SCHOOL ENGAGEMENT AND EDUCATIONAL OUTCOMES OF SLOVAK ADOLESCENTS IN THE CONTEXT OF SOCIAL MEDIA USE

Vladimír Poliach, & Lenka Ďuricová
Faculty of Education, Matej Bel University (Slovakia)

Abstract

Objectives and methods: School engagement is an important prerequisite for psychological and educational development in students. The two-fold effect of information technology on adolescents' academic performance is currently the subject of professional debate (Quahri-Saremi and Turel, 2016; Turel and Serenko, 2012; Turel et al., 2011). This empirical study aims to explore how school engagement in adolescence relates to problematic Internet use with the specific focus on social networking. The goal of this study is to investigate the potential correlations between the tendency to overuse social media in Slovak adolescents (N = 1,005; 73% women; AM_{age} = 16.99; SD_{age} = 1.24) and the dimensions of school engagement (behavioural, cognitive, affective, agency). The correlation between the selected variables and adolescents' academic performance is observed as well. The research instruments included: SES–4DS/Student Engagement in Schools – Four-Dimensional Scale (Veiga, 2016) and BSMAS/Bergen Social Media Addiction Scale (Andreassen et al., 2016). Results: The results indicate a negative correlation between the tendency to overuse social networking and the affective and behavioural dimensions of school engagement. Students' academic performance in Slovak language, biology, and mathematics correlated negatively with the individual dimensions of their school engagement and positively with excessive social networking. Conclusion: These results can be used for the creation of educational programmes focused on students with critically low academic performance.
This paper is a part of the VEGA 1/0765/21 Multidimensional self-concept of the digital adolescent generation in Slovakia and its contexts research project.

Keywords: School engagement, social media use, learning outcomes, adolescence.

1. Introduction

Specialised literature has paid considerable attention to students' school engagement over the last two decades (Appleton et al., 2008; Fredricks et al., 2004; Reeve & Tseng, 2011). It is assumed that highly engaged students tend to have solid knowledge of different subjects, efficient learning strategies, achieve good study results, maintain satisfying interpersonal relationships, experience sense of belonging, and behave in ways appreciated by their peers and teachers (Wentzel, 2003). Student engagement in school (SES) has been defined as the student's centripetal experience with school. SES has been previously operationalised as the rate of students' devotion to school and motivation to learn (Simons-Morton & Chen, 2009; Veiga et al., 2012). In general, there is a consensus regarding its multidimensional nature, and it is often presented as a meta-construct (Fredricks et al., 2004; Jimerson et al., 2003). School engagement refers to "energized, directed, and continued action, or the discernible qualities of students' interactions with learning activities or environments" (Wang & Peck 2013, p. 1266). In fact, engagement involves a trichotomy of behavioural, cognitive, and emotional dimensions (Fredricks et al., 2004; Wang & Peck, 2013; Watton, 2014). Behavioural engagement in school involves participation in educational activities and physical presence in the classroom or school (Fredricks et al., 2004; Wang & Peck, 2013). Cognitive engagement in school refers to hard work and investment in self-regulated learning approaches as well as strategic planning, monitoring, and assessment of short- and long-term learning outcomes (Fredricks et al., 2004; Zimmerman, 1989). Emotional engagement in school includes affective responses to the school environment and activities (Fredricks et al., 2004; Skinner & Belmont, 1993; Voelkl, 1997). This multidimensional concept of school engagement facilitates understanding of students' actions, feelings, and ideas in relation to school, which can influence their learning outcomes both directly and indirectly (Fredricks et al., 2004; Wang & Peck, 2013). Students with higher behavioural engagement are more likely to learn the subject matter, they feel they belong to their

form, attend classes, and in turn, achieve academic success. Conversely, students displaying lower engagement, e.g., truancy, are more likely to fail their education (Appleton et al., 2006; Simons-Morton & Chen, 2009; Wang, 2009; Wang et al., 2010). Educational progress is influenced by cognitive engagement in school as well. The willingness to make the cognitive effort necessary to use self-regulating learning strategies helps the student to understand and master complex concepts (Miller & Byrnes, 2001; Zimmerman, 1989). High affective engagement in school (i.e., positive emotions related to school, joy of being in school) can also facilitate the educational progress (Fredricks et al., 2004; Wang & Peck, 2013). On the other hand, low affective engagement in school may lead to developmental issues, such as substance abuse and depression (e.g., Hawkins et al., 2001; Li & Lerner, 2011; Maddox & Prinz, 2003; Wang & Peck, 2013).

