Internet and Child Well-Being

72

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72.1 Introduction

In contemporary society, often termed the "information society," the "network society," or the "knowledge society," to name a few notions belonging to the family of related catchwords and theoretical concepts, information and communication technologies (ICTs) – most notably the Internet – have become an inseparable and taken-for-granted part of a great many children's everyday lives in several corners of the world. A growing number of children are born into an ICT-saturated environment substantially different from the one in which their parents were brought up. While the labels "digital natives" and "digital immigrants," coined by Mark Prensky (2001) to define the very distinct congenital relationship different generations have with ICTs, may be exaggerated and subject to criticism (Helsper and Eynon 2010), we must nevertheless acknowledge a considerable number of new phenomena the Internet has introduced to contemporary childhoods. Accordingly, the adults who are bringing children up, educating them, and designing policies to ensure their well-being are faced with hopes, fears, and challenges partly different from those met by previous generations in socializing their children.

Still, while acknowledging the new and specific nuances that ICTs have brought to children's lives, we should retain cautiousness and skepticism regarding the claims of popular rhetoric that the Internet is revolutionizing society or radically transforming childhood. An important insight from empirical work is that substantial continuities between the online or "virtual" world and the offline or "real" world

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exist (Woolgar 2002). Offline practices and institutions relevant to children's well-being – whether of social networking, social hostilities, or social inequalities – tend to be reproduced and reinforced online. In other words, activities and structures in offline and online spheres are mutually influential, not least because the children and the adults are the same in both (Livingstone and Haddon 2009a).

In proceeding from the latter postulate, we take the point of departure in classical conceptualizations of the quality of life to define and structure the aspects of child well-being as related to the Internet. First, we make use of Erik Allardt's (1993) classification of individual human needs, distinguishing between material needs ("Having") and non-material needs. The latter are, in turn, divided into social needs ("Loving") and needs related to personal development ("Being"). These three aspects of well-being can be measured and evaluated by two sets of indicators: objective resources and subjective assessments. The latter reflect the objective situation as well as point to the gap between expectations and the actual situation. Subjective assessments thus reveal the problematic spheres in children's life where structural barriers prevent the fulfillment of needs and the achievement of goals. Individual assessments are formed through various social comparisons to a reference group or a situation considered ideal or suitable.

"Well-being," thus, is a multidimensional construct. In addition to the aspects and types of indicators specified by Allardt, some other dimensions are relevant in the context of this chapter. A psychological approach, describing well-being through the term "quality of life," emphasizes physical, emotional, mental, social, and behavioral components (Janse et al. 2004). The UNICEF Index of Children's Well-Being categorizes 40 indicators that are relevant to children's lives and children's rights under six headings or dimensions: material well-being; health and safety; education; peer and family relationships; behaviors and risks; and young people's subjective sense of well-being (UNICEF 2007). The implied definition of child well-being that permeates the UNICEF report is one that also corresponds to the views and the experience of a wide public.

In addition to the multiple dimensions of individual well-being introduced above, the influence of the social environment on the quality of life of a child needs to be taken into account. Conceptualized as the "livability of societies" by Ruut Veenhoven (1996), this dimension can be termed the "input-based" measurement of well-being where an assessment is made of the opportunities provided by a society for leading a high-quality life. In the context of child well-being as related to the Internet, the societal aspects can be understood in terms of social resources and barriers, which enable and support, or inhibit children in making use of the Internet to meet their needs and abilities.

Similarly to the multidimensional nature of the concept of "well-being," potential positive and negative outcomes of children's Internet use occur in a plentitude of forms. An insightful classification of these phenomena has been provided by the EU Kids Online research network (Livingstone and Haddon 2009a), categorizing children's online opportunities and risks first, by four themes or areas, and secondly, by three modes of online communication and the respective roles of children. The latter dimension, common to both opportunities and risks,

distinguishes children as recipients of mass distributed *content*; children as participants in an interactive situation or *contact*; and children as actors in an interaction or *conduct*. The four thematic areas are different for opportunities and risks, with online opportunities being related to education, learning, and literacy; participation and civic engagement; creativity; and identity and social connection, and online risks being classified as commercial; aggressive; sexual; and related to values. The resulting matrix thus displays 12 types of opportunities and 12 categories of risks.

The picture becomes even more variegated when considering that in modern societies, positive and negative aspects of a great many phenomena – or opportunities and risks – are inextricably entwined at both a societal level and as experienced by individuals in their everyday lives. Nevertheless, research or policy on opportunities and benefits is often conducted independently of that on risks and harm, and vice versa. Research on children's Internet use, however, finds time after time that positive and negative aspects cannot be clearly separated. On the one hand, what adults regard as risks (e.g., meeting strangers online), children may see as opportunities (e.g., making new friends). On the other hand, new online opportunities may, as Ulrich Beck (1986) anticipated, be accompanied by new forms of risk (e.g., to express oneself on the Internet, a child must disclose personal information; Livingstone and Haddon 2009a). In this chapter, we address several types of online opportunities and risks, as well as the complicated relationship and the blurred border between them, as related to the components of child well-being.

To structure and describe child well-being as related to the Internet, we combine the aforementioned categorizations of individual and societal well-being. While acknowledging that several aspects are intertwined or closely related to each other in children's online experiences, we distinguish between six main components of well-being that are relevant in research and policy addressing children's use of the Internet.

The first section focuses on material well-being ("Having" in Allardt's terms), shedding light on children's access to ICTs and the Internet, and the issues of digital divide, digital inclusion, and digital disadvantage among children. Also, online risks related to loss of money, such as online gambling or being cheated on the Internet, are discussed. The subjective aspect of "Having," manifesting itself in materialistic values, "competitive consumption" of ICT items, and its potential impact on children's self-esteem, is also highlighted.

The second section deals with children's physical well-being as related to spending time on computers and the Internet. In particular, the section focuses upon physiological problems such as child obesity, sleep deprivation, dry eyes, and repetitive strain injuries, mostly resulting from excessive use of ICTs.

In the third section, psychological well-being of children is discussed with a prominent focus on the phenomenon of "Internet addiction."

The fourth aspect, social well-being or "Loving" in Allardt's terms, is dealt with in the next section. On the one hand, the section discusses possible impacts of Internet use on the quality of social relationships – both on intergenerational relationships in the family as well as on relationships with friends and peers. On the other hand, the section focuses upon possible negative outcomes of online social interaction such as cyberbullying and sexual solicitation.

The fifth section deals with developmental well-being ("Being" in Allardt's terms), by focusing on the ways Internet use helps or hinders children to fulfill the needs related to personal development. In particular, the issues of digital literacy, creativity, self-expression, empowerment, identity construction, etc. are discussed in relation to children's online activities. Also, some negative aspects of online content, potentially harmful for child development, are in focus.

Finally, societal aspects of child well-being as related to the Internet and ICTs, that is, social resources and barriers, in particular socioeconomic stratification and the quality of education systems, are discussed in the sixth section, with a strong emphasis on policy initiatives in this area.

To describe and evaluate these aspects of child well-being, we make use of the other broad dimension specified by Allardt (1993) – objective resources versus individuals' subjective assessments. Available indicators and research findings of these two broad sets are described where appropriate throughout the sections.

72.2 Material Well-Being and the Internet

72.2.1 Access and Ownership

Children's material well-being in the context of ICTs is mostly considered relevant in terms of access to educational resources available through the Internet and other digital media. It is widely believed that children with access to computers from an early age develop attitudes that give them a substantial advantage in education and skills that facilitate achievement (Scantlin 2011). The UNICEF report "The Children Left Behind: A league table of inequality in child well-being in the world's rich countries" (2010) lists a computer for school work, an Internet connection, and educational software among eight indicators of basic educational resources (along with a desk, a quiet place to study, a calculator, a dictionary, and school textbooks). In the 2006 Programme for International Student Assessment (PISA) survey (OECD 2007), a representative sample of 15-year-old students in 24 Organisation for Economic Co-operation and Development (OECD) countries were asked which of the eight educational resources were available in their homes. The survey concluded that the availability of computers and Internet access depended to some extent on the level of economic development in each country as even poor children in very wealthy countries might have access to most or all of the items on the "home educational resources" list. The UNICEF report (2010), in making use of the findings of the 2006 PISA survey, however, focused on inequality in children's material well-being – on the gap between the median score and the average score below the median in each country. According to such analysis, Northern and Western European countries (led by Denmark, Switzerland, and the Netherlands) dominated the top of the table, demonstrating the highest equality scores, whereas the UK, Greece, and Slovakia showed the highest levels of inequality in children's access to basic educational resources. In the USA, the inequality gap was also higher than the average in the 24 OECD countries surveyed.

More recent empirical data, available from a Flash Eurobarometer 2008 survey, showed that despite rapidly increasing Internet access across Europe, differences between as well as within countries were still significant with regard to the percentage of 6- to 17-year-old children using the Internet (Tsatsou et al. 2009). On the basis of the Flash Eurobarometer 2008 survey and national data, the international research network EU Kids Online suggested a typology of countries in Europe: low use countries where less than 65 % of children use the Internet (Cyprus, Greece, and Italy); medium use countries where between 65 % and 85 % of children use the Internet (Austria, Belgium, Bulgaria, the Czech Republic, France, Germany, Ireland, Portugal, and Spain); and high use countries where more than 85 % of children use the Internet (Denmark, Estonia, Iceland, the Netherlands, Norway, Poland, Slovenia, Sweden, and the UK; Livingstone and Haddon 2009b). The same data support the existence of a correlation between households' socioeconomic status and children's access to the Internet in almost all European countries. More specifically, data on parents' occupation and education showed that children living in higher-status families and children with better-educated parents were more likely to use the Internet (Tsatsou et al. 2009). Most recently, a large-scale survey, conducted by the EU Kids Online network among more than 25,000 9- to 16-year-old Internet-using children and their parents in 25 European countries, revealed that the differences in access by socioeconomic status (SES) were notable: only 72 % of children from low SES households used the Internet at home, compared with 96 % of those with high SES background (Livingstone et al. 2011a). Several studies conducted in the USA have also found that children from lower income groups are less likely to report Internet use or home access compared to their peers from higher income brackets (Scantlin 2011).

