

## Child development and Internet use

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### Abstract

**Aim:** This research is an exploratory and descriptive study on the way the Internet use influences the child development. It has three objectives: i) to provide an overview about the spread of the Internet in Albania; ii) to indicate how adolescents' online activities affect their well-being, and; iii) to suggest the efficient ways used by parents to assist children on the problems created by such addictive behaviors.

**Methods:** The most recent studies of the intersection between technology and development as young people confront and deal with the challenges and issues that are present in their lives were reviewed. Results were presented based on the data from seven countries that are part of the World Internet Project (*WIP*; see at: [www.worldinternetproject.net](http://www.worldinternetproject.net)). The WIP is a global international survey on the impact of the Internet on individuals and societies, coordinated by the Center for the Digital Future at the USC Annenberg School for Communication.

**Results:** Digital media, such as computers, the Internet, video games, and mobile phones, have come to occupy a central place in the lives of today's youth. It is important to consider the implications of young people's online living, especially for their development and well-being. The Internet is a fundamental tool and, therefore, the particular ways that teens employ the Internet will ultimately determine the effects on their well-being.

**Conclusion:** The current review of the literature supports the conclusion that Internet use during childhood is associated with both positive and negative developmental outcomes.

**Keywords:** child development, information technology, Internet use, well-being.

## Introduction

In today's world, the youth view the internet as the main means of communication for staying in touch with their peers.

Internet use in Albania started in the late 1990s. However, Internet had massive distribution in

Albania only after 1997. Actually, the teenagers' use of the internet in Albania does not contrast to the global trend which points to an increase in the number of users.

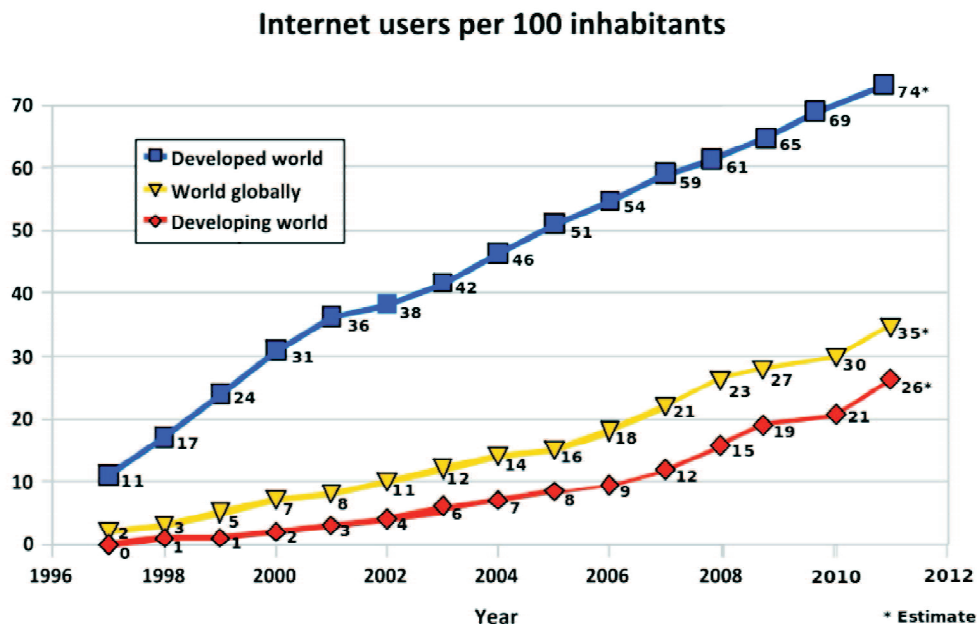
Table 1 presents the distribution of Internet users in Albania in the past decade.

**Table 1. Percentage of Internet users in Albania (source: ITU Statistics, <http://www.itu.int/ict/statistics>)**

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0.11	0.33	0.39	0.97	2.42	6.04	9.61	15.04	23.86	41.20	45.00	49.00

According to *Internet World Stats*, in June 2012, more than 2.4 billion people, over a third of the world's human population, have used Internet services. Overall, Internet use has seen tremendous growth, as displayed in Figure 1.