The debate about the use of information technology (IT) is important because of its two-fold effect. Quahri-Saremi and Turel (2016) differentiate between utilitarian (i.e. school) and hedonic (i.e. for pleasure) use of IT. On one hand, it can support adolescents' engagement in schoolwork, e.g. they can ask for help with homework or look up information (Ensor, 2012; Jacobs, 2012). On the other hand, IT can distract them from school, e.g. they play non-educational games or use social media for socialisation and entertainment (Christakis et al., 2004; Ong et al., 2011). IT is definitely a double-edged weapon: many researchers praise it as an accessible tool to facilitate schoolwork (e.g., Gross, 2004; Jackson et al., 2006; Madell & Muncer, 2004; Willoughby, 2008), others point out that students use it to escape or distract themselves (e.g., Junco, 2012; Karpinski et al., 2013; Kirschner & Karpinski, 2010; Turel, 2015; Turel & Bechara, 2016; Turel et al., 2015; Turel et al., 2016; Xu et al., 2012). Other studies (Turel & Serenko, 2012; Turel et al., 2011) express concern about the negative effects of hedonic or excessive use of IT, such as gaming and/or social media, on adolescents' academic performance.

Social networking sites (SNS) have become the most popular sources of entertainment and communication online (GlobalWebIndex, 2018). Their users spend there 2.5 hours per day on average (Hootsuite, 2019). At the same time, however, there is growing evidence that excessive SNS use trigger symptoms traditionally associated with substance abuse (Andreassen, 2015; Grant et al., 2010; Griffiths et al., 2014; He et al., 2017). According to estimates, as many as 210 million users around the word are "addicted" to SNS and the Internet (Truelist, 2021). The available findings indicate that this "addiction" can affect mental health, especially psychosocial functioning, and can have serious consequences for the lives of those close to the person (Andreassen, 2015). The Internet addiction theory is often referred to in literature (Andreassen et al., 2016; Kuss & Griffiths, 2011; Montag et al., 2014; Müller et al., 2016; van Rooij et al., 2017), Andreassen and Pallesen define SNS as a type of behavioural addiction: "being overly concerned about SNSs, to be driven by a strong motivation to log on to or use SNSs, and to devote so much time and effort to SNSs that it impairs other social activities, studies/job, interpersonal relationships, and/or psychological health and well-being" (2014, p. 4054). As the debate about the existence/non-existence of SNS addiction or its distinctive concepts is not currently closed, and due to our goals and research design, this paper will operate the term "social media overuse" instead of addiction.

The goal of this study is to examine the correlations between engagement in school, educational outcomes, and the tendency to overuse SNS.

2. Methods

The research file consisted of 1,005 Slovak adolescents aged 15 to 20 years, 73% of whom were females. It was a combination of cluster sampling (because of multiple random collection sites) with voluntary sampling (because people in these sites responded to an online survey). The online questionnaire link was distributed via official representatives to secondary schools across Slovakia. The online form included:

Student Engagement in School – Four-Dimensional Scale /SES-4DS (Veiga, 2016). It is a 20-item self-reporting questionnaire for adolescents, which explores the four dimensions of their school engagement. The three standard dimensions (*cognitive, affective, behavioural*) were complemented by *agency,* which refers to the students' active interest in learning and their level of independence in relation to learning and knowledge acquisition. Each dimension consists of five items. The respondent comments on each statement on a 6-point scale (1 = absolutely disagree; 6 = absolutely agree). Besides the rough score for individual dimensions, an overall school engagement score can be calculated. The internal consistency of the individual dimensions of the adapted questionnaire was satisfactory (α=.67–.84).

The *Bergen Social Media Addiction Scale (BSMAS)* derived from the original Bergen Facebook Addiction Scale (BFAS). The word "Facebook" was replaced by more general "social media" (Andreassen et al., 2016). The scale measures six factors: salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse. Each of them is captured by a single item on a 5-point Likert type scale (1 = very rarely; 5 = very often). The points are added up, and the total score ranging from 6 to

30 points is interpreted as follows: the higher the score, the riskier SNS use. According to the authors of the Slovak version of this instrument (Izrael et al., 2019), its internal consistency is α=.94. In the presented sample, the instrument showed satisfactory reliability (α = .78).

