Technology Addiction in Students and the Role of School Counselors

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By:

Joseph B. Stontz

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Abstract

Professional school counselors need not withdraw from helping students with addictions, but rather, school counselors need to be effectively equipped to help students with addictions by being familiar with the warning signs of addiction, being able to effectively screen students for addictions, and then competently refer students to professional therapists specializing in addictions. This paper’s purpose is to contribute to the efficacy and ability of the professional school counselor to support, challenge, help, encourage, and advocate for students with addictive disorders. This paper will help professional school counselors grasp the significance of the digital age students are living in, assess the positive and negative consequences of technology and the Internet, and understand the ever-increasing problem of Internet addiction and a few related addictions. Also, this paper offers insight into an Adlerian perspective on addiction, gives resourceful information on effective and research-based interventions to be used as models for the effectual treatment of students with addictions, provides screening questions and tools for counselors to used during assessment, and includes a list of warning signs of various addictions in students for school counselors to reference when a potential addiction is suspected.

Keywords: digital age, school counseling, addiction, technology addiction, process addictions, addictive behaviors, screening tools, Internet addiction, smartphone addiction, Facebook addiction, gaming addiction, pornography addiction, Adlerian psychology, mistaken beliefs, ASCA National Model.
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Technology Addiction in Students: Implications and Interventions for School Counselors

School counselors might ask why a paper on technology and Internet addiction is relevant to their challenging line of work, considering the constant strain and demand of their numerous responsibilities. While it is true that school counselors do not perform therapy and the subsequent psychotherapeutic interventions necessary to help and heal students with addictions, professional school counselors are uniquely positioned to observe the harmful consequences of a range of addictive disorders on students more than any other helping professional would (Burrow-Sanchez, Lopez, & Slagle, 2008). Not only are school counselors uniquely positioned to observe the warning signs of addiction in students, they are able to effectively communicate and collaborate with administration, teachers, parents, and professional therapists on how to best help those students.

Professional school counselors need to be resourcefully and responsibly prepared to refer students to other licensed therapists who specialize and have success in treating addictions in young people. Dickson and Derevensky (2006) maintain that addictive disorders are destructively impacting young people academically, personally, socially, behaviorally, and in their families more than any other time in human history. Regrettably, most professional school counselors would deem themselves less than competent to address the issue of addiction with their students (Burrow-Sanchez, Lopez, & Slagle, 2008; Pérusse & Goodnough, 2005). Thus, this paper is written to prepare professional school counselors for such situations, so that they may have the awareness, responsiveness, ability, and competence to compassionately and empathetically help students with their addictions.

Professional school counselors who continue to be ignorant and uneducated about the connection between process addictions—which are addictions to behaviors such as gaming,
viewing pornography, Internet use, and smartphones, to name several—and mood disorders, poor academic performance, and a host of other negative consequences may not realize the influence excessive technology use has on students. There are many research studies that illustrate the strong correlation between poor academic performance and addictions in students (Atwood, 2006; Bardick, Bernes, & McCulloch, 2004; Crosnoe, 2007; Dickson & Derevensky, 2006; Goble, 2008; Fergusson & Boden, 2008; Lambie & Sias, 2005; Petry, 2005). Furthermore, there are convincing indications that substance abuse and process addictions are connected (Merta, 2001; Ledgerwood & Downey, 2002; Potenza, 2002; Young, Pistner, O'Mara, & Buchanan, 1999), as well as psychiatric disorders and process addictions (Manley & Koehler, 2001; Ohlmeier et al., 2008; Ragan & Martin, 2000). In light of these studies, supportive and effective resources must be provided to school counselors to help them determine whether or not a student’s apparent bad grades or personal issues could be the cause of an addiction that is existent underneath the surface.

The ASCA National Model (2005) and its School Counseling Competencies (ASCA, 2007) encourage professional school counselors to respond to the crises and immediate needs of their students. School counselors should not shy away from addressing addictions in their students because these addictive disorders and their associated problems are part of fulfilling the ASCA National Model (2005) and the School Counseling Competencies (ASCA, 2007; Hagedorn & Young, 2011). Several years ago, the Council for Accreditation of Counseling and Related Educational Programs (CACREP, 2008) instructed all accredited counselor and related educational programs deliver their students with the information required for them to proficiently prevent, intervene, and treat addicted clients and students (Hagedorn & Young, 2011).
School counselors need to be effectively equipped to help students with addictions by being familiar with the warning signs of addiction, being able to effectively screen students for addictions, and then resourcefully refer students to professional therapists specializing in addictions. The goal of this paper is to contribute to the efficacy and ability of the professional school counselor to support, challenge, help, encourage, and advocate for students with addictive disorders.

This paper will help professional school counselors grasp the significance of the digital age students are living in, assess the positive and negative consequences of technology and the Internet, and understand the ever-increasing problem of Internet addiction and a few related addictions. Also, this paper will offer insight into an Adlerian perspective on addiction, give resourceful information on effective and research-based interventions to be used as models for the effectual treatment of students with addictions, provide screening questions and tools for school counselors to use during assessment, and include a list of warning signs of various addictions in students for school counselors to reference when a potential addiction is suspected.

Because of the vast amount of research on addictions related to substances such as alcohol and drugs (Hagedorn & Young, 2011), the focus of this paper will centralize on some of the most common problematic process addictions that flagrantly and negatively impact students, specifically internet addiction, smartphone addiction, Facebook addiction, gaming addiction, and pornography addiction (Black, 2007; Chak & Leung, 2004; McCabe & Ricciardelli, 2004; Park, Kim, & Cho, 2008).

The Digital Age

Daniel 12:4b (NRSV), “But you, Daniel, roll up and seal the words of this scroll until the time of the end. Many will go to and fro, and knowledge shall increase.”
The advancement of technology throughout human history has relatively stayed the same until the inventions and innovations of the past 200 years: the internal combustion engine, alternate current power, the light bulb, telephones, automobiles, the camera, radios, atomic and nuclear engineering, airplanes, space shuttles, lasers, fiber-optics, computers, silicon-based transistors, video-cameras, CDs, DVDs, cell phones, and the Internet have brought about revolutionary changes in society. Much more recently, there has been an exponential explosion in technology and information in the past few decades (Barton, 2013; Greenstein, 2012; Kurzweil, 2010).

The cofounder of Intel, Gordon Moore (1965), illustrated that the capability of computer circuits had doubled every year since their invention. His prediction that this trend would continue and have broader applications has become known as Moore’s Law (Greenstein, 2012). Fuller (1981) continued Moore’s logic in his “Knowledge Doubling Curve” and explained how until 1900 human knowledge doubled approximately every century. By the end of World War II, knowledge was doubling every 25 years (Fuller, 1981). Furthermore, in today’s technologically advanced society, diverse types of knowledge are growing at varying proportions. Nanotechnology knowledge is replicating itself every two years, clinical knowledge every year and a half, and human knowledge is duplicating itself in just over a year’s time, and eventually, knowledge will eventually double itself every twelve hours as the Internet and technology increases. (Coles, Cox, Mackey, & Richardson, 2006). Kurzweil (2010) illustrates this point as he remembers:

When I was an undergraduate, we all shared a computer at MIT that took up half of a building. The computer in your cellphone today is a million times cheaper and a thousand
times more powerful. That’s a billion fold increase in price performance of computing since I was an undergraduate. (p. 57)

Advancements in other fields that depend on information technology: Kurzweil (2010) points out that breakthroughs are happening in energy (solar power powered by nanotechnology), neuroscience (ability to construct a fully-synthetic model of the human brain by 2029), genetics (within 10 years we will all have digital copies of our genome, leading to medical therapies are personalized to our individual genetic makeup), and nanotechnology (as robots get smaller and smaller, we will be able to insert them into our bodies to repair damaged or aging tissue).

When gazing into the future, Barton (2013), with anticipation and vision remarks: One can only imagine what exponential technology growth will do to the field of personalized medicine, to the clean water shortages of Africa, and to businesses in America. Technology’s exponential growth rate means we are now accomplishing in one year what took centuries in ancient history. (p. x)

Today our eyes, ears, and minds are being saturated with a variety of media via the Internet, smart televisions, DVRs, instant messaging, Google™, Facebook™, Twitter™, Youtube™, Skype™, smartphones, smartphone apps, texting, email, video games, and the list goes on and will continue to grow. With the advent of wireless technology (Wi-Fi) and because most smartphones use their carrier’s signal to access the Internet, students have access to media 24 hours per day. Remarkably enough, the widely-accessible smartphone is a more effective communication device than any president or computer prodigy had access to just a quarter of a century prior, and this device delivers entrance to more data than any president had access to just 10 short years ago (Barton, 2013).
Greenstein (2012) challenges the educational system with this poignant commentary regarding how technology has shifted but our classroom methodologies have not:

At times, it can be difficult to comprehend that rate of change and the amount of new information. As schools grapple with this, many are still teaching content from the 20th century. Yet most students are growing up in a very different world. If Rip Van Winkle were to wake up in the middle of Times Square today, he would be awestruck by the multimedia messages and the pace of the world around him. If he were to wake up in a classroom, he might notice that the blackboard is now white, but otherwise feel relatively comfortable in the surroundings. (p. 1)

Whether we like it or not, technology and information is expanding at an exponential rate never seen before in human history. Along with this explosion in technology and information comes a massive wave of positive and negative consequences. In essence, technology is a double-edged sword. Professional school counselors must not only be aware of the positive impact of technology, but they must also realize that an improper use of technology can lead to unintended consequences.

**The Generation Gap**

Any professional school counselor born in after 1980 has been born into the digital age. Those 35 years old and younger have not known a world without video games, computers, and car phones. Any professional school counselor born after 1990 does not know a world without cell phones and the Internet. Yet when considered the modern technology age, professional school counselors must exercise empathy in relating to many students who have never known a world without Facebook, Youtube, iPods, iPads, and massively multiplayer online role-playing games (MMORPGs). As Brown (2014) succinctly writes, “The crux of the matter is… a
generational gap exists” (p. 13). Brown (2014) points out that many counselors attest to the detrimental effects of being online; however, many school counselors might not accurately identify that the Internet may play a significant role in a student’s academic, personal, or social problems.

**Prevalence of Student Media and Technology Use**

The Internet penetration rate (IPR), which is computed as the number of Internet users across the population, is a comparison tool to study each country’s access level to the World Wide Web (Ahmadi & Saghafi, 2013). Sweden (85%), Denmark (83%), Iceland (82%), South Korea (82%), the Netherlands (79%), China (79%), Finland (79%), Taiwan (79%), Canada (78%), and the United States (78%) are the top ten countries with the highest IPR (Ahmadi & Saghafi, 2013). In 2012, Li, O’Brien, Snyder, and Howard (2015) denoted that roughly 90% of U.S. youth and young adults between 12 and 30 years of age had accessed the Internet.

Another study by Guan & Subrahmanyam (2009) reports that in 2004, Internet access was available in 74% of the homes of 8 to 18 year olds, and in 2008, Internet usage among youth 12 to 14 years old was 88% in the United States, 100% in the United Kingdom, 98% in Israel, 95% in Canada, and over 70% in Singapore. International research and the accompanying statistics denote that over the past decade, the total populace with fixed (wired)-broadband subscriptions in the world increased from 63.9 million to 582.6 million people, which specifies a staggering 9.1-fold increase (Kim, 2013). Intriguingly, the largest proportion of Internet users is young people. For example, in Spain, around 98% of adolescences aged between 11 to 20 years reported using Internet (Wolniczak, Cáceres-DelAguila, Palma-Ardiles, Arroyo, Solís-Visscher, Paredes-Yauri, & Bernabe-Ortiz, et. al., 2013). Furthermore, the dissemination of the Internet has been rising at a mystifying pace and so have its pages: it has been estimated that more than
one billion online pages exist and that there is an increase of 20 million pages per month (Poli & Agrimi, 2012). Accordingly, access to the Internet is on the rise, the World Wide Web is exponentially growing, and it is primarily the young demographic that is using the Internet.

Studies demonstrate that Canadian youth are spending an average of 3 hours a day in front of a screen (Baer, Saran, Green, & Hong, 2012). King (2012) purports:

Many teens now do the bulk of their socializing via digital media. They rarely use their phones except for access to the Internet, and almost never call each other. Even when they are in close proximity, many teens prefer to “speak” in writing. Furthermore, they tend to chronicle each other’s lives in a way that has not occurred previously. (p. 1197)

Average sent text messages by adolescents border upon excessive and compulsive. A Nielsen (2011) study reported that in 2008, 13 to 17 year-olds with a cell phone averaged 1,742 text messages per month, then a few months following, it increased to 2,272 texts per month; and by mid-2009, teens passed the 2,500 exchanged messages mark. A couple years later, in the third quarter of 2011, the quantity of sent texts skyrocketed to 3,417 per month, which is the equivalent of seven messages per hour (Nielsen, 2011).

