Jurnal Psikologi, 2022 (April), Vol. 21(1), 51-61

THE EFFECTIVENESS OF *NAVIGASI DIRI*: SMART INTERNET SELF-REGULATION-BASED INTERVENTION ON INTERNET ADDICTION IN ADOLESCENTS

Imam Setyawan, Achmad Mujab Masykur

Faculty of Psychology, Universitas Diponegoro
Prof. Soedarto, SH. Street, Tembalang Campus, Semarang, Indonesia 50275

imam.setyawan@live.undip.ac.id

Abstract

This study aimed to examine the effectiveness of smart internet self-regulation-based intervention, the 'NAVIGASI DIRI', in reducing internet addiction in adolescents. The subjects of this study were 40 teenagers (16 girls, 24 boys) from a high school in Semarang, Central Java, Indonesia. The group intervention was carried out in five face-to-face sessions effectively for eight hours. The psychological scales that were compiled as a data collection tool were the Internet Addiction Scale (20 items, α = .843) and Self-Regulation Scale (25 items, α = .808). The experimental design used was pretest – posttest without control group design. The paired sample *t*-test on pretest and posttest data showed a significant decline in the level of internet addiction, $t(39) = 2.640$, $p < .05$, from pretest ($M = 28.93$; $SD = 18.713$) to posttest ($M = 24.08$; $SD = 17.006$). Meanwhile, the subjects' self-regulation increased significantly, $t(39) = -2.181$, $p < .05$, from pretest ($M = 71.85$; $SD = 6.192$) to post-test ($M = 73.40$; $SD = 6.250$). The results of the simple regression test showed a moderate negative relationship between the two variables ($r = -.548$, $p < .001$; $b = -1.490$; $t(38) = -4.035$, $p < .001$). The coefficient of determination ($R^2 = .300$) indicated that 30% of students' internet addiction was determined by their self-regulation. The NAVIGASI DIRI Intervention has been proven to be effective in increasing the level of self-regulation of students which contributes to reducing the level of internet addiction.

Keywords: internet addiction; self-regulation; adolescents

INTRODUCTION

One of the factors which is inevitable from the current development, is the progress of science and technology, especially in information technology. Modernization supported by advances in information technology is truly extraordinary, the impact is very beneficial for mankind and more than what we could ever imagine.

The pillar of advances in information technology that has brought very significant changes is the development of internet technology. The internet has become an integral part in modern society and functions as an essential medium for communication, socialization, and education (Kaess et al., 2014; Koyuncu et al., 2014). In reality, internet accessibility with unlimited content has become essential on a daily basis for adolescents. They use the internet to study, play, social network, gamble, chat, shop and watch pornography (Kuss & Griffiths, 2011; Kuss et al., 2013). Adolescents' daily life can no longer be separated from the internet because many academic tasks and learning processes are facilitated by internet functions. Online learning has been widely adopted and it continues and develops, policy makers in Indonesia determine that online learning will continue to expand in an integrative manner with offline learning. It is indisputable that the internet is no stranger to Indonesian youth, especially from junior high to senior high levels (Budhyati, 2012).

However, for adolescents who are still psychologically unstable and immature, the internet can be potentially misused. Instead of guiding them to grow and develop themselves, the internet can actually be a destructive agent for their personality. Internet addiction is one of the main health (Koyuncuet al., 2014) and social (Wu et al., 2015) problems in adolescents. They difficult to stop using the internet because of its anonymity, convenience, and accessibility, as

well as its potential use as a way to escape real life issues (Kardefelt-Winther, 2014). Internet addiction is characterized by excessive or poorly controlled preoccupations, failure to control impulses to access the internet, continued use despite disruptions at various levels of functionality, gradually increasing periods of time spent on the internet, and uncontrolled urges to remain online (Koyuncu et al., 2014; Kuss et al., 2014; Leung, 2014).

Most research on internet addiction from other countries, has focused on estimating cases in adolescents, who are considered a high-risk age group for internet addiction (Liu & Potenza, 2010). Adolescents are vulnerable to being a high-risk group for internet addiction if they have a lack of defense against addiction during their development period.