In a recent history of Internet research, a substantial amount of evidence showed that girls tended to have less access to ICTs and the Internet, were less interested in them, and spent less time using them than boys (Buckingham 2006). Even within comparatively "media-rich" homes, girls were less likely than boys to own computers or games consoles or have access to them in their bedrooms (Livingstone and Bovill 1999). Such differences are probably related to cultural representations and the construction of gender identities based on the stereotype that "Technology in general is undoubtedly associated with maleness, socially and culturally; IT no less so" (Lyon 1988, p. 148). Indeed, both boys and girls were inclined to agree that computers are primarily "for boys" (Buckingham 2006). More recent research, however, suggests that the gender gap in the ownership of ICTs is narrowing as overall access increases. The EU Kids Online pan-European survey, for instance, reports that gender differences in home access are minor (Livingstone et al. 2011a).

Thus, though it is sometimes argued that digital exclusion is less of an issue among children, echoing the claims of techno-optimist rhetoric that the generation of "digital natives" is able to effortlessly survive in a digital world, or even assuming that the digital divide will disappear once today's children become adults, this belief runs counter to a substantial amount of empirical evidence showing that significant inequalities in access between different social groups of children exist. In particular, these inequalities are apparent in terms of social

class and gender. Contrary to wishful expectations, the rapid diffusion of ICTs in itself does not work as a naturally equalizing and empowering factor (Tsatsou et al. 2009).

Following the evidence-based recognition that the digital gap echoes pre-existing social stratification as well as the assumption that the Internet can only serve as a tool to enhance well-being when it is accessible, a number of policy initiatives have aimed to combat the digital divide among children. The HomeNet initiative in the USA and the Home Access initiative in the UK serve as some examples of policy efforts to overcome inequalities in provision (Livingstone 2009). Most notably, the One Laptop per Child (OLPC) project was launched in January 2005, in the Massachusetts Institute of Technology (MIT) Media Lab, to develop a US$100 laptop. It was hoped that by significantly reducing the cost of computers and Internet access, greater numbers of people around the world would be able to benefit from the Internet, and broadly affordable ICTs would revolutionize the way the world's children are educated (Amichai-Hamburger and Barak 2009).

Access to and ownership of ICTs obviously is a prerequisite to effective uses of these technologies, or digital engagement. "Access," however, includes several dimensions. In addition to economic capital, it takes educational, social, and cognitive resources to know which hardware and digital services to purchase and update, and how to "domesticate" them, that is, how to fit them meaningfully into one's life (Livingstone 2009). Thus, material resources and economic capacity, socialization into the dominant culture, technical skills and awareness of the prevalent techno-culture, as well as social networks, are all relevant factors that shape digital gaps (Selwyn 2004). The "Matthew effect," i.e., "unto every one who hath shall be given, and he shall have abundance," identified by Robert K. Merton in the sociology of science in the 1960s, applies, from the viewpoint of social reproduction, much more extensively in the contemporary information society. In taking Pierre Bourdieu's perspective, attributing a greater role and agency to social actors, one might say that more privileged social classes, having more economic, social, and cultural capital at their disposal, actively seek to maintain their position of advantage, continually improving their quality of access to and use of ICTs so as to stay ahead (Livingstone 2009). Most comprehensively, the digital divide can be seen both as a result of pre-existing social inequalities and as a factor that will aggravate the other dimensions of social exclusion (Dolničar et al. 2011).

72.2.2 From "Digital Divide" to "Digital Disadvantage"

In conceptualizing and picturing the "digital divide," research conducted after 2000 has gradually discarded the simple dichotomy between "haves" and "have-nots," or users and non-users, starting to take into account different types of access and use. Regarding children and young people in particular, research evidence from the UK and other Western countries suggests that the binary divide between haves and

have-nots no longer applies in a simple fashion (Livingstone 2009). Accordingly, the notion of "digital divide" has been reframed in academic and policy discourses in terms of "digital differentiation," "digital stratification," or "gradations of digital inclusion," to name a few most important concepts. This conceptual and research focus, going beyond the percentage of individuals who have access to ICTs, raises issues of the ubiquity and quality of access, and the duration, breadth, and efficiency of Internet use. Clearly, this is a fruitful approach, especially for populations and social groups where Internet access is relatively widespread, such as the young generations in many countries.

A number of studies conducted in the 2000s have shown that the type of access is very important in determining how children engage with the Internet. Having a possibility to access the Internet in a private space such as one's own bedroom may offer a range of benefits to children, for instance, freedom to explore, flexibility, and privacy in use. Research has shown that private and playful access, for instance, is more likely to lead to learning and skill development than supervised and restricted access (for an overview, see Helsper 2012). The affordability of broadband access may also have a bearing upon Internet user choices and practices as the diffusion of broadband in European countries is correlated to the proportions of more interactive and creative uses, including the development and sharing of online content (Dolničar et al. 2011). Also, the Pew Internet and American Life Project reported that teenage content creators were more likely to have broadband access at home (Lenhart and Madden 2005). Evidently, the ubiquity of the Internet, that is, a possibility to access the Internet in a variety of locations and on different technological platforms (such as personal computers, laptops, games consoles, mobile phones, smart phones, and other handheld devices) indicates how embedded and normalized interaction with this technology has become in children's everyday lives (cf. Helsper 2012).

The inequalities in the quality of access can be described with the term "digital disadvantage," defined as a situation where socially less privileged groups are likely to have less ubiquitous and less private types of Internet access, resulting in these groups becoming particularly excluded from the advanced, networking, and participation resources of the Internet, which have the potential to help them become less under privileged (cf. Helsper 2008). In examining access differences amongst 9- to 16-year-old children in 25 European countries, based on the EU Kids Online survey data, Ellen J. Helsper (2012) found significant differences, based on the age and gender of the child, and the educational level of the child's parent, for different types of access. In particular, parental education strongly positively correlated to a child's private home access and quality of mobile access in most European countries. Older children in all European countries tended to have more private and more mobile access than younger children. A child's gender was less predictive of private access, but it was related to mobile access in most European countries with boys being more likely to have high quality mobile connections than girls. While age differences in access are probably not problematic, gaps between children from different educational backgrounds or different genders may exhibit digital disadvantages.

72.2.3 Losing Money Online

While ubiquitous access, conducive to extensive use of the Internet, has many benefits for children, it also means heightened risks. Potential negative online experiences jeopardizing children's material well-being include commercial exploitation, phishing, financial scams or cheating, and gambling, to name the most important. Despite rather widespread public concerns about such "crimes against children's and their families' pocket," available research evidence suggests that a relatively small minority of children actually encounters that type of risk online. For instance, according to the EU Kids Online pan-European survey, only a very small proportion of children (1 %) had lost money by being cheated on the Internet (Livingstone et al. 2011a).

Online gambling is a rapidly evolving and highly profitable market, estimated to have become a multi-billion dollar business. Researchers have warned that the proliferation of online gambling sites poses a new problem for youth, mainly because the Internet provides an easily accessible and largely anonymous route to an otherwise illegal activity for underage children (Messerlian et al. 2004). Adolescents, in particular, are considered to be vulnerable to the appeal of Internet gambling as they find gambling enjoyable, engaging, exciting, and exhilarating, are attracted to the colorful, fast-paced videogame-like qualities, view themselves as highly intelligent, and perceive themselves as invulnerable to a gambling problem (Griffiths and Wood 2000; Messerlian et al. 2004). Children and teenagers may start playing online using so-called practice sites where no money is needed. These practice sites, however, encourage youth to practice adult games and possibly move on to "for money" online casinos. While some barriers do exist, including requiring a credit card in order to wager on these sites, these barriers are not impossible to overcome. Potentially, such endeavors may result in instances of problem gambling where youth spend more than they can afford, chase losses, and increase amounts wagered. The same applies with regard to mobile gaming (M-gaming) as the omnipresence of mobile phones in children's lives and the young generation's familiarity with the technology predispose a relatively easy transition from playing games that are free to playing games involving money, or from paying money for a ring tone to placing a bet (Monaghan et al. 2008).

Internet gambling and M-gaming are still relatively new phenomena and thus, to date, existing research on their prevalence among, and effects on, children and youth is scarce. Most of the available studies document that only a small proportion of adolescents report gambling online (for an overview, see Subrahmanyam and Šmahel 2011). For instance, according to the World Internet Project data from 2007, 2–4 % of 12- to 18-year-old respondents reported that they gambled online weekly (Subrahmanyam and Šmahel 2011). Researchers, however, highlight that the involvement of youth in online gaming appears to be increasing, with prevalence studies conducted in 2006 documenting that 6–9 % of Canadian and US high school students reported to have gambled for money on the Internet in the past year, demonstrating an increase from 3.6 % in 2005 (Monaghan et al. 2008). Also, some studies have shown that adolescents who bet online are more likely to be problem

gamblers, have lower grades, engage in delinquent activities, abuse alcohol and illicit drugs, and take medication for depression and anxiety (Monaghan et al. 2008). Thus, in addition to financial difficulties arising from Internet gambling and M-gaming, it is very likely that youth who do bet online will also suffer from other problems, similar to the correlates of addictive behavior, leading to a considerable decrease in their well-being.

72.2.4 Subjective Side of "Having"

Besides objective resources and indicators such as access to the Internet or the amount of money lost online, children's material well-being in the context of ICTs has a subjective aspect. Children's use of new media equipment and software is mediated by the operations of the market and consumer culture. The very rapidity of ICT development and an ever-increasing pace of manufacturing and marketing new products entice children and their families to participate in the race, drawing them in to "competitive consumption" (Pocock and Clark 2004) where an urge for purchasing new models and software products is largely motivated by a desire to keep up with one's peers. Data from Roy Morgan's *Young Australians Survey*, conducted with 5,348 children aged between 6 and 13 over the period April 2005 to March 2006, indicate that the majority of children who own mobile phones exhibit signs of status and/or aesthetic motivated consumption. Sixty-one percent of child mobile phone owners agreed with the statement "Having a mobile phone with the latest technology and features is important to me," and more than half (54 %) were planning to upgrade their phone (Downie and Glazebrook 2007).