Nielsen (2011) quotes:

Teens are not focused on making calls via their mobile phones. Voice usage has declined the most among this group, from an average of 685 minutes to 572 minutes. When surveyed, the top three reasons teens said that they prefer messaging to calling was because it is faster (22 percent), easier (21 percent), and more fun (18 percent). (p. x)

Li, O’Brien, Snyder, and Howard (2015) found that the amount of time students are spending on the Internet daily ranged from five hours to 24/7 access due to the widespread use of mobile devices like smartphones and tables with Wi-Fi and data coverage. Sadly, many students
observed that they could not truthfully distinguish between the length of the time they spent on the Internet for school work or work-related purposes from those of non-school/non-work-related purposes (Li, O’Brien, Snyder, & Howard, 2015) Some students described their constant use of their electronic devices such as, “I feel like I’m on the phone all the time constantly checking” (p. 7), or “If I’m writing a paper, then I’ve got my browser open, or I’m on my phone” (p. 7), and “Once its summer, I’ll be on it [the Internet] like, an entire day” (Li, O’Brien, Snyder, & Howard, 2015, p. 7).

As these statistics illustrate, this digital world attracts a particular fascination for students who use it to investigate new ways to communicate or socialize through various messaging systems such as blogs, forums, social media sites, emails and through games, films, and music (Poli & Agrimi, 2012). However, adolescents are inclined to be unaware of just how much time they really spent on social networking sites, and the effect this might have on their academic performance and social interaction (Meena, Mittal, & Solanki, 2012).

For many students, to turn of their smartphone would simply be devastating because of the misguided value they place on their device (Lenhart, 2009). Diaz, Evans, and Gallagher (2011) state, “The total amount of media use by youth ages 8 to 18 averages 6-plus hour a day—more than any other activity” (p. 2) Because of the relatively recent invention of smartphones and Facebook and the accompanying compulsion of students to be on their phones, texting, using apps and social media, there are not any longitudinal studies researching the positive and negative short and long-term impact of compulsive and addictive internet/Facebook/social media use (Diaz, Evans, & Gallager, 2011). Lin (2008) defines digital-natives as “young people born into a world of laptops and cell phones, text and twittering” (p. 4) and discovered that these digital-natives are spending an average of 8.5 hours each day enmeshed in digital technology.
Regardless of whose research is evidenced, and regardless of whether or not it is six hours a day or eight and a half hours per day, the research is very clear that many students are spending an exorbitant amount of time on their electronic devices, which may indicate obsession and addiction.

In summary, prevalent student media use is incontrovertibly entrenched in society. McGonigal (2013) discovered a striking figure related to the amount of time the average 21 year old has spent online: 10,000 hours. This staggering number lies parallel to the time a student spends in school from fifth grade through their high school graduation, which is 10,080 hours (Brown, 2014). When taking these numbers into consideration, the average young person—not the student addicted to the Internet—has spent as much time online as they have in school (Brown, 2014).

Impact of Technology on Students

Bullard (2009) indicated how student use of technology can allow for meeting technology standards set by the International Society for Technology in Education (ISTE, 2015) for students in preschool through second grade. These standards are adequately using input devices (e.g., mouse, keyboard), output devices (monitor, printer), using media and technology for directed and independent learning, communicating about technology using accurate terminology, using developmentally appropriate multimedia resources to support learning, working cooperatively and collaboratively with peers, family members, and others, demonstrating positive social and ethical behaviors when using technology, practicing responsible use of technology, and gathering information and communicating with other using technology (ISTE, 2015).
Furthermore, Bullard (2010) points out that there are positive social skills, cognitive skills, and essential life skills in today’s fast-paced technological world that are learned, internalized, and practiced by students when using technology appropriately.

**Impact of Technology on Student Outcomes**

The positive impact of technology can be seen in the academic life of students. A research project on the role of technology in education reform sponsored by the Office of Educational Research and Improvement and the U.S. Department of Education (SRI, 1995) illustrated the positive impact of technology in student outcomes such as increased motivation and self-esteem, technical skills, the accomplishment of more complex tasks, more collaboration with peers, increased use of outside resources, improved design skills, and improved attention to one’s audience. Also, Eyyam and Yaratan (2014) found that technology has a positive impact on student achievement and their mental approach toward classroom lessons. Their study revealed significantly higher posttest results from the group who were instructed using technology compared to the group who were instructed without technology (Eyyam & Yaratan, 2014).

Moreover, Janke (2010) observed the effects of online forum use and student learning, engagement, and outcomes. This research study evidenced that students using an online discussion forum gave rise to a greater social construction of knowledge, thus, further validating the choice of online environments to improve learning outcomes (Janke, 2010). Likewise, Doan and Bloomfield (2014) conducted a study and found that using the Internet helps students write better essays. The results indicated that the student group receiving training on using the Internet to conduct research in the prewriting phase outperformed the control group in two areas: the total essay score and usage/mechanics (Doan & Bloomfield, 2014). Thus, the value and role of technology and the Internet cannot be overstated.
Contrastingly, Lei (2010) also cited a handful of studies that illustrate that a statistically insignificant margin for the use of technology in student outcomes (OECD, 2005; Dynarski et al, 2007), thereby marginalizing the positive effects of technology on student success. Furthermore, Lei (2010) denoted how subject-specific technology impeded the development of technological proficiency. Lastly, Lei (2010) explained how technology could improve student-learning habits, yet if too much time is spent using the technology, student academic performance will be reduced. Moreover, Lei (2010) purported that the role of technology in student achievement has not been substantially supported by empirical evidence and that the findings have been varying and contradictory. Lei (2010) highlights numerous studies that identify significant positive impact of technology on student outcomes such as literacy development (Blasewitz & Taylor, 1999; Tracey & Young, 2006) reading comprehension and vocabulary (Scrass, 1998; Stone, 1996; Woehler, 1994), writing (Nix, 1998), mathematics (Elliott & Hall, 1997; Mac Iver, Balfanz & Plank, 1999; Tienken & Wilson, 2007) and science (Harmer & Cates, 2007; Lazarowitz & Huppert, 1993; Liu, Hsieh, Cho & Schallert, 2006; Reid-Griffin, 2003). Furthermore, there are positive impacts in developmental areas such as attitude towards learning and self-esteem (Nguyen, Hsieh & Allen, 2006; Sivin-Kachala & Bialo, 2000; Wighting, 2006), motivation, attendance and discipline (Matthew, 1997), and student access to curriculum, communication, and motivation (Sheehy et al, 2005; Twining et al, 2006).

**Positive Effects of the Internet**

Guan and Subrahmanyam (2009) noted several positive effects of students using the Internet such as youth empowerment, overall well-being, higher test scores, and an improved motivation to learn. Additionally, Guan and Subrahmanyam (2009) indicated that the Internet is an effective tool for delivering interventions and health prevention and promotion, especially for
students living below the poverty line or who do not have local access to mental health care options.

Rollins (2014) effectively listed some of the many positive benefits of Internet use:

- Tool for student learning
- Can improve student well-being
- Helps to empower youth, particularly those in disadvantaged circumstances
- Reinforces offline relationships
- Students use online forums, such as homepages and blogs, to gain positive feelings of mastery and competence
- Youth are creating media to help promote health issues and find information about health and sex
- One in four adolescents have used the Internet to search for health information, thus its use as a resource for delivering health promotion, prevention, and intervention will likely grow.
- Valuable health tool for youth because of the potential anonymity it provides, its popularity among adolescents, and its wide range of access

Although there is debate in the community regarding the empirical evidence surrounding the impact of technology on student outcomes, it appears that the majority of the research indicates the significant role of technology in improving student outcomes.

**Negative Impact of Technology on Students**

Although the positive impact of technology and the Internet on students is undeniable, there are many harmful effects of its improper use. Regoniel (2012) elucidated a few of the negative consequences of the Internet such as addiction, destructive and pervasive pornography,
the loss of human touch, criminal activity such as phishing, scamming, credit card theft, and identity theft, and the abandonment of family. These consequences are connected with not only the amount of time invested in being online, but the priority the student gives to the Internet over and above their real life tasks (Brown, 2014).

Essig (2012) eloquently described our digital era:

Life on a screen and life as it’s always been known have gotten terribly out of balance. We have not yet developed cultural conventions to help us best make use of emerging information technologies, nor do we know what they are doing to us when we rely on them. Familiar examples of this imbalance include texting while driving or having family dinner; participating in social media, like Facebook or online dating sites, while one’s actual social or family life crumbles; and cybersex or interactive pornography replacing physical encounters. (p. 1175)

**Information overload.** One of the first problematic consequences of the Internet is a recent phenomenon called information overload. Even before the conception of the Internet and the exponential growth of information and technology, Herbert Simon (1971) prophetically declared:

In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it. (p. 1)

In a similar fashion, Lanham (2006), echoes the notion that society is drowning in an increasingly endless sea of information while lacking the attention to understand that
information. In other words, information overload is pulling society underneath the surface faster than it can stay swimming above its’ ability to make sense of what is around them. This paper will not attempt to give an in-depth definition or solve the problem of information overload; however, Eppler and Mengis (2004) offer a balanced, educational, and multidisciplinary review of information overload.

**False sense of reality.** Sherry Turkle (2011), in her book *Alone Together* eloquently illuminates:

> Human relationships are rich and they're messy and they're demanding. And we clean them up with technology. Texting, email, posting, all of these things let us present the self as we want to be. We get to edit, and that means we get to delete, and that means we get to retouch, the face, the voice, the flesh, the body -- not too little, not too much, just right. (p. 32)

Thus, students are presented with the option of presenting a false reality of themselves to the world. Additionally, students can further mask their addictions by presenting a spotless image on their Facebook page, Instagram uploads, and tweets.

**Sense of loneliness.** Turkle (2011) admits that technology is a substitute for connecting with others face-to-face. She believes that our networked lives actually lead to us hiding from one another. Rather than talking face-to-face or even on the phone, texting is the preferred option. This can lead to misinterpreting the sender’s or receiver’s intent. Furthermore, Turkle (2011) insinuates that because we are bound to our electronic devices at all times, boredom flees but so does personal reflection and mindfulness.
Addictive Disorders in Adolescents

Definition of Addiction

Professional school counselors must be aware that the pervasive and extensive use of the Internet and technology has led to various forms of addictions in adolescents. Firstly, addictions to behaviors are called behavioral or “process addictions” (Hagedorn & Young, 2011), and this paper will centralize on the process addictions students have with the Internet, their smartphones, Facebook, pornography, and gaming.

Goodman (2001) provides a manner in which to differentiate between addictions and normal behavior and also defines addictive behavior as moving from normal to addictive when it both produces pleasure and reduces negative moods and includes two key features: the individual is unable to control, cut back, or stop the behavior, and the individual continues to use the behavior despite substantial negative consequences.

This definition helps distinguish between scenarios such as a student watching YouTube videos for an hour after completing his homework (which would be defined as a hobby) compared to a student using Facebook and pornography a means of avoiding the pain from the separation of his parents, and so, he spends around five to seven hours online, avoiding his responsibilities like homework and chores (Hagedorn & Young, 2011). The former would be a healthy use of the Internet, while the later an addictive process.

Hagedorn and Young (2011) list the most common and problematic addictive behaviors found in students to be food, gambling, exercise, sex, spending, the Internet, and gaming. There are also valuable studies on the problematic manner in which young people experience addiction with food/eating (Boes, Ng, & Daviston, 2004; Crosnoe, 2007; Goble, 2008), gambling (Dickson & Derevensky, 2006; Fong, 2006), exercise (Aidman & Woollard, 2003; McCabe & Ricciardelli,
Due to the brevity and scope of this paper, an in-depth analysis of food, gambling, exercise, sex, and spending addictions will not be highlighted. Nonetheless, due to the goal of this paper being to equip professional school counselors in helping students with addictions, a list of warning signs for each of the addictions is given in the appendices. Hagedorn and Young (2011) urge school counselors to use such lists to establish if further intervention is required.

**Internet Addiction**

Internet addiction (IA) is an addictive disorder that has not seen an incredible amount of attention, yet is the cause for great concern in students (Hagedorn & Young, 2011). The rest of the paper centralizes upon IA and other interconnected addictions such as smartphone addiction, Facebook addiction, pornography addiction, and gaming addiction. Also, this paper will conclude with a proposed model for screening students and will propose intervention strategies that school counselors can practically, professionally, and efficiently use to decide the appropriate path for students with addictive disorders and tendencies.

A study conducted by Li, O’Brien, Snyder, and Howard (2015) revealed that students first accessed the Internet at an average age of 9, and first had a problem with Internet overuse at an average age of 16. According to Guan and Subrahmanyam (2009), excessive Internet use or pathological Internet use (PIU) is developing as one of the more damaging characteristics of the online activities of students. Several sub-types of Internet addiction have been categorized, according to the typology of use: cybersex, cyber-relations (chat rooms, blogs, emails), online games, and information overload (Poli & Agrimi, 2012). Unnecessary web searching, online
pornography, and online gaming were the most common problems associated with Internet use (Meena, Mittal, & Solanki, 2012).