The type of activities commonly associated with internet addiction include online gaming and gambling, social media, virtual sex, and pornography as well as limitless information (Young & Cristiano, 2017). Excessive use and addictive feature as a form of Problematic Internet Use (PIU) are part of the biggest problem of internet use in the adolescent population, with a prevalence of up to 26,7% (Kusset al., 2014; Ponteset al., 2015). Research showed that adolescents who use the internet excessively have low academic performance (Fragkos et al., 2010; Özçinar, 2011), low self-esteem (Budak et al., 2015), declined academic self-efficacy and increased academic procrastination (Odaci, 2011) and reduced academic control (Iskender & Akin, 2010).

The huge impact of the internet has required adolescents to be wise in using it. In terms of time, these young people should not waste unreasonable time on the internet to the point of ignoring other tasks. Likewise, in the terms of content, teenagers should not access sites that harm them psychologically. Unfortunately, most teenagers maintain unhealthy internet use, resulting with a negative impact. A study on adolescents in Spain with a large sample (n = 40,955) showed that Problematic Internet Use affects 16,3% of the adolescent population. Adolescents who are particularly vulnerable to Problematic Internet Use are intensive users and those without parental control (Gómez, 2017). Increased Problematic Internet Use is correlated with cyberbullying or suicide attempts, based on the results of a study in the United States on adolescents (N = 205; 12-20 years) who became psychiatric hospital patients (Gansner, et al., 2019).

Adolescents are required to possess an ability called self-regulation. Self-regulation in different areas is also called self-control or self-management (Li et al., 2018). Zimmerman defined self-regulation as the processes of activating and sustaining cognitions, behaviors and affects that are systematically oriented toward the attainment of personal goals (Schunk et al., 2012). In the context of internet use, adolescents are expected to access the internet by setting ideal standards of behaviour for themselves and responding to their own behaviour by evaluating themselves in self-direction exercises.

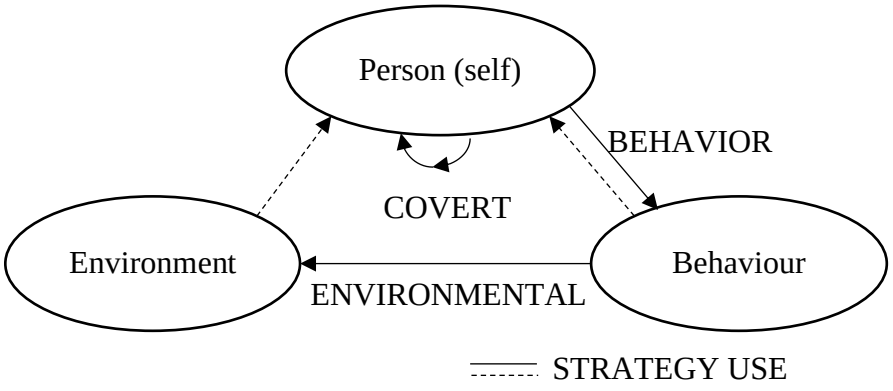

Figure 1. Triadic Model of Self-Regulation (Clark & Zimmerman, 2014)

Zimmerman created Triadic Model of Self-Regulation (see Figure 1) which consists of personal, behavioral, and environmental areas. The model is not only related to knowledge, skills and self-management when controlling environmental elements, but also raises awareness of personal functioning when coping with the environment (Clark & Zimmerman, 2014).

Self-regulation is known as a multidimensional construct that includes the activation of cognitive, emotional, and behavioral aspects in an effort to achieve goals which have been set (McClelland et al., 2010). Individuals perform self-regulation by observing, analyzing, rewarding or punishing themselves. Self-regulation is the process by which an individual can regulate their own achievements and actions, set targets, evaluate their success, and reward themselves for achieving targets.

A self-regulation system are standards for one's behaviour, to observe, evaluate and respond to oneself. The standards and goals we set for ourselves, the way we monitor and evaluate cognitive processes and our own behaviour, and the consequences we set for ourselves for successes or failures are all aspects of self-regulation. When thoughts and actions are under our control, and not controlled by others or our environment, we are considered to be a self-regulating individual (Zimmerman in Ormrod, 2008). The concept of self-regulation involves the ability to regulate, plan, direct and monitor behaviour to achieve certain goals by using certain strategies which involve physical, cognitive, emotional, and social elements.