In this context of youth consumer culture, we may guess that much of ICT-related discussion between kids is about "what you can buy, what you have bought, or what you are going to buy – and this is a discussion in which children are not equal" (Buckingham 2006, p. 79). Owing to the very sensitivity of the topic and the ethical issues involved, empirical research on children's feelings of deprivation or possible bullying at school for not having the trendiest technological items is extremely scarce. Researchers, nevertheless, warn that a desire for the latest technology and newest products reflects materialistic values, the adoption of which threatens to commercialize children's lives as they define their goals in material terms; moreover, it may also negatively affect child development. Juliet Schor claims that children's "involvement in consumer culture causes dysfunction in the forms of depression, anxiety, low self-esteem, and psychosomatic complaints" (2004, p. 17). While other researchers have seldom studied consequences as severe as these, many agree that consumption of new media technologies serves as an important form of self-expression and a means through which children construct their identity. Furthermore, technological consumer culture is an arena for the "border-work" (Thorne 1993) as it frequently serves to mark the boundaries not only between haves and have-nots, but also between boys and girls. We may say that through social processes based upon the material aspect of well-being, children are "actively

constructing and defining themselves, both as consumers and as gendered subjects" (Buckingham 2006, p. 79), thus connecting the dimension of "Having" to that of "Being."

72.3 Physical Well-Being and the Internet

72.3.1 Obesity

Child obesity as related to Internet use has been attracting research and public attention for the last decade. Although the number of obese or overweight children has stopped growing during the last few years, it is still higher than decades ago (Subrahmanyam and Smahel 2011). The Kaiser Family Foundation (2004) reviewed existing studies where increased media consumption was labeled as one of the factors behind the high number of overweight children. A group of studies used the *time displacement hypothesis* assuming that children are spending too much time watching TV, playing computer or video games, or surfing on the web instead of healthier physical activities. Moreover, the advertisements presented in the media have an effect on what children prefer to consume, and this usually involves high-calorie food. No less important is high energy intake via snacking while using the media. Thus, the problem is basically low energy expenditure coupled with increased energy intake. The relationship between media consumption and overweight children seems to be evident. Actual results of the studies, however, are not that clear. The Keiser Family Foundation cites studies which found a strong relationship, but also some which did not. In fact, many other predictors of the phenomenon need to be taken into account – such as the SES of the family, or overweight parents, to name a few. Also, most of the studies were focused on the role of television, not on Internet or computer use. As stated by Subrahmanyam and Smahel (2011), one usually needs both hands while using the computer, and this limits the energy intake via snacking compared to watching TV. The most critical argument comes from the displacement hypothesis itself. Unstructured time activities tend to displace one another, whereas structured activities are perceived as fixed for children. If children are increasingly using the Internet, it can take place instead of other media use (e.g., watching TV), or other unstructured activities (e.g., hanging out with peers or doing nothing), not necessarily instead of doing sport and exercising, which are rather structured. We can speculate that the connection between being overweight and media use is rather a matter of changing lifestyles, or caused by a decrease in the amount of structured time in general.

72.3.2 Sleep Patterns

During adolescence, the length of sleep is usually prolonged, but at the same time children go to bed later with increasing age. Thus, since adolescents go to bed late

and have to get up at fixed hours, they use prolonged sleep during weekends to compensate for it (Laberge et al. 2001). The lack of sleep may cause daytime sleepiness or problems with concentration and behavior. Den Bulck (2004) showed that media use (either TV, video games, or the Internet) leads to getting to bed later, while the wake-up times remain normal. Consequently, this causes a lack of sleep and increased overall tiredness. Problems with lack of sleep are especially apparent among the children who are involved in online gaming, namely massively multiplayer online games. These typically involve long game sessions; 80 % of gamers play for more than 8 h in one session from time to time and the average overall time spent gaming is reported to be about 25 h a week, that is, similar to the amount of time spent in school (Blinka and Smahel 2010). During the prolonged sessions the individuals are immersed in the game, and often play in non-ventilated, darkened rooms with monitors set on intensive light. Even physiological needs (e.g., hygiene or liquid consumption) are suppressed. Also, the overall arousal and high concentration increase the need for quick energy, which is often satisfied by an increased consumption of sugar (e.g., chocolate bars) and drinks with high amounts of caffeine. These further influence the quality and quantity of sleep.

72.3.3 Repetitive Strain Injuries

Intensive use of computers has been reported to affect other physiological functions as well. Effects such as dry eyes and especially musculoskeletal difficulties and pains in wrists (even leading to carpal tunnel syndrome, which is a neuropathy causing numbness and atrophy of palm nerves), neck, and the upper back are often prevalent amongst strong computer/Internet users. These effects are called cumulative trauma disorder or repetitive strain injury, and are typically caused by repetitive movement or posture (Burke and Peper 2002). In case of children, in addition to long online sessions without breaks, the problem is caused by unsuitable and unadjusted furniture – the screen, keyboard, mouse, and other devices are often too high or in inappropriate angles for children (Gillespie 2002). Moreover, with the number of laptops, tablets, etc. increasing, people can use the Internet in many different positions, not just when sitting behind a desk. Also, the majority of children using laptops are actually using them while prone, sitting on the floor, etc., which may lead to even more stressful postures.

Extensive computer gaming, again, has been highlighted as the best predictor of physiological problems (Burke and Peper 2002). With the increasing popularity and intensity of online gaming we can presume that this conclusion holds even more strongly in the current time. Unfortunately, we lack enough up-to-date research concerning the effects of the Internet or new digital technology in general on children's physical well-being and development. As stated by Gillespie, our knowledge is mostly based on "anecdotal clinical reports and informal observations," and "no published research has established a statistically significant association between computer use and physical symptoms or clinical syndromes in children

and adolescents. No posture, frequency or duration of use has been identified that poses a clear risk or, conversely, can be accepted as safe" (2002, p. 255). Often, the solution is to simply terminate the activity and the problems diminish or vanish completely. However, it is more important to educate children about the safer use of the Internet and related devices, e.g., to emphasize the necessity of breaks in computer usage. Also, it is important to ensure that children use the Internet in an ergonomically suitable environment.

72.4 Psychological Well-Being and the Internet

72.4.1 Internet Addiction

The young generation, which grew up in the digital era, has become the most prominent group of Internet users – they go online more frequently compared to older age categories. With no exaggeration, their online and offline lives are intertwined (Subrahmanyam and Smahel 2011). With the increasing time spent on the Internet, the question whether this is beyond the control of some individuals also rises. Bringing the time displacement hypothesis to an extreme, so-called Internet addiction has been proposed as a potentially serious problem affecting the psychological as well as social well-being of heavy Internet users. Excessive time spent online has been deemed to influence several aspects of the lives of youths: declining school results or even dropping out of school; abandoning hobbies; psychological problems such as depression, anxiety, low self-esteem; and social consequences such as isolation and increased family tension. The term "Internet addiction" was introduced when such negative outcomes were associated with repetitive, compulsive, and uncontrollable use of the technology (Smahel and Blinka 2012). Other terms have been used to describe the same, or very similar phenomena: "pathological Internet use," "problematic Internet use," "Internet addiction disorder," "addictive behavior on/to the Internet," "excessive Internet use," or "Internet dependence" (Caplan and High 2010).

This kind of behavior has not been officially included in diagnostic manuals; also, the forthcoming fifth edition of *Diagnostic and Statistical Manual of Mental Disorders* (DSM) refused the inclusion, mostly because of a high co-morbidity with other disorders. But most researchers place Internet addiction close to the family of impulse control disorders as described in DSM IV, sharing similarities with pathological gambling, for instance. For diagnostic purposes, the category of "impulse control disorder, not otherwise specified" can be used. Although the term "Internet addiction" has become popular, its prevalence is much lower than generally expected. Most recent studies usually claim that only a small percentage of adolescents show signs of Internet addiction.

For a more detailed description of psychologically problematic Internet use, the concept of addictive behavior is often used (Widyanto and Griffiths 2006), specifying six criteria, all of which must be present, as follows: *Salience* – the person is preoccupied by some of the online activities, and these become the most important

thing in the individual's life; *Euphoria* or significant mood changes – usually in a form of a "buzz" when an individual reaches the Internet and the required activity; *Tolerance* – the process decreasing a previously positive sensation from the activity; *Withdrawal symptoms* – negative feelings when an individual is unable to reach the Internet, or after terminating the connection; *Conflicts* – usually with close social surroundings as a consequence of negative effects of excessive Internet use; *Relapse and reinstatement* – a tendency to return to the damaging activity after periods of relative control and even after acknowledging its destructive effects.

Contradictory to popular belief, time is not a criterion of Internet addiction by itself, although a high intensity and frequency of Internet use usually accompany the addiction. It is important to state that by far not all high-frequency Internet users are addicted. Moreover, Mark Griffiths noticed that real addiction is rather rare. He distinguishes the more frequent phenomenon of *addiction on the Internet*, where the medium serves as a mediator of problems faced by the individual. As an example, a lonely and excluded child may use the Internet to overcome feelings of depression or low self-esteem by communicating with strangers on the web. Consequently, the individual stays in the more rewarding environment, which leads to further isolation from the offline environment. *Addiction to the Internet* is rather rare and occurs when the sights of addiction develop consequently after some application starts to be used extensively. Gaming in persistent virtual worlds or communication in public chat rooms has been found to have an addictive potential.

Among the predictors of Internet addiction, psychological distress, especially low self-esteem, plays the most significant role. This is often accompanied by a tendency to escape from problems. Problematic behavior in other areas of life and low family functionality, too, are often depicted as predicting Internet addiction. The risk is also increased for online gamers. Although cultural effects have not been studied more intensively, they may play a very important role. For example, among European youth no gender differences in Internet addiction are usually reported; boys, however, are more at risk in East Asian countries, probably as a consequence of online gaming being more popular there, generally attracting young males (Smahel and Blinka 2012).

72.5 Social Well-Being and the Internet

72.5.1 Effect of Child's Internet Use on Family Relationships

The time children spend online also leads to the question of whether it affects family cohesion. Unlike watching TV, when a family can spend time together, one is usually alone in front of the computer screen. Most of the children have computers and Internet access in their bedrooms and the time they spend online thus, on the one hand, negatively affects the time they can spend with other family members. On the other hand, according to Livingstone (2002), the time spent on the media is deducted from unstructured time children used to spend outside their homes.

Thus, generally, children are more often at home than they used to be. This situation suits many parents who perceive this situation to be more secure for the children. However, if children become more immersed in the Internet, e.g., by using social networking sites or online gaming, the parents may perceive it as isolation (Subrahmanyam and Smahel 2011).

