

Chapter 11

Adolescents and Digital World



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Abstract The chapter focuses on adolescents as the netizens in the twenty-first century. With changing ways of relating to people, working, and functioning, the digital world has become a new world for the adolescents which can be both a boon as well as a danger depending on how effectively they navigate the digital world. The chapter discusses the threats and opportunities of the virtual space. The implications of online education and identification with the social media world by the adolescents are discussed. It also explains the impact of the tech world on the adolescent development and the family highlighting the need for a family digital strategy. Risk factors contributing to the negative impact of adolescent digital engagement are discussed. Prevention and intervention strategies for digital addiction are also described.

Keywords Adolescent · Internet · Media · Social networking sites (SNS) · Digital world · Online education · Risk factors · Internet addiction

The Realm of Digital World

The advent of the Internet has opened up multiple channels for communication and information sharing for the entire population which is remarkably faster and flexible as compared to our traditional modes of communication. The digital world is invading adolescents' micro-systems, their homes, classrooms, social interaction, and all other activities, thus, significantly altering their affective, behavioural, and cognitive aspects of functioning. The evolving technology has made it possible to offer engaging online information, images, videos, games, and the use of social media—all of which have the potential to make the individual hooked to the online world. Adolescents today are born into this virtual world, using smartphones and laptops from an early age. Although factors related to necessity, convenience, status, etc., contribute to this early engagement with the virtual world and consequent behaviour of netizens, this may affect functioning and adjustment in different aspects of life and have serious consequences.

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Studies on the prevalence of Internet use show that 92% of American adolescents go online everyday and 24% reported to be online 'almost constantly' (Lenhart et al., 2015). Data regarding dysfunctional use of interactive media report 0.8% in Italy (Poli & Agrimi, 2012) to 14% (Wu et al., 2013) in China. In a study on 987 adolescents in India (Goel et al., 2013) with a mean age of 16.82 years, 74.5% were found to be moderate or average users and 0.7% were found to be addicts using Young's original criteria. In another study by Bhat et al. (2016) on 1763 participants with a mean age of 19.73 ± 1.4 years using Young's original criteria, it was found that 10.4% were moderate problematic users and 0.8% were severe problematic users. Further, 35.5% of participants felt that they are addicted to the Internet. In a study sample of 724 students from class 8–11th, the prevalence of Internet addiction was found to be 8.7% (Prabhakaran et al., 2016). Further study (Kumar et al., 2019) on 3973 respondents from 23 engineering colleges across India reported 25.4% indicating problematic use of the Internet. A recent study by Hassan et al. (2020) on 454 participants in Bangladesh reported the overall prevalence of Internet addiction as 27.1%, and the addiction rate was 28.6% in the 19–24 years age and 23.5% in the 25–35 years age group.

Adolescents are the most frequent users of the Internet. The activities of present generation adolescents are no longer bound by the strict physical demarcations of home, school, and neighbourhood. Adolescents have a broader set of opportunities than ever before and classrooms of universities and schools can interact with their counterparts from any part of the country and world through online services provided by apps such as Google Meet, Zoom, Microsoft Teams, and Webex. These applications help create digital proximity through which ideas and knowledge can be shared, and teaching and instruction can happen by audio-visual mode. Research by Cifuentes and Murphy (2000) in elementary schools has found that such interactions can deepen multicultural understanding across international borders which ultimately promote an increasingly global society. The advancements in technology and Internet-mediated facilities have made it a lot easier for the adolescents to accomplish several things at once which is commonly understood as multitasking.

However, every technological change brings some advantages, disadvantages, and challenges. Similarly, the use of digital technology that pervades almost every aspect of an adolescent life ranging from education to information, entertainment, and social relationships also produces challenges for the adolescent in different aspects of development and functioning. For example, the printing press was invented in the fourteenth century and people at that point of time feared the loss of oral traditions and our capacity to memorize long narratives. However, printing facilitated the stage for the scientific revolution. Gradually people learned skills to adapt to the changes which were created through printing and converted them into opportunities.

The digital landscape has drastically increased its space among adolescents and demonstrated distinct patterns of media consumption by the age group. Thus, the impact of digital media gadgets on adolescents' behavioural metamorphoses varies with the influence of several contextual factors such as instructive mediation or restrictive mediation by the parents. People in general and parents in particular are faced with the dilemma of negotiating with the digital behaviour of their children.

There seem to be paradoxical situations such as how much screen time a child should be permitted, how to keep media gadgets out of children's bedrooms, or what rules should be set for media usage by adolescents. Technology has invaded our life to such an extent that it has hugely impacted our lifestyle and daily functioning. It has become difficult to demarcate how much use of screen time is sufficient and healthy and what is unhealthy.

In an agrarian society like India, spending time with children was considered valuable but with the advancement of digital technology, joint activity between older and younger generations is gradually disappearing. In the past few decades, technological tools and media gadgets have become so entrenched in our daily routines that even parents, adults, and adolescents are not what they used to be a few decades back. We must understand how these digital contexts have altered the family and social interaction patterns. Cultural values of parents and teachers as role models have changed due to increased media interaction and its influential role in learning, motivation, cognition, and socialization. Excessive digital media involvement further leads to passive orientation among the adolescents.

Turkle (2011) has documented that the cell-phones are playing a crucial role in delaying the parent-child separation. Earlier, there used to be a moment in child's life when he used to take the first unaccompanied step into the world beyond home and school (e.g., navigating the city alone by urban kids). Whereas, now it is not uncommon for the college students to still text their parents about their whereabouts and other matters just as they might have when they were in elementary school with cell-phone. Turkle (2011) writes, "everyone important is on speed dial" (p. 173).

The rules of social engagement have changed drastically with the preponderance of digital media interaction, affecting the identity development of an adolescent. On the flip side, this has led to social withdrawal and social anxiety in adolescents arising out of frustration in personal companionship. Further, the emergence of narcissism among the adolescents is becoming more evident with the growing digital networking, urbanization, and nuclearization of the families. The relationship between parents and the adolescents has undergone a dramatic shift in terms of perceived responsibilities. Digital ecology platforms provide huge opportunities for self-promotion by engaging in self-descriptions in different social media, catering to one's vanity and pride by posting photos of oneself, and trying to increase the 'friends' list online (though shallow relationships), all of which may be related to 'trait narcissism'. A growing proclivity of sexting as flirtations and normative relational aspects of adolescents' interactional experiences can have pronounced social implications.

Digital media and Internet-mediated communication are reshaping and restructuring patterns of social interaction and everyday aspects of our personal life. The technology-mediated communication of this digital age has far-reaching psychosocial implications. The digital media interaction helped in establishing a global village where media tools are inextricably woven into our lives. Along with the benefits, this has opened up many difficulties and challenges that adolescents experience with online navigation that need to be explored. For example, the challenges experienced

with the replacement of traditional classroom settings by online educational platforms, connectivity issues, intergenerational conflicts regarding engagements with media, cyberbullying, sexting, undue exposure to unhealthy sexual materials, and myriads of entertainment opportunities have made this platform far more complex and challenging.

According to Takeuchi and Stevens (2011), the vast expanse of media use has redirected our focus on joint media engagement where people can interact and use media together rather than the earlier notion of using media as isolated individuals. This is especially visible in the case of young people who engage in multiple forms of media. Hence, it is important that we may better take advantage of the unique capacity of human beings to work, learn, think, and make things together (p. 5). This highlights the need to understand the adolescent's behaviour, experience, and functioning in the digital world so that it will enable the stakeholders to harness the benefits and opportunities of the online world while taking care of the threats or the negative impact of the interactive media use.