The Definition of Internet Addiction

The definition of Internet addiction is disputed and varies; however, “Internet addiction” (IA) has been termed “pathological Internet use” (PIU) or “Internet dependency” and is defined as the “inability to control one’s use of the Internet which leads to negative consequences in daily life” (Li, O’Brien, Snyder, & Howard, 2015, p. 2). This definition emphasizes the ways in which signs and symptoms of IA are parallel to substance use disorders and pathological gambling disorder (Li, O’Brien, Snyder, & Howard, 2015). This paper will interchangeably use terms such as “compulsive Internet use,” “excessive Internet use,” and “Internet addiction.” Other theorists tag Internet-related problems as “compulsive Internet use”, or “problematic Internet use”, or still “pathological Internet use” (PIU) (Li, O’Brien, Snyder, & Howard, 2015, p. 2).

For the purpose of this paper, IA and PIU will be used interchangeably and both are defined as the 1) use of the Internet to escape from negative feelings and to reduce stress, 2) continued use of the Internet despite the desire to stop, 3) a continued tolerance, 4) the experience of unpleasant emotions when it is impossible to use the Internet and the development of psychological dependency and withdrawal symptoms, 5) constantly thinking about using the Internet, 6) experiencing any other conflicts or self-conflicts due to Internet use, and 7) replacing other activities and relationships with recurrent Internet use despite awareness of the deleterious consequences (Guan & Subrahmanyam, 2009; Li, O’Brien, Snyder, & Howard, 2015).

Prevalence of Internet Addiction
Worldwide Internet Addiction (IA) prevalence rates. There is substantial evidence of the rise of IA/PIU worldwide since the mid-1990s (Heo, Oh, Subramanian, Kim, & Kawachi, 2014). Heo, Oh, Subramanian, Kim, and Kawachi (2014) conducted a nation-wide survey of IA in Korea and presented that 8.0% in the whole population were addicted to Internet, while 12.4% of adolescents were using Internet addictively. Upon surveying the prevalence of IA/PIU around the world, Fioravanti, Dèttore, and Casale (2012) discovered IA/PIU among adolescents to be approximately 8% in Greece, 11% in Taiwan and China, and 1.4% in Southern Italy.

Kim (2013) examined the connection between Internet overuse and aggression. A total of 2336 high school students (boys, 57.5%; girls, 42.5%) in South Korea completed the structured questionnaire, and the proportions of boys who were classified as severe addicts and moderate addicts were 2.5% and 53.7%, respectively. For girls, the corresponding proportions were 1.9% and 38.9% (Kim, 2013). Poli and Agrimi (2012), in a recent study on IA in Italian youth, found that the majority of respondents were classified as normal users of the Internet (94.19%), with 127 (5.01%) moderately addicted and 20 (0.79%) seriously addicted.

Tsai and Lin (2003) indicated that Internet addiction is an important concern among students, and in their study of 700 Taiwanese high school students, 88 were considered Internet addicts according to the Internet Addiction Scale for high school students in Taiwan (IAST). This indicates 12.5% of the student population is suffering from compulsive Internet use.

After compiling data from a research study in China on IA in students, Li, Zhang, Lu, Zhang, and Wang (2014) found that the prevalence of Internet addiction in the total sample was 6.3% and among Internet users was 11.7%. Also, they found that among the Internet users, males (14.8%) and rural students (12.1%) reported Internet addiction more than females (7.0%) and urban students (10.6%) (Li, Zhang, Lu, Zhang, & Wang, 2014). In a study of IA in Greek
adolescents, Fisoun, Floros, Geroukalis, Ioannidi, Farkonas, Sergantani, et. al. (2012) found IA prevalence rates of 7.2% in males and 5.1% in females. Also, anti-social, aggressive behaviors were significantly correlated with an increase to the pattern of abusive Internet use in both sexes.

A study undertaken by Sahin and Deniz (2013) of IA in Turkish students, showed that 600 (84.5%) students showed no symptoms, 101 (14.2%) students showed limited symptoms, and 9 (1.3%) students were identified as Internet addicted group. Also, this study also suggested that students feeling free and hiding their identity while online indicated more Internet addiction tendency (Sahin & Deniz, 2013). The results of the study performed by Ekşi (2012) revealed that 23.2% of the participant Turkish students showed symptoms of Internet addiction.

Prevalence of Internet Addiction (IA) in the United States. A 2011 study by Christakis, Moreno, Jelenchick, Myaing, and Zhou found that estimations of problematic usage in college students vary from 1% to 26% in the US and between 6% and 19% internationally. Yao, He, Ko, and Pang (2014) found the prevalence rate of IA is between 1.5% and 8.2% in the United States and Europe. Also, when the IA prevalence rates were researched by Ayas (2012), his study revealed an IA prevalence for students between 6-14%.

In another study, Li, O’Brien, Snyder, and Howard (2015) researched that as many as 6% to 11% of Internet users in the U.S. are estimated to have Internet addiction. Also, current epidemiological studies indicate that IA/PIU distresses approximately 1.2% to 26.3% of U.S. university students (Li, O’Brien, Snyder, & Howard, 2015). Literature also suggests that the prevalence of IA/PIU among the U.S. student population is consistent with similar reports from China, Greece, Britain, and Turkey (Li, O’Brien, Snyder, & Howard, 2015). Although there is considerable variance of IA prevalence throughout the world, the percentages indicate an increasingly severe problem among students. Putting this type of prevalence in perspective,
maladaptive Internet usage would be as common as asthma in a similar population of children (Christakis, Moreno, Jelenchick, Myaing, & Zhou, 2011). Consequently, students may be at substantial risk for the development of IA problems given the explosive growth of Internet use among youth in the U.S. over the past decade.

**Reasons for Internet Addiction**

Even though the prevalence of Internet addiction varies considerably from country to country, developing research indicates that Internet addiction is predominantly associated to its’ social aspects (Fioravanti, Dèttore, & Casale, 2012). This could be particularly true for adolescents, who predominantly use the Internet for interpersonal communication (Fioravanti, Dèttore, & Casale, 2012). Nevertheless, even though the online usage is fundamental to the social lives of adolescents, only a small percentage develops addictive usage (Fioravanti, Dèttore, & Casale, 2012). Yet this small percentage (1%-26%) is still a massive demographic among young people.

**Coping mechanism for low-self esteem.** Some researchers such as Guan and Subrahmanyam (2009) and Tsai and Lin (2003) concur that the Internet can be used as a coping mechanism in young people because of the difficulty of some students to navigate through the developmental difficulties of adolescence and young adulthood. Moreover, contemporary research does indicate that an established sense of identity, self, and belonging is negatively associated with Internet addiction (Guan & Subrahmanyam, 2009; Tsai & Lin, 2003). In other words, a healthy self-confidence and self-identity is a deterrent from compulsive Internet use. Additionally, a negative relationship between web surfing frequency and life satisfaction has also been discovered (Guan & Subrahmanyam, 2009; Tsai & Lin, 2003). Additionally, Yao, He, Ko, and Pang (2014) found that how an individual perceives one’s self-worth is connected with
unhealthy levels of Internet use. Hence, individuals with lower self-esteem are more likely to be identified as Internet addicts (Yao, He, Ko, & Pang, 2014). Lastly, Meena, Mittal, and Solanki (2012) noted in their study a correlation between low self-esteem and a sense of social inadequacy and social network addiction.

**Parental factors.** Also, the effect of parental behaviors on Internet addiction was significant in that fathers’ rejection and overprotection, and mothers’ rejection would increase the risk for Internet addiction (Yao, He, Ko, & Pang, 2014). Ahmadi & Saghafi (2013) discovered that in Iranian youth with IA, familial relationships was the most important factor related to IA, then religious beliefs was the second most important factor. Also, the father’s level of education was more important than that of the mother’s by nearly twice as much, and meaningfully, adolescents who overuse the Internet more have some problems with their families. (Ahmadi & Saghafi, 2013).

Xu et al. (2014), in a study of IA in Chinese students, found that strong parental disapproval of Internet-use was associated with adolescent Internet addiction. Also, the quality of the parent-child relationship and communication level was closely associated with the development of adolescent IA, and maternal factors were more significantly associated with development of IA than paternal factors (Xu et al., 2014). The mother factor was is crucial in guiding adolescents in proper Internet use, and poor father-adolescent relationships were correlated with the development of IA, but were less significantly associated with IA than maternal factors (Xu et al., 2014).

In a European-wide study by Durkee, Kaess, Carli, Parzer, Wasserman, Floderus, Mandelli, et. al. (2012), the overall prevalence of problematic Internet use was 4.4%, and was higher among males than females (5.2% versus 3.8%). Some characteristics of their study
included that living in metropolitan areas was associated with PIU. The most significant findings from the study was related to household conditions, such as students not living with a biological parent, low parental involvement and parental unemployment. These areas showed the highest relative risks of both MIU and PIU (Durkee, Kaess, Carli, Parzer, Wasserman, Floderus, Mandelli, et. al., 2012).

**Depression, anxiety, and loneliness.** Ayas and Horzum (2013) found that depression, loneliness and self-esteem can all be indicators of problematic Internet usage. Also, Christakis, Moreno, Jelenchick, Myaing, and Zhou (2011) found to be a significant association between problematic Internet usage overall and moderate to severe depression. According to Li, O’Brien, Snyder, and Howard (2015), sadness and depression were common triggers of intensive Internet use and social media use was nearly universal and quite extensive in the lives of students. In a study several years ago, Hetzel-Riggin and Pritchard (2011) found that for men, phobic anxiety, wishful thinking, and overweight preoccupation were noteworthy fore Runers of increased PIU. Also, for women, depression, keeping to oneself, and decreased tension reduction were associated with increased PIU (Hetzel-Riggin & Pritchard, 2011). Moreover, in a recent study by Yao, He, Ko, and Pang (2014), psychoticism and neuroticism were both positively related to Internet addiction.

**Boredom, impulsivity, sensation seeking, novelty, and stress relief.** The diverse reasons why students engage in excessive Internet use can be boredom, novelty, impulsivity, and sensation seeking. Tragically, youth high in boredom susceptibility, impulsivity, and novelty/sensation seeking temperaments are at elevated risk for addictive behaviors (Li, O’Brien, Snyder, & Howard, 2015). Also, Li, O’Brien, Snyder, and Howard (2015) found that the
Predominant factors prompting Internet use was a desire to change one’s mood and feelings, boredom, escapism, and to alleviate stress.

**Other Factors.** Ayas (2012) found that there was a positive, meaningful, and high correlation between Internet addiction, computer games addiction, and shyness. Thus, the presence of another potentially addictive behavior, such as gaming, or the presence of personality traits that are less social in nature are related to forming IA/PIU.

In a study of IA in student in Hong Kong, Hing Keung, Li, and Pow, (2011) indicated that excessive Internet use is correlated with antisocial Internet use. Additionally, they found that pro-social Internet use is associated positively with pro-social daily social behavior, and that delinquent Internet use is likewise associated positively with delinquent daily social behavior (Hing Keung, Li, & Pow, 2011). The staggering implication of this study is that one’s behavior pattern on the Internet is indicative of their behavior pattern in the real world.

**Negative Consequences of Pathological Internet Use (PIU)**

Internet addiction in students is detrimental to their academics, family relations (because of the potential to hide excessive Internet use from parents), physical health (such as sleep deprivation), mental health issues (depression), and finances (the accumulation of Internet expenses) (Guan & Subrahmanyam, 2009). The most common forms of Internet addiction in students occur in interactive communication applications such as chat rooms, instant messaging, e-mail, and online games (Guan & Subrahmanyam, 2009). Even though the Internet can deliver web-based social support and interaction, it also places them in a position of unsupervised access to potentially harmful content (Messina & Iwasaki, 2011).

Case and empirical studies revealed that Internet addiction was characterized by adverse effects on the individual’s psychological well-being, academic failure, reduced work
performance or job loss, sleep deprivation, social withdrawal, little or no self-confidence, poor diet, family problems, marital breakdown, and even violence associated with blocked access to online games or cardiopulmonary-related death from excessive use (Heo, Oh, Subramanian, Kim, & Kawachi, 2014).

Kim (2013) examined the connection between Internet overuse and aggression. A total of 2336 high school students (boys, 57.5%; girls, 42.5%) in South Korea completed the structured questionnaire, and the proportions of boys who were classified as severe addicts and moderate addicts were 2.5% and 53.7%, respectively. For girls, the corresponding proportions were 1.9% and 38.9% (Kim, 2013). Also, this study (Kim, 2013) study determined that smoking, alcohol, and level of Internet addiction were independently related with all aggressive characteristics. Severely Internet addicted boys showed higher scores in all aggression characteristics, more than severely Internet addicted girls, even though it was not statistically significant in every characteristic. The conclusion of this study illustrates that aggression is strongly linked to excessive Internet use in adolescents (Kim, 2013).

Li, O’Brien, Snyder, and Howard (2015) reported that various students had to forgo their sleep in order to blast through their schoolwork due to spending extensive and fruitless time online. Also, this study denoted that that online accessibility has dropped students’ thresholds for boredom in such a manner that students are becoming bored much more rapidly and have augmented struggles focusing on essential school and work-related tasks.