According to Mesch and Talmud (2010), the overall picture is even more complex. Whether a child's online activities become a shared topic in the family depends on the parents' education and computer skills. Those parents with lower digital literacy discuss online activities less; children spend their online time more isolated, which leads to more child–parent conflicts. Also, different expectations among generations concerning Internet use influence family cohesion. While parents expect their children to use computers and the Internet mainly for educational purposes, for children the Internet mainly provides communication with peers and entertainment.

The fact that the young generation nowadays often knows more about new technology than their parents may play a role in family life both positively and negatively, as this reverses the typical socialization scheme (Livingstone 2002). Conflict and family tension can be produced by parents who are trying to take over the situation, for instance, by using a more restrictive approach. At the same time, children may directly or indirectly teach other family members to use the Internet or certain Internet applications. As Livingstone further discusses, youth experts typically (but not exclusively) come from those families where there is no computer at home or it is a media-poor home, and thus they transfer the knowledge obtained, for instance, in schools to the rest of the family.

As Subrahmanyam and Smahel (2011) claim, such intergenerational imbalance of knowledge of the new media may not persist in the future, when the generation of "digital natives" becomes adults. The Internet also brings an opportunity to maintain contact with distant relatives and, thus, can increase the sense of closeness within the family; moreover, with an increasing number of divorced or alternative families the importance of online media for children's social well-being will grow in several aspects.

72.5.2 Does Internet use Lead to the Deterioration of Social Ties?

In the late 1990s, the Internet was labeled as a potential cause of isolation of individuals. In a fundamental longitudinal study (data collected in 1995–1996), Kraut et al. (1998) found that extensive use of online communication can lead to declines in the size of one's social circle and amount of communication with family members, and may increase depression and loneliness. A few years later, the data collected in 1998–1999 had Kraut et al. (2002) revise the previous study and state that Internet use actually increases social involvement and self-esteem, and decreases loneliness. Such a striking difference corresponds to what Valkenburg and Peter describe as "when media use change, its outcomes may change" (2009, p. 2).

In the 1990s, only a small number of children were connected to the Internet. Obviously, use of this, at the time new, technology was a rather isolated activity, and people mostly connected to strangers. The predominant communication tools were chat rooms, which even now mostly serve for communicating with people we have not met physically face to face. In such a situation, the time spent online comes at the expense of time spent with offline friends, which can have a negative impact on the quantity and quality of existing relationships. By the beginning of the new millennium, the number of people on the Internet increased dramatically. With more and more people being online the chance of communicating with those known offline, or friends and best friends, increased. New applications also emerged – instant messengers, nowadays supplemented by social networking sites. Children and young people who mastered these applications started using them very extensively – contrary to the previous situation – to maintain existing relationships. Subrahmanyam and Smahel (2011) showed that for most of the adolescents, time spent communicating with their friends online is not at the expense of time spent with friends offline. As an example, online communication is used for connecting those who cannot be contacted otherwise at the moment (e.g., friends or relatives who they do not see very often), or for making plans with those friends who they often meet.

Valkenburg and Peter (2009) describe a model for enhancing the well-being of adolescents via online communication. They assume that online communication stimulates self-disclosure between the communicants. The virtual environment was shown to support disinhibition and, thus, increase intimate communication – for instance, young people may find online communication helpful for expressing intimate topics more easily. At the same time, self-disclosure is a predictor of the quality of friendship and feeling of mutual closeness, both of which are important developmental characteristics, especially for adolescents. Consequently, the quality of friendships increases one's subjective feeling of well-being. But this model also has some problems. As the authors stated, there are two main hypotheses trying to explain why people turn to online communication. The first one, the *social compensation hypothesis*, claims that it is especially socially anxious and isolated children who turn to the Internet to overcome their communication problems. As an example, boys and younger adolescents tend to benefit more because they tend to be more inhibited from communicating intimate topics face to face. On the other hand, the *rich-get-richer hypothesis*, originally created by Kraut et al. (2002), states that mainly socially skilled and extrovert adolescents are taking advantage of another medium to maximize their social capital. The mutual supplement for this is the *poor-get-poorer hypothesis*, claiming that shy and anxious youth are escaping to the Internet, which leads to their further isolation. Recent research seems to provide most support to the rich-get-richer hypothesis. For instance, Valkenburg and Peter (2007) found that socially anxious adolescents turn to online communication less often than socially non-anxious. On the other hand, when they asked adolescents about their own perception, different patterns emerged. Socially anxious adolescents perceived such communication as more beneficial in its breadth and depth.

The type of Internet use also significantly influences children's well-being. According to Valkenburg and Peter (2009), communicating mostly with existing friends more often leads to positive outcomes. This means that communicating via applications such as instant messengers and social networking sites where people are mostly acquainted with their online contacts has the same result. At the same time, those who preferred communicating with strangers (typically in public chat rooms) or preferred no communication at all faced a negative effect on their well-being more frequently. Subrahmanyam and Smahel (2011) also describe a common assumption: since communication with strangers only occurs on the Internet, social ties become significantly weakened, and over time this may lead to a decrease in one's well-being. For socially excluded, lonely, or anxious children, however, communication with strangers can be one of the few ways of regaining the feelings of inclusion and understanding. As Subrahmanyam and Smahel conclude, the "Internet provides unique opportunities to expand one's social networks and relationships and consequently one's well-being" but "not all users benefit equally from these opportunities" (2011, p. 135).

Moreover, being online and creating and developing relationships through the Internet is naturally interwoven with traditional forms of relationships for today's young generation (Subrahmanyam and Smahel 2011). Thus, a child excluded from online communication with peers can face negative consequences just as when excluded from school or peer groups. On a general level, lower social ties may lead to problems such as the development of non-normative social behavior or suffering from social sanctions and, thus, affecting mental health and subjective feelings of well-being (Mesch and Talmud 2010). On the other hand, other negative outcomes may result from being involved in negative, especially hostile, online social interactions.

72.5.3 Online Harassment: Cyberbullying and Sexual Solicitation

The concept of bullying was developed by Dan Olweus in the 1980s as a specific kind of behavior typical for adolescence and occurring within school contexts. It could be described as repetitive aggression with an intention of harming the other and thus offering the perpetrator a higher social status. An imbalance and abuse of power between more powerful perpetrator(s) and either physically or socially weaker victim are typical. The consequences of repeated violence are very serious, impacting both physical and mental health – with frequent reports of anxiety, depression, and even suicide thoughts and attempts among bullied children (Kowalski et al. 2008).

With children mastering new digital forms of communication, bullying has spread from school yards to mobile phones and computers. As defined by Smith and Slonje (2010, p. 249), cyberbullying is "an aggressive, intentional act carried out by a group or individual, *using electronic forms of contact*, repeatedly and over time against a victim who cannot easily defend him or herself." Even if the act of aggression happens only once (e.g., posting humiliating photos of a child on a

website), the act repeats itself even without the bully because of the public nature of such content and its accessibility over time. Although cyberbullying often has the form of indirect violence, victims may experience feelings of not having anywhere to hide because they are vulnerable anywhere and anytime. Also, the power imbalance in cyberbullying mostly comes from anonymity: most victims are not sure or do not know at all who the perpetrator was.

On the Internet, cyberbullying can literally spread through most of the applications children use. Typically, it involves primary communication tools such as emails, chat rooms, instant messengers, and discussion forums; however, online games, blogs (online personal journals), and video sharing websites are also frequently used. Social networking sites combine all the mentioned applications and, thus, are in the front of the list (Kowalski et al. 2008).

There are many forms of cyberbullying, and these have developed together with the rapid development of the Internet and mobile devices. Kowalski and colleagues (2008) describe some of the most frequent forms. On the most basic level it is *flaming*, vulgar and nasty verbal exchange progressing only in a short period of time and between at least two communicants. *Harassment* is similar to the previous, yet on the other hand constitutes rather one-sided acts with a tendency of being persistent over time or recurring. *Stalking* is close to harassment with respect to its relatively longer time of occurrence; a perpetrator is trying to evoke in his or her victim negative feelings of being chased. *Denigration* constitutes in spreading untrue information or posting altered pictures, often with humiliating content. It also includes posting true, yet still humiliating information, pictures, or videos that were intended to stay secret and hidden. With the increasing interweaving of the online and offline worlds, we also have *impersonation*, which means stealing one's online identity. Access to the victim's personal account in any application can be used for antisocial purposes, for instance, for sending untrue or nasty messages to the victim's friends. Also, *exclusion* or ostracism, e.g., forbidding access to certain online groups, may have severe consequences on the victim's social and emotional well-being. A sense of being included, a component of "Loving" in Allardt's terms, is one of the basic needs, which is especially acute during adolescence. However, according to Wolak et al. (2007a), the term cyberbullying is rather overused because online perpetration acts are much less distressing for children than the public reckons. In particular, only in case online harassment occurs together with traditional bullying the prefix "cyber" should be used, whereas we should avoid such labeling when describing distressing online contacts with totally unknown people or isolated peer aggression acts.

Despite the growing Internet and mobile use among the young generation, the literature reports lower and lower numbers of cyberbullied children every year. Also, only a few percent of children repeatedly admit being cyberbullying victims, as stated by Subrahmanyam and Smahel (2011). According to recent findings from the EU Kids Online survey (Hasebrink et al. 2011), among European children aged 9–16 years, 6 % reported being bullied and 3 % admitted being the perpetrator. The same data revealed that most of the victimized children were also victimized offline, and most of the online bullies also admitted to bullying face-to-face.

Thus, different forms of cyberbullying not only tend to combine with each other but, most importantly, they tend to combine with forms of traditional bullying. According to Mesch and Talmud (2010), the aggression is not just moving from one environment or medium to another; the effects actually magnify.