Uncontrolled or excessive use of the Internet has been found to be problematic affecting negatively physical and psychological well-being of the user. Adolescents who are avid users of the Internet are especially vulnerable who are still developing in their cognitive and emotional–social aspects of development.

Internet addiction is commonly used to highlight the ill effects of Internet use leading to addictive behaviour and consequent dysfunctioning in various areas of life. The term 'Internet addiction' was used for 'pathological compulsive Internet use' by Dr. Ivan Goldberg in 1995 (Ivan, 1995). It is marked by excessive or poorly controlled preoccupations, urges, or behaviours regarding computer use or Internet access, leading to impairment or distress (Shaw & Black, 2008). Mark (2000) has specified six 'core components' of addiction, i.e., salience, mood modification, tolerance, withdrawal, conflict, and relapse. Davis (2001) points out that since addiction refers to a dependency on psychoactive substances, pathological Internet use (PIU) is a better term to use than Internet addiction. However, Caplan (2007), based on his studies, advocated the term 'problematic Internet use' instead of 'pathological Internet use' as social isolation plays a greater role in behavioural symptoms of PIU rather than psychopathology. Though Internet addiction has not been included in DSM 5, gaming disorder has been included as a diagnosable mental disorder in DSM 5 and also International Classification of Diseases 11 (ICD) by the World Health Organization (World Health Organisation, 2018). Prevalence of gaming disorder has been reported to vary from 0.7% to 27.5% across studies (Mihara & Higuchi, 2017). A pooled analysis of four large international surveys estimated the prevalence in the general population to be between 0.3 and 1% (Przybylski et al., 2017).

Impact of Digital World on Adolescent Development

The media-saturated environments may have psychosocial consequences for the developing child and adolescents. Online platforms such as YouTube and Google

provide a larger degree of connection among their peers. But what are the threats and opportunities these digital technologies and the social media world offer to this connected generation?

Bronfenbrenner's ecological systems theory proposed that the surrounding environment of the children including human–human, human–environment, and environment–environment interactions shapes media effects on learning (Bronfenbrenner, 1992). It is difficult to isolate the media–children interaction effects without simultaneously taking into account characteristics of contextual and environmental factors. A better understanding of the media interaction dynamics of the adolescents can be achieved by analysing how an adolescent learns at school, parent–child interaction time, other community spaces, and other ecological transition processes from natural territories to digital territory. Adolescents today are being bullied not only on the school playground, but also being bullied online on social media platforms and smartphones, where messages may reach them even while being at home, once considered as safe sweet home.

Earlier Internet was mainly for infotainment—information and entertainment. Now it has also become an important medium for gaming and social networking through the use of various social media and also used for the purpose of learning and education. Smartphones and various social media devices have contributed a lot to the use of social media by offering infinite access and connectivity (Goggin, 2014). Smartphones also make it easy to engage in online games and have redefined how the young are spending their leisure time. Peer pressure and having various social media accounts as a status symbol make the adolescent vulnerable to develop an addiction to smartphone use.

The digital world has offered a lot of opportunities in terms of easy reach, access, connectivity, and impact. It has brought the whole world to our fingertips. Anything, anywhere, and anytime is the buzzword of the online world. However, the constant engagement in the virtual world and web-based interactions can have a negative impact on the growing adolescents. It may also pose threats to the development and well-being of the adolescents. It can affect the physical health, mental health, social relationships, and academic achievement of the adolescents. Excessive use of the Internet and social media also impacts one's work performance and family relationship and interaction negatively. Overuse of the Internet to engage in chatting, playing video games, and surfing the web may affect the eyesight (Bener & Al-Mahdi, 2012) as well as the weight (Murray et al., 2016) of the adolescents. Since most of the time is spent sitting only or lying down, it leads to a sedentary lifestyle and obesity which further may lead to other physical health issues.

Mental health is also affected as the constant and excessive use of the Internet gives rise to stress and anxiety (Goel et al., 2013) in adolescents. It is associated with three psychological health pointers comprising of poor self-rated health, subjective unhappiness, and depressive symptoms (Ha & Hwang, 2014). Pathological Internet use and depression have been found to be correlated (Young & Rogers, 1998; Ha et al., 2007).

Relationship difficulties arise in the peer group and in family (Lakshmana et al., 2017) due to preoccupation with the social media, gaming, and other Internet use.

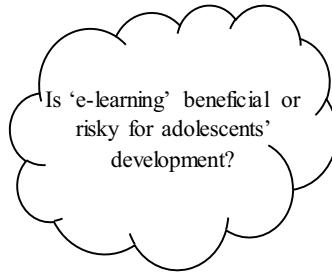
Adolescents may have increased virtual relationships, but decreased real contact relationships which have an adverse impact on their development and acquiring social skills. Their social world and social relationships are characterized by 'like', 'comment', 'friend', etc., which may affect their socio-emotional development. Social media is a top venue for flirting (Lenhart et al., 2015). Adolescents' social media interaction in the Indian context has resulted in problems of cyberbullying, problematic Internet use, and development of depression among the adolescents and young adults. Mental health-related problems were found to be more in those with Internet addiction (Kuhu et al., 2017).

Uncontrolled use of the Internet impacts negatively the studies and daily life routines of the addicts (Chou & Hsiao, 2000). It, thus, affects all aspects of the health and development of adolescents.

Online Education

One of the key benefits of the digital world is online education. In the current COVID-19 pandemic, online education has become the panacea for taking education to the students. Although online education existed earlier also, it has now become an increasingly widespread medium, especially in India for delivering knowledge and teaching the students who are physically separated from the teachers and instructors. Traditional classrooms have been substituted with virtual classrooms for teaching. Virtual campuses have technologically enabled systems making possible interactions between different stakeholders of the university without the necessity for sharing the physical proximity. The use of technology in learning and education has witnessed exponential growth in the past few months in India. Students in India experienced a rapid and disruptive change in the educational landscape with the sudden outbreak of the COVID-19 pandemic in the year 2020.

The extent of the digital divide in the Indian context came to the fore during the COVID-19 pandemic times which was influenced by household income, gender, rural residence, or urban residence. It had serious limitations for the students and teachers in terms of training to handle Internet-mediated learning. Access to the Internet has a major issue owing to 3G/4G connectivity problems in the remote parts of the country. The late adopters of Internet-mediated learning also hampered the effective use of digital learning.



Prosperio and Gioia (2007) argued that in response to changing learning styles of the virtual generation, teachers need to evolve to become a guide for teaching students the ways to search for and recombine information and knowledge. The interaction of students in online course and engagement in the class vary with instructors' ability to generate and facilitate interest among students. The lack of availability of smart-phones and laptops in rural areas, erratic electricity supply, and intermittent Internet connectivity make the process of online education very difficult for the students. Further, teachers' lack of proficient use of pedagogically sound technology affects the quality of learning outcomes despite good intentions. The definition of digital learning is vague and ignores the nuances involved in preparing teachers and students for digital education. A mere possession of any digital gadget without learning the art of engaged online conversation with context sensitivity is likely to make e-learning a passive mechanical activity. Social processes of identification, intimacy, and warmth among users, eye-contact, body language, and other non-verbal cues important for effective communication are largely missing from online education.