**Detrimental impact of process addictions on the brain.** The Internet has much to offer: games, videos, connection, sensuality, shopping, and the list could go on. Scott (2011) proposed that similar to rats running in a maze searching for a reward, so the young person chases after the fascinating reward structures presented online. Therefore, in order to correctly understand
addictions, it is imperative to begin with how the brain is wired (Karim & Chaudhri, 2012). Li, O’Brien, Snyder, and Howard (2015) suggested that the compulsive use of the Internet as a coping mechanism could be comparable to using alcohol and other psychoactive drugs for self-medication because of the similar addictive and detrimental effects on the brain and psyche.

Surfing the web, viewing pornography, conversing in chat rooms, posting to Facebook, uploading Instagram photos, and playing online games affect the pleasure centers in the brain by increasing craving to continue that action, and so in turn, the brain releases mood regulating chemicals such as dopamine, oxytocin, and glutamate (Kuss, 2013).

The reason that students can have addictive behaviors and disorders surrounding these processes is because research has proven that these behaviors induce similar physiological effects in the brain as use of drugs and alcohol (Hagedorn & Young, 2011); for example, the serotonin, epinephrine, adrenaline, and dopamine levels are all influenced and affected by the specific process, whether that be viewing pornography, playing an online computer game, surfing the web, or texting a friend (Bostwick & Bucci, 2008; Guay, 2009; Westphal, Jackson, Thomas, & Blaszczynski, 2008).

**Neuroplasticity and changes in the brain.** Over the past two decades, there has been extensive and groundbreaking research and development in the understanding of the brain (Doidge, 2007). One of these effusing discoveries is neuroplasticity, which in essence means that the brain has changeability. Doidge (2007) compares the neuroplasticity of the brain to “a never ending game of Tetris, constantly laying down new pathways based on your experiences” (p. 1). Neuroscientists explain this neuroplasticity with a saying, “Neurons that fire together, wire together” (Doidge, 2007, p. 63).
Neurons are brain cells, and when these brain cells are activated simultaneously by particular stimuli, they in turn, release chemicals that help strengthen the connection between those neurons (Bostick & Bucci, 2008; Doidge, 2007). For example, upon eating delicious food, the brain releases dopamine, which is a mood-enhancing chemical (Hilton & Watts, 2011; Doidge, 2007; Paul, 2007; Nestler, 2005). An additional example would be when an adolescent holds hands with a person they care for, their brains release oxytocin, which is a chemical that builds the connection and bond with people or things (Schneiderman, Zagoory-Sharon, Leckman, & Feldman, 2012). To further this point, the human brain builds neural pathways for a variety of things such as riding a bike, eating pizza, playing with the dog, doing homework, and spending time with family. Whether a student is on their smartphone playing a game or on their laptop watching Youtube videos, their brain is creating new neural pathways for those activities as well (Hilton, 2013; Angres & Bettinardi-Angres, 2008; Doidge, 2007). Similar to other addictive substances like alcohol and drugs, repetitive behaviors associated with a reward—such as playing online video games, viewing pornography, or checking their Facebook page—flood the brain with dopamine (Hilton, 2013; Georgiadis, 2006).

However, since the brain can become overwhelmed by the persistent excess of chemicals that are associated with habitual Internet use or excessive gaming, the brain counterattacks by eliminating many of its dopamine receptors—which are like tiny ears on the end of a neuron that hear dopamine’s message (Angres & Bettinardi-Angres, 2008; Hilton & Watts, 2011; Mick & Hollander, 2006; Nestler, 2005). Without as many dopamine receptors available, regardless of whether the brain is emitting the same levels of dopamine in its response to the excessive gaming or Internet use, the student will not be able to sense the dopamine effects as much (Angres & Bettinardi-Angres, 2008; Hilton & Watts, 2011; Mick & Hollander, 2006). For example, when
the pornography the student is viewing is not delivering the same level of excitement or arousal, the student will attempt to view more pornography or more hardcore pornography to achieve the same effect the old pornography used to offer (Angres & Bettinardi, 2008; Zillman, 2000).

Students addicted to pornography or gaming grow accustomed to the higher levels of dopamine saturating through their brain. Routine actions that would typically trigger a surge of dopamine and make students feel happy are not powerful enough to be felt anymore, leaving students feeling downcast or uneasy whenever they are not looking at porn or playing their video game (Paul, 2007; Berridge & Robinson, 2002). This is manifest evidence to the addictive capacity of habitually viewing pornography or playing online games (Doidge, 2007; Berridge & Robinson, 2002).

Now once the addiction is present in the student, he or she must cope with an entirely alternate array of difficulties because addiction damages the frontal lobes, which are involved in problem solving, judgment, impulse control, social and sexual behavior, motor function, memory, language, initiation, and spontaneity (Hilton & Watts, 2011; Leshner, 1997). In other words, the frontal lobes are the area in the brain that helps students make good choices, solve problems, and use logic. The adolescent brain has not fully matured and is still growing and developing, so to engage in habitual behaviors that lead to addiction can be tragically devastating, even comparable to a terrorist hijacking an airplane (Hilton, 2013). For over a decade, research studies have revealed that drug addictions lead to decreased size in the frontal lobes (Franklin, Acton, Maldjian, Gray, Croft, Dackis, et al., 2002; Lyoo, Pollack, Silveri, Ahn, Diaz, Hwang, et al., 2005; Thompson, Hayashi, Simon, Geaga, Hong, Sui, et al., 2004).

Studies have established that drugs and alcohol are not the only types of addictions that lead to those types of consequences. Similar neural problems show up with other kinds of
addictions, such as overeating, Internet addictions, electronic device addictions, gaming, and sexual compulsion (Miner, Raymond, Mueller, Lloyd, & Lim, 2009; Pannacciulli, Del Parigi, Chen, Le, Reiman, & Tataranni, 2006; Schiffer, Peschel, Paul, Gizewshi, Forshing, Leygraf, et al., 2007; Yuan, Quin, Lui, & Tian, 2011; Zhou, Lin, Du, Qin, Zhao, Xu, et al., 2011). The terrifying and daunting reality is that the more a student engages in addictive behavior, the more severe the damage to their brain becomes and the more difficult it is to break free (Angres & Bettinardi-Angres, 2008).

**The role of iFosB in addiction.** The neuroscience behind these new neural-pathways being built into the brain is a protein called “iFosB”, which is pronounced “delta-fos-B” (Nestler, 2003). When the brain receives a surge of dopamine, the brain is also receiving new neural-pathways that are being built with iFosB (Nestler, 2003). The role of iFosB is to help remember things that are significant, important, and mood-enhancing (Hilton, 2013). In essence, while dopamine stimulates the brain to accomplish tasks and rewards the brain for accomplishing those tasks, iFosB is silently leaving clues and trail markers to help get back there (Hilton 2013).

Just as a minor dose of drugs similar to cocaine or methamphetamines can cause iFosB to increase in the brain’s neurons, iFosB can also accumulate resulting from the dopamine surge released from viewing pornography, playing online games, or other excessive behaviors (Nestler, 2003; Wallace, Vialou, Rios, Carle-Florence, Chakravarty, Kumar, et al., 2008). Thus, the more a student looks at pornography or plays online games, the more iFosB accumulates (Nestler, 2008), effectively entrenching the neural pathways leading to that behavior, enabling the student to more readily turn back to that behavior, whether they want to or not. (Nestler, 2008). The harsh reality is that if enough iFosB is accrued, it can “flip a genetic switch causing irreversible changes in the brain that leave the user more susceptible to addiction” (Nestler, Barrot, & Self,
The risks are extremely high for adolescents because the teenage brain’s reward pathway has a response that is two to four times more potent than an adult brain; thus, the adolescent brain secretes even greater quantities of dopamine (Sturman & Moghaddam, 2011). Furthermore, the adolescent brain also creates greater quantities of iFosB, leaving them particularly susceptible to addiction (Ehrlich, Sommer, Canas, & Unterwald, 2002). Since students are more susceptible to addiction and the effects of addiction on the brain can be extremely detrimental, professional school counselors must be aware of the details surrounding these neurologically harmful process addictions, such as IA.

**Smartphone Addiction in Students**

Although the primary focus of this paper is IA, it would be improper to not address a few of the related addictions to excessive Internet use, such as smartphone addiction. The overuse of smartphones has emerged as a significant social issue with growing popularity of the smartphone. Hence, smartphone addiction can be considered as one form of technological addictions (Lin, Chang, Lee, Tseng, Kuo, & Chen, 2014).

Smartphones have seen an unpredictably fast adoption rate overtaking all other handheld digital devices in history (Chun, Lee, & Kim, 2012). The iPhone, Apple’s historic smartphone, sold more than 1 million units within 74 days of its release, setting a record for the fastest growth rate (Chun, Lee, & Kim, 2012). Smartphones serve not only the portable functions of a phone, camera, game, and multi-media players, but also serve thousands of mobile applications (apps) with available Internet. Now the majority of Americans are using their smartphones to look up information about specific health conditions or do online banking. Because of the increased usage and functionality of smartphones, 46% of Americans say that they couldn’t live without...
their smartphone (Pew Research Center, 2015). Also, young smartphone users are especially prone to use a smartphone to avoid boredom and simply ignore other people (Pew Research Center, 2015). Therefore, some symptoms of smartphone addiction might be different from those in Internet addiction (Lin, Chang, Lee, Tseng, Kuo, & Chen, 2014).

Kim, Lee, Lee, Nam, and Chung (2014) reported that adolescents primarily use their smartphones for the camera, MP3, and other apps that center around entertainment, such as watching Netflix; also, their study found that young adults mainly use their smartphones for SNS (social networking sites), and the adults usually manage their schedules, contacts list, e-mail, and other business related functions (Kim, Lee, Lee, Nam, & Chung, 2014).

According to two independent studies, the Pew Research Center (2015) and Jones, Chin, and Aiken (2014) indicate that almost two-thirds of Americans now own a smartphone, up from 35% in the spring of 2011. At this rate, the vast majority of Americans will own a smartphone in the coming years. Also, a recent Nielsen study (2013) revealed that smartphone ownership has exponentially grown among students and recent high school graduates, as 70% of teens (aged 13-17) and 79% of young adults (aged 18-24) now own smartphones, up from 23% in 2011 and 37% in 2012.

A most recent study (Pew Research Center, 2015) conveys:

When it comes to the emotions that people experience as a result of having a smartphone, “productive” and “happy” lead the way—79% and 77% of smartphone owners, respectively, indicated that their phone made them feel this way at least once over the course of the study period. But smartphones do not always inspire positive feelings, as 57% of smartphone owners reported feeling “distracted” thanks to their phone, and 36% reported that their phone made them feel “frustrated.” (p. 10)
Prevalence of smartphone addiction and related problems. Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, and Gibson, (2014) found smartphone addiction prevalence among students to be 10%, and the characteristic excessive user inclined to be an teenager between 11 and 14 years old, studying in a public school, who believed themselves to be an expert user of this technology, and who accredited the same problem of use among their classmates. Interestingly enough, the projected prevalence of British adolescents cataloged as problematic users was 10%, which concurred with previous European studies (Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, & Gibson, 2014). Their study also found that problematic cell phone use in adolescents interfered with their school and personal activities, and led the teenagers to develop relationship social problems (Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart, & Gibson, 2014). In South Korea, students addicted to their smartphones have reached 11.4% of the student population, with the upper 2.2% confronting intense challenges living out their day-to-day lives because of the addiction (Kim, Lee, Lee, Nam, & Chung, 2014).

Also, because of the ease of entry to the Web via smartphones, the damaging effects of online maladaptive behavior, which is characterized by decreased social and behavioral inhibitions, are becoming more widespread, predominantly in variances of sexual deviance and cyber violence (Kim, Lee, Lee, Nam, & Chung, 2014). McEachern, McEachern-Ciattoni, and Martin, (2012) found that 4% of the teens had sent sexually suggestive photographs or images of themselves to others, and that there were no significant gender differences, and older teens (17 years of age) were more likely than younger teens (12 years of age) to send such images.

Park and Lee (2012) discovered that the correlation analysis of the intentions for smartphone use were positively related to bonding relations but negatively related to bridging relations. In other words, smartphones can bring two friends closer together, but smartphones are
not effective at building relationships between strangers that could potentially be connected through their shared experience and presence on the same social networking site.

**Facebook Addiction**

Not surprising, another offshoot of IA is Facebook addiction (FA). More than 500 million people spend about 700 billion minutes on Facebook per month and half of them log into their account in a given day, and average user has about 130 contacts. (Koc & Gulyagci, 2013). A recent study showed that Facebook had 1 billion monthly active users (Wolniczak, Cáceres- DelAguila, Palma-Ardiles, Arroyo, Solís-Visscher, Paredes-Yauri, & Bernabe-Ortiz, et. al., 2013).