**Figure 1. International Telecommunication Union (ITU) (1)**



The Internet users under the age of 25 years represent 45% of the total number of global Internet users (ITU).

The use of the Internet has always had an impact on the development of the youth. The most common question about the use of the Internet is connected with the effects that are caused by the use of this technology in the youth development. The Internet has enabled entirely new forms of social interaction, activities, and organization, thanks to its basic features such as widespread usability and access.

In the first decade of the 21<sup>st</sup> Century, the first generation is raised with widespread availability of Internet connectivity, bringing consequences and concerns in areas such as personal privacy and identity, and distribution of copyrighted materials. These "digital natives" face a variety of challenges that were not present among prior generations. The use of the Internet by the youth has effects in their personal life, the family relation and the way they get along with their peers.

**What is the internet?**

The Internet is a global system of interconnected-computer networks that use the standard Internet protocol suite (*TCP/IP*) to serve billions of users worldwide. It is a *network of networks* that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The Internet carries an extensive range of information resources and services, such as the inter-linked hyper-text documents of the World Wide Web (WWW) and the infrastructure to support email.

**What do youths do online?**

Historically, panic surrounds the introduction of new technologies, particularly in relation to children and youth (2). Social network sites, online games, video-sharing sites, and gadgets such as iPods and mobile phones are now fixtures of youth culture. They have so permeated young lives that it is hard to believe that less than a decade ago these technologies barely existed. Today's youth is struggling for autonomy and identity as their predecessors did, but they are doing so amid new worlds for communication, friendship, play, and self-expression (3).

**Understanding the influence of the Internet**

Wedged between childhoods and emerging adulthood, adolescence is a period of tremendous change – biological, psychological, and social. In fact, adolescence is a period characterized as “storm and stress” and this belief remains strong in popular culture and in the minds of many parents (4). Although researchers have come to recognize that adolescence is not always a turbulent period from the storm and stress view, for better or worse, has come to frame much of the discourse about the role of interactive technologies in adolescent life (5). Digital worlds have become a part of adolescent life, and some see it as a threat or obstacle to an already difficult transition.

**Changes during adolescence**

The biological changes of puberty include rapid changes in height and weight as well as in sexual

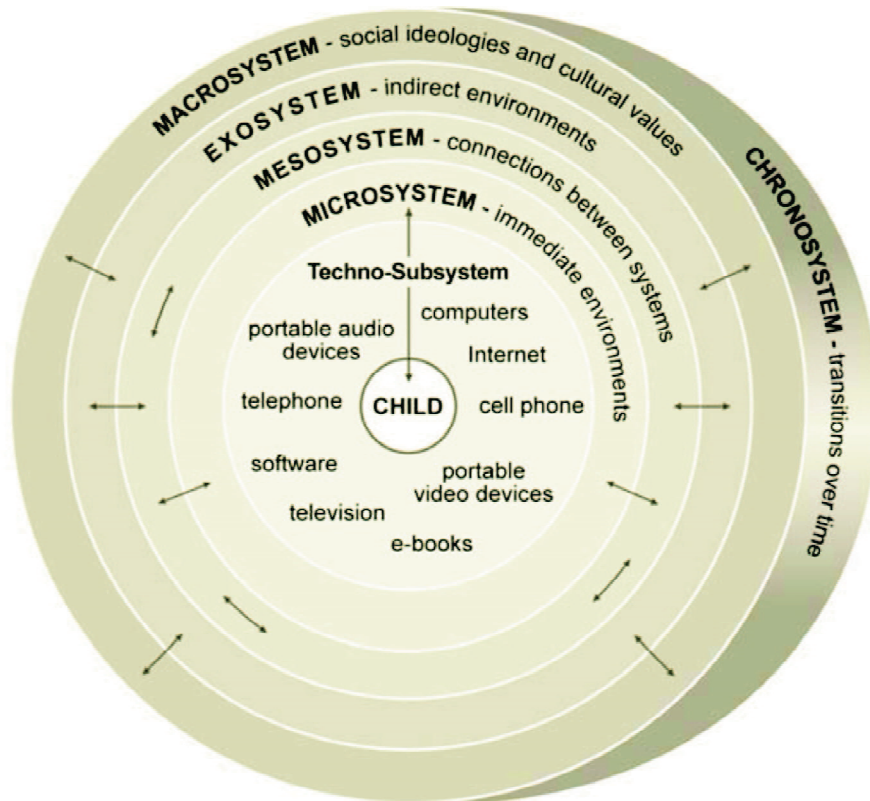
maturation leading ultimately to adult body size and capabilities, including sexual reproduction. Compared to children, adolescents engage in more advanced and sophisticated thinking, but some aspects of cognitive functioning are still developing, especially those governed by the pre-frontal cortex of the brain. Recent research indicates that these areas of the brain, particularly in parts of the frontal lobe, are still developing during adolescence and are not completely developed until the early 20s or so (6).