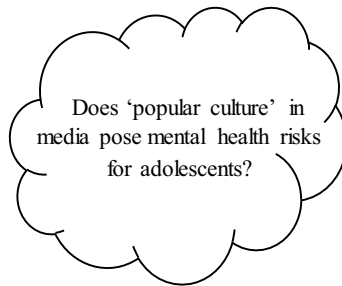
The theory of attentional social presence highlights four options as important for the construction of social presence to enhance communication and secure audience interaction: budgeted, entitled, competitive, and invitational (Turner & Foss, 2018). Further, the social identity theory of deindividuation effects explains the effects of anonymity and identifiability on group behaviour. It proposes that situations in which individuals act in groups do not see themselves as individuals, thereby, facilitating anti-normative behaviour.

In the Indian context, online education at a wider level is at the experimental stage and a variety of factors need to be considered to use this medium. In view of the lack of adequate Internet facilities, the diverse nature of the Indian society, and the demographic variations, traditional classroom teaching cannot be and must not be replaced in haste. An important aim of education is the emancipation of our social problems. Classroom teaching and interactions can greatly help in cultivating the relational qualities of empathy, sensitivity, and influence beyond individuals at all social levels.

Use of Social Media

A majority of adolescents access social networking sites (SNSs) multiple times by engaging in self-presentations by posting updates and photos. Exploration of 'self' has been understood as one of the primary objectives of adolescents, and hence, social media networks act as a significant medium to express identity and self-concept. Presentation of self on social networking helps them in the development of one's sense of self and identity.

Adolescence is the crucial period in the life span of an individual characterized by the freedom to define their own values, breaking away from parental views and values. Literature on adolescence shows that self-exploration can manifest itself visibly as teens express changing attitudes through their use and adoption of current fashion and style. The majority of global and Indian adolescents use digital platforms to socialize and hang out with friends. Many teens use profiles on SNSs which have several features on affordances that provide rich and varied opportunities to digitally post biographical information such as age, sex, location, interests, hobbies, books, and movies.



In his seminal work, Erikson (1960) argued that the process of coming to understand one's identity has a normative peak during adolescence. It is important to highlight that teens tend to express who they are and wish to experiment with others' reactions towards them through social media posts. In this context, the Marcia (1966) theory of identity statuses also emphasizes about the need for exploring one's identity. For instance, the foreclosure status in her theory occurs when an individual commits securely to an identity that is never truly explored. From a development point of view, adolescents who have not been able to define their identity can suffer psychological and social consequences.

Interpersonal interaction is crucial to young person's identity formation. The control theory of identity highlights the integration of interpersonal feedback, i.e., the communication and feedback received from others, into the adolescent's identity exploration (Kerpelman et al., 1997). Although adolescents still interact in face-to-face social situations, still there are a set of teenagers constantly 'plugged in' to SNS technology.

A positive and supportive environment created by the parents facilitates teens' exploration of identity and influences their self-concept development. Self-concept refers to having a clear sense of oneself—'who and what of oneself', whereas self-complexity indicates the diversity in the content of the self. The development of self-concept with the use of SNS helps in social connections, hobbies, and maintaining relationships. However, it is important to ascertain what adolescents are doing on SNSs in addition to assessing the time spent on it. Digital profiles provide the architecture for digital self-representation. Social interactions influence the development of the self. As Goffman (1959) points out, people's sense of self is the "product of scene and is not a cause of it" (p. 253). Much of the social interactions of individuals involve managing the impression that others will have of them (Goffman, 1959). This might impact the self-esteem of adolescents also which refers to an individual's positive or negative attitude towards the self as a totality (Rosenberg et al., 1995; p. 141).

Thus, several factors like time spent, the content of the interaction, parent–adolescent communication, and varying patterns of usage and context patterns of usage and context factors can play a crucial role in the identity formations of adolescents. The 'storm and stress' that is often associated with adolescence can be significantly influenced by their digital activities and engagements.

Theories on the Effects of Media

Various theories have explained the effect of media on the individual. An understanding of the online behaviour of adolescents will help design appropriate strategies for maximizing the benefits and minimizing the threats or risks of the online world.

Media Effects Theory

In order to understand the effects of digital media on adolescents, it is desirable to know about important theories of media effects. Historically, media effects are characterized by three- or four-phase model with its boundaries defined by emerging media technologies, the overall cultural context, and ideological perspectives used by the prominent researchers and theorists. The first phase of this model is characterized by 'magic bullet' or 'hypodermic needle' metaphors symbolizing that 'medium' shoots the messages and creates impact into its receivers. Thus, it focuses on the content of the media affecting the development of the individual. In the initial stages of mass media expansion, the printing press, newspapers, films, and radio intruded into everyday life and played a significant role in shaping the opinions, attitudes, and behaviours.

Cultivation Theory

This theory was conceptualized by George Gerbner in 1969 and has still remained a powerful theory of mass communication in the constantly changing media environment. Cultivation theory proposes the ability of television to influence and shape the people's values and beliefs about the world. This theory argues that people acquire knowledge in the form of stories. Television disseminates stories of three types namely fictional stories (how things work), news stories (how things are), and stories of values (what to do) which ultimately shares the opinion of its viewers.

Globalization has caused fusion among the cultures. Most of the dominant media messages have flowed towards the cultural centre of gravity, i.e., the most common homogeneous, dominant stream in the society rather than towards conservative views or liberal views. Our value systems—ideologies, assumptions, beliefs, images, and perspectives—are cultivated to a great extent by television portrayals of right and wrong. Cultivation impact is determined by the repetition of messages of a particular type, exposure time (heavy viewing or light viewing), and knowing about users' viewpoints. While evaluating the impact of TV portrayals, variations in age, sex, socio-economic status, minorities, and occupational factors also play an important role.

Uses and Gratifications Theory

The uses and gratification theory (Katz et al., 1974) advocates that people use mass media for deriving gratifications. This theory's assumptions also apply to digital media usage of people who use it to satisfy various needs including cognitive, affective, personal, and social needs. People and especially adolescents use social media for social interaction, information acquisition, sharing, and self-expression. Digital media platforms also enable adolescents to participate and interact on various issues of public importance. They also use social media for entertainment, gaming, and viewing trolls and humorous content.

Children, adolescents, and young adults use social networking sites (SNSs) to express their views. Whiting and William (2013) discovered that 56% of their respondents used social media to express their opinions and thoughts by liking and sharing posts, photos, and comments. Some of the adolescents join professional online sites like LinkedIn to seek the promotion of their career prospects. In fact, surveillance is also one of the motives of the young population to use social media. In Whiting and William's (2013) study, 32% of respondents used social media to spy and monitor what other people are doing. Therefore, on the basis of this theory, it can be reasonably assumed that adolescents derive various types of gratifications by the use of different digital media platforms.

Third-Person Effect Theory

According to Davison's (1983) theory, people believe that other people are more influenced by the media messages than they themselves indicating a perceptual bias resulting from the third-person effect. Mass media messages are generally attributed as having powerful effects on the attitude and behaviours of the mass audience. This self-serving bias to believe that other people are more vulnerable than oneself may be applicable in the online usage of anti-social media messages such as violent rap lyrics, pornographic content, or media violence (Paul et al., 2000; Perloff, 1993). Media perceptions such as the third-person effect seem to be a cross-cultural phenomenon but socio-cultural factors may moderate the impact.

Though the magnitude of the third-person effect may vary on the basis of individual differences it has certainly some behavioural consequences depending upon the media types and adolescents' willingness to support the imitation of controversial contents such as violence and pornography. Social networking sites (SNSs) have indirect behavioural consequences on the adolescents. Unlike traditional media, SNSs have turned out to be very influential media platforms for the adolescents.

