective factor against social anxiety, isolation and consequently of addiction (Oskenbay *et al.*, 2015; Toto, 2017b).

3 Findings

In this section, the main contents of the selected literature will be focused on different forms of technology addictions and the possible causes that can predict the onset of these dynamics in young-adults. Indeed, the inclusion of Internet Gaming Disorder (IGD) in Section III of the Fifth Edition of the *Diagnosics and the Statistical Manual of mental disorders* has increased the interest of researchers in the development of new standardized psychometric tools for assessing this disorder. To date, based on Griffiths' model (2005) the nine-point Internet gaming scale (IGDS9-SF) has been validated recently in Italian context (Monacis *et al.*, 2016). Moreover, although research on social networking addiction has increased considerably over the last decade, the number of validated tools that evaluate this behavioral addiction remains few. An important tool shared by the scientific community is the Bergen Social Media Addiction Scale (BSMAS), which has been recently used to provide empirical data on the relationship between social media addiction and attachment styles, thus supporting theoretical associations between them (Monacis *et al.*, 2017a).

Recent studies have shown the predictive role of the attachment style in the "Excessive use of social network sites (Rom & Alfasi, 2014; Yaakobi & Goldenberg, 2014). Specifically, affiliated individuals have large social networks and more social ties (Jenkins-Guarnieri et al. 2012), affiliated people use Facebook more frequently and are constantly worried about how they are perceived on Facebook (Lin 2016), and the individuals characterized by the avoidance attachment style show little interest in Facebook (Oldmeadow *et al.*, 2013). Internal operating models also classified as different types of attachment represent the vision of the world that the child is built, his cognition of affec-

tions and his strategies of action (Bolbwy, 1969; 1982). Addictive behaviors appear to be a dysfunctional attempt to counter the in-controlled emergence of infant traumatic experiences.

Based on the observed general associations between attachment and identity styles reported by Doumen *et al.* (2012), it was also predicted that these factors would be related to online addictions. In this direction, Monacis *et al.* (2017b) has analyzed for the first time the extent to which identity styles and attachment orientations could explain three types of online addiction (i.e., Internet Addiction, internet gaming addiction, and social media addiction). The results have shown that Internet, gaming and social media addictions have been predetermined by a common risk and protective factors: among identity styles “informational” and “diffusion-avoiding” styles are considered risk factors, while normative style is a protective factor. Among attachment dimensions, the “secure” attachment orientation is a protective factor, since it negatively predicts the three online addictions. These results highlight the important role played by identity formation in the development of technological addictions and confirm the different role plays by attachment styles.

4 Discussion

The second part of the current overview will analyze the value of technology in educational context and how same educational strategies could promote a positive human-computer interaction.

While digital natives show a competence in the use of digital tools from the first years of life, on the other hand digital tools are the key to access to new generations: social media, according to literature, thanks to their pervasiveness has increased the possibilities of secondary prevention, allowed to study and trace common coping styles, increasing the number of subjects to be reached both in the diagnosis and in the prognosis of technological dependency. In this talk, the studies considered showed that the use of preventive measures is effective in the treatment of addictions, in fact, a healthy approach based on lifestyle is strongly supported, as it aims to influence the personality and the components of personal choice that have an impact on health and social responsibility. The most followed strategy is the promotion of sport and physical education as a precursor of physical and mental well-being that counteracts the maintenance of bad habits (Di Tore, 2017). Difficulties in the realization of these interventions are described by the same educators who show low self-esteem in the contemporary context and parents who lack the instruments of dialogue with these new generations (Strazzeri & Toto, 2017).

A sector heavily influenced by technology is education: education sciences should, in fact, communicate with the subjects in formation by including the

socio-cultural context membership. However, educational potential and the variation of didactic methodology are unlimited, so that content and relationships can be differentiated exponentially. In this regard, a research carried out in China has assessed the extent to which the planned introduction of Information Technology (IT) for five years in music lessons has recorded changes of approaches in musical teaching. There are three generalizable questions emerged from this IT experience : (1) Is IT used to teach more effective than traditional music pedagogy? (2) According to teachers' opinions, could IT help to improve teaching practices? (3) whether the use of IT increases student interest in learning. Although teachers in this study have argued that music technology could facilitate their work, they had different views on the use of ICT and the quality of education in general. Students, on the other hand, appreciated ICT by saying that using IT would improve the quality of their learning (Ho, 2004).

The teaching practice has incorporated the multimedial transformations of the school classes; in addition to the equipment of computer equipment also the design of software and learning objects is affected by the educational needs of students. For example, in music education programs have been introduced that allow to compose music even to students who are approaching for the first time to music (Toto, 2017a). The major resistance, according to international literature, to introduce the technology in the classroom still concern the teachers. These resistances arise both from the lack of knowledge of digital programs in various disciplines and from the lack of teacher training on new digital tools. The latest generation of digital technology also allows students to integrate and express their ideas with ease, allowing them to participate in classes even if they are culturally disadvantaged and to be themselves co-authors of the training process. However, technology has not always been preferred by students; in a study conducted in parallel between digital and traditional lessons, when students are asked to express their preference between teacher and computer feedback, they have replied that they prefer human-to-computer feedback (Karlsson *et al.*, 2009), emphasizing technology has an effect on enthusiasm and on performance and information retrieval, but that the relational and emotional aspect of education is not yet reached by technological tools.

Conclusion

The use of the media has already had significant consequences on teaching methods and on the practice of building and transmitting knowledge, but this must not ignore the necessary knowledge of the students' cultural background, which translates into terms of communication, relationship and construction of the identities and dynamics of social behaviors mediated by digital technologies (Collins, & Halverson, 2014). Only in this way can we bridge and strengthen

the often emerging disconnection between the world of education and the real contexts of life. By making learning environments, teaching students, technologies and methodologies able to co-act within the macro learning process (Bevilacqua, 2011). Many of these studies suggest that internet abuse would be related to loneliness, vacuum, feelings of depression, difficulty in perceiving reality (Santovecchi & Furnò, 2014). the daily use of the Internet is linked to people's social contexts, that is, the result of the lack of social support from their family members can facilitate the onset of technological addictions, since social contacts and reinforcement gained on the Internet can lead to an increase in the desire to maintain a 'virtual' social life. As a result, when adolescents develop social media addiction, they have little time and energy to keep active social contacts in their daily lives. This phenomenon increases the risk of the onset of feelings of loneliness, depressive moods and low self-esteem (Lin *et al.*, 2017). However, there are researches in favor of technology that states that it favors a brain stimulation of the players, causing them to act differently than normal conditions due to the upcoming of the visual messages provided by the images. Particularly, video games, as sensory motor, play and enhance some manual and precision skills, can lead to greater concentration, facilitate self-control, and manage emotions related to carrying out a task. They can develop different aspects of personality, such as take initiatives and decisions in a short time and address the difficulties (Scala *et al.*, 2017). Education in digital technologies and media education in general insist on promoting the critical sense, on creating a consumer of active and creative media. in this context Psycho-physical well-being becomes a goal of rethinking education and its future modifications (Donato *et al.*, 2017). The positive correlation between learning and positive emotional involvement has been demonstrated, demonstrating once again that by investing in the role of cognitive, affective and relational components in online teaching, it is possible to facilitate learning and to enrich the educational relationship that can also be established on a virtual level. As emerges in the literature is the positive emotional involvement the aspect that most needs to be increased in educational technologies, in fact, learning improves when one is involved emotionally also in the e-learning environment (Biasi, 2017).

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