According to Ormrod (2008) self-regulation includes: (1) *self-regulated behavior*, which is self-chosen behaviour that leads to the fulfillment of personally chosen standards and goals; (2) *self–regulated learning*, which is the regulation of one's own cognitive processes in order to learn successfully; (3) *self-regulated problem solving*, which is the use of self-directed strategies to solve complex problems. This study used *Self-Regulated Behavior* as a reference for composing modules and self-regulation training procedures and was used in the reflection and evaluation processes to help researchers, trainers, facilitators, and participants during the training.

Self-regulation involves development process and the environment (Blair & Raver, 2012). Research on intervention on individual behaviour states that self-regulation shows relative plasticity throughout the human life span (Diamond & Lee, 2011). When we behave in certain ways, we observe how our environment reacts by encouraging some behaviour and discouraging others, and we start to distinguish between desirable and undesirable responses. According to Bandura (in Ormrod, 2008) when we develop an understanding of which responses are appropriate and which are not (at least for ourselves), it means that we increasingly control and monitor our own behaviour. In other words, we engage in self-regulated behaviour. There are six aspects that formulate self-regulated behaviour, namely: self-determined standards and goals, emotional regulation, self-instruction, self-monitoring, self-evaluation and self-imposed contingencies (Ormrod, 2008).

The first aspect is self-determined standards and goals, individuals are self-regulators who tend to have common standards for behaviour. These standards are criteria for evaluating performance in all situations. Individuals also create certain goals which are considered valuable and become the purpose of behaviour, meet standards, and achieve self-satisfaction goals, increase self-efficacy, and motivate to them to achieve even greater goals. The second aspect is emotional regulation, which manages feelings such as anger, resentment, hatred, or even excessive joy to prevent counterproductive responses. The next is self-instruction, an individual's instruction to themselves while performing complex behaviour, which guides the individual in dealing with situations and

responding to each stimulus. The fourth aspect is self-monitoring, the process of observing oneself (self-observation) while doing something in order to progress towards important goals and maintain focus to move them closer to intended goals. This aspect is related to the next one, self-evaluation, which is an assessment of performance and behaviour, the assessment can be in the form of a good-bad rating, appropriate or inappropriate, as well as suitable or not suitable towards the displayed behaviour in response to symptoms related to goal achievements. The last aspect is *self-imposed contigencies*. As young people become more self-controlled, they can also provide reinforcement for themselves when they successfully achieve their goals, and they can punish themselves when they do not act in accordance with 'their' performance standards. Such *self-reinforcement* and *self-punishment* are *self-imposed contigencies* (Ormrod, 2008).

Adolescents are in the process of psychological development, thus less self-regulative, more susceptible to media influence and vulnerable to developing addictive behaviour compared to other age groups (Wu et al., 2015). The prevalence of internet addiction in adolescents is 1.2-4.9% (Mak et al., 2014) and 30% in college students (Zhang & Ho, 2017). Several studies reveal the crucial role of deficient self-regulation in the management of internet addiction (Ga´mez-Guadix et al., 2015), in other words self-regulation can contribute to the suppression of addictive behaviour (Baumeister & Vonasch, 2015). The *Problematic Internet Use (PIU)* model in general, places self-regulation as a component of internet addiction (Fioravanti et al., 2012). Smart internet use is a must for adolescents considering the unlimited information available in it. The virtual world is like a wilderness of information that could lead them astray, the internet provides a million distractions and a million benefits but there are also a million dangers. Therefore, a guide on how to use the internet smartly and take full advantage of it, to help them to grow and develop themselves, is a necessity. Previous studies mentioned above show a positive contribution of self-regulation in the management of internet addiction. However, the studies were still limited to the relationship between the two variables, not a study that adopts self-regulation as the basis for the treatment of subjects in the form of training. This study intended to provide guidance for adolescents to self-regulate using the internet through an intervention called the 'NAVIGASI DIRI'. Through this technique, adolescents are expected to be able to access the internet smartly and responsibly, and additionally to take the full benefit in assisting them with their developmental tasks and challenges over time.