Framing Agenda Setting and Priming

Framing research is a strategy of constructing and processing news discourse (Pan & Kosicki, 1993) that examines 'individual frames' (Scheufele, 1999) or 'mentally stored clusters' (Entman, 1993, cited in Scheufele, 1999). This internal structure of mind perspective has two broad foundations, i.e., sociological and psychological. Users of mass media do not usually encounter messages with a blank mind. They use schemata or initiate expectations that lead one's exploration in a particular direction while ignoring others. There are differences in terms of semantic and schematic activation. This varies on the basis of information stored in memory and external cues, respectively.

Agenda Setting Theory

Agenda setting theory developed by McCombs and Shaw (1972) refers to the creation of public awareness and concern of issues through media influence and attempts to establish a preference in the minds of people. The setting of agenda refers to the effect and transfer of media agenda to the society in a reciprocal way. Media activities do not operate within a vacuum. Further, the agenda of media also exerts a subtle form of control on 'how' and 'why' of the public opinion.

During the times of digital media expansion and availability of heterogeneous media, the situation has changed through fragmentation of audiences. Digital media

platforms may influence agenda setting through the social media sharing to a large audience. The traditional power of mass media has led to the reduction in the influence of political agendas due to the personalized use of digital media. Adolescents and children nowadays prefer entertainment in comparison to news and political knowledge. In the contemporary times, mass media is losing its grasp on the public agenda due to increased selectivity and audience fragmentation. On the contrary, digital online platforms for social networking and entertainment such as Instagram, Facebook, and WhatsApp are growing in popularity leading to customized information through filters which limit exposure based on past searches and interests. Bulkow et al., (2013; p. 59) suggested that ...agenda setting, aims at homogenizing the public opinion by bringing in live positive judgments of involved and uninvolved persons for issues which are regarded as important by the media at a certain point in time, thus covering the society as a whole.

Priming Theory

The priming theory of media is based upon the cognitive psychology model of human memory which assesses the effect of priming on public opinion. According to this theory by Iyengar and Kinder (1987), exposure to one stimulus influences a response to a subsequent stimulus, e.g., the word 'student' is recognized more quickly following the word 'teacher' and then by the word 'bread'. Priming can be perceptual, associative, conceptual, affective, or semantic.

Media may prime goals and behaviours within their audience by providing information about 'significant others' embedded in media content. These may trigger motivational and behavioural responses in the audience, e.g., celebrities can be shown repeatedly in the media leading to priming aspects of an individual's self-concept. Another example is the role of media in the form of movies and video games in the formations of aggressive thoughts and emotions among children and adolescents. However, the priming effect may be moderated by chronic media exposure, personal salience of issues, and the need for cognition.

Co-construction Theory

With a plethora of social media and digital environments available such as chat rooms, instant messaging, text messaging, and social networking sites, users construct and co-construct their environments (Subrahmanyam et al., 2010). It is, thus, a dynamic environment where the users co-construct and use various digital platforms and tools in varied ways. The critical issues in the life of adolescents concerning their identity and social development get reflected in their online interactions also. Co-construction theory suggests that adolescents help to create the content of digital communication influencing their lives and pointing at a strong continuity between

adolescents' offline and online lives (Subrahmanyam et al., 2006). Thus, Internet as a cultural tool (Greenfield & Yan, 2006) creates online cultural spaces and norms that affect the well-being of adolescents.

Risk Factors

Risk factors for Internet addiction may range from physical, psychological to socio-cultural factors. Lam (2014) based on a systematic review of longitudinal studies pointed out three broad categories of variables: psychopathologies of the participants, family and parenting factors, and others such as Internet usage, motivation, and academic performance. Internet use time, neuroticism, and life impairment were found to be the three main predictors of Internet addiction (Hassan et al., 2020; Wu et al., 2015) which indicate multiple factors interacting to lead to addiction.

In the contemporary digitalized societies, the breakdown of social support and increase in self-centeredness have contributed to the emergence of excessive dependence on social media platforms. Family satisfaction, the first familial factor studied by researchers (Ko et al., 2007) among Asian adolescents, indicated a negative relationship with Internet addiction. A detached family relationship significantly contributes to Internet addiction (Hassan et al., 2020).

Using the Internet for playing games was found to be related to at risk for Internet addiction in around 5% of school personnel in a rural area in Japan (Tsumura et al., 2018).

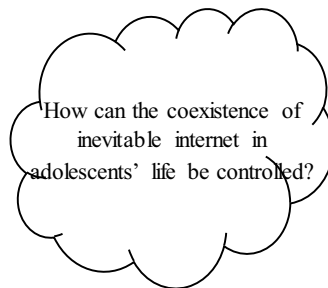
In the recent COVID-19 pandemic during the lockdown period, 50.8% of the participants reported increased gaming behaviour (Balhara et al., 2020). It indicated the use of gaming behaviour by adolescents as a coping mechanism against stress. This highlights the need to develop awareness about appropriate coping strategies which can be a protective factor for the adolescent. For instance, parental use of excessive Internet may be imitated and seen as acceptable behaviour by the growing children in the family. Effective parent-child communication and a cohesive family environment (Hassan et al., 2020) are protective factors for the proper development of adolescents.

Implications of Adolescent Digital Engagement

The adolescence stage is characterized by novelty-seeking, curiosity, and experimentation. The digital world offers them an exciting opportunity to form friends and look out for new things. This is also a 'cool' thing and a very much 'in' thing for the adolescents to engage and be a part of the social media world. However, this may raise concern for adolescent well-being because of their characteristic impulsive nature and risk-taking behaviour of adolescents and also the fact that their ability for self-regulation and other executive functions are still developing.

Everyday life activities of adolescents in the contemporary time period are construed and constructed around the paramount reality of online socialization. The diverse range of activities, public and private, rational and irrational, their interpersonal bonds, their meeting place, conflicts, and the sum total of relations are guided, shaped, and influenced through interactions on digital platforms.

Phenomenological, interpretative, critical, and social identity perspectives are necessary for understanding the complex role of the Internet in everyday life. High usage of the Internet by different types of adolescents and different ways of using along with changing familial and cultural contexts would bring about widely divergent consequences. Adolescents engage in active sense-making, sometimes threaten and undermine the privacy of their friends, and don't hesitate to participate in acts of aggression and possible oppression. As with the growing infrastructure of the Internet and the number of Internet subscriptions rising phenomenally everyday with dangling wires across the open spaces between apartment buildings, wireless connections entering our tiny bedrooms, the cyberspace has become a vehicle for responsible and irresponsible behaviour.



The world of the Internet has opened up a wide range of activities, new patterns of behaviour in the new contexts where expectations of autonomy, privacy, and ethics are at risk. Several instances of misuse of Internet platforms in the form of cyberbullying, trolling, dating, sexting, and privacy violations are taking place frequently. The problems of identification due to anonymity and pseudonyms often pose threat to the peace and happiness of adolescents and pose a serious challenge of tracking the IP address and public Internet terminals to the law-and-order agencies. Cyberspace can't be depicted as a coherent unambiguous whole rather it consists of a wide range of activities, and the onscreen performances engaged by adolescents are embedded in everyday social practices. The possibilities of playfulness and deception had been the dominant themes of gender and sexuality in digital cultures. Identity deception in different forms is a common practice on Internet sites ascertained through verification that lets other members 'verify' that you actually are who you actually claim to be. Further, the online world can create and recreate the body in so many ways through image text and sound that can create a problem for the adolescent.