Bullied children are typically socially isolated, sensitive, and physically weaker – and are then chosen as easy targets. Anxiety, depression, and lower self-esteem are both predictors and consequences of being systematically under aggression. According to Subrahmanyam and Smahel (2011), both males and females are equally likely to become cyberbullying perpetrators or victims. Recent findings from the EU Kids Online survey (Hasebrink et al. 2011), however, state that among the 9- to 16-year-old children involved in cyberbullying, girls, younger children, and those from low socioeconomic background reported more often being the victim and less often being the perpetrator. Studies conducted in the USA by the Crimes Against Children Research Center, directed by David Finkelhor, have shown similar results (Ybarra and Mitchell 2007). It is also typical for aggression on the Internet that many victims have experienced the role of perpetrator, and vice versa. The EU Kids Online survey found that 40 % of those who bully online have also been cyberbullied (Hasebrink et al. 2011). Owing to the fact that we are "disembodied" while online, it is easier to strike back than when offline, for instance in the school environment. The power of retaliation, however, should not be overestimated. Unfortunately, as most of the research has showed, those who are systematically victimized online also experience victimization offline, with all the negative consequences mentioned above. Moreover, both those who bully and who are bullied online tend to be more psychologically vulnerable, "suggesting a vicious cycle of behavior that damages both victim and perpetrator" (Livingstone et al. 2011b, p. 42). As suggested by Ybarra and Mitchell (2007), it is also important to provide children with positive conflict management skills to minimize the responses to initial harassments so that the aggression would not get cycled.

Besides cyberbullying, sexual solicitation online has also received a lot of public attention. Unlike cyberbullying, which often happens between people connected in an offline environment, solicitation usually arises from the communication between a child and a completely unknown adult person. Media frequently bring warnings about online predators and pedophiles lurking on the Internet for innocent and naïve victims who are deceived for offline meetings where unwanted sexual contact happens. Although such child abuses are relatively rare, many myths have been spread. The fundamental article by Wolak et al. (2008) describes the characteristics of online predators, their victims, and the consequences of their communication and meetings. The common stereotype of offenders being male seems to be valid, yet it is not confirmed that they all are pedophiles. Rather we can speak about hebephilia or ephebophilia because most of the children who got into physical contact with online strangers were adolescents. Communication between a child and an unknown adult often develops for some time and no physical meeting happens before trust and confidence are evoked in the child; making new friends and social curiosity in general are a trait more typical for adolescents than for younger children. Only a very small minority of such contacts could be assigned as rape

in the sense of assault, and mostly all we can say is that "statutory" rape, i.e., the sexual contact between an adult and an underage child, occurred. The meetings are usually established with a mutual intention of having sexual contact, and such contacts were repeated during some period of time. A number of adolescents got into direct sexual or pornographic contact for money or presents. Recently, social networking sites and the tendency to post personal information there were perceived by the public as a risk factor for being contacted by strangers. For sexual purposes, however, it is public chat rooms which are used for contacting potential victims most frequently. Moreover, the number of cases is decreasing compared to the early years of the Internet, while the popularity of social networking sites is increasing. Also, children who had posted personal information online had a similar tendency to meet strangers as those who did not reveal any information.

It seems that it is the child's willingness and responsiveness to communication after being contacted by an unknown person which is the risk factor. The risky group is usually female adolescents who are shy, depressed, lonely, with lower self-esteem, having problems with parents, and with a history of sexual abuse. These characteristics are typical also for children who face other risks online, too, for instance those who are often cyberbullied. According to Soo and Bodanovskaya (2011), boys are as likely as girls to be used for the purposes of pornography production, but report abuse less often. As Wolak and colleagues (2008) conclude, even though most of the female adolescents are having sexual contacts willingly with previously unknown males met on the Internet, it might have a serious negative impact on their well-being. This comes mostly from the imbalance of power between a teen and an adult, the teen generally not being ready for an intimate relationship, and future problems in terms of healthy sexual development.

72.6 Developmental Well-Being

As pointed out by Subrahmanyam and Smahel (2011) people have always been concerned about the influence of media on young people since the advent of media itself. The authors note that much of the research on the topic has been built on the media effects model, suggesting that media use influences peoples' attitudes and behaviors. Taking the aforementioned context into consideration, this section is focused upon young people's online practices, which are closely connected to their developmental well-being ("Being" in Allardt's terms). The section contains a short overview of such aspects and activities that could lead towards personal growth, i.e., the positive side of "Being," as well as describing the negative aspects of online content that may result in alienation (Allardt 1993).

In 2007, Sonia Livingstone and Ellen Helsper proposed a continuum of digital inclusion with gradations from non-use through low use to more frequent use. They suggested that "going online is a staged process, with systematic differences between those who take up more and those who take up fewer opportunities" (p. 683). Research evidence suggests that one of the first online opportunities the young experience is connected to the web as an educational resource (Livingstone and Haddon 2009b).

72.6.1 The Internet as an Educational Resource

Findings from various studies indicate that the Internet has become "a new type of educational medium" (Kalmus et al. 2009) for the present-day youth. According to the EU Kids Online survey findings, for example, all of the surveyed children across Europe use the Internet for school-related purposes (Livingstone et al. 2011a). One of the most common educational uses of the Internet is searching for information, although online discussions with peers about school and studies, as well as giving and asking for advice in homework-related issues are also relatively common among the young (Kalmus et al. 2009). In fact, the Internet has become the most useful tool for getting information for homework leaving all the other possible sources like books, parents, CD-ROMs, friends, etc. far behind (Livingstone and Bober 2004). Although students were found to be quite weak in determining the quality of information they found online (Lorenzen 2001) and hence often make use of unevaluated online resources (Grimes and Boening 2001), the young tend to trust the information found on the Internet more than the information gained from traditional media channels (Kalmus 2008). The credibility of online information together with the regret that young people prefer reading short online articles to reading books are one of the main aspects parents tend to worry about when referring to the general "erosion of standards" (Subrahmanyam et al. 2001) brought along by the Internet.

No scientific research consensus has been reached when analyzing how the ownership of ICT-related resources or the patterns of Internet use affect young people's academic achievement. Several analyses, based on large samples, have demonstrated positive correlations between home computer access and educational outcomes (for an overview, see Vigdor and Ladd 2010). In another literature review, Ronda Scantlin (2011) highlights Fairlie's analysis of more than 4,000 16- to 18-year-olds from the Computer and Internet Usage Supplement to the September 2001 US Current Population Survey. According to this study, teenagers' access to home computers indeed increased the likelihood of school enrollment and high-school graduation, after controlling for family income, parental education, and parental occupation. Jacob L. Vigdor and Helen F. Ladd (2010), however, argue that the reliability of inferring the impact of home computer access on academic achievement in non-experimental settings is threatened by omitted variable bias. In their quasi-experimental study of longitudinal administrative data covering the population of North Carolina public school students between 2000 and 2005, Vigdor and Ladd (2010) replicated some previous findings by documenting a positive association between home computer access and academic achievement in across-student comparisons. Within-student comparisons, however, demonstrated that children who gained access to a home computer between fifth and eighth grade tended to witness a modest but statistically significant and persistent decline in reading and math test scores. Moreover, Vigdor and Ladd found support for the hypothesis that home access is more detrimental for some students than others, probably because children put the Internet to more productive use in households with more effective parental monitoring of child behavior.

Even if some authors (e.g., Young 2006) associate better academic performance with the frequency of Internet use referring to the fact that those students who spend more time using the Internet have higher average academic grades, others (e.g., Chen and Fu 2009) suggest that it is the activities that young people engage in on the Internet rather than how often they go online that affects their academic achievement. Moreover, according to Su-Yen Chen and Yang-Chih Fu (2009), males and females not only differ in their Internet use patterns but also in how these patterns help or hinder students' academic achievement in middle school. The findings of their study with Taiwanese eighth-graders indicate that in comparison to the boys, the more time girls spent on socializing on the Internet, the lower their scores on the high school entrance exam a year later; whereas in case of the boys the exam scores were significantly lower the more active they were in playing computer games.

Various research endeavors focusing on the impact of instructional computer use in school settings, consisting largely of experimental or quasi-experimental studies, have produced mixed results (Vigdor and Ladd 2010). Nevertheless, in the hope of bridging the technological and didactic divide that exists in schools as well as achieving better educational effects, a number of schools and even some regions and countries have made use of various one-on-one laptop programs (Mouza 2008). For example, in 2005 about 6,000 middle school children from New York received laptops during a 3-year program financed by city, state, and federal money (Hu 2007). Some studies carried out for assessing the success of such programs have reported positive results, claiming that granting the students with 24-h laptop access can motivate even reluctant students to learn, and by doing so helps to improve, for instance, their writing and problem-solving skills (Lowther et al. 2003). Substantial impact of laptop use on student learning outcomes has also been proved by a longitudinal analysis (Gulek and Dermitas 2005). Laptops have also been perceived to be highly beneficial to students with disabilities by helping to increase their motivation to work independently and improving their class participation, class preparation, and interaction with teachers and peers (Harris and Smith 2004).

More recent studies, however, indicate that such one-on-one laptop programs are "educationally empty" (Hu 2007), and may not aid but even hinder learning. School officials who have decided to drop out from the programs explain their decision by saying that rather than perceiving any measurable effect on the grades or state test scores of the students, they have perceived students abusing the laptops, e.g., downloading pornography or hacking into local business (Hu 2007). A unique quasi-experimental study carried out by Ofer Malamud and Cristian Pop-Eleches (2011) provides some insights into and explanations of complicated relationships between home computer access and child educational outcomes. In 2009, Malamud and Pop-Eleches collected survey data from households in Romania who participated in a government program, initiated a year before, which allocated vouchers for the purchase of a home computer to school-age children from low-income families. Their findings indicate that home computer use has both positive and negative effects on the development of children's human capital. Children and adolescents who won a voucher had significantly lower school grades in Math,

English, and Romanian but significantly higher scores in a test of computer skills, in self-reported computer fluency, and in cognitive ability, as measured by Ravens Progressive Matrices. Similarly to the suggestions by Vigdor and Ladd (2010), the findings of Malamud and Pop-Eleches (2011) imply that parental mediation plays an important role. On the one hand, the presence of parental rules regarding homework helped to mitigate some of the negative effects of home computer use on educational outcomes. On the other hand, the presence of rules regarding computer use reduced the positive impact of obtaining home computer access on digital skills without improving academic achievement.

72.6.2 The Sense of Empowerment

In addition to using the Internet for school-related purposes, studies refer to the fact that the new media have provided the young with a variety of opportunities to ask for advice, discuss private issues, and search for information on sensitive topics. For instance, online bulletin boards about health and sexuality have proved to be a highly valuable forum to share personal opinions, ask for advice, receive actionable suggestions, and gain emotional support (Suzuki and Calzo 2004; Beattie et al. 2006). In other words, the Internet has taken the role of a counselor and advisor in the eyes of the youth.