The NAVIGASI DIRI is a technique that guides individuals in using the internet smartly on the basis of self-regulation. Smart internet is a concept that is based on proportional and wise use of the internet according to its ideal designation, so it has a positive impact to the user and the environment. NAVIGASI DIRI is an *abbreviation* from: 1) *Netethics*, ethics within the internet world. These ethics will be a guide for students to interact in the virtual world and can be applied in everyday life; 2) *Attitude,* related to attitudes that should be developed in accessing the internet and attitudes that are expected to emerge and grow for its users; 3) *Value,* positive values that are expected from adolescents who access the internet; 4) *Information*, relates to the use of the internet as a positive and intellectual tool; 5) *Growth*, relates to planning ones future by using the internet as a medium and to help young internet users to grow in the challenges of their time; 6) *Achievement*, is related to achievements that can be optimized by using the internet; 7) *Smart*, is the intelligence that is expected to emerge from young internet users, which is embodied in wisdom towards self-management; 8) *Inspiration,* means the internet as a source of searching ideas and inspiration for everyone. 9) Meanwhile DIRI is an abbreviation of affirmation which reads

Do It Right. The skills that are sharpen in the acronym, are given solid basis in understanding position and responsibility according to developmental tasks in the life span of adolescents with Adolescents and the Mind Map of Life. Smart internet use is also reinforced by training skills of selecting applications that can protect them from harmful and useless contents (via Pagar in), daily analysis of internet access (via Monitoring with DIARy) and reinforcement when they successfully achieve the goals of forming smart internet behaviour (with *Contingency Design*).

The treatment in NAVIGASI DIRI training is based on the regulatory aspects by Ormrod (2008). The *Inspiration, Growth, & Achievement* section is directed to support aspects of self-determined standards and goals. The aspect of emotional regulation is supported by the *Netethics & Attitude* section. Together with *Smart & Information* section, *Attitude* is also directed to support the self-instruction aspect, while the *self-monitoring* aspect is developed through the *DIARy* and *Pagar in* sections. The self-evaluation aspect is developed through the *Netethics & Values* section. Finally, the *Smart & Contingency Design* section supports the development of self-imposed contingencies aspects.

Çelik (2016) stated that developing educational programs to increase conscious internet use, academic motivation, efficient use of time and productive learning were effective in reducing internet addictive tendencies among adolescents. This confirms the need for systematic education and training as an effort to equip students tackling internet addiction. In this study, the guide will be provided through the ”NAVIGASI DIRI” method. In contrast to previous research, this intervention method does not only emphasize awareness of internet use and its relationship to academic learning, but more broadly on overall self-development and growth. This study aimed to examine the effectiveness of smart internet self-regulation-based intervention, NAVIGASI DIRI, in reducing internet addiction. The research hypothesis was that the NAVIGASI DIRI intervention can significantly reduce internet addiction among adolescents.

METHOD

The method applied was a *quasi-experiment* with *pretest-posttest without control group design*. The ”NAVIGASI DIRI” intervention was designed in the form of indoor and outdoor training. The data collection tool adopted was Internet Addiction Scale which was compiled based on the internet addiction aspect of Young and Cristiano (2017) with 20 items ($\alpha = .843$) and the Self-Regulation Scale based on *self-regulated behavior* aspect of Ormrod (2008) with 25 items ($\alpha = .808$). The research subjects were 40 high school students, 16 girls and 24 boys, aged between 16 – 18 years ($M = 16.95$; $SD = 0.75$) and active internet users. Subjects were recruited through a random sampling technique, they went through the procedures of filling out *inform consent*, *pretest*, NAVIGASI DIRI training treatment which was carried out for 8 hours and *posttest* after the treatment. The training material as the form of treatment consists of several sessions which can be seen in Table 1.

Statistical analysis of a paired *t*-test was conducted to see the differences in students' self-regulation and internet addiction, before and after the NAVIGASI DIRI treatment. A simple regression test was also conducted to see the correlation between the two variables, which strengthens the results of the NAVIGASI DIRI treatment on the level of internet addiction. Regression analysis was only conducted *posttest* from the two data collection scales, because the existing increase and decrease had been confirmed through the t-test, thus, the regression results only established the results of the different tests obtained and did not interfere with the treatment. The analysis was performed using SPSS (Statistical Product and Service Solutions) software version 22.