There are issues related to dissolution and fragmentation problems, and options of creating embodied persona have increased on digital interaction of adolescents.

Many value-based ethical practices are compromised in Internet-mediated communication contexts, and balancing privacy, accountability, reliability, self-expression, and security always remains unstable owing to situational and contextual factors.

There are various readings of Butler's theory (1990, 1993) of gender performativity in cyber-spatial contexts. Many Internet researchers have explored the connections between Internet games and sexuality (e.g., Consalvo, 2003). Taylor (2009) has made important contributions to the area of embodiment and gaming.

Risky Encounters

The extraordinary rapidity of Internet diffusion and the development of digital platforms online have led to increased risks for adolescents in the recent years. Public anxieties and the anxieties of parents in the Indian context have also increased manifold times. There is a typical paradoxical situation that poses a moral dilemma for the parents that opportunities and risks are inextricably interwoven in the engagement of online technology. The design and content dynamics of online materials are such that it becomes difficult for the parents to draw the boundary lines between safe use and risky encounters. Advertisements related to pornographic content keep flashing while children use the Internet. The offline conduct of adolescents can be socially regulated by parents and teachers while this factor goes unregulated on the online platforms. Mancheva (2006) reports that one in three Internet users in Bulgaria have met in person somebody whom they met online, and one in three have experienced continuous attempts to communicate with them (often about sex) against their will. A 2006 survey in Poland reported that two in three Internet users make friends online and share personal information, almost one in two had met someone whom they encountered online and half of them went alone, and one in four of these described the behaviour of the other person as suspicious (cited in Dreier et al., 2013).

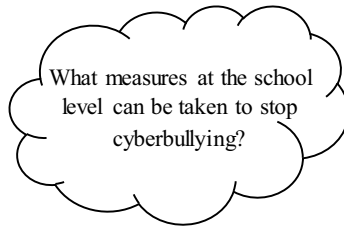
In the Indian context, we also very commonly experience cases of polyvictimization by children and adolescents' bullying in schools and in our day-to-day social life. In anthropological parlance, a relationship is called a 'joking relationship' (Radcliffe-Brown, 1940), where the person in such a relationship can throw abuse and banter against each other.

Cyberbullying involves harassment by teasing or insulting victims using modern digital platforms. Bullying among children generates from healthy socialization turning into ugly and hostile manifestations of interactional dominance. Based on evidence from research, there are immediate and long-term detrimental effects of school bullying on the educational, psychological, and professional lives of the students.

Cyberbullying is more prevalent than traditional bullying owing to the anonymity offered through digital platforms as it is easy to harm without physical interaction. It requires little planning as the threat of being caught is less and lack of supervision also acts as a contributory factor in committing cyber offences. Victims of cyberbullying can be reached at any given point of time whereas traditional bullying occurred during

school hours. Relational aggression is a very common form of bullying where the bully uses their social network to spread rumours or indirectly attacks or threatens relationships in order to produce a particular outcome (Jackson et al., 2009).

Adolescent age seems to be a more vulnerable group as it is a transition from the innocent world of childhood into the mature world of adulthood. Psychological problems like depression and lack of interest in school activities are some of the symptoms experienced by cyberbullying victimization. In some situations, prolonged bullying may lead to eating disorders, suicide, and homicide as a consequence of persistent anxiety, low self-esteem, and feelings of anger and revenge. Some of the normative factors of socio-cultural acceptance of anger as acceptable means for solving problems are shown in the media such as violence shown in Bollywood movies and use of force to achieve a goal, caste, and gender-related stereotypes and aggression used as a suitable strategy for getting something they want. The power and performance of the written word and textual attacks often carry a heavier emotional impact than that of verbal attacks. It is difficult to establish simple cause and effect relations for the prevalence of cyberbullying owing to the influence of a complex set of factors contributing to this process. The dominance of consumerism, nuclearizing family system, low–high-income gaps among the household, lack of parental support due to strict and extended working time schedules, urban anonymity, lack of communication ethos of helping each other, marital discord, rising divorce rates, and high pressure to perform to get a job are some of the factors relevant in the Indian context.



Problematic Internet Use (PIU)

The Internet has dramatically increased in the world and in India. Research in this area has used various terms like ‘Internet addiction’; ‘Internet dependency’; ‘cyberaddiction’; ‘virtual addiction’; or ‘compulsive’, ‘problematic’, ‘excessive’, and ‘pathological Internet use’, all being similar to problematic Internet use. (Breslau et al., 2015; De Cock et al., 2014; Kuss et al., Kuss, Griffiths, et al., 2014, Kuss, Shorter, et al., 2014; Richter et al., 2016). The reasons for the use of variable terms are lack of internationally agreed unanimity on this issue and lack of agreement to call it independent pathology. Currently, gambling disorder is the only accepted behavioural addiction

in the Diagnostic Statistical Manual of Mental Disorders (DSM 5). Some of the researchers use the term ‘problematic Internet use’ (PIU) while others use ‘Internet dependence’ with no necessary notion of disorder per se. It would be more apt to explore the dynamics of Internet usage and discuss the relevant concepts related to this field. Preston (1941) cited in Tokunga (2015) was among the first who described media addiction as “giving oneself over to habit forming practice very difficult to overcome, no matter how the after effects are dreaded.”

Television addiction has been conceptualized as a multidimensional phenomenon consisting of three key elements: (a) loss of control that results in too much time spent in front of the TV; (b) unsuccessful attempts to reduce its use; and (c) functional impairment such as professional and social problems (Kubey, 1990). It is also an important aspect to understand and analyse that at times moral panics or exaggerated reactions are highlighted whenever there is a lack of concrete empirical evidence at a large scale and at a longer period of time. Internet nowadays has become an integral part of adolescents’ life activities and it has become extremely difficult to dissociate offline from online.

In 1996, Kimberley became the first to publish a detailed case report of a 43-year-old female homemaker with addictive use of the Internet, similar to an alcohol addiction. However, other researchers disagreed with this and concluded that an addictive behaviour could exist among certain Internet users. Several other studies published later showed that addictive Internet users can in fact experience similar symptoms as were traditionally found for substance use disorders, i.e., salience, withdrawal, mood modification, conflict, and relapse. (Kuss & Griffiths, 2012; Kuss et al., Kuss, Shorter, et al., 2014; Widyanto & Griffiths, 2006).

A systematic literature review conducted by Kuss and Griffiths (2012) concluded that on the molecular level, Internet and gaming addiction is characterized by an overall reward deficiency that entails decreased dopaminergic activity. The Internet can have beneficial effects on the users in many situations; hence, many researchers are cautious enough not to label it as addiction. In a variety of situations, Internet use may become a saviour for alleviating the real-life problems and individuals may feel a strong desire to connect to it but to suggest that this is a mental disorder seems to be a stretch.

Mitchell (2000) had commented that the question of Internet addiction having a diagnosis of its own is debatable as it is difficult to know whether Internet addiction develops on its own or occurs as a result of underlying comorbid psychiatric illness. After more than a decade, this debate still remains open as reflected by its non-inclusion in the DSM 5.