Liu and Yu (2013) performed a study whose results showed that using Facebook helped college students to obtain online social support, and that online social support is an extension of general social support, which can effectually lead to greater well-being. If there were not social and personal benefits to using Facebook, there would not be over a billion users worldwide. However, despite its benefits, there can be behavioral addictions and negative consequences related to excessive Facebook use. A recent study (Koc & Gulyagci, 2013) found both severe depression and anxiety and insomnia as positive predictors of FA. Interestingly enough, students who frequently used Facebook for social interaction reported higher levels of addiction (Koc & Gulyagci, 2013). Also, contemporary research shows that there is a relationship between Facebook dependence and poor quality of sleep because more than half of students reported poor sleep quality (Wolniczak, Cáceres-DelAguila, Palma-Ardiles, Arroyo, Solís-Visscher, Paredes-Yauri, & Bernabe-Ortiz, et. al., 2013). A disturbing statistic from Meena, Mittal, and Solanki’s (2012) study of problematic Internet use in students found that 2% of all students from their
sample indicated indulgence in social networking sites, and as a result, were having very serious and significant problems to the point of needing to immediately address the problem.

There is debate within the psychological and technological communities about whether or not the overall affect of SNSs is positive or negative, specifically when discussing its affect on social relationships. Some in the psychological community contend that SNSs strengthen human networks that have already been established, and thereby, those relationships can venture far beyond constrained offline relationships, which in turn diminishes loneliness and fosters interpersonal trust; however, others in the community, place emphasis on the quality of relationships formed through SNSs, and maintain that SNS relationships limit authentic face-to-face interaction, which intensifies social isolation and corrodes interpersonal trust (Baek, Bae, & Jang, 2013).

Harris and Robinson Kurpius (2014) established that the majority of SNS users are females between the ages of 18 and 29. The implications for school counselors is that although the majority of users are young adult females, many of their current students will soon subsist in that demographic; therefore, it is imperative to instruct and educate students about safe, smart, and healthy use of SNS sites.

**Pornography Addiction**

Although many teenage Internet addicts are not addicted to pornography, the majority of Internet addicts are addicted to pornography (Hagedorn & Young, 2012; Sabina, Wolak, & Finkelhor, 2008). Therefore, it is impossible to fully understand and effectively treat Internet addiction without comprehending pornography addiction. For the purpose of this paper, the definition of pornography will be defined as any material that is predominantly sexually explicit and intended primarily for the purpose of sexual arousal (Owens, Behun, Manning, & Reid,
2012), whether that media be online porn sites, swimsuit calendars, racy photos on Facebook, a nude text message picture of a young teenager, or the antiquated Playboy magazine.

In a staggering statistic put out by the Huffington Post (2013), pornographic websites obtain more visitors each month than Netflix, Amazon, and Twitter combined, and 30% of the Internet industry is pornographic. Yagielowicz (2014) reported that mobile porn is expected to reach $2.8 billion by 2015. Furthermore, when considered teenage use of pornography, an empirically validated study revealed that almost nine out of ten (87%) young men and one out of three (31%) young women report using pornography (Carroll, Padilla-Walker, Nelson, Olson, McNamara Barry, & Madsen, 2008). Owens, Behun, Manning, and Reid (2012) conducted a study in Sweden regarding the prevalence of pornography use and its effects on adolescents. Their study revealed that 98% percent of male and 76% of female respondents reported having consumed pornography.

Owens, Behun, Manning, and Reid (2012) indicated that four percent of adolescents have sent a sexually suggestive text message, which are often nude pictures, and 15% of this age group has received a sexually provocative text. This study (Owens, Behun, Manning, & Reid, 2012) illustrated that 67% of males and 49% of females agreed that viewing sexually explicit material is an acceptable way to express one’s sexuality.

**Negative effects of viewing pornography.** The troubling vice of addiction in pornography can be heard through Peter and Valkenburg (2008), “The more frequently adolescents used SEIM [sexually explicit Internet material], the more often they thought about sex, the stronger their interest in sex became, and the more frequently they became distracted because of their thoughts about sex” (p. 226).
Another negative effect of viewing pornography is that pornography itself is degrading to women. There are pervasive cultural beliefs in the normative male adolescent mind that limit women to being sex objects, which can be defined as “ideas about women that reduce them to their sexual appeal in terms of their outer appearance and their body parts” (Peter & Valkenburg, p. 408). This belittling, degrading, humiliating, perverting, and reduction of women to their ability to perform sex acts has not helped the cause of female empowerment and equality.

Mattebo, Larsson, Tydén, Olsson, and Häggström-Nordin (2012) indicated that pornography and its spread in the media and society were deemed as presenting a prejudiced image of body ideals, sexuality and relationships; yet despite this fact, both men and women considered pornography as sources of knowledge and inspiration: an ostensible inconsistency (Mattebo, Larsson, Tydén, Olsson, & Häggström-Nordin, 2012). Thus, even though society realizes that viewing pornography is extremely detrimental, we still consume it regularly.

Also, Laier, Schulte, and Brand (2013) found that pornography inhibits working memory performance. In other words, one’s cognitive ability to remember and retrieve important information in decision making is severely limited by frequent pornography use (Laier, Schulte, & Brand, 2013). Owens, Behun, Manning, and Reid (2012) found a host of indirect effects that pornography could have on students, such as their parents’ compulsive use of the Internet for sexual arousal and the decreased quality of family relationships; for example, pornography has been connected to marital dissatisfaction, divorce, and other challenges and stresses on the family system. Additionally, Owens, Behun, Manning, and Reid (2012) indicated that teenagers who were more regularly exposed to sexually explicit material had their first experience of sexual intercourse at an earlier age than teenagers who were not habitually exposed.
Males who were exposed to sexually explicit material in early adolescence were more likely to participate in sexual harassment in their intermediate teenage years (Owens, Behun, Manning, & Reid, 2012). Also, Owens, Behun, Manning, and Reid (2012) concurred with an increasing amount of empirical research regarding the detrimental neurological impact of frequently viewing pornography, further verifying that adolescents are at a greater risk for developing maladaptive pornography use if exposed to sexually explicit content during teenage developmental years.

The study conducted by Owens, Behun, Manning, and Reid (2012) empirically revealed that pornography use can lead to the development of unrealistic sexual values and beliefs, higher levels of permissive sexual attitudes, sexual preoccupation, earlier sexual experimentation, lower degrees of social integration, increases in conduct problems, higher levels of delinquent behavior, higher incidence of depressive symptoms, decreased emotional bonding with caregivers, and a positive correlation between adolescent use of pornography that depicts violence with increased degrees of sexually aggressive behavior. Additionally, as pornography use increases, self-confidence and social development decrease as well (Owens, Behun, Manning, & Reid, 2012).

**Gaming Addiction**

Even though the primary focus of this paper is IA, it is worth mentioning a problematic and ever-growing offshoot of IA: gaming addiction. Accordingly, it is worth noting the rise of the online and video game industry as one of the most lucrative and pervasive forms of entertainment in contemporary society. In 2012, consumers spent $20.77 billion dollars on computer games and accessories (ESA, 2012). Not only is the industry growing but also are its excessive users. The studies on Internet gaming addiction in the new millennium reported
prevalence estimates which vary significantly and range from 0.2% in Germany to 50% of Korean teenagers (Kuss, 2013) Other studies show prevalence rates are anywhere from 8% to 15.6% (Brown, 2014; Guan & Subrahmanyam, 2009)

Regardless of variances in prevalence rates, professional school counselors must be aware of this ever-increasing trend in their students. Guan and Subrahmanyam (2009) discovered, in a study of the influence of online-game playing on life satisfaction of gamers on varying personality dimensions, that neurosis in gamers had a negative influence on life satisfaction. Specifically for students, neurosis also has a significant negative influence on subjective well-being in teen gamers (Brown, 2014; Guan & Subrahmanyam, 2009).

There are a host of research studies that indicate how compulsive gaming is tethered to depression, social anxiety, suicide ideation, obsession, compulsions, and a lower interpersonal relationship quality (Brown, 2014; Mentzoni, et al., 2011; Padilla-Walker, et al., 2010; Rehbein & Kleimann, 2010; Wenzel, et al., 2009).

Brown (2014) lists the behavior symptoms involved in gaming addictions such as preoccupation, withdrawal, tolerance, salience, complications at work/school, chemical use, and financial difficulties, as well as the relationship symptoms of the neurotic gamer such as isolation, secrecy, lying about use, verbal aggression, and damaged relationships. Additionally, Brown (2014) discusses the psychological symptoms of gaming addicts such as depression, avoidance, impulsivity, obsessiveness, neuroticism, and self-absorption. Finally, the physical symptoms of addictive gaming are somatic pain, carpal tunnel, sleep deficiencies, nutritional deficits, weight fluctuations, deterioration of personal hygiene, and eye problems (Brown, 2014). Needless to say, the psychological, social, behavioral, and somatic issues of gaming addictions are immensely problematic.
Adlerian Perspective on Addictions

Holism

Adlerian psychology abides by the concept of holism that each person is indivisible in terms of their totality as a person and must not be fragmented into separate parts, such as the body, mind, and soul (Mosak & Maniacci, 1999). Adler himself states, “The Individual Psychologist has to observe how a particular individual relates himself to the outside world. This outside world includes the individual’s own body, his bodily functions, and the functions of his mind” (Ansbacher & Ansbacher, 1956, p. 67). Adlerian theory endeavors to comprehend individuals in their social context, not apart from it, because humans are relational creatures, and deeply rooted into the fibers of humankind are social characteristics (Carlson, & Maniacci, 2012).

Teleology

Adlerian theory holds that people are goal-directed and purposeful in their behavior. Adler commented on human being goal-directed, “A person would not know what to do with himself were he not oriented toward some goal. We cannot think, feel, will, or act without the perception of some goal” (Ansbacher & Ansbacher, 1956, p. 96).

Thus, Internet addicts are motivated by a purposeful goal, a quest to adventure upon to find belonging, significance, and to contribute. Consequently, the quest for connection, friendship, relationships, and love on social media sites, chat rooms, and virtual sex through pornography is inexorably tied to the longing to belong, to find significance, and to contribute. We are social creatures, and in our longing to be connected, we can sometimes reach out in unhealthy ways. Hence, teenagers are looking for belonging, connection, social acceptance, and contribution, and the Internet, in and of itself, provides a faux fulfillment of those longings.
Adlerian strategy to find freedom from addiction is imbedded in discovering the true goal behind the substance use and helping the individual meet that goal in a healthier way.

**Inferiority Feelings**

Adlerian theory purports that humans are driven to superiority stemming from feelings of inferiority discovered earlier in life rooted in their desire to belong. These feelings of inferiority drive humans to belong, to find significance, and to contribute to society to compensate for those inferior feelings. However, striving to reach our goals to belong, to find significance, and contribute can be completed on the useful or the useless side of life; in other words, humans strive on the vertical plane (motivated by self-interest) or on the horizontal plane (motivated by community interest) (Griffith & Powers, 2007).

An Adlerian perspective of adolescent Internet addiction would be that the addiction is the expression of a student’s struggle to overcome their inferiority feelings. The addiction presents itself because of the lack of courage in the individual to face reality and their life tasks. The student selfishly retreats into the Internet out of fear of being discovered, and so is hesitant of relationships with others in the real world. The fear of having others uncover their inadequacies is too much to bear. These inferiority feelings are also linked to the sense of not belonging that so many addicts report. This inferiority could be linked to the sense of "not belonging" that so many addicts report (Young, 1998; Brown, 2014).

Internet addicts confess their inability to successfully maintain their relationships with others, and as a result, a sense of worthlessness pervades. Furthermore, if these students dealing with Internet addiction have not experienced belonging or significance in the real world, these feelings of worthlessness are even more potent (Young, 1998). Adlerian theory emphasizes the importance of one’s final fictional goal, and students struggling with compulsive Internet use,
might create a new goal of protecting and hiding their worthlessness, so the Internet becomes the
refuge. Now the student mistakenly believes that he or she must live online in order to survive
offline (Brown, 2014). In other words, the student tries to eliminate feelings of inferiority
through their continue retreat into the Web. This fear of failure is problematic because it prevents
the student from succeeding in one of the three main life tasks outlined by Adler (1956):
work/school, friendship, and intimacy.

Furthermore, Adler in The Neurotic Consitution (1916) discoursed about self-indulgence as a lifestyle problem and considered alcoholism and addiction as a form of retrogressive
movement and suggested that alcoholics are “pampered failures” who lack courage and social
interest. Adler (1956) stated, "Very frequently the beginning of addiction shows an acute feeling
of inferiority marked by shyness, a liking for isolation, oversensitivity, impatience, irritability,
and by neurotic symptoms like anxiety, depression and sexual insufficiency" (p. 423). Laskowitz
(1961), an Adlerian theorist, furthers this idea when he indicated, “The adolescent drug addict is
socially distant, suffers from heightened feelings of inadequacy, lacks courage, desires to be
shielded and pampered.”