Educational outcomes are represented by the students' typical grades in the following disciplines: Slovak language and literature, mathematics, and biology (1 = Excellent, 2 = Very good, 3 = Good, 4 = Passing, 5 = Failure).

3. Results

The results indicate a negative (Spearman) correlation between the tendency to overuse social networks and the overall school engagement of Slovak adolescents (-.18[**]). A more detailed analysis has shown a negative correlation between SNS overuse and the affective (-.15[***]) and behavioural (-.34[***]) components of school engagement. Educational outcomes (typical grades) in all three subjects correlate negatively with all school engagement dimensions in adolescents. (-.11[***] to -.28[***]) and positively with their tendency to overuse SNS (from .12[***] to .13[***]). The comparative analysis showed a significant gender difference in SNS overuse, which was more prevalent in women (d_{COH} = .36).

4. Discussion and conclusion

Although the observed correlations are mostly trivial or weak, they can be considered systematic because of their statistical significance. This means that with the growing tendency to excessive use of social networks, the student's school engagement decreases and the adolescent's educational results also deteriorate. Findings are consistent with the results showing the existence of a risk relationship between the excessive use of social media and the adolescent's involvement in the school environment and his educational results (Junco, 2012; Karpinski et al., 2013; Kirschner & Karpinski, 2010; Turel, 2015; Turel & Bechara, 2016; Turel & Serenko, 2012; Turel et al., 2011; Turel et al., 2015; Turel et al., 2016; Xu et al., 2012). The gender comparison analysis indicates that adolescent females are more vulnerable to SNS overuse.

The already mentioned initial bivariate findings of systematic relationships suggest that a deeper search for the contributions of other variables at our disposal will continue prospectively, through multivariate methods, especially regression and mediation analysis. The first goal of this research should be a better understanding to what extent (proportion) the use of social networks is the cause and to what extent the consequence of the deteriorated involvement and educational results. If it makes sense, we will also try to create a quantitative model of the connections between the main variables and the context variables.

The limits of the presented study, which encourage caution when generalizing the conclusions to the entire population of our adolescents, are the use of self-rating scales and some necessary compromises regarding data collection. However, despite them, the research again deepens the knowledge of the relationships between the use of new technologies, specifically social media, and the functioning of the Slovak adolescent at school. Its results can be used for the creation of educational programmes focused on students with critically low academic performance.

References

Andreassen, C. S. (2015). Online social network site addiction: A comprehensive review. *Current Addiction Reports*. https://doi.org/10.1007/s40429-015-0056-9

Andreassen, C. S., & Pallesen, S. (2014). Social network site addiction - An overview. *Current Pharmaceutical Design, 20*(25), 4053–4061.

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors, 30*(2), 252–262. https://doi.org/10.1037/adb0000160

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*(5), 427–445. https://doi.org/10.1016/j.jsp.2006.04.002

Appleton, J., Christenson, S., & Furlong, M. (2008). Student engagement with school: critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*, 369-386.

Christakis, D. A., Ebee, B. E., Rivara, F. P., & Zimmerman, F. J. (2004). Television, video, and computer game usage in children under 11 years of age. *Journal of Pediatrics, 145*(5), 652-656.

Ensor, T. (2012). Teaming with technology: "Real" iPad applications. *Journal of Adolescent & Adult Literacy, 56*(3), 193-193. https://doi.org/10.1002/JAAL.00127

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109.

GlobalWebIndex (2018). Social. GlobalWebIndex's flagship report on the latest trends in social media. Resource document. Global Web Index website. https://pro.globalwebindex.net/reports/18048.

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioral addictions. *The American Journal of Drugs and Alcohol Abuse, 36*(5), 233-241.

Griffiths, M. D., Kuss, D. J., & Demetrovics, Z. (2014). Social networking addiction: An overview of preliminary findings. In K. P.Rosenberg & L. C. Feder (Eds.), *Behavioral addictions: Criteria, evidence, and treatment* (pp. 119–141). London: Academic Press.