Table 1.
Training Material

	Session	Description	Detail
1	Adolescents and the Mind Map of Life	Explaining human developments throughout life, particularly adolescents' developmental tasks.	Participants were taught to create a mind map of a life span, especially related to adolescence. Through this material, it was expected that they would be able to understand their position, responsibility, as well as design smart choices to live their life.
2	NAVIGASI DIRI concept	Understanding the concept of NAVIGASI DIRI.	Participants were guided to use the internet in various activity settings, by considering: *Netethics, Attitude, Value, Information, Growth, Achievement, Smart, Inspiration*. Affirmation was reinforced with DIRI which is the acronym of *Do It Right.*
3	Pagar in	Providing enriched control of internet usage.	Participants were assisted in self-control by providing "pagar" (or a fence) on the internet, using computer assisted program that blocks any useless content such as pornography or plagiarism contents.
4	Monitoring with DIARy	Training to monitor internet usage.	Participants were directed to monitor internet access by using the *Daily Internet Access Report Analysis (DIARy)*, which contains daily internet usage analysis. They were also directed to proactively explore and install programs that can help them to regulate themselves.
5	*Contingency Design*	Providing self-reinforcement.	The contingency design trained participants to reward themselves when they successfully achieve their goals, through 's*elf-reinforcement* and *self-punishment',* which will help them towards becoming smart internet users.

The Adolescents and the Mind Map of Life, Pagar in, *Monitoring with DIARy* and *Contigency Design* sessions are an integral part of the NAVIGASI DIRI intervention, which cannot be separated from the specific understanding of the skills from the acronym of NAVIGASI DIRI in the second session. The complete approach was used in the five sessions of NAVIGASI DIRI intervention.

RESULT AND DISCUSSION

The different *paired sample t-test* which was applied to the *pretest* and *posttest* data showed a significant decline in the level of internet addiction, $t(39) = 2.640$, $p < .05$), from *pretest* (M = 28.93; SD =18.713) to *posttest* (M = 24.08; SD = 17.006). These results indicated that the NAVIGASI DIRI intervention was proven to be effective in reducing internet addiction among students.

Meanwhile, the participants' self-regulation increased significantly, $t(39) = -2.181$, $p < .05$, from *pretest* (M = 71.85; SD = 6.192) to *posttest* (M = 73.40; SD = 6.250). It can be concluded that the NAVIGASI DIRI model clearly displayed its effectiveness in increasing self-regulation among these young internet users.

Both results were supported by a simple regression test which showed a moderate negative relationship between self-regulation and internet addiction (r = - .548, $p < .001$), meaning, the higher the self-regulation, the

lower the internet addiction. The coefficient of determination (R^2 = .300) indicated that 30% of students' internet addiction was determined by their own self-regulation. The results of ANOVA, $F(1, 38) = 16.279$, $p < .001$, indicating that the regression model is acceptable and better predicting internet addiction with self-regulation as predictor. Table 2 revealed changes in internet addiction for each change in self-regulation.

Table 2.
Regression Coefficient Output of Self-Regulation and Internet Addiction

Model		*B*	*SE*	β	*t*	*p*
1	(Constant)	133.443	27.202		4.906	.000
	Internet Addiction	-1.490	.369	-.548	-4.035	.000

The regression equation Y = 133.443 – 1.490X indicates that internet addiction will decline by 1.490 for each unit change in self-regulation.

These results confirm the role of self-regulation indicated by the coefficient of determination. It is evident, that the NAVIGASI DIRI can enhance self-regulation and significantly lessen internet addiction in a negative correlation that exists in the linearity of the relationship between the two. Previous research has explained that low self-regulation, which in various fields is also referred to as low self-control (Li et al., 2018), will cause individuals to become prone to internet addiction (Özdemir et al., 2014). Several studies have also concluded that individuals with high self-control are capable to use the internet in a healthier way (Muusses et al., 2013).

Effective intervention programs involve activities related to time management, including managing time spent on the internet and planning daily activities (Odaci & Çelik, 2011). NAVIGASI DIRI emphasizes understanding, skills and practice of time management and daily implementation through *Smart* and *DIARy* as well as *Contingency Design* sessions. Basically, teenagers understand the importance of managing internet use, behaviour-based self-regulation in the NAVIGASI DIRI emphasizes deepened understanding regarding the dangers of excessive internet use, how to recognize indications of negative effects, preventing and/or correcting them. Simsek et al. (2019) clearly stated that long durations spent on social media can lead to addiction.

It is very important to educate adolescents through a simulation of steps in daily time management. Their knowledge and understanding will meet the positive reality of their steps in managing time and will become a reinforcement for holistic self-regulation in internet use. Individuals with a high level of self-regulation may have the willpower to resist temporary satisfaction and focus on predetermined goals (Gökçearslan et al., 2016). There is a negative correlation between a student's weak academic results and their increased internet usage, especially social media (Othman et al. 2017).