Striving for Superiority

Adler states, “When individuals...feel weak, they cease to be interested socially but strive for personal superiority. They want to solve the problems of life in such a way as to obtain
personal superiority without any admixture of social interest” (Ansbacher, & Ansbacher, 1956, p.
260). Dreikurs (1973) attests to the fact that vertical striving does not provide the attainment of
the goal and desire to belong and indicated, “The vertical movement of self-elevation, regardless of the height it leads to, both in status and accomplishments, can never bring lasting satisfaction
and inner peace. There is a constant danger of falling and failing; the gnawing feeling of real or possible inferiority is never eradicated, regardless of success” (p. 41).

**Mistaken Beliefs and Goals**

Two prominent Adlerian therapists, Carlson and Maniacci (2012), hold to the belief that it is extremely important and foundational when treating a disorder to know the reason why it is there in the first place. Thus, from an Adlerian perspective, the professional school counselor must not simply focus on the behavior, but rather centralize on the purpose of that behavior. Thus, the Adlerian school counselor values identifying the mistaken beliefs in students that prevent them from living real life in the real world.

Adlerian theory holds to the idea that people move from a felt minus to a perceived plus. A student addicted to his or her smartphone might be experiencing a degree of inferiority or having trouble coping with a difficult circumstance. The felt minus will motivate that student to strive toward an imagined plus, which in this case would be a process or behavior. This striving is driven by the individual’s own creative power to change the felt minus. However, many times the goal of belonging and significance that addicts are striving for lie outside the bounds of reality. The student’s actions are intelligent and logical in regards to the goal of overcoming the difficulty; yet, the problem still remains because it is a privately and individualized solution, not a common-sense solution. The student’s private logic is mistaken and misguided. Since all behavior is motivated by a particular goal, many times the original goal of belonging and contributing is replaced with mistaken goals (Dreikurs, 1973). A student could be privately thinking, “In order to belong and be significant, I need to be accepted at all costs”, or “I must be liked”, or “I must be noticed”, or “I cannot be alone” (Brown, 2014).
Thus, the role of the helper is to “spit in the soup” of their private logic and undo their mistaken beliefs about how to compensate, overcome, and ultimately, belong and contribute (Ansbacher & Ansbacher, 1956; Griffith & Powers, 2007). Reardon (2014) acknowledges that mistaken beliefs are sparked by a shocking event, and are the self-created in attempt to hide one’s sense of worthlessness. These mistaken beliefs can cause a student to seek undue attention, strive for power, strike out in revenge, or assume they are completely inadequate. Uncovering these mistaken beliefs will expose the student’s faulty private logic and will direct the school counselor to understand the motivations and goals of their behavior. If the mistaken beliefs are uncovered, then the root of the addiction will most likely be exposed as well, allowing an opportunity for discovery and healing. When the student is able to find insights into their motivations, then they can start to break the chain of compulsive Internet use.

Adlerian school counselors, upon finding the mistaken goal behind the maladaptive Internet use, will be able to help students discover better alternatives to finding satisfaction. Also, professional school counselors can discuss with students regarding how their mistaken goals are motivating them to act and think in a manner that is detrimental for, not only here in the present, but for later on in life too.

**Lifestyle Analysis and Early Recollections**

Many students experience difficulties at home that downgrade their success in school. Although the lines between counseling and therapy might be blurred, professional school counselors steeped in Adlerian theory can help draw out family issues that might be contributing to Internet addiction. Another Adlerian manner in which the root of addiction can be identified is through an exploration of past family history and early recollection. However, this is the role of a professional therapist, not a professional school counselor.
In terms of parenting children who are addicted to the Internet, as Adler believed, it may be better to educate, to teach social responsibility to children so that they can experience freedom as a consequence of being responsible. It is better to teach responsibility than to block access to social media (Brown, 2014; Dreikurs, 1973; King, 2012)

**Social Interest**

Adler (1956) summarized his view of addiction in one sentence, “In all cases of addiction, we are dealing with people who are seeking alleviation in a certain situation.” Adler (1916; 1956) believed that the addiction would disappear if the community feeling increased and vanity decreased. Thus, the goal of the addict is to increase social interest and decrease in a mentality of self-entitlement and self-centeredness.

“For Adler the strongest motivation force for the human being is the desire to belong to the social world” (Griffith & Powers, 2007, p. 9). Adler embraced social connectedness and interest as an accurate indicator of mental health (Ansbacher & Ansbacher, 1956). Also, Adler maintained that when an individual takes an interest in helping others, social interest is established, which results in a sense of belonging and contributing. The community feeling is an essential part of the Adlerian path to wellness. When this sense of belonging is absent, discouragement sets in and students are not able to reach to their maximum potential, let alone function in a healthy way. Ironically enough, even though students are constantly seeking connection in society, the fascination of the Internet and relational innocence of social media sites that promise that connection at times drive students further from their longing to connect, belong, contribute, and love.
Adler (2011) established the need for social interest:

Lack of social interest is equivalent to being oriented towards the useless side of life. The individuals who lack social interest are those who make up the groups of problem children, criminals, insane people, and drunkards. Parents and teachers need to find means to influence them to go back to the useful side of life and to make them interested in others. (p. 40)

The goal of Adlerian psychology for students with Internet addiction would be to develop a healthy social interest, help them feel valued and loved, overcome discouragement and inferiority feelings, change the student’s lifestyle, and uncover their mistaken beliefs, motivations, and goals, and set them on a course to be successful in all of their life tasks, such as relationships, work/school, and love.

**Implications and Interventions for School Counselors**

ASCA highlights that professional school counselors help all students in their career, personal, social, and academic development (ASCA, 2005). ASCA has intertwined four core concepts into the National Model framework: (a) leadership, (b) advocacy, (c) collaboration, and (d) systemic change. If implemented successfully, concentrating on these four core concepts in the National Model can complement other school, community, agency, and family efforts to address maladaptive behavior (Dockery, 2012).

Additionally, the ASCA National Model school counselor roles of collaboration, coordination, and consultation foster academic achievement, and efficaciously advance the personal, social, and career development in all students (ASCA, 2005). Finally, professional school counselors should use data to display the impact of particular interventions on individual students (ASCA, 2005).
Leadership and Collaboration

Professional school counselors are expected to work as leaders in schools and to collaborate with fellow educational colleagues, as well as with community members, other agencies, and with parents and families of school-aged children (ASCA, 2005). The effort to reduce Internet addiction should incorporate school counselors and schools forming partnerships with local mental health agencies to more effectively support students (Dockery, 2012). These partnerships might look like family counseling sessions or parent education workshops, community programs offered after school, on weekends, or during the summer, and organized efforts to provide mentors, role models, or advocates (Dockery, 2012). Professional school counselors can organize and facilitate parent-training sessions or educate teachers, local school board members, and other stakeholders regarding the prevalence of Internet addiction and ways to promote Internet safety (Dockery, 2012).

Ayas and Horzum (2013) strongly urge school staff and parents to effusively understand the psychological effects of Internet addiction on students in order to fight against it. Ayas and Horzum (2013) also urge school counselors provide counseling and referral options to the Internet addicts and those who have potential for Internet addiction.

When collaborating with parents, professional school counselors need to be aware of some of the potential pitfalls of parents going overboard and completely censoring all of the children’s digital activity when they realize their child is dealing with Internet addiction. The reason for this is because restricting a teen’s access to the Internet and to digital media has huge social consequences, far greater than may be justified by the infraction committed. The child might become over-discouraged and exasperated from the punishment and might alienate
themselves from their parents. Thus, parents should be encouraged to use natural and logical consequences and common sense in their approach to limiting their child’s use of the Internet.

Even though youth are the experts when it comes to the Internet, parents must not allow their lack of up-to-the-minute knowledge on the latest and greatest app, game, or website deter them from protecting their children. However, parents have to walk a fine line between protecting their children from the problems online while respecting their children's privacy (Burrow-Sanchez, Call, Robert, & Drew, 2011). Also, even though school counselors are being pulled in many different directions throughout the day, many of these strategies can also be integrated into current projects and curricula or delegated to other individuals like teachers and parents (Burrow-Sanchez, Call, Robert, & Drew, 2011).

School counselors should advocate for instructing proper Internet use and safety to students in a systematic, comprehensive way throughout the school. As a mental health resource, school counselors can perform a vital role in safeguarding that proper Internet use education is provided in their school (Burrow-Sanchez, Call, Robert, & Drew, 2011).

Professional school counselors can also instruct both teachers and students to apply proper Internet use skills within classroom lessons. This appears to be a relevant suggestion since many teachers need students to use the Internet to finish assignments (Burrow-Sanchez, Call, Robert, & Drew, 2011).

Burrow-Sanchez, Call, Robert, and Drew (2011) also encourage school counselors to use a team-building methodology and begin a committee to tackle proper Internet use and associated issues. They advocate for forming a committee out of teachers, school administrators, community organizations, and parents to promote continual and proper Internet use and safety.
messages at school, within the community, and at home (Burrow-Sanchez, Call, Robert, & Drew, 2011).

When school counselors realize that a student is most likely suffering from Internet addiction, they should contact the parents or guardians of that student. In the email, phone conversation, or face-to-face meeting, school counselors should outline the risks and problems linked to excessive Internet use, as well as encourage a plan to help the student find freedom from their maladaptive use (Burrow-Sanchez, Call, Robert, & Drew, 2011).

**Advocacy and Systemic Change**

School counselors are in an exclusive place to assist in efforts to reduce and prevent excessive Internet use because of their continual interaction with students, parents, and other school faculty (Burrow-Sanchez, Call, Robert, & Drew, 2011). Also, they are also the most common provider of mental health services to students in school settings (Burrow-Sanchez, Call, Robert, & Drew, 2011).

On top of helping students to determine individual academic and career plans, school counselors should advocate at the school administrative level for supportive programs for students suffering from addictions (Dockery, 2012). This advocacy and goal of systemic change might look like implementing a school-wide Internet safety program to improve the school’s Internet use culture, continuing to communicate to the entire school the option for students to access counseling, support, and helpful resources. Also, advocacy and systemic change could look like collaborating with teachers to discuss for at-risk students (Dockery, 2012).

**Delivery System**

Professional school counselors ought to incorporate Internet safety in their guidance curriculum at the school-wide level. Classroom lessons can be both short and effective when
done creatively (Bruneau & Protivnak, 2012). Small group sessions may be offered to targeted students to address compulsive Internet use concerns. It is vital to offer small group or individual interventions focused on Internet safety and coping skills for students who are struggling with time-management and academics when their use of the Internet appears maladaptive (Dockery, 2012). Although not empirically validated, programs such as “Big-Brother, Big-Sister” could effectively reduce compulsive Internet use when student mentors are trained and focused on intentionally helping younger students succeed in their use of the Internet.

**Screening Tools for Determining and Assessing Addictive Behavior**

Even though school counselors are almost never called upon to implement therapeutic interventions for students with addictions, professional school counselors must serve as supportive and empathetic helpers for their student’s problems and needs (ASCA, 2005; CACREP, 2008; Hagedorn & Young, 2011). Furthermore, school counselors are specially positioned to identify these addictive behaviors in the students at their school. Also, school counselors should use the lists of warning signs given in the appendices in order to establish if further intervention is needed, such as screening and assessing for addictive behavior, and/or referring to an outside licensed therapist who specializes in treating addictions.

**Internet Addiction Screening Tool**

For students who are seemingly addicted to using the Internet, an empirically validated screening tool called Young’s Internet Addiction Test (IAT; Widyanto & McMurren, 2004; Dowling & Quirk, 2009; Young, 1998) can be employed. The IAT is an 20-item yes or no questionnaire where a score 50 or higher indicates that problematic Internet usage is present, and 80 and above suggests that an Internet addiction is present (Young, 1998) and that a referral to a
professional counselor specializing in Internet addictions is essential. The IAT is available in the appendices.

**Gaming Addiction Screening Tool**

Although I could not find any empirically validated screening tools for addicted gaming at the time of writing, two tools may be found to be helpful. Firstly, while not empirically validated, Brown (2014) offers an excellent Adlerian and powerfully purposeful questionnaire for students and clients potentially addicted to gaming. This instrument can be simplified and used with students to determine if a referral is necessary (see the appendices for questionnaire). Secondly, the On-Line Gamers Anonymous website (www.olganon.org) may prove beneficial for school counselors who have reason to believe an addiction to gaming is present.

**Multiple Addictions Screening Tool**

When it appears multiple addictions are presenting in a student, the Shorter PROMIS Questionnaire (SPQ; Cristo, Jones, Haylett, Stephenson, & Lefever, 2003; Couyoumdjian, Baiocco, & Del Miglio, 2006) is valuable for assessment more than screening (Hagedorn & Young, 2011). The SPQ is 19-scale, self-diagnosing tool that assesses one’s use of various drugs (nicotine, recreational, prescription), gambling, sex, caffeine, food, exercise, shopping, work, relationships, compulsive helping, video games, the Internet, and cell phones (Hagedorn & Young, 2011). This has proved to be an effective tool with teenagers and other ages as well (Pallanti, Bernardi, & Quercioli, 2006; Tafa & Baiocco, 2009).