**The ecology of child development**

Ecological theory provides a comprehensive view of environmental influences on development by situating the child within a system of relationships affected by multiple levels of the surrounding environment (7). *Bronfenbrenner* (8) organized the contexts of development into five nested environmental systems, with bi-directional influences within and among systems. The *microsystem* refers to direct or immediate interactions (i.e., family, peers, and school). The *mesosystem* is comprised of connections between immediate environments (e.g., home-school interactions). The *exosystem* includes settings that indirectly affect child development (e.g., parent's workplace). The *macrosystem* refers to social ideologies and cultural values. The *chronosystem* highlights the effect of time on all systems and all developmental processes. As his theory evolved, Bronfenbrenner (9) proposed a bio-ecological perspective, which views the child's biology (e.g., genetics) as part of the microsystem.

Johnson and Pupilampu (2008) recently proposed the ecological *techno-subsystem* a dimension of the microsystem which includes child interactions with both human (e.g., communicator) and non-human (e.g., hardware) elements of information, communication, and recreation digital technologies. Presented in Figure 2, the developmental impact of the Internet use during childhood is, theoretically, mediated by techno-subsystem interactions which occur in the microsystem. To illustrate, in industrialized nations, elements of children's microsystem (e.g., home, school, and community) are affected by the Internet (e.g., online communication with peers).

Figure 2: The Ecological Techno-Subsystem (10)



### Research questions

- 1- How do adolescents' online activities influence their well-being?
- 2- Does spending time on the Internet make youth obese and lonely?
- 3- Are teens becoming sleep-deprived because they stay up late talking with their friends?

A review and critical analysis of the recent literature In addition to the changing nature of their bodies, adolescents have to deal with many social changes, especially in their relationships with their peers and parents, as well as in their increased autonomy. Perhaps the most vexing question of all is the extent to which time spent online relates to well-being. In the *HomeNet* study, greater use of the Internet was associated with declines in adolescents' well-being and with weaker social ties (11); but in the follow-up study, time spent online was not related to aspects of social networks, such as size of local and distant social circles and amount of face-to-face communication (12). In contrast, Mesch has found that frequent Internet users in Israel were more likely

to report lower levels of attachment to close friends (13). Frequency of the Internet use was also found to be negatively related to adolescents' perception about the quality of family relationships. Yet, other studies have not found a link between adolescents' time online and their dispositional or daily well-being (14) as well as their loneliness (15).