Gross, E. F. (2004). Adolescent Internet use: What we expect, what teens report. *Journal of Applied Developmental Psychology, 25*(6), 633–649. https://doi.org/10.1016/j.appdev.2004.09.005

Hawkins, J. D., Guo, J., Hill, K. G., Battin-Pearson, S., & Abbott, R. D. (2001). Long-term effects of the seattle social development intervention on school bonding trajectories. *Applied Developmental Science, 5*(4), 225-236. https://doi.org/10.1207/S1532480XADS0504_04

He, Q., Turel, O., & Bechara, A. (2017). Brain anatomy alterations associated with social networking site (SNS) addiction. *Scientific Reports, 7*,1–8. https://doi.org/10.1038/srep45064

Hootsuite.com (2019). 130+ social media statistics that matter to marketers in 2019. Retrieved from https://blog.hootsuite.com/socialmedia-statistics-for-social-media-managers/#facebook

Izrael, P., Holdoš, J., & Hasák, M. (2019). *Sociálne siete a excesívne používanie internetu a sociálnych médií (Správa z výskumu EU Kids Online IV na Slovensku).* Katolícka univerzita v Ružomberku.

Jackson, L. A., von Eye, A., Biocca, F. A., Barbatsis, G., Zhao, Y., & Fitzgerald, H. E. (2006). Does home internet use influence the academic performance of low-income children? *Developmental Psychology, 42*(3), 429–435. https://doi.org/10.1037/0012-1649.42.3.429

Jacobs, G. E. (2012). Rethinking common assumptions about adolescents' motivation to use technology in and out of school. *Journal of Adolescent & Adult Literacy, 56*(4), 271-274.

Jimerson, S. R., Campos, E., & Greif, J. (2003). Toward an understanding of definitions and measures of student engagement in schools and related terms. *The California School Psychologist, 8*, 7-27.

Junco, R. (2012). In-class multitasking and academic performance. *Computers in Human Behavior, 28*(6), 2236–2243. https://doi.org/10.1016/j.chb.2012.06.031

Karpinski, A. C., Kirschner, P. A., Ozer, I., Mellott, J. A., & Ochwo, P. (2013). An exploration of social networking site use, multitasking, and academic performance among United States and European university students. *Computers in Human Behavior, 29*(3), 1182-1192.

Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in Human Behavior, 26*(6), 1237–1245. https://doi.org/10.1016/j.chb.2010.03.024

Kuss, D. J., & Griffiths, M. D. (2011). Online social networking andaddiction - A review of the psychological literature. *International Journal of Environmental Research and Public Health*, 8(9), 3528-3552. https://doi.org/10.3390/ijerph8093528

Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*(1), 233–247. https://doi.org/10.1037/a0021307

Maddox, S. J., & Prinz, R. J. (2003). School bonding in children and adolescents: Conceptualization, assessment, and associated variables. *Clinical child and family psychology review, 6*(1), 31-49.

Madell, D., & Muncer, S. (2004). Gender differences in the use of the Internet by English secondary school children. *Social Psychology of Education, 7*(2), 229-251.

Miller, D. C., & Byrnes, J. P. (2001). Adolescents' decision making in social situations: A self-regulation perspective. *Journal of Applied Developmental Psychology, 22*(3), 237-256.

Montag, C., Bey, K., Sha, P., Li, M., Chen, Y.-F., Liu, W.-Y., et al. (2014). Is it meaningful to distinguish between generalized and specific internet addiction? Evidence from a cross-cultural study from Germany, Sweden, Taiwan and China. *Asia-Pacific Psychiatry, 7*(1), 20-26.

Müller, K. W., Dreier, M., Beutel, M. E., Duven, E., Giralt, S., &Wölfling, K. (2016). A hidden type of internet addiction? Intense and addictive use of social networking sites in adolescents. *Computers in Human Behavior, 55*, 172-177. https://doi.org/10.1016/j.chb.2015.09.007

Ong, E. Y. L., Ang, R. P., Ho, J. C. M., Lim, J. C. Y., Goh, D. H., Lee, C. S., et al. (2011). Narcissism, extraversion and adolescents' self-presentation on Facebook. *Personality and Individual Differences, 50*(2), 180-185.

Qahri-Saremi, H., & Turel, O. (2016). School engagement, information technology use, and educational development: An empirical investigation of adolescents. *Computers & Education, 102*, 65-78. http://dx.doi.org/10.1016/j.compedu.2016.07.004

Reeve, J., & Tseng, C. (2011). Personal agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology, 36,* 257-267.