**The WASTE-Time Screening Tool**

Finally, a clinically-based screening instrument successfully utilized with addicted clients by Hagedorn and Young (2011) is called the WASTE-Time structured interview. This instrument was developed by Hagedorn and Young (2011) in response to the scarcity of
assessment and screening tools for multiple process addictions. The acronym WASTE-Time refers to one or more of the diagnostic criteria for addictive behaviors (Goodman, 2001; Hagedorn & Young, 2011). Furthermore, the questions in the interview can be customized to sidestep any resistance or denial from students, and this WASTE-Time interview can be modified to fit a typical school counseling session (Hagedorn & Young, 2011).

Hagedorn and Young (2011) propose that school counselors discuss the outcome of the interview with parents in order to help students find the degree of care they need. When a student answers yes to any question, it may denote a convincing indication of an addictive behavior. If a student has affirmatively answered three or more questions, it often meets the criteria for an addictive disorder. Also, parents should be strongly encouraged and referred by the school counselor to a professional therapist who specializes in addictions (Hagedorn & Young, 2011). At this point, Hagedorn and Young (2011) conclude that students might need more than counseling alone: the student might need help transitioning into inpatient hospitalization, intensive outpatient counseling, and/or a self-help support group.

Since it is not typical for professional school counselors to provide intensive addiction treatment, counselors need to meet with the student and his or her family to discuss and find treatment options best suitable for the student. Hagedorn and Young (2011) articulate:

By focusing on the connection between the student's inability to regulate tension (e.g., stress, anger, or emotional pain) and his or her pattern of discharging tension through less-than-desirable behaviors (e.g., addictive gambling or Internet addiction), professional school counselors can help de-stigmatize some of the possible shame experienced by the student. (p. x)
If applicable and if there are a number of students who are presenting comparable addictive experiences and behaviors, then the school counselor may form a small group with these students that focuses on stress management, self-care, study skills, and communication skills. This group process in and of itself may encourage students and parents to take the prescribed suggestions to deal with the addiction (Hagedorn & Young, 2011).

Also, if any student answers yes to three or more of the WASTE-Time questions (or is presenting with a few of the warning signs for any of the disorders mentioned in the Appendices), professional school counselors need to advocate for ongoing assessment of the student by a mental health professional who specializes in that particular addiction (Hagedorn & Young, 2011). Hagedorn and Young (2011) propose that these references could develop from the latest referral lists of community resources that work with process addicted children and adolescents.

**Referral Lists**

For any professional school counselors who do not know to whom, where, and how to refer a student for addiction counseling, there are excellent nationwide referral lists online. Here is a small but effective sampling:

- General addictions: www.theravive.com
- Eating addictions: www.edreferral.com
- Internet addictions: www.netaddiction.com
- Sex addictions: www.iitap.com
- Pornography addictions: www.lifestartherapy.com/referrals/
- Gambling addictions: www.ncpgambling.org
When addictions are known to be present, it is ideal for family counseling, group counseling, and individual counseling to all take place. Family counseling is important because the student’s problems are undoubtedly affecting the family system. Group counseling should be considered because of the importance having a safe place to talk about addiction, learning from the experiences of others, finding encouragement and hope in knowing he or she is not alone, and hearing feedback from others (Foell, 2013). Also, individual counseling is vital because it will help the student develop coping skills (Hagedorn & Young, 2011).

School counselors should greatly encourage the student and his or her family and friends to attend addiction specific support groups as well. A list is provided in the Appendices. Students can attend groups like Online Gamers Anonymous or Celebrate Recovery. Family members can attend support groups such as OLG-Anon (which is for family and friends of students who are addicted to on-line gaming) or Co-Dependents Anonymous (which is intended for family and friends who have lost their own identity as a result of being consumed by the addict’s behavior) (Hagedorn & Young, 2011).

For students living in rural communities or when there is no local support group available, there are many online support groups that school counselors can direct students, families, and friends toward. See the appendices for a list of 12-step programs designed to help students and their families and friends.

Conclusion

Due to the rise of technology and the Internet, new process addictions have found their way into the lives of students, and it is the rightful role of professional school counselors to caringly respond to the crises and urgent needs of their students. More than any other time in
history, these process addictions in students’ lives are adversely affecting their academic, personal, emotional, social, behavioral, and familial circumstances.

It is also the rightful role of the professional school counselor to evaluate whether the academic, personal, social, or familial concern of a student is stemming from an addictive disorder that is hidden beneath the surface. If this is not screened for, then any corrective efforts at improving a student’s grades, study skills, and relationships will not be as effective because the root of the problem is much deeper.

Even though there are new process addictions to video and computer games, the Internet, Facebook, and smartphones, research indicates that these repeated behaviors induce the same physiological effects in the brain that addictions to drugs and alcohol generate. Furthermore, these process addictions have components of cravings, mood alteration, withdrawal symptoms, problems with impulse control, increased use despite negative consequences, and negative loss in other areas of life (Hagedorn & Young, 2011).

Vitally important is the need for professional school counselors to be cognizant of the potentially addictive activities students are engaging in so that they are prepared to mediate with an effective set of research-based screening questions and assessment strategies (Hagedorn & Young, 2011).

Professional school counselors are uniquely positioned to serve as compassionate, skilled, and highly effective helpers of students in their desire to succeed in the academic, personal, social, and career domains. Therefore, it is indispensably critical that professional school counselors acknowledge that they are distinctively situated to identify any addictive tendencies in their students and offer their students a way out of their addictions.
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TECHNOLOGY ADDICTION IN STUDENTS

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Appendix A

Warning Signs for Food Addiction

A student struggling with food addiction may (Magellan Health Services, 1994; National Institute of Mental Health, 2008):

1. Exhibit a dramatic increase or decrease in weight in a short period of time.

2. Demonstrate abnormal eating habits (e.g., extreme dieting, ritualized eating, refusal to eat in front of others, or secretive bingeing).

3. Exercise compulsively, particularly following a bingeing episode.

4. Have an intense fear of gaining weight or becoming fat, even when noticeably underweight.

5. Avoid activities because of weight and shape concerns (e.g., going to the beach, finding a dress for the prom).

6. Share feelings of isolation, depression, or irritability.

7. Make frequent trips to the bathroom for extended periods of time.

8. Have unexplained problems with such things as menstruation, poor oral hygiene (due to stomach acid wearing away tooth enamel during vomiting episodes), brittle hair and nails, and/or dry and yellowish skin.

Appendix B
Warning Signs for Gambling Addiction

A student struggling with gambling addiction may (Blume, 1995):

1. Exhibit preoccupation (i.e., can think of little else) with betting, scores, and game outcomes: this would go beyond what one might consider "normal discussions" of the outcome of last night's football game.

2. Participate in stealing/extortion: for example, when older and stronger adolescents begin to take lunch money from younger children to finance their gambling activities.

3. Withdraw from family and friends.

4. Suddenly perform poorly in school or skip it all together: older adolescents may be found at dog and horse race venues during school hours.

5. Have issues with money (too much or too little): if a student is walking around school with a large amount of money or is constantly seeking loans from others, this would warrant follow-up.
Warning Signs for Exercise Addiction

A student struggling with exercise addiction may (Allegre, Souville, Therme, & Griffiths, 2006; Draeger, 2005):

1. *Exhibit preoccupation with exercise and working out.*

2. *Focus on exercise to the exclusion of school and/or work responsibilities.*

3. *Replace time once spent with friends and/or family with exercise.*


5. *Exercise even when injured, ill, and/or fatigued.*

6. *Have a marked lack of free time, or free time that is devoid of exercise.*

7. *Abuse substances (e.g., steroids, stimulants, supplements [e.g., diet pills], energy drinks, or other mood altering drugs) to enhance performance and/or the exercise episode.*

8. *Demonstrate emotional extremes (e.g., rage, depression, elation, anxiety, guilt), especially when unable to exercise.*

9. *Be unwilling/unable to follow through on limit setting.*

Appendix D

Warning Signs for Spending Addiction
A student struggling with spending addiction may (Miller, 2007):

1. Be preoccupied with money and purchases.

2. Get excited when obtaining new purchases.

3. Feel guilty or remorseful following a spending episode.

4. Connect shopping with negative moods: for example, following a challenging day, the adolescent consistently travels to the mall or logs onto the Internet.

5. Experience family or school problems as a result of his/her spending habits.

6. Hide purchases and/or receipts and/or have possessions that have never been worn or used.

7. Express anger and/or agitation at being questioned about his/her spending habits.

Appendix E

Warning Signs for Sexual Addiction
A student struggling with sexual addiction may (Carnes, 2001; Goodman, 2001):

1. *Exhibit a marked preoccupation or obsession with sexual activity.*

2. *Admit to having multiple sexual partners, often at the same time.*

3. *Dehumanize/objectify people to focus on body parts.*

4. *Possess large quantities of pornography.*


6. *Develop serious problems as a result of his/her sexual behaviors (e.g., failing grades, lost relationships, sexually transmitted diseases, injuries to the genitals, or sexual offenses).*

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**Appendix F**

**Warning Signs for Gaming Addiction**

A student struggling with gaming addiction may (Khan, 2007; Young, n.d.):
1. Spend more than two hours per day playing games.

2. Fantasize/talk obsessively about game characters or missions when not playing.

3. Lie about/hide how much time is spent game-playing.

4. Disobey parental limits related to time playing games.

5. Lose interest in sports and hobbies that were once important.

6. Choose game time over time spent with friends.

Appendix G

**Warning Signs for Internet Addiction**

A student struggling with Internet addiction may (Chou, Condron, & Belland, 2005):
1. Exhibit abnormal sleeping patterns (for example, the adolescent who stays up until the early morning hours on the Internet and therefore ends up being late for school or falling asleep in class).

2. Spend increasingly large amounts of time on-line (two to three hours a day has been identified as addictive by Kaltiala-Heino, Lintonen, and Rimpela, 2004).

3. Begin performing poorly in school (for example, as a result of a lack of sleep, the one-time "A" student has difficulties focusing, turns assignments in late, etc.).

4. Lose interest in extra-curricular activities he/she once enjoyed.

5. Change their patterns of computer use (for example, he/she may insist on privacy, delete his/her Internet history, etc.).

6. Use game playing as a way to escape negative moods or stressors.

7. Continue to play despite negative consequences (e.g., plummeting grades, loss of a scholarship, a breakup with a girlfriend).

8. Experience physical consequences due to lost sleep, poor hygiene, and skipping meals.

Appendix H

The WASTE-Time Interview

W: Withdrawal
"How do you feel/what happens to you when you are unable to engage in----- (fill in blank with the behavior that is being assessed)?"
Responses may include irritability, anxiety, depression, anger, and/or other negative mood states. Clients may also reveal using other behaviors or chemicals to supplement their addictive behaviors as a means to avoid withdrawal symptoms.

**A: Adverse Consequences**

"Have you experienced any negative (or adverse) consequences as a result of your behaviors?"

Responses may include broken relationships, being grounded at home, lowered grades, lack of sleep, financial difficulties, physical injury, being kicked off a sports team, and/or psychological trauma (e.g., suicidal ideations). This can lead to further discussions about the cost of continuing the addictive behaviors.

**S: Inability to Stop**

"Have you attempted to cut back, control, or stop your behaviors without success, even when you know that continuing will cause you harm?"

Responses may include multiple attempts at stopping or controlling the addictive behaviors without success, even when faced with the knowledge that continuing poses a physical or psychological problem.

**T: Tolerance or Intensity**

"Have you found it necessary to increase the amount or intensity of your behaviors to achieve the same high (or whatever reaction occurs whenever the behavior is used)"

Responses may mirror the tolerance that one would feel towards alcohol: whereas one alcoholic beverage used to provide an alteration in mood, tolerance would be evidenced by it taking six drinks to produce a similar effect.
E: Escape
"Do you find yourself engaging in the activity whenever you feel such things as stress, anxiety, depression, sadness, loneliness, or anger?" Responses here may include any negative mood state and discussion can easily move into co-morbid emotional concerns (e.g., depression, anxiety, etc.).

Time: Time Spent and Time Wasted

Time Spent
"Have you found yourself spending a lot of time preparing for, engaging in, or recovering from your activity?" Responses often include time-consuming ritualistic behavior patterns that accompany addictive behavior, which can be followed by large amounts of time needed to recover from a binge episode.

Time Wasted
"Have you been spending more time and/or more resources on your activities than you planned to?" Responses may include unintended hours spent on the Internet, a loss of sleep due to an entire weekend spent on voyeuristic activities, or a lost paycheck spent on gambling activities.

(Hagedorn & Young, 2011) Used with permission.

