
VALIDATION OF THE PSYCHOMETRIC PROPERTIES OF THE SOCIAL MEDIA ADDICTION QUESTIONNAIRE AMONG PAKISTANI UNIVERSITY STUDENTS

DR SHUMAILA SHAHZAD

ASSOCIATE PROFESSOR, DEPARTMENT OF EDUCATION, GOVERNMENT COLLEGE UNIVERSITY FAISALABAD.

MARYAM MUNIR

PHD SCHOLAR, DEPARTMENT OF EDUCATION, GOVERNMENT COLLEGE UNIVERSITY FAISALABAD.

DR ASIF IQBAL

ASSOCIATE PROFESSOR, DEPARTMENT OF EDUCATION, UNIVERSITY OF EDUCATION, FAISALABAD CAMPUS.

MARIA ANWAR

PHD SCHOLAR, DEPARTMENT OF EDUCATION, GOVERNMENT COLLEGE UNIVERSITY FAISALABAD.

DR BUSHRA NAOREEN*

ASSOCIATE PROFESSOR, DEPARTMENT OF EDUCATION, GOVERNMENT COLLEGE UNIVERSITY FAISALABAD, PAKISTAN. bushranaoreen@gcuf.edu.pk

Abstract

This study assessed the psychometric properties of the Social Media Addiction Questionnaire (SMAQ) originally developed by Shahnawaz, M., & Rehman, U. (2020), within the context of a university student population. A cross-sectional design was employed, with data collected from 300 under-graduate students enrolled in public and private sector universities. The data were subjected to robust statistical analyses. Reliability, assessed via Cronbach's alpha, demonstrated strong internal consistency for the full scale ($\alpha = 0.92$). The six subscales (1) Salience ($\alpha = 0.807$), (2) Mood