Simons-Morton, B., & Chen, R. (2009). Peer and parent influences on school engagement among early adolescents. *Youth & Society, 41*, 3-25.

Skinner, E. A., & Belmont, M. J. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*, 571-581.

Truelist.com. (2021). Social media addiction statistics. https://truelist.co/blog/social-media-addiction-statistics/

Turel, O. (2015). An empirical examination of the "vicious cycle" of Facebook addiction. *Journal of Computer Information Systems, 55*(3), 83-91.

Turel, O., & Bechara, A. (2016). A triadic reflective-impulsive-interoceptive awareness model of general and impulsive information system use: Behavioral tests of neuro-cognitive theory. *Frontiers in Psychology, 7*, 1-11. https://doi.org/10.3389/fpsyg.2016.00601

Turel, O., & Serenko, A. (2012). The benefits and dangers of enjoyment with social networking websites. *European Journal of Information Systems, 21*(5), 512-528.

Turel, O., Mouttapa, M., & Donato, E. (2015). Preventing problematic Internet use through video-based interventions: A theoretical model and empirical test. *Behaviour & Information Technology, 34*(4), 349–362. https://doi.org/10.1080/0144929X.2014.936041

Turel, O., Romashkin, A., & Morrison, K. M. (2016). Health outcomes of information system use lifestyles among adolescents: Videogame addiction, sleep curtailment and cardio-metabolic deficiencies. *PloS One, 11*(5). https://doi.org/10.1371/journal.pone.0154764

Turel, O., Serenko, A., & Giles, P. (2011). Integrating technology addiction and use: An empirical investigation of online auction sites. *MIS Quarterly, 35*(4), 1043-1061.

van Rooij, A. J., Ferguson, C. J., van de Mheen, D., & Schoenmakers, T.M. (2017). Time to abandon internet addiction? Predicting problematic internet, game, and social media use from psychosocial wellbeing and application use. *Clinical Neuropsychiatry, 14*(1), 113–121

Veiga, F. H., Carvalho, C., Almeida, A., Taveira, C., Janeiro, I., Baía, S., Festas, I., Nogueira, J., Melo, M., & Caldeira, S. (2012). Student engagement in school: differentiation and promotion. In M. F. Patrício, L. Sebastião, J. M. Justo, & J. Bonito (Eds.), *Da exclusão à excelência: caminhos organizacionais para a qualidade da educação* (pp. 117-123). Montargil: Associação da Educação Pluridimensional e da Escola Cultural.

Veiga, F.H. (2016). Assessing student Engagement in School: Development and validation of a four-dimensional scale. *Procedia - Social and Behavioral Sciences, 217*, 813 – 819.

Voelkl, K. E. (1997). Identification with school. *American Journal of Education, 105*, 294-318.

Wang, M. T., Selman, R. L., Dishion, T. J., & Stormshak, E. A. (2010). A tobit regression analysis of the covariation between middle school students' perceived school climate and behavioral problems. *Journal of Research on Adolescence, 20*(2), 274-286. https://doi.org/10.1111/j.1532-7795.2010.00648.x

Wang, M.-T. (2009). School climate support for behavioral and psychological adjustment: Testing the mediating effect of social competence. *School Psychology Quarterly, 24*(4), 240.

Wang, M.-T., & Peck, S. C. (2013). Adolescent educational success and mental health vary across school engagement profiles. *Developmental Psychology, 49*(7), 1266-1276.

Watton, C. (2014). *Suicidal Youth in America: The Role of School Disengagement and Other Sociodemographic Factors.* The University of Guelph.

Wentzel, K. R. (2003). School adjustment. In I. B. Weiner (Ed.), *Handbook of psychology* (pp. 235-258). John Wiley & Sons, Inc.

Willoughby, T. (2008). A short-term longitudinal study of Internet and computer game use by adolescent boys and girls: Prevalence, frequency of use, and psychosocial predictors. *Developmental Psychology, 44*(1), 195–204. https://doi.org/10.1037/0012-1649.44.1.195

Xu, Z. C., Turel, O., & Yuan, Y. F. (2012). Online game addiction among adolescents: Motivation and prevention factors. *European Journal of Information Systems, 21*(3), 321-340.

Zimmerman, B. J. (1989). Models of self-regulated learning and academic achievement. In B. J. Zimmerman, & D. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 1-25). Springer.