The combination of skills in enforcing a positive attitude (*Attitude*), applying internet ethics (*Netethics*), sorting out information (*Information*) and implementing positive values (*Value*) in smart internet use will benefit adolescents, especially in helping them to accomplish their goals, aspirations, and performance (*Achievement)*. They will be equipped with an understanding and productive awareness that internet addiction is a negative strategy in coping with stress (Li et al., 2010). *Growth* materials provide an alternative for adolescents to grow and to be less prone to identity confusion that correlates with internet addiction (Hsieh et al., 2019). Their skills are also developed when they can utilize the internet as a source of influence (through *Inspiration* materials). Individuals can receive input from other online users for

their identity development (Allen et al., 2014). The negative effects of internet addiction which hinder real-world interactions and delay self-identity development will be manageable.

The effectiveness of the NAVIGASI DIRI model is in line with Çelik (2016) who identified that initiating interventions and prevention programs are more important to deal with internet addiction in adolescents and younger children. It is necessary to develop and promote psychological-based intervention programs and educational programs that inspire a healthy body and soul. When the integration of the internet and online activities can no longer be avoided, the ability to maintain physical and mental health has to be built up with measurable interventions.

The absence of a control group was the limitation of this study. A control group will further strengthen the results that the decrease of internet addiction was caused by the self-regulation based NAVIGASI DIRI training. Further research can examine a comprehensive-qualitative measurement of internet addiction, considering that there are various qualitative indicators that show the direction towards massive internet addiction. The result of the measurements can be the basis of enrichment for trainings, which are urgently needed to execute and the potential to be the basis for a more comprehensive development model in handling internet addiction, not only based on self-regulation. The students' enthusiasm to become research subjects showed that they were very aware of the dangers of problematic internet use and its disadvantages. They were also enthusiastic about learning effective behavioral alternatives that can prevent internet addiction. Awareness that school learning and daily activities can no longer be separated from internet use, self-regulation skills are becoming more important to keep them physically and mentally healthy. A measured and systematic effort to prepare and improve self-regulation skills is also an important step that cannot be ignored.

CONCLUSION

The NAVIGASI DIRI model is proven to be capable to reinforce the level of students' self-regulation and reduce the level of internet addiction. An understanding of the function of the internet shows a positive impact on the ability of smart internet use, followed by a positive attitude towards values that support personal growth, inspiration and achievement and a sustainable commitment to this pattern. The negative impacts of internet use can be minimized because students can choose contents, time and positive interactions when using the internet. An important point in behavior-based self-regulation is the measurable implementation of ongoing evaluation on smart internet use skills, where positive impacts can be seen and felt, as well as being a simultaneous reinforcer in the development of skills.

REFERENCES

Allen, K. A., Ryan, T., Gray, D. L., McInerney, D. M., & Waters, L. (2014). Social media use and social connectedness in adolescents: The positives and the potential pitfalls. *The Australian Educational and Developmental Psychologist, 31*(1), 18–31. https://doi.org/10.1017/edp.2014.2

Blair, C., & Raver, C. C. (2012). Child development in the context of adversity: Expe- riential canalization of brain and behavior. *American Psychologist, 67*, 309–318. https://doi.apa.org/doi/10.1037/a0027493

Budak, E., Taymur, I., Askin, R., Gungor, B. B., Demirci, H., Akgul, A. I. & Sahin, Z. A. (2015). Relationship between internet addiction, psychopathology and self-esteem among university students. *European Research Journal, 1*(3), 128–135.

https://doi.org/10.18621/eurj.2015.1.3.128

Budhyati, A. (2012). Pengaruh internet terhadap kenakalan remaja. *Prosiding Seminar Nasional Aplikasi Sains & Teknologi (SNAST) Periode III* (pp. 426-434), Yogyakarta. https://ejournal.akprind.ac.id/index.php/prosidingsnast/article/view/1765/1422

Çelik, C. B. (2016). Educational intervention for reducing internet addiction tendencies. *Addicta: The Turkish Journal on Addictions*, *3*(3), 375–386. http://dx.doi.org/10.15805/addicta.2016.3.0021

Clark, N. M., & Zimmerman, B. J. (2014). A social cognitive view of self regulated learning about health. *Health Education & Behavior*, *41*(5), 485–491. doi:10.1177/1090198114547512

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*, *333*, 959–964. http://dx.doi.org/10.1126/science.1204529

Fioravanti, G., Primi, C., & Casale, S. (2012). Psychometric evaluation of the Generalized Problematic Internet Use Scale 2 in an Italian sample. *Cyberpsychology, Behavior, and Social Networking*, *16*, 761–766. doi:10.1089/cyber.2012.0429.