Cognitive-behavioural perspective considers PIU as a multidimensional syndrome having cognitive and behavioural symptoms leading to negative social, academic, or professional consequences (Caplan, 2005). PIU is considered as an outcome of deficits in online relationships and relationship-building resources (Tokunga & Rains, 2016). Hence, such adolescents may prefer online interaction over face-to-face interaction as they may suffer from psychosocial problems like loneliness and depression. Relational resource deficit indicates uncontrollability over Internet use and mood alteration. Similar to the central characteristics of substance

use disorder and gambling disorder, it highlights impaired control, interpersonal problems related to use, neglect of major roles, restlessness when not allowed to use, and withdrawal from important activities.

DSM 5 includes Internet gaming disorder (IGD) as a potential behavioural disorder, explicitly referring to the Internet as not yet an acceptable disorder, rather it is included as a potential disorder needing further research prior to consideration for inclusion as an official disorder. The central symptoms of IGD include preoccupation, withdrawal, and tolerance, along with unsuccessful attempts to control its use. Deception, escape, jeopardized relations, and job or career opportunities are some of the other symptoms of gaming disorder. Though complete unanimity and consent statements are lacking for Internet use disorder, there is no denying the fact about its problematic aspects. The problems related to gambling behaviour also have similarities for Internet-dependent persons. The umbrella term 'Internet use disorder' is used commonly with its subtypes, e.g., related to gaming, social media, or sex.

As compared to other concepts such as 'compulsive Internet use' or 'excessive Internet use', the term 'problematic Internet use' is commonly used relying on measures of the amount of time spent online. Another unifying description is Problematic Interactive Media Use (PIMU) which is a syndrome describing behaviours characterized by compulsive use of, increasing tolerance to, and negative reactions to being removed from interactive screen media use, which impairs the individual's physical, mental, cognitive, and/or social function (Rich et al., 2017). The researchers have proposed four variations of PIMU, gaming, social media, pornography, and information seeking/surfing the web which includes uncontrolled online searches of anything.

The Internet addiction test (Young, 1996) is one of the most used scales for Internet addiction, and other important scales are the compulsive Internet use scale (Meerkerk et al., 2009), the Internet addiction diagnostic questionnaire (Young 1998b), the generalized problematic Internet use scale-2 (Caplan, 2010), and the problematic Internet use questionnaire (Demetrovics et al., 2008). Different adolescents using excess of the Internet have different reasons and stories to justify their behaviour. Their exploration to digital pathways leads them to develop various adaptive strategies to balance offline and online activities. In the Indian context, adolescents' excessive Internet use leads them to neglect daily routines and may result in an academic downfall, aches, sleeplessness, and parental conflicts.

Prevention and Intervention Measures

Given the crucial nature of issues related to Internet use, a comprehensive measure at various stakeholder levels needs to be adopted. The beginning is at home in the family where parents and family members need to understand the vulnerability of children and adolescents to the dark side of the virtual world and take necessary steps.

Clark (2011) urges that ‘participatory learning’ be added as a fourth parental mediation strategy that recognizes the utility of newer media to engage in interpersonal relationships and collaborative creativity.

Schools next have a crucial role to create awareness about the safe use of the Internet and a zero-tolerance policy for bullying, aggression, and cybersex-related issues. The focus needs to be on building resilience and adopting effective coping strategies.

A community approach is important which will offer opportunities and scope to adolescents who may otherwise engage in cyber surfing or social media use or gaming.

Steps also need to be taken at the policy level and adoption of various measures so that the future generation is able to navigate and function in a digital safe and healthy environment.

The most commonly used treatment approach for Internet addiction is the cognitive behaviour therapy (CBT) (Widyanto & Griffith, 2006). CBT has been widely and successfully used in other addiction and impulse-control disorders such as eating disorders, compulsive shopping, and pathological gambling (De Abreu & Goes, 2011). Studies (Li & Dai, 2009) have found that CBT has good effects on adolescents with Internet addiction.

A multimodal treatment approach combining pharmacotherapy, psychotherapy, family counselling, and motivational interviewing is also used to deal with Internet addiction and problematic interactive media use.

Conclusion

As mentioned in the McKinsey report (2019), India is one of the largest and fastest-growing markets for digital consumers, with 560 million Internet subscribers in 2018, second only to China. The digital divide is reducing and the country has the potential to be a truly connected nation by 2025 (McKinsey Global Institute, 2019). Digital ecosystems are reshaping transactions in various fields including agriculture, healthcare, business, microenterprises, retail, logistics, and other sectors.

The adolescents are born into this ecosystem and will grow and function and work in this only. So it is important to inculcate good digital health in the adolescents from the beginning who are the future generation so that they can effectively harness the benefits while avoiding the risks and pitfalls of the digital world which can be so addictive.

The present chapter highlights the realm of the Internet as a new way of communication and a new era with diverse characteristics regarding the transfer and speed of information. There are numerous advantages related to the Internet in terms of education and social reforms but its dark side cannot be ignored. The chapter deals with media effects theories and important conceptual foundations related to the functioning of media and digital platforms. Online education is a new reality of the pandemic times posing threats and opportunities to the pedagogical infrastructure of

our own country. It would be unwise to ignore the importance of the Internet but it will be extremely dystopian to believe that it can be a replacement for our age-old traditions of learning and teaching in the physical classrooms.

A comprehensive understanding of the digital medium can minimize its disadvantages for adolescents and the society in general. There are huge differences in the access and usage patterns among the adolescents of the country, and a mindful road map is needed to use this platform for the advantage of the adolescents. One must not ignore the fact that in today's globalized world, our adolescents can't be kept away from the paradigm shift of medium. Thus, strategies should be developed aiming to improve its effectiveness for its users; hence, more researchers in the Indian context are needed to understand the problems and reasons associated with this medium, and a great deal of sincerity of efforts is required to know about its complications. Lastly, it can be said that there are different perceptions among the scholars about its usage and effects but as a developing county, we cannot afford to escape this powerful medium on the basis of our subjective perceptions. Attempts need to focus on the use of the Internet for enriching our younger generations for the development of a powerful nation.

Time to Reflect

The use of the Internet and social media platforms has revolutionized the way adolescents today learn, play, socialize, and work. Everything is at the tip of their finger—through using mobiles and laptops or computer systems. This has created a sense of instantness and need for immediate gratification. How is it affecting adolescents' value system and well-being? Reactivity, anxiety, abuse, and violence are some of the fallouts for adolescents of the present generation leading mostly a digital life. Being constantly online has also its impact on their human relations. Since the digital or online world is the new normal now, how do adolescents strike a balance between their online and offline world to function effectively and live happily?

References

- Balhara, Y. S., Kattula, D., Singh, S., Chukkali, S., & Bhargava, R. (2020). Impact of lockdown following COVID-19 on the gaming behavior of college students. *Indian Journal of Public Health*, 64(6), 172. https://doi.org/10.4103/ijph.IJPH_465_20
- Bener, A., & Al-Mahdi, H. S. (2012). Internet use and television viewing in children and its association with vision loss: a major public health problem. *Journal of public health in Africa*, 3(1).
- Bhat, A., Cherian, A., Thomas, C., Thomas, C., Jain, P., Bhat, S., D'Souza, D. P., & Rao, S. (2016). Problematic internet use among Indian adolescents: finding from a sample of undergraduate students. *Journal of Evolution of Medical and Dental Sciences-JEMDS*, 5(53), 3491–3495.