Appendix I

Here is a list of 12-step programs designed to help students (and potentially parents) with their addictions:

All Addictions:
Celebrate Recovery: www.celebraterecovery.com
Rational Recovery: www.rational.org
All Addictions Anonymous: www.alladdictionsanonymous.org
All Addicts Anonymous: www.alladdictsanonymous.org
**Family Members**
Adult Children of Alcoholics: www.adultchildren.org
Al-Anon, Alateen: www.al-anon.alateen.org
Codependents Anonymous: www.coda.org
Codependents of Sex Addicts: www.cosa-recovery.org
Families Anonymous: www.familiesanonymous.org
Nar-Anon Family Groups: www.nar-anon.org
S-Anon International Family Groups: www.sanon.org

**Substance Abuse**
Alcoholics Anonymous: www.aa.org
Chemically Dependent Anonymous: www.cdaweb.org
Cocaine Anonymous: www.ca.org
Crystal Meth Anonymous: www.crystalmeth.org
Heroin Anonymous: www.heroinananonymous.org
Marijuana Anonymous: www.marijuanaanonymous.org
Narcotics Anonymous: www.na.org
Nicotine Anonymous: www.nicotine-anonymous.org

**Food**
Compulsive Eaters Anonymous – HOW: www.ceahow.org
Eating Addictions Anonymous: www.eatingaddictionsanonymous.org
Eating Disorders Anonymous: www.eatingdisordersanonymous.org
Food Addicts Anonymous: www.foodaddictsanonymous.org
Food Addicts in Recovery Anonymous: www.foodaddicts.org
Overeaters Anonymous: www.oa.org
Anorexics and Bulimics Anonymous: www.aba12steps.org

**Sexuality**
CoSex and Love Addicts Anonymous: www.coslaa.org
SA: Sexaholics Anonymous: www.sa.org
SAA: Sex Addicts Anonymous: www.saa-recovery.org
SCA: Sexual Compulsives Anonymous: www.sca-recovery.org
SLAA: Sex and Love Addicts Anonymous: www.slaafws.org
SRA: Sexual Recovery Anonymous: www.sexualrecovery.org

**Gambling**
Gam-Anon: www.gam-anon.org
Gamblers Anonymous: www.gamblersanonymous.org
Gaming
On Line Gamers Anonymous: www.olganon.org

Other
Debtors Anonymous: www.debtorsanonymous.org
Depressed Anonymous: www.depressedanon.org
Dual Recovery Anonymous: www.draonline.org
Emotions Anonymous: www.emotionsanonymous.org
Survivors of Incest Anonymous: www.slawso.org
Workaholics Anonymous: www.workaholics-anonymous.org
Recovery Couples Anonymous: www.recovering-couples.org

Appendix J

The Internet Addiction Test (Young, 1998)

To assess the level of addiction, answer the following questions using this scale:

0 = Not Applicable
1 = Rarely
2 = Occasionally
3 = Frequently
4 = Often
5 = Always

1. How often do you find that you stay online longer than you intended?
2. How often do you neglect household chores to spend more time online?

3. How often do you prefer the excitement of the Internet to any of the close friendships you have (or intimacy with your partner)?

4. How often do you form new relationships with fellow online users?

5. How often do others in your life complain to you about the amount of time you spend online?

6. How often do your grades or schoolwork suffer because of the amount of time you spend online?

7. How often do you check your e-mail before something else that you need to do?

8. How often does your job performance or productivity suffer because of the Internet?

9. How often do you become defensive or secretive when anyone asks you what you do online?

10. How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?

11. How often do you find yourself anticipating when you will go online again?

12. How often do you fear that life without the Internet would be boring, empty, and joyless?

13. How often do you snap, yell, or act annoyed if someone bothers you while you are online?

14. How often do you lose sleep due to late-night log-ins?

15. How often do you feel preoccupied with the Internet when off-line, or fantasize about being online?
16. How often do you find yourself saying "just a few more minutes" when online?

17. How often do you try to cut down the amount of time you spend online and fail?

18. How often do you try to hide how long you've been online?

19. How often do you choose to spend more time online over going out with others?

20. How often do you feel depressed, moody, or nervous when you are off-line, which goes away once you are back online?

Scoring:

After all the questions have been answered add the numbers for each response to obtain a final score. The higher the score range, the greater the level of addiction:

20 – 49 points: You are an average on-line user. You may surf the Web a bit too long at times, but you have control over your usage.

50 – 79 points: You are experiencing occasional or frequent problems because of the Internet. You should consider their full impact on your life.

80 – 100 points: Your Internet usage is causing significant problems in your life. You should elevate the impact of the Internet on your life and address the problems directly caused by your Internet usage.

- 0 – 30 points = Normal Range
- 31- 49 points = Mild Range
- 50 - 79 points = Moderate Range
- **80 - 100 points** = *Severe Range*
Appendix K

Teens and Porn Infographic (Sabina, Wolak, & Finkelhor, 2008)

Appendix L

Bulleted List of Negative Consequences for Student with IA/PIU

Addiction

- **Higher chance of other addictions** (Baer, Saran, Green, & Hong, 2012; Li, O'Brien, Snyder, & Howard, 2015; Ahmadi & Saghaifi, 2013; Poli & Agrimi, 2012; Merta, 2001; Ledgerwood & Downey, 2002; Potenza, 2002; Young, Pistner, O'Mara, & Buchanan, 1999)
- **Sex** (Ahmadi & Saghaifi, 2013)
- **Gaming** (Ahmadi & Saghaifi, 2013; Baer, Saran, Green, & Hong, 2012; Rollins, 2014; Chou, Condron, & Belland, 2005; Tsai & Lin, 2003)
- **Gambling** (Ahmadi & Saghaifi, 2013)
- **Substance abuse** (Ahmadi & Saghaifi, 2013; Poli & Agrimi, 2012; Merta, 2001; Ledgerwood & Downey, 2002; Potenza, 2002; Young, Pistner, O'Mara, & Buchanan, 1999)

Physical health issues (Burrow-Sanchez, Call, Robert, & Drew, 2011)

- **Overweight / obesity** (Li, O'Brien, Snyder, & Howard, 2015)
- **Overweight preoccupation** (Hetzel-Riggin & Pritchard, 2011)
- **Lack of physical activity / Failure to exercise** (Li, O'Brien, Snyder, & Howard, 2015)
- **Poor diet** (Li, Zhang, Lu, Zhang, & Wang, 2014; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- **Increase of blood lead concentration** (Li, Zhang, Lu, Zhang, & Wang, 2014)
- **Sleep disturbances/sleep disorders/insomnia** (Li, O'Brien, Snyder, & Howard, 2015; Wolniczak, Cáceres-DelAguila, Palma-Ardiles, Arroyo, Solís-Visscher, Paredes-Yauri, & Bernabe-Ortiz, et. al., 2013; Li, Zhang, Lu, Zhang, & Wang, 2014; Rollins, 2014; Poli & Agrimi, 2012; Guan & Subrahmanyam, 2009; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- **Dry eyes** (Ahmadi & Saghaifi, 2013)
- **Migraine headache/backache** (Ahmadi & Saghaifi, 2013; Poli & Agrimi, 2012)
- **Dizziness** (Poli & Agrimi, 2012)
- **Psychosomatic symptoms** (Poli & Agrimi, 2012)
Mental health issues (Burrow-Sanchez, Call, Robert, & Drew, 2011; Manley & Koehler, 2001; Ohlmeier et al., 2008; Ragan & Martin, 2000)

- Depression / Depressive symptoms (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015; Li, Zhang, Lu, Zhang, & Wang, 2014; Rollins, 2014; Poli & Agrimi, 2012; Hetzel-Riggin & Pritchard, 2011; Guan & Subrahmanyam, 2009)
- Somatic and social anxiety (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015; Ahmadi & Saghafi, 2013; Poli & Agrimi, 2012)
- Anxiety disorders (generalized and social anxiety disorder) (Ahmadi & Saghafi, 2013; Poli & Agrimi, 2012)
- Phobic anxiety (Hetzel-Riggin & Pritchard, 2011)
- Attention deficit-hyperactivity disorder (ADHD) (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015; Ahmadi & Saghafi, 2013; Poli & Agrimi, 2012)
- Suicide ideation (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015)
- Temperamental traits such as impulsivity (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015) and sensation-seeking (Li, O’Brien, Snyder, & Howard, 2015)
- Dysfunctional coping skills (Ahmadi & Saghafi, 2013)
- Negative affective state (Li, O’Brien, Snyder, & Howard, 2015)
- Neuroticism / Exacerbated negative emotional states (Li, O’Brien, Snyder, & Howard, 2015; Rollins, 2014; Chou, Condron, & Belland, 2005; Tsai & Lin, 2003; Yao, He, Ko, & Pang, 2014)
- Decreased life-satisfaction and well-being (Rollins, 2014; Chou, Condron, & Belland, 2005; Tsai & Lin, 2003; Heo, Oh, Subramanian, Kim, & Kawachi, 2014; Guan & Subrahmanyam, 2009; Tsai & Lin, 2003)
- Personality disorders (Poli & Agrimi, 2012)

Neurological impairments (Li, O’Brien, Snyder, & Howard, 2015)

- Decreased ability to concentrate (Li, O’Brien, Snyder, & Howard, 2015; Poli & Agrimi, 2012)
- Denial (Poli & Agrimi, 2012)
- Distorted perception of reality (Poli & Agrimi, 2012; Hetzel-Riggin & Pritchard, 2011)

Behavioral problems (Ahmadi & Saghafi, 2013; Poli & Agrimi, 2012; Burrow-Sanchez, Call, Robert, & Drew, 2011)
• **Substance misuse** (Poli & Agrimi, 2012)
• **Self-injurious behavior / Suicidal ideation and attempts** (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015; Ahmadi & Saghafi, 2013)
• **Aggressive behavior** (Li, Zhang, Lu, Zhang, & Wang, 2014; Kim, 2013; Fisoun, Floros, Geroukalis, Ioannidi, Farkonas, Sergentani, et. al., 2012)
• **Money problems / Poor money management** (Ahmadi & Saghafi, 2013; Guan & Subrahmanyam, 2009; Rollins, 2014)
• **Constant hiding and secrecy** (Guan & Subrahmanyam, 2009; Rollins, 2014)
• **Unable to tolerate frustration of personal needs** (Poli & Agrimi, 2012)

**School and work problems** (Burrow-Sanchez, Call, Robert, & Drew, 2011; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)

• **Poorer school and work performance** (Li, O’Brien, Snyder, & Howard, 2015; Guan & Subrahmanyam, 2009; Rollins, 2014; Heo, Oh, Subramanian, Kim, & Kawachi, 2014; Atwood, 2006; Bardick, Bernes, & McCulloch, 2004; Crosnoe, 2007; Dickson & Derevensky, 2006; Goble, 2008; Fergusson & Boden, 2008; Lambie & Sias, 2005; Petry, 2005)
• **Time management problems** (Li, Zhang, Lu, Zhang, & Wang, 2014)
• **Time distortion** (Poli & Agrimi, 2012)
• **Academic underachievement** (Li, O’Brien, Snyder, & Howard, 2015; Rollins, 2014; Guan & Subrahmanyam, 2009; Heo, Oh, Subramanian, Kim, & Kawachi, 2014; Atwood, 2006; Bardick, Bernes, & McCulloch, 2004; Crosnoe, 2007; Dickson & Derevensky, 2006; Goble, 2008; Fergusson & Boden, 2008; Lambie & Sias, 2005; Petry, 2005)

**Social problems** (Burrow-Sanchez, Call, Robert, & Drew, 2011)
- More problems with interpersonal relationships compared to their counterparts without IA/PIU (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015; Li, Zhang, Lu, Zhang, & Wang, 2014; Ahmadi & Saghi, 2013; Rollins, 2014)
- Replacing of real life friends and family (Ahmadi & Saghi, 2013; Guan & Subrahmanyam, 2009)
- Exclusion of other interests (Poli & Agrimi, 2012)
- Failure to engage in face-to-face social activities (Li, O’Brien, Snyder, & Howard, 2015)
- Lower social competence (Baer, Saran, Green, & Hong, 2012; Li, O’Brien, Snyder, & Howard, 2015)
- Low self-esteem and self-confidence (Ahmadi & Saghi, 2013; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- Loneliness (Li, Zhang, Lu, Zhang, & Wang, 2014)
- Destructive lifestyle (Li, Zhang, Lu, Zhang, & Wang, 2014)
- Aggressive behavior (Li, Zhang, Lu, Zhang, & Wang, 2014; Li, O’Brien, Snyder, & Howard, 2015; Kim, 2013; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- Psychosocial maladjustment (Ahmadi & Saghi, 2013)
- Dependency and attachment issues (Ahmadi & Saghi, 2013)
- Lower quality of familial relationships (Ahmadi & Saghi, 2013; Guan & Subrahmanyam, 2009; Rollins, 2014; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- Lower quality of interpersonal relationships (Ahmadi & Saghi, 2013; Rollins, 2014)
- Withdrawal (Poli & Agrimi, 2012; Hetzel-Riggin & Pritchard, 2011; Guan & Subrahmanyam, 2009; Heo, Oh, Subramanian, Kim, & Kawachi, 2014)
- Assuming different identities (Poli & Agrimi, 2012)