When describing the supposed universal characteristics of the "digital generation," a list of terms such as freedom, creativity, self-hood, choice, motivation, will, initiative, etc. have been used. All these terms are associated with the concept of agency (Emirbayer and Mische 1998). Hence, it could be expected that the members of the digital generation would exercise their agency to the fullest when being engaged in the environments most familiar to them, i.e., in the online worlds. According to the *Literature Review in Informal Learning with Technology Outside School* by Julian Sefton-Green (2004), the present-day scholars of youth and new media have been mainly concerned about studying the ways in which access to new media technologies have helped to transform young people's agency.

Studies by various scholars (e.g., Tapscott 1998; Livingstone and Bober 2005) in the field confirm the idea that "in the digital world, the child is the actor" (Buckingham 2007, p. 89), a statement which in itself refers to the fact that the Internet has empowered the present-day youth. A growing body of research suggests that the use of digital media has provided young people with the position of greater authority and control, not only because of the technology knowledge gap that supposedly exists between the young and the members of previous generations, but also because of allowing them to get access to such opportunities that were "traditionally seen as an 'adult domain'" (Sefton-Green 2004, p. 23).

The reasons identified above have also been among the key factors why the present-day youth have been considered to be high in self-esteem. Furthermore, some authors have even claimed that the youth of today belong to "a little army of narcissists" (Twenge 2006, p. 38). Although the latter statement has often been

criticized, many scholars do seem to agree on the fact that "the use of digital media imparts an enhanced sense of efficacy and self-worth, not only for young people with disabilities, but for all" (Buckingham 2007, p. 89).

72.6.3 Digital Literacy and Creativity

Nevertheless, it should be noted that such an empowerment can only come by exercising one's agency which in itself "refers not to the intentions people have in doing things but to their capability of doing those things in the first place" (Giddens 1984, p. 9). Therefore, educational aspects, especially the debate about digital literacy (also referred to as "media literacy," "digital competence," or "digital skills") (Livingstone et al. 2011a), have become central in the developmental well-being of young people. According to Mizuko Ito et al. (2010, p. 23) what counts as learning and literacy in this context "is a question of collective values, values that are constantly being contested and negotiated among different social groups." Hence, children's active participation in online worlds has often resulted in a heated debate about the appropriate social competences and literacy practices the youth should master.

Active engagement in various online environments such as social networking sites, multiuser online games, blogs, and news forums usually demands necessary skills and knowledge about multimodal writing practices. In fact, in the present-day convergence culture (Jenkins 2006) one cannot simply do without adequate digital literacy skills when creating or borrowing, remixing, re-embedding, and reconfiguring texts, videos, photos, music, and various visual design elements. In other words, members of the digital generation, also referred to as "Generation C" where the letter "C" stands specifically for "content creation," and more generally for "creativity," have become "produsers" engaged in "produsage," i.e., "the collaborative and continuous building and extending of existing content in pursuit of further improvement" (Bruns 2006, p. 276). Although studies indicate that young people are actively making use of various new media opportunities, the phenomenon of produsage is still not universally characteristic to the age group in question. Even though it has been proposed that the lack of interest and motivation could be one of the reasons why content creation practices are not that widely spread amongst adolescents (Kalmus et al. 2009), younger children often simply do not have the necessary level of digital literacy (Livingstone et al. 2011a) needed for reaching the top of the "ladder of online opportunities" (Livingstone and Helsper 2007).

In other words, having just functional expertise for using the Internet is not enough, and young people, amongst all others, need to start using the new media intelligently, i.e., to discriminate and evaluate media content, as well as to produce texts and artifacts, and to construct alternative media (Kellner and Share 2007). In this context, it is important to add a remark by Sonia Livingstone (2004) who argued that each component in such a process supports the others as part of a non-linear, dynamic learning process: learning to create content helps one to analyze

something produced professionally by others; skills in analysis and evaluation open the doors to new uses of the Internet, expand access, and so forth. Hence, John Palfrey, Urs Gasser, and Colin Maclay rightfully claim that inequality in digital literacy is one of the most important digital divides which "separates youth who are likely to benefit from digital technologies from those who are not" (2011, p. 14).

Although the debate about defining and measuring digital literacy has been heated (Livingstone 2004), scholars have often emphasized the fact that digital literacy requires a broader understanding of social and institutional contexts (Buckingham 2003; Livingstone 2004) as individuals do not create meanings in isolation, but rather through their involvement in social networks or "interpretive communities" (Buckingham 2003, p. 38), which promote and value particular forms of literacy. Considering the fact that young people's interest in new media technologies and adoption of various online opportunities is not technology-driven but rather triggered by their "desire to connect with peers anywhere, anytime" (Livingstone 2009, p. 93), a need for adequate digital literacy skills is strongly embedded in the young persons' everyday social worlds. For instance, not only are the peers found to be the main source of information in terms of suggesting new things to do online (Kalmus 2007), but they have also been regarded as exercising the biggest influence on taking up the opportunity of creative online activities (Kalmus et al. 2009).

72.6.4 Identity Construction in the Communities of Practice

In fact, user creativity, the central component of digital literacy, has been considered an inherently social phenomenon and thereby linked with practices of participation. Regardless of the fact that a number of different perspectives and theories have been used for understanding the nature and context of creativity (for a literature review, see Loveless 2002), more recent approaches (cf. Burgess 2007) increasingly put creativity in the service of effective social communication. Furthermore, as many of the activities young people practice in online settings are either "friendship-driven, i.e., serving to maintain friendships with people already known offline," or "interest-driven, i.e., allowing youth to develop expertise in specialised skill sets" (Palfrey et al. 2011, p. 15), engagement in various new media platforms helps the youth to develop both technological and social skills as well as creativity. For example, different social media environments such as blogs have often been referred to as a fantastic new medium for enhancing literacy (cf. Huffaker 2005; Godwin-Jones 2006; Davies and Merchant 2007) as they combine the individual creativity of a user and the communities of practice. In fact, the immense popularity of various social media applications among the young has often been explained by the fact that these new online arenas offer the young opportunities for self-expression, socialization, and creativity and by doing so provide "new ways of forming identity, and hence new forms of personhood" (Buckingham 2007, p. 89). Furthermore, the youth have started to consider new media "as a means to 'being oneself'" (Livingstone et al. 2011a, p. 132), a platform where they can anonymously talk about private or intimate matters

and express their opinion sometimes more freely than in offline contexts. According to Swanson et al. (2010) the youth feel empowered and are sometimes better able to assert themselves owing to the relative social distance of the online interactions compared to the face-to-face encounters.

Social networking sites (SNS), which many of the young consider "'their' space visible to the peer group more than to adult surveillance" (Livingstone 2008, p. 396), have become primary playgrounds for such identity experiments and play. Recent findings from the EU Kids Online survey indicate that 77 % of 13- to 16-year-olds and over one third of 9- to 12-year-olds who use the Internet have their own SNS profile (Livingstone et al. 2011a). Thus, when "writing oneself into being" (boyd 2008), either on an SNS or some other online platform, the youth are both exploring the social matrix of relating to others as well as trying out and displaying constructions and reconstructions of one's identity. Many studies, for instance, refer to the importance of such online networks for the minority youth (e.g., LGBT youth) who feel safer displaying their identities and communicating with like-minded peers on the technology-mediated arenas.

Identity constructions, however, take place through implicit and explicit identity claims (Zhao et al. 2008). Implicit claims, as Peter et al. (2009) indicate, are mainly visual and portray the self in connection to one's peers (relational self), whereas explicit claims mainly contain narrative descriptions where the young explain who they are (individual self). In addition to the aforementioned, one's cultural self is also often expressed through showing one's taste and consumption preferences. When doing so, empirical studies suggest that peers and close friends are most often viewed upon as sources for reference (Siibak 2009), their preferences and practices are noted when selecting the "markers of cool" (Liu 2007) worthy to be put on one's profile. Hence it appears that the impression management strategies young people use on SNS are not only dependent on the affordances of the particular technological interface, but are also largely built on the collective peer culture (Corsaro 1997), whose values and norms help to frame the self-presentation process (Siibak 2009). All of the above reflects the claims by Sonia Livingstone who suggests that young people's online identities are expressed "not as a free-floating, individual activity but as embedded in and shaped by specific social and technological conditions" (2009, p. 117).

Nevertheless, the choices one makes in online environments can be said to originate from a variety of resources, ranging from choices based on the habitus and personal agency of a person, to the norms and values prevalent in the online community. Norms and values, however, often rely on the preferences of the particular age group dominant in the community. For instance, the findings of empirical studies indicate that younger children mainly tend to exhibit their cultural selves on the profile by creating a "visually ambitious 'pick and mix' profile" (Livingstone 2009, p. 107), which provides information about their tastes and preferences. In this case, the pre-teens try to combine the markers of their personal everyday lifestyle (e.g., hobbies, interests, choice of clothing and accessories) when constructing their online identity. Therefore, these profiles can be viewed as creative personifications of a profile owner, with an emphasis on the

aspects the person considers important or characteristic to oneself (Siibak 2009). Furthermore, such descriptions are also often used for illustrating or improving one's status in a group of peers (Peter et al. 2009). The latter is also the reason why the youth tend to stage their performances so as "to appear as if they were not actively undertaken, but rather occurred naturally or were bestowed upon the individual reactively by others" (Solomon 1999, p. 71), in the hope of gaining positive feedback from the peers. When reaching adolescence, however, "the notion of identity as display is gradually replaced by the notion of identity as connection" (Livingstone 2009, p. 107). The latter means that the emphasis is now on exhibiting one's contacts either by posting photos from different social gatherings or by adding links to the profiles of one's friends (Livingstone 2009). Furthermore, although a number of friends in the friends' list can also be regarded as a "marker of status" (boyd 2008, p. 216), different empirical studies (Donath and boyd 2004; Tong et al. 2008) indicate that young people actually do speak disapprovingly and mockingly about the users who constantly add new friends to their friends' lists. Considering the fact that "over one third of 13- to 16-year-olds and nearly one sixth of 9- to 12-year-old SNS users have at least 100 contacts in SNS and around a quarter of these youth have contacts in SNS with whom they have no connection to in their offline lives" (Livingstone et al. 2011a, p. 12), the studies indicate that many of the youth are not making proper use of the privacy settings offered by the service providers to protect their profiles from unwanted visitors. In the context where still numerous young people are eager to expose personal information like their home addresses, phone numbers, etc. on their profiles, the general lack of interest in using privacy settings is problematic. This illusion of anonymity that the youth seem share in online settings could on the one hand be explained by the fact that they simply do not expect that strangers have any interest in them (boyd 2008). On the other hand, however, such behavior could also be explained by the inadequate digital literacy skills or poor service provider settings that are not helpful enough for protecting the privacy of the young.