Fragkos, C. C., Fragkos, C. C., & Kiohos, A. (2010). Internet addiction among Greek university students: Demographic associations with the phenomenon, using the Greek version of young's internet addiction test. *International Journal of Economic Sciences and Applied Research*, *3*(1), 49–74.

Ga´mez-Guadix, M., Orue, I., & Calvete, E. (2013). Evaluation of the cognitive-behavioral model of generalized and problematic Internet use in Spanish adolescents. *Psicothema*, *25*(3), 299–306. doi:10.7334/psicothema2012.274.

Ga´mez-Guadix, M., Calvete, E., Orue, I., & Las Hayas, C. (2015). Problematic Internet use and problematic alcohol use from the cognitive-behavioral model: A longitudinal study among adolescents. *Addictive Behaviors*, *40*, 109–114. doi: 10.1016/j.addbeh.2014.09.009.

Gansner, M., Belfort, E., Cook, B., Leahy, C., Colon-Perez, A., Mirda, D. & Carson, N. (2019). Problematic internet use and associated high-risk behavior in an adolescent clinical sample: Results from a survey of psychiatrically hospitalized youth. *Cyberpsychol. Behav. Soc. Netw. 22*, 349–354.

Gökçearslan, Ş., Mumcu, F. K., Haşlaman, T., & Çevik, Y. D. (2016). Modelling smartphone addiction: The role of smartphone usage, self-regulation, general self-efficacy and cyberloafing in university students. *Computers in Human Behavior*, *63*, 639-649.

Gómez, P., Rial, A., Braña, T., Golpe, S. & Varela, J. (2017). Screening of problematic internet use among Spanish adolescents: Prevalence and related variables. *Cyberpsychol. Behav. Soc. Netw.*, *20*, 259–267.

Hsieh, K-Y., Hsiao, R. C., Yang, Y-H., Lee, K-H. & Yen, C. F. (2019). Relationship between self-identity confusion and internet addiction among college students: The mediating effects of psychological inflexibility and experiential avoidance. *International Journal of Environmental Research and Public Health*, *16*, 3225. doi:10.3390/ijerph16173225

Iskender, M., & Akin, A. (2010). Social self-efficacy, academic locus of control, and internet addiction. *Computers & Education*, *54*, 1101–1106.

http://dx.doi.org/10.1016/j.compedu.2009.10.014

Kaess, M., Durkee, T., Brunner, R., Carli, V., Parzer, P., & Wasserman, C. (2014). Pathological internet use among European adolescents: Psychopathology and self-destructive behaviours. *Eur Child Adolesc Psychiatry*, *23*, 1093102.

Kardefelt-Winther, D. (2014). Conceptual and methodological crique of internet addiction research: Toward a model of compensatory internet use. *Computers in Human Behavior*, *31*, 351–354. https://doi.org/10.1016/j.chb.2013.10.059

Koyuncu, T., Unsal, A., & Arslantas, D. (2014). Assessment of internet addiction and loneliness in secondary and high school students. *Journal of Pakistan Medical Association, 64*, 998-1002.

Kuss, D. J. & Griffiths, M. D. (2011). Online social networking and addiction: A review of the psychological literature. *International Journal of Environmental Research and Public Health*, 8, 3528–3552.

Kuss, D. J., Griffiths, M. D., & Binder, J. F. (2013). Internet addiction in students: Prevalence and risk factors. *Computers in Human Behavior*, *29*, 959–966

Kuss D. J., Griffiths M. D., Karila L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, *20*(25), 4026-4052.
doi: 10.2174/1381612811319990617

Leung, L. (2014). Predicting internet risks: A longitudinal panel study of gratifications-sought, internet addiction symptoms, and social media use among children and adolescents. *Health Psychology and Behavioral Medicine*, *2*(1), 424-439. doi: 10.1080/21642850.2014.902316

Li, D., Zhang, W., Li, X., Zhen, S. & Wang, Y. (2010). Stressful life events and problematic Internet use by adolescent females and males: A mediated moderation model. *Computers in Human Behavior*, *26*, 1199–1207. doi:10.1016/j.chb.2010.03.031.