Extrapolating from findings that use of computers and video games are associated with injuries and changes in physiological arousal, such as heart rate (*Subrahmanyam et al., 2000*), we expect that Internet use has the potential for injuries and may affect arousal and consider these possibilities next. According to arousal theory, media-induced arousal lingers after exposure, and may have an energizing effect leading to agitation and restlessness in children's behavior (e.g., while playing or interaction with peers) (16); features of media that may trigger arousal include violent content, lots of action, fast pace, and loud music. Meta analyses have confirmed that exposure to violent video increases physiological arousal, generally measured by systolic blood

pressure, diastolic blood pressure, and heart rate (17,18). Although systematic research on the effects of teen Internet use on arousal is lacking, there are indications that the two are related.

Different studies have related the use of the Internet on obesity levels. Relevant to this concern are trends about the prevalence of obesity among youth. In the USA, between 2003 and 2006, 31.9% of children and adolescents between 2 years and 19 years were at or above the 85<sup>th</sup> percentile of the body mass index (BMI) for their age, with 16.3% considered obese as they were at or above the 95<sup>th</sup> percentile for their age (19). These prevalence estimates of overweight children and adolescents were found in the 2003-2004 and 2005-2006 National Health and Nutritional Examination Survey (NHANES), a nationally representative sample. According to the CDC, although the rates of obesity have not increased in recent years, the current rates of obesity among adolescents is triple of what it was in the late 1970s (about 5%) (Centers for Disease Control and Prevention, 2004). As obesity increases, the risk for a variety of health conditions ranging from hypertension and osteoarthritis to type 2 diabetes, stroke, and gall bladder disease, current prevalence rates among young people, become all serious public health issues.

Older adolescents start sleeping later and this leads to a new sleeping pattern. According to some studies, teens that spent more time online slept later on weekdays, and during the weekend got up later on the weekend, slept less overall and also reported feeling more tired (20). The aforementioned studies suggest that the use of Internet and other mobile technologies by adolescents may be extending their already delayed bedtime leading to sleep deprivation and excessive sleepiness during the day. Such chronic lack of sleep is not without its costs, some relatively minor and others more serious and even fatal. Chronic lack of sleep among adolescents is associated with mood regulation problems, learning and memory problems, poorer school performance including school tardiness and absenteeism, impulsivity and risk taking as well as substance abuse (21,22).

#### **Main findings from the literature review**

The research based on the literature review consists

of the following major findings:

- Internet may cause psychological effects and, in some cases, may even influence the safety of youth.
- Youth needs to be educated to use the Internet and mobile devices moderately and safely, and in ways that will not cause harm.
- When adolescents, particularly younger ones, are not able to self-regulate their technology use, parents must help them and be more proactive.
- The Internet is a fundamental tool and therefore the particular ways that teens use it will ultimately determine its effects on their well-being.

#### **Discussion**

Most youths first start using the Internet at home, which remains an important context where much of their online activity takes place. Adults often view children in terms of developmental “ages and stages,” focusing on what they will become rather than seeing them as complete beings “with ongoing lives, needs and desires” (23). Parents therefore have a critical role to empower and safeguard their teen while they are online. Parents’ success in this regard will depend on both what they know about objectionable online content and their teens’ access to such material, and what they actually do to monitor and limit such access.

*Evaluative mediation* techniques entail parent and child co-viewing and discussion to evaluate and interpret media content. Specific evaluative mediation techniques that parents can adopt to help children deal with online content include the following (24):

- Jointly visiting websites and other online content with their children.
- Having frank and open discussions with their teens about online content, and specifically addressing violent, hateful, and other more harmful kinds of content.
- Evaluating with their teens online websites and other formats (e.g., music videos, YouTube videos) for violent images, hateful themes, and other negative content.

*Restrictive mediation* consists of rules regarding media use, specifically parental rules as to the “where,” “when,” and the “what” content their teens access online (24)

Specific examples of this strategy include the following:

- Placing the computer in a public space.
- Having rules about the time spent online.
- Having content restrictions, in other words, having rules about the kind of content that a teen can consume.

*Technological mediation* refers to parents' use of technological strategies to mediate their children's use of the Internet. Examples include software to track application usage and browser history, filtering software, and installation of a firewall (24).

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