- Breslau, J., Aharoni, E., Pedersen, E. R., & Miller, L. L. (2015). A review of research on problematic Internet use and well-being: With recommendations for the US Air force. *Rand Health Quarterly*, 5(1).
- Bronfenbrenner, U. (1992). *Ecological systems theory*. Jessica Kingsley Publishers.
- Butler, J. (1990). *Gender trouble: Feminism and the subversion of identity*. ISBN 0-415-900-42-5
- Butler, J. (1993). *Bodies that matter: On the discursive limits of "sex"*. Published in (2011) by Routledge. ISBN - 9781138302112
- Bulkow, K., Urban, J., & Schweiger, W. (2013). The duality of agenda-setting: The role of information processing. *International Journal of Public Opinion Research*, 25(1), 43–63.
- Caplan, S. E. (2010). Theory and measurement of generalized problematic Internet use: A two-step approach. *Computer in Human Behavior*, 26, 1087–1097.
- Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychology and Behavior*, 10, 234–241.
- Caplan, S. E. (2005). A social skill account of problematic internet use. *Journal of Communication*, 55(4), 721–736. <https://doi.org/10.1111/j.1460-2466.2005.tb03019.x>
- Chou, C., & Hsiao, M. C. (2000). Internet addiction, usage, gratification, and pleasure experience: The Taiwan college students' case. *Computers & Education*, 35(1), 65–80.
- Cifuentes, L., & Murphy, K. L. (2000). Promoting multicultural understanding and positive self-concept through a distance learning community: Cultural connections. *Educational Technology Research and Development*, 48(1), 69–83.
- Clark, L. S. (2011). Parental mediation theory for the digital age. *Communication Theory*, 21(4), 323–343.
- Consalvo, M. (2003). *It's a queer world after all: studying the sims and sexuality*. Glaad.
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, 17, 187–195.
- Davison, W. P. (1983). The third-person effect in communication. *Public Opinion Quarterly*, 47(1), 1–15.
- De Abreu, C. N., & Goes, D. S. (2011). Psychotherapy for internet addiction. In K. S. Young & C. N. De Abreu (Eds.), *Internet addiction: A handbook and guide to evaluation and treatment* (pp. 155–173). Wiley. <https://doi.org/10.1002/9781118013991.ch9>
- De Cock, R., Vangeel, J., Klein, A., Minotte, P., Rosas, O., & Meerkerk, G. J. (2014). Compulsive use of social networking sites in Belgium: Prevalence, profile, and the role of attitude toward work and school. *Cyberpsychology, Behavior, and Social Networking*, 17(3), 166–171.
- Demetrovics, Z., Szeredi, B., & Rózsa, S. (2008). The three-factor model of Internet addiction: The development of the problematic internet use questionnaire. *Behavior Research Methods*, 40(2), 563–574.
- Dreier, M., Tzavela, E., Wölfling, K., Mavromati, F., Duven, E., Karakitsou, C., Macarie, G., Veldhuis, L., Wójcik, S., Halapi, E., Sigursteinsdóttir, H., & Tsitsika, A. (2013). The development of adaptive and maladaptive patterns of internet use among European adolescents at risk for internet addictive behaviors: A grounded theory inquiry. In *European psychiatry* (vol. 28). Elsevier France-editions Scientifiques Medicales Elsevier.
- Entman, R. M. (1993). Framing: Towards clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58.
- Erikson, E. H. (1960). *Youth and the life cycle*.
- Goel, D., Subramanyam, A., & Kamath, R. (2013). A study on the prevalence of internet addiction and its association with psychopathology in Indian adolescents. *Indian Journal of Psychiatry*, 55(2), 140.
- Goffman, E. (1959). *The presentation of self in everyday life*. Anchor Books.
- Goggin, G. (2014). Mobile web 2.0: New imaginaries of mobile internet. In *Theories of the Mobile Internet* (pp. 146–160). Routledge.
- Greenfield, P., & Yan, Z. (2006). Children, adolescents, and the Internet: A new field of inquiry in developmental psychology. *Developmental Psychology*, 42(3), 391–394. <https://doi.org/10.1037/0012-1649.42.3.391>

- Griffiths, M. (2000). Internet addiction-time to be taken seriously?. *Addiction research*, 8(5), 413-418. <https://doi.org/10.3109/16066350009005587>
- Ha, J. H., Kim, S. Y., Bae, S. C., Bae, S., Kim, H., Sim, M., ... & Cho, S. C. (2007). Depression and Internet addiction in adolescents. *Psychopathology*, 40(6), 424–430. <https://doi.org/10.1159/000107426>
- Ha, Y.-M., & Hwang, W. J. (2014). Gender differences in internet addiction associated with psychological health indicators among adolescents using a national web-based survey. *International Journal of Mental Health and Addiction*, 12(5), 660–669. <https://doi.org/10.1007/s11469-014-9500-7>
- Hassan, T., Alam, M. M., Wahab, A., & Hawlader, M. D. (2020). Prevalence and associated factors of internet addiction among young adults in Bangladesh. *Journal of the Egyptian Public Health Association*, 95(1), 1–8.
- Ivan, G. (1995). Are you suffering from Internet Addiction Disorder? Clinical features and health-related quality of life in persons reporting compulsive computer use behavior. *Journal of Clinical Psychiatry*, 60, 839–844.
- Iyengar, S., & Kinder, D. R. (1987). *News that matters: Television and American opinion*. University of Chicago Press.
- Jackson, M., Cassidy, W., & Brown, K. (2009). Out of the mouth of babes: Students' voice their opinions on cyber-bullying. *Long Island Education Review*, 8(2), 24–30.
- Katz, E., Blumler, J. G. & Gurevitch, M. (1974). Utilization of Mass Communication by the Individual. In J. G. Blumler, & E. Katz (Eds.), *The Uses of Mass Communications: Current Perspectives on Gratifications Research*. Beverly Hills: Sage Publications, 19–34.
- Kerpelman, J. L., Pittman, J. F., & Lamke, L. K. (1997). Toward a microprocess perspective on adolescent identity development: An identity control theory approach. *Journal of Adolescent Research*, 12(3), 325–346.
- Ko, C. H., Yen, J. Y., Yen, C. F., Lin, H. C., & Yang, M. J. (2007). Factors predictive for incidence and remission of internet addiction in young adolescents: A prospective study. *CyberPsychology & Behavior*, 10(4), 545–551.
- Kubey, R. (1990, August). *Psychological dependence on television: Applications of DSM-III-R and experience sampling methods finding*. Paper presented at the meeting of the American Psychological Association, Boston, MA.
- Kuhu, Awasthi, P., & Verma, S. (2017). Role of internet addiction in mental health problems of college students. *Psychology and Behavioral Science International Journal*, 2(4). <https://doi.org/10.19080/PBSIJ.2017.02.555591>
- Kumar, S., Singh, S., Singh, K., Rajkumar, S., & Balhara, Y. P. S. (2019). Prevalence and pattern of problematic internet use among engineering students from different colleges in India. *Indian Journal of Psychiatry*, 61(6), 578.
- Kuss, D. J., Griffiths, M. D., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, 20, 000–000.
- Kuss, D. J., Shorter, G. W., van Rooij, A. J., Griffiths, M. D., & Schoenmakers, T. M. (2014). Assessing internet addiction using the parsimonious internet addiction components model—A preliminary study. *International Journal of Mental Health and Addiction*, 12(3), 351–366.
- Kuss, D. J., & Griffiths, M. D. (2012). Internet and gaming addiction: A systematic literature review of neuroimaging studies. *Brain Sciences*, 2(3), 347–374.
- Lakshmana, G., Kasi, S., & Rehmatulla, M. (2017). Internet use among adolescents: Risk-taking behavior, parental supervision, and implications for safety. *Indian Journal of Social Psychiatry*, 33(4), 297.
- Lam, L. T. (2014). Risk factors of internet addiction and the health effect of internet addiction on adolescents: A systematic review of longitudinal and prospective studies. *Current Psychiatry Reports*, 16(11), 508.
- Lenhart, A., Smith, A., Anderson, M., Duggan, M., & Perrin, A. (2015). *Teens, technology and friendships: Video games, social media and mobile phones play an integral role in how teens meet and interact with friends*. Pew Research Centre. www.pewresearch.org