Li, J., Ye, H., Tang, Y., Zhou, Z., & Hu, X. (2018). What are the effects of self-regulation phases and strategies for Chinese students? A meta-analysis of two decades research of the association between self-regulation and academic performance. *Frontiers in Psychology*, *9*, 2434. doi: 10.3389/fpsyg.2018.02434.

Liu, T., & Potenza, M. N. (2010). Impulse control disorders, problematic internet use: Clinical aspects. In Aboujaoude, E., & Koran, L. M. (Eds.), *Impulse control disorders* (pp. 173–175). Cambridge University Press.

Mak, K.-K., Lai, C.-M., Watanabe, H., Kim, D.-I., Bahar, N., Ramos, M., et al. (2014). Epidemiology of internet behaviors and addiction among adolescents in six Asian countries. *Cyberpsychol. Behav. Soc. Netw. 17*, 720–728. doi: 10.1089/cyber.2014.0139

McClelland, M. M., Cameron Ponitz, C., Messersmith, E., & Tominey, S. (2010). Self-regulation: The integration of cognition and emotion. In W. Overton, & R. Lerner (Eds.), *Handbook of life-span human development: Cognition, biology and methods* (vol. 1) (pp. 509–553). Wiley and Sons

Muusses, L. D., Finkenauer, C., Kerkhof, P. & Righetti, F. (2013) Partner effects of compulsive internet use: A self-control account. *Communication Research, 42*(3), 365–386. doi: 10.1177/0093650212469545

Odaci, H. (2011). Academic self-efficacy and academic procrastination as predictors of problematic internet use in university

students. *Computers & Education, 57*(1), 1109–1113. http://dx.doi.org/10.1016/j.compedu.2011.01.005

Odaci, H., & Çelik, B. Ç. (2011, November). The effect of reality therapy-based group counseling on problematic internet use and the life satisfaction of college students. [Paper presentation]. *The 2nd World Conference on Information Technology*, Antalya, Türkiye.

Ormrod, J. E. (2008). *Psikologi pendidikan membantu siswa tumbuh dan berkembang* (Jilid 2). Erlangga.

Othman, W. R., Apandi, Z. M., & Ngah, N. H. (2017). Impact of social media usage on students academic performance in Terengganu, Malaysia. *Journal of Applied Environmental and Biological Sciences*, *7*(5), 140-144.

Özçinar, Z. (2011). The relationship between internet addiction and communication, educational and physical problems of adolescents in North Cyprus. *Australian Journal of Guidance and Counselling, 21*(1), 22–32.

Özdemir, Y., Kuzucu, Y. & Ak, S. (2014). Depression, loneliness and Internet addiction: How important is low self-control? *Computers in Human Behavior, 34*, 284–290. doi: 10.1016/j.chb.2014.02.009

Pontes, H. M., Kuss, D. J. & Griffiths, M. D. (2015). Clinical psychology of internet addiction: A review of its conceptualization, prevalence, neuronal processes, and implications for treatment. *Neuroscience and Neuroeconomics, 4*, 11–23. https://doi.org/10.2147/NAN.S60982

Schunk, D. H., Pintrich, P. R. & Meece, J. R. (2012). *Motivasi dalam pendidikan: Teori, penelitian, dan aplikasi.* PT Indeks

Simsek, A., Elciyar K. & Kizilhan, T. (2019). A comparative study on social media addiction of high school and university students. *Contemporary Educational Technology, 10*(2), 106-119. doi: 10.30935/cet.554452

Wu, C-Y., Lee, M-B., Liao, S-C., & Chang, L-R. (2015). Risk factors of internet addiction among internet users: An online questionnaire survey. *PLoS ONE, 10*(10): e0137506. doi:10.1371/journal.pone.0137506

Young, K. S. & Cristiano N. D. A. (2017). *Internet addiction in children and adolescents: Risk factors, assessment, and treatment*. Springer Publishing Company

Zhang, M. W. B., & Ho, R. C. M. (2017). Smartphone applications for immersive virtual reality therapy for internet addiction and internet gaming disorder. *Technol. Heal. Care 25*, 367–372. doi: 10.3233/THC161282