In summary, all of the above has led scholars to agree on the fact that young people's use and interaction with ICTs, e.g., when constructing one's online identity on SNS, is a complex "educational" experience which both complements and supplements the learning taking place in official learning environments, i.e., schools (see the literature review by Naismith et al. 2004).

72.6.5 Developing Resilience

In the debate about the digital generation, present-day young people are always portrayed as autodidact, experienced, competent, and "expert" users of new media (Livingstone 2008). Scholars also agree on the fact that participation in online environments and active engagement in various content creation practices have offered the present-day children unique opportunities for self-expression, socialization, participation, and creativity, all of which support the growth of the human being. Such opportunities, however, are often connected with the possibility of risk

and possible harm. Studies on the topic hence also reflect dual frameworks of "youth empowered" and "youth at risk" (Buckingham 2008).

As we have previously argued in this chapter, young people may be so drawn by the opportunities offered by the new medium that they might start to suffer from excessive Internet use. In the worst case scenario scholars claim that such fascination may lead to alienation from the offline world. Although such claims are presently associated mainly with earlier studies on the topic, more recent studies suggest that time is not the only and most crucial factor contributing to the effects of well-being (cf. Subrahmanyam and Smahel 2011). In fact, what one does with the time spent online and whom one interacts with may have even greater impact on the well-being. The latter also helps to explain why these young techno-savvy users of the Internet are often regarded as "potential victims in an Aristotelian state of tabula rasa, vulnerable to the wide array of harmful contents and contacts afforded by the internet" (Staksrud and Livingstone 2009, p. 365).

After the risks associated with meeting online strangers in the offline world, online *content risks* appear to be the most common. Recent findings of the EU Kids Online survey report that 21 % of the 11- to 16-year-old Internet users in Europe have come across one or more types of potentially harmful user-generated content (e.g., propagating hate, pro-anorexia, suicide, self-harm, drug-taking) during the last 12 months (Livingstone et al. 2011a).

EU Kids Online study revealed that young people's exposure to sexual images or sexual messages was less extensive than commonly feared: 14 % of 9- to 16-year-olds had come across such content (Livingstone et al. 2011a). Still, children's exposure to online pornography is one of the major concerns of the general public when talking about online content risks. This moral panic is often caused by the claims that exposure to online pornography may lead to various negative consequences in child development, for instance, earlier and promiscuous sexual activity, sexual deviancy, sexual offending, or sexually compulsive behavior. Nevertheless, according to Wolak et al. (2007b), there is in fact no scientific evidence that seeing sexually implicit material online acts as a trigger for any of these problems. Furthermore, although some children may be shocked and feel uneasy about seeing sexually implicit materials on the Internet, Thornburg and Lin (2002, p. 179) state that "there is no scientific research consensus supporting a claim that exposure of sexually explicit material does – or does not – have a negative physical, emotional, or psychological impact on children, nor a consensus regarding the existence of a causal relationship between exposure to sexually implicit material and long-term behavioral outcomes in general."

No scientific consensus has been reached when assessing possible implications of seeing violent or hateful content online, which has been experienced by 12 % of European children (Livingstone et al. 2011a). Even though some studies (Huesmann 2007; Ybarra et al. 2008) refer to the violent content found on the Internet, especially web sites depicting real people engaged in violent acts, as the key for explaining the aggressive behavior of present-day youth, others (House of Commons 2008) suggest that there is still no clear evidence of a causal link between seeing such online content and violent behavior in offline environments.

Still, regardless of the possible risks young people may encounter in online settings, many scholars are skeptical towards taking an overprotective approach to children and emphasize that the media panics in relation to young people's Internet use. Coleman and Hagell, for instance, have proposed stressing the need for a "resilience to risk" approach (2007, p. 15), which argues that young people need to know how to learn from their own mistakes and how to overcome and cope with the problems they have faced.

Furthermore, research indicates that in the online worlds the majority of young users are not more prone to engage in any more risky behavior than they are in the offline settings (cf. Ito et al. 2010). In fact, it appears that young people are relatively sanguine about the consequences of coming across such problematic materials: either they ignore such content altogether, delete it, or speak to someone about their experiences (Livingstone et al. 2011a). In other words, the young have developed different strategies for coping with such content-related online risks. However it should be noted that the incidence of risk to children and their ability to cope are not only dependent on the age and gender of the children, but may also vary across the types of risks and cultures.

72.7 Societal Aspects of Well-Being

It has been argued that making use of the Internet will help to expand the opportunities for education, good jobs, and better health, as well as to grant an opportunity to voice your opinion and take part in political debate. The aforementioned aspects are also the main reasons why *A Declaration of Principles Plan of Action*, which was adopted during the World Summit on the Information Society as part of the *Millennium Development Goals* of the United Nations, stresses the need to grant universal access to technologies and to the Internet to the entire world's population. According to the report of the International Telecommunications Union (2011), 163 countries had developed ICT policies and national-level e-strategies that would help to build and develop the local ICT sector.

Various academic studies have been carried out on the field to analyze access differences between varying social contexts and segments of societies. Don Tapscott (1998, p. 12), while celebrating the rise of the "Net generation" in the USA, had to concede that in the whole world "most children are not growing up digital." The present-day research results still indicate that despite the growing number of Internet users in the world and various policy efforts made both on national and international levels, a big gap between developed and developing countries, also known as the global digital divide, has remained. For example, the *Measuring the Information Society* report (MIS 2011), by using the ICT Development Index (IDI) to measure and compare developments in the field of ICT across the world, states that the differences between countries at the top and at the bottom of this index have increased in the course of the last few years. While households with children across Europe increasingly have computers with Internet access at home (Key Data on Learning and Innovation through ICT at School in Europe 2011),

the situation is very different in most of the countries of south-eastern Asia, southern Asia, or sub-Saharan Africa. Moreover, studies suggest that differences in households' educational and SES are especially important factors behind differences in Internet use in less-developed countries (cf. MIS 2011, for an overview).

As people with higher-income backgrounds have an opportunity to use the Internet at home or at work, public Internet access is crucial for low-income groups. For instance, according to the MIS 2011 report, Internet cafes are one of the most often used locations for Internet access in various parts of Africa and Latin America. In addition to commercial Internet access facilities, a lot of effort has been made both on the international as well as national level to provide schools with necessary technical equipment, which would grant access to the Internet. For example, specific public financial support for buying education-related ICT equipment is presently provided in one third of European countries, leading to the fact that on the average there are two to four computers per student in most European schools (Key Data on Learning and Innovation through ICT at School 2011). Still, considerable differences in the e-maturity of the educational institutions in the EU countries exist, most probably having implications for student outcomes. EU Kids Online findings indeed suggest that children from those countries where a higher number of schools make use of computers in classrooms, as well as from the countries with at least 15 years of schooling on average, are more likely to have above-average digital literacy skills (Lobe et al. 2011).

As argued in the first section, granting access to new technologies in itself is not enough to overcome digital inequalities, as necessary skills and knowledge are needed to make sophisticated use of these new technologies. Although all European countries, for example, have national strategies in place aiming to provide the necessary ICT skills to pupils (in particular digital literacy skills) as well as to provide ICT training for teachers, an urgent need for developing children's digital skills has nevertheless remained (O'Neill and McLaughlin 2010). In the era when children are starting to use the Internet at earlier ages and privatized Internet usage (e.g., mobile Internet) becomes increasingly prominent, digital literacy skills and competences have become one of the key skills linked to the present demands of modernization, globalization, and the information society.

Teaching digital skills, however, is only one part of the story. Research findings refer to the fact that the more the children use the Internet, the more digital literacy skills they gain, the more online opportunities they take up, and the more online risks they encounter (Livingstone and Helsper 2010). The EU Kids Online survey reveals that in addition to various individual-level factors, several country-level factors such as socioeconomic stratification, technological infrastructure, regulatory framework, and education system also influence children's encounters with online risks. For instance, results indicate that children in wealthier countries, but also in countries with more press freedom or countries with higher broadband penetration rate are significantly more likely to have experienced a higher degree of online risks (Lobe et al. 2011). In these countries, policy strategies that ensure online safety without introducing censorship are thus needed (Livingstone et al. 2011b) – well in line with a guiding principle of policy discourse on children

and the Internet, that is, "the need to balance *empowerment* and *protection*, to *maximise opportunities* whilst *minimising the risks* of internet use" (O'Neill and McLaughlin 2010, p. 12).

72.7.1 Main Policy Objectives

Although a consensus on building the policy objectives on the wider scale has not yet been reached, the changing role of children and young people in new media environments has started to shift the overall policy attention regarding online risks from content-related risks (seeing pornography or violent content online), to contact and conduct-related risks (e.g., cyberbullying and grooming) (O'Neill and McLaughlin 2010).

The EU, with its actions taken in the realm of fighting against Internet-related risks, has been referred to as "an early mover in the area of mitigating against online risk" (ACMA 2008, p. 5). For more than 10 years EU member states have initiated various national- and international-level measures for promoting online safety, many of which have been led by the Safer Internet Action Plan (1999–2004) and the Safer Internet Plus Programme (2005–2008), which is now followed by the Safer Internet Programme (SIP; 2009–2013). These initiatives, launched by the European Commission, aim to empower and protect young people online by holding awareness-raising initiatives and by fighting against illegal and harmful online content and conduct. The objectives of the current SIP (2009–13) are to increase public awareness, to increase support for reporting mechanisms, and to establish and support information contact points, while continuing to foster self-regulatory initiatives in the field. For instance, SIP is not only responsible for organizing awareness-raising initiatives (e.g., Safer Internet Day), but is also helping the INSAFE network awareness centers functioning in 27 EU countries to develop and promote awareness-raising material. In addition to the aforementioned tasks, SIP is supporting various other non-governmental organization (NGOs) active in the field, as well as financing academic initiatives and research related to online risks (e.g., EU Kids Online). Hence, it could be claimed that SIP initiatives are based upon evidence-based policy recommendations.