- Li, G., & Dai, X. Y. (2009). Control study of cognitive-behavior therapy in adolescents with Internet addiction disorder. *Chinese Mental Health Journal*.
- Mancheva, G. (2006). Child in the Net' national campaign. *The National Center for Studies of Public Opinion*, 12.
- Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, 3(5), 551.
- McCombs, M., & Shaw, D. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36, 176–187.
- McKinsey Global Institute. (2019). *Executive summary. Digital India: Technology to transform a connected nation*. Available at: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Digital%20India%20Technology%20to%20transform%20a%20connected%20nation/MGIDigital-India-Exec-summary-April-2019.pdf>; Last accessed April 3, 2020.
- Meerkerk, G. J., Van Den Eijnden, R. J., Vermulst, A. A., & Garretsen, H. F. (2009). The compulsive internet use scale (CIUS): Some psychometric properties. *CyberPsychology and Behavior*, 12, 1–6.
- Mihara, S., & Higuchi, S. (2017). Cross-sectional and longitudinal epidemiological studies of internet gaming disorder: A systematic review of the literature. *Psychiatry and Clinical Neurosciences*, 71, 425–444.
- Mitchell, P. (2000). Internet addiction: Genuine diagnosis or not? *The Lancet*, 355(9204), 632.
- Murray, M., Maras, D., & Goldfield, G. S. (2016). Excessive time on social networking sites and disordered eating behaviors among undergraduate students: Appearance and weight esteem as mediating pathways. *Cyberpsychology, Behavior, and Social Networking*, 19, 709–715.
- Pan, Z., & Kosicki, G. M. (1993). Framing analysis: An approach to news discourse. *Political Communication*, 10, 55–76.
- Paul, B., Salwen, M. B., & Dupagne, M. (2000). The third-person effect: A meta-analysis of the perceptual hypothesis. *Mass Communication & Society*, 3(1), 57–85.
- Perloff, R. M. (1993). Third-person effect research 1983–1992: A review and synthesis. *International Journal of Public Opinion Research*, 5(2), 167–184.
- Poli, R., & Agrimi, E. (2012). Internet addiction disorder: Prevalence in an Italian student population. *Nordic Journal of Psychiatry*, 66(1), 55–59.
- Prabhakaran, M. A., Patel, V. R., Ganjiwale, D. J., & Nimbalkar, M. S. (2016). Factors associated with internet addiction among school-going adolescents in Vadodara. *Journal of Family Medicine and Primary Care*, 5(4), 765.
- Preston, M. I. (1941). Children's reactions to movie horrors and radio crime. *The Journal of Pediatrics*, 19, 147–168. [https://doi.org/10.1016/S0022-3476\(41\)80059-6](https://doi.org/10.1016/S0022-3476(41)80059-6)
- Prosperio, L., & Gioia, D. A. (2007). Teaching the virtual generation. *Academy of Management Learning and Education*, 6(1), 69–80.
- Przybylski, A. K., Weinstein, N., & Murayama, K. (2017). Internet gaming disorder: Investigating the clinical relevance of a new phenomenon. *American Journal of Psychiatry*, 174(3), 230–236.
- Radcliffe-Brown, A. R. (1940). On joking relationships. *Africa*, 13(3), 195–210.
- Rich, M., Tsappis, M., & Kavanaugh, J. R. (2017). Problematic interactive media use among children and adolescents: Addiction, compulsion, or syndrome? In K. S. Young & C. N. de Abreau (Eds.), *Internet addiction in children and adolescents: Risk factors, assessment, and treatment* (pp. 3–28). Springer publishing company.
- Richter, P., Smaragdakis, G., Plonka, D., & Berger, A. (2016). Beyond counting: new perspectives on the active IPv4 address space. In *Proceedings of the 2016 Internet Measurement Conference* (pp. 135–149).
- Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American sociological review*, 141–156.
- Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication*, 49(1), 103–122.

- Shaw, M., & Black, D. W. (2008). Internet addiction: Definition, assessment, epidemiology and clinical management. *CNS Drugs*, 22, 353–365.
- Subrahmanyam, K., & Smahel, D. (2010). *Digital youth: The role of media in development*. Springer Science & Business Media.
- Subrahmanyam, K., Smahel, D., & Greenfield, P. (2006). Connecting developmental constructions to the internet: Identity presentation and sexual exploration in online teen chat rooms. *Developmental Psychology*, 42(3), 395–406.
- Takeuchi, L., & Stevens, R. (2011). The new coviewing: Designing for learning through joint media engagement. In *New York, NY: The Joan Ganz Cooney Center at Sesame Workshop*. Retrieved from: <http://goo.gl/cNM74T>
- Taylor, T. L. (2009). *Play between worlds: Exploring online game culture*. Mit Press.
- Tokunaga, R. S. (2015). Perspectives on Internet addiction, problematic Internet use, and deficient self-regulation: Contributions of communication research. *Annals of the International Communication Association*, 39(1), 131–161.
- Tokunga, R. S., & Rains, S. A. (2016). A review and meta-analysis examining conceptual and operational definitions of problematic Internet use. *Human Communication Research*, 42(2), 165–199.
- Tsumura, H., Kanda, H., Sugaya, N., Tsuboi, S., & Takahashi, K. (2018). Prevalence and risk factors of Internet addiction among employed adults in Japan. *Journal of Epidemiology*, 28(4), 202–206.
- Turner, J. W., & Foss, S. K. (2018). Options for the construction of attentional social presence in a digitally enhanced multicomunicative environment. *Communication Theory*, 28(1), 22–45.
- Turkle, S. (2011). *Alone Together: Why we expect more from technology and less from each other*. New York. Basic Books.
- Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratifications approach. *Qualitative Market Research: An International Journal*.
- Widyanto, L., & Griffiths, M. (2006). 'Internet addiction': A critical review. *International Journal of Mental Health and Addiction*, 4(1), 31–51.
- World Health Organization. (2018). *International classification of diseases for mortality and morbidity statistics (11th Revision)*. Retrieved from <https://icd.who.int/browse11/l-m/en>
- Wu, C. Y., Lee, M. B., Liao, S. C., & Chang, L. R. (2015). Risk factors of internet addiction among internet users: An online questionnaire survey. *PLoS one*, 10(10), e0137506.
- Wu, X., Chen, X., Han, J., Meng, H., Luo, J., Nydegger, L., & Wu, H. (2013). Prevalence and factors of addictive Internet use among adolescents in Wuhan, China: interactions of parental relationship with age and hyperactivity-impulsivity. *PLoS one*, 8(4), e61782.
- Young, K. S. (1998b). Internet addiction: The emergence of a new clinical disorder. *CyberPsychology and Behavior*, 1(3), 237–244.
- Young, K. S. (1996). A case that breaks the stereotype. *Psychological Reports*, 79, 899–902.
- Young, K. S., & Rogers, R. C. (1998). The relationship between depression and Internet addiction. *CyberPsychology and Behavior*, 1(1), 25–28.