Recent findings of the EU Kids Online survey suggest the following five main policy priorities: parental awareness, focus on young users, positive content, industry support for internet safety, and digital citizenship (O'Neill and McLaughlin 2010).

72.7.2 Parental Awareness

Although awareness, defined by the European Commission as "actions that can contribute to the trust and confidence of parents and teachers in safer use of the Internet by children," has been one of the main aspects since the first launch of the Safer Internet Action, the findings of EU Kids Online survey suggest that many

parents still lack knowledge about the online risks their children may encounter. Parents' inadequate awareness of possible online risks and safety issues in some countries may be explained by the fact that the majority of awareness-raising campaigns have been organized on the national level. Although in some European countries, e.g., Denmark, the Netherlands, the UK, and Ireland, the national INSAFE network awareness nodes are active in launching local projects and raising public awareness on the topic, the actions of other national "nodes" are still insufficient in providing the necessary knowledge and awareness-raising materials for the general public (O'Neill and McLaughlin 2010).

Furthermore, Jos de Haan and Sonia Livingstone emphasize the need to differentiate between "*empowering parents* and *relying on parents* to mediate their child's internet use and safety" (2009, p. 12). They suggest focusing on the former task by stimulating parents to improve their own use of all the available technological solutions.

The findings of the EU Kids Online survey also indicate that parents prefer to receive information about Internet safety matters from their child's school (O'Neill and McLaughlin 2010). Hence, the need for additional home–school initiatives (e.g., workshops, training programs, information dissemination), which has been stressed by various scholars, is justified and should be reacted upon. In addition, O'Neill and McLaughlin (2010) point out the need to encourage the take-up of industry solutions, e.g., various filters and online safety packages, by parents. Furthermore, the authors also refer to the need to have up-to-date information and advice about one's services available on various online environments so that parents could rely on the information provided by a specific service provider when guiding their children's Internet use.

72.7.3 Focus on Younger Users

The overall policy guidelines are evident from a Digital Agenda for Europe (2010), which emphasizes the need to promote digital literacy skills, digital confidence as well as cultural diversity and creative content; also digital competence, including how to be safe online, is recognized as one of the Key Competencies for Lifelong Learning (2006). Nevertheless, O'Neill and McLaughlin (2010) refer to the need to change the policy focus and aim at targeting the needs and interests of the youngest Internet users.

First of all, additional emphasis should be given to the education system, including formal, informal, and non-formal learning, which play an important role in developing the digital literacy skills of young children. Furthermore, as the resources of schools outnumber those of many parents, schools at all educational levels should be regarded as the best place to educate, encourage, and advise children about Internet use, mobile media, and online safety themes which should be implemented into school curricula (de Haan and Livingstone 2009).

Secondly, according to O'Neill and McLaughlin (2010), teachers should aim to develop new ways of reaching and educating young users. Hence, media education

programs in schools should not only "pay more attention to *fostering children's creative participation* in online environments," but also start to value and incorporate peer-to-peer teaching more effectively in media education (de Haan and Livingstone 2009, p. 12).

Thirdly, the youngest Internet users often lack age-appropriate online content, e.g., content that would not assume reading competence. The lack of age-appropriate and positive online content is more closely analyzed in the following section.

72.7.4 Positive Content

The findings of the EU Kids Online survey suggest that although young children are very interested in accessing online content in their native language, such age-appropriate online content is often lacking, especially in small language communities (Livingstone et al. 2011a).

Recently the European Commission has made attempts to establish co-operation between the public sector and industry, in particular service providers, developers, and content creators, in the hope of promoting and creating positive content for children and young people. In 2010 the European Commission published guidelines that would help developers to provide age-appropriate and positive content for children and young people, an initiative that was followed by a competition and European award for best children's online content a year later. All these initiatives are launched to serve a common cause and sense of shared responsibility that regulators, policy makers, educationalists, and industry stakeholders need to ensure that "every effort is made to minimise downsides" of the Internet for children (O'Neill and McLaughlin 2010, p. 21).

72.7.5 Industry Support for Internet Safety

In recent years the European Commission has been emphasizing the need for a dialogue with the private sector, especially with Internet service providers, in order to encourage them to adopt self-regulation measures to ensure the safety and privacy of young users. The first industry led agreements of this kind are *The European Framework for Safer Mobile Use by Younger Teenagers and Children*, signed on 6 February 2007 by 81 mobile operators, and *The Safer Social Networking Principles for the EU*, signed on 10 February 2009 by most of the major social network providers in Europe. Although both of these agreements are voluntary, monitoring the implementation of the commitments signed by the service providers has proved to be rather effective. For instance, according to the *Assessment of the Implementation of the Safer Social Networking Principles for the EU on 14 Websites: Summary Report* (2011), improvements by service providers have been made in several aspects in comparison to the testing done in the previous year. Nevertheless, the need to ensure that information about safety features as well as authoritative Internet safety resources should be prominently displayed and made

available to all users by the service providers should be reminded constantly (O'Neill and McLaughlin 2010).

Jos de Haan and Sonia Livingstone (2009, p. 14) note that although self-regulation is quite well established in the world of games, the European Commission can keep on promoting the work done by PEGI Online (PO) which provides a code of conduct for companies active in the field of online gaming.

Similar industry-wide voluntary self-regulation operates both at the national and international level through the INHOPE network of hotlines across Europe, which receives and processes reports of illegal content found on the Internet. In fact, numerous policy recommendations have been initiated by the European Commission in order to fight against the possible risks children may encounter online, as well as to ensure and strengthen co-operation between the law enforcement agencies and public–private sector partnerships in the related field. For instance, joint projects of Member States and law enforcement authorities (CIRCAMP) aimed at preventing the distribution of child sexual abuse material and at investigating the groups involved are supported through the Safer Internet Plus Programme; and the Prevention of and Fight Against Crime Programme of the European Commission was launched to support law enforcement co-operation and public–private partnerships in the fight against Internet-related crime.

72.7.6 Digital Citizenship

The impact of ICT is highly dependent on how it is used. Therefore, O'Neill and McLaughlin (2010) emphasize the need to focus on efforts that would help to increase children's own responsibility and self-protection.

On the one hand, the capacity to exploit ICT and to engage students in innovative learning practices depends on the capacity of teachers. Although the great majority of European countries recommend a wide range of new teaching methods based on active and experimental learning, the possible opportunities of ICT are still underexploited in many areas. As there is a great discrepancy between high and low e-competent teachers in schools, the differences in teaching styles and personal skills affect the take-up of new technologies.

On the other hand, however, aspects like the curriculum, institutional clusters, and assessment also play an important role in developing digital citizenship. Hence, for instance, Balanskat and colleagues (2006) suggest incorporating ICT-driven competences such as teamwork, independent learning, and higher-order thinking skills formally into the curricula.

72.8 Summary

In this chapter we have discussed some of the intricate relations between different aspects of child well-being and new ICTs, in particular the Internet. It is evident from the available research that this new medium, with its immense variability of

topical content, covering all dimensions of life, both real and fictional, and with the multitude of applications, enabling innumerable kinds of human activities, both good and evil, can influence the well-being of children positively as well as negatively.

To draw some broad generalizations, we may say that using the Internet in a safe and skilled manner may have a considerable positive impact on children's developmental and social well-being. In particular, participation in interactive online environments and engagement in online content creation offer children an array of opportunities for empowerment, self-expression, creativity, identity construction, socialization, participation, enhancement of social skills, and enlarging social capital. We have to keep in mind, however, that much research evidence currently supports the "Matthew effect" or the *rich-get-richer hypothesis*, according to which those children who have more economic, social, and cultural capital at their disposal, or who are socially skilled and extrovert, tend to take advantage of the Internet as yet another medium to maintain and increase their position of advantage.

It is also possible to conclude that excessive and/or unskilled use of the Internet can impact negatively on children's well-being – most notably on physical, psychological, and social dimensions, as well as on some aspects of material and developmental well-being. More concretely, physiological problems such as obesity, sleep deprivation, and repetitive strain injuries; psychological disorders such as addictive behavior; negative social interactions, most importantly cyberbullying and sexual solicitation; material losses resulting from online gambling or being cheated online; and effects of potentially harmful online content on children's values and development have gained considerable research and public attention.

Similarly to the positive effects of the Internet on child well-being, the negative aspects do not affect all children to the same extent. Research literature provides several explanations to account for the different outcomes depending on the context and circumstances. According to the *usage hypothesis*, risky online opportunities, jeopardizing well-being, tend to be more often taken up by those children who use the Internet for longer, in more places, and for more activities. To some extent, this explanation is related to the *time displacement hypothesis*, according to which the time that could be spent on healthier or more advanced activities is spent online, not necessarily in the ways beneficial for the child's development or well-being. Other explanations draw attention to the fact that use of the Internet may be more risky for certain groups of children. According to the *risk migration hypothesis*, those children who encounter more risks offline, e.g., have been drunk, have had sexual intercourse, have missed school lessons, and have been in trouble with their teachers or with the police, tend to engage more often in risky online activities. In addition, the *vulnerability hypothesis* predicts that children with more psychological difficulties are more prone to risky online activities. Finally, according to the *social compensation hypothesis*, those children who find it easier to be themselves on the Internet tend to face more online risks. The last three explanations, together with the usage hypothesis, are supported by substantial recent research

evidence from the EU Kids Online survey, suggesting that the level of risky online experiences and, eventually, its outcome in terms of well-being are linked to children's vulnerability as well as their resilience (Livingstone et al. 2011b).

As an overall conclusion we may state that the ways child well-being is related to Internet use are multifaceted, depending on a complex set of individual-level circumstances and factors, as well as on the institutional and social context. As the benefits offered by the Internet tend to go hand in hand with online risks, the main challenge for policy-makers, educators, parents, and other stakeholders remains in endeavors to achieving a delicate balance between empowerment and protection of children to increase their well-being through maximizing the opportunities whilst minimizing the risks of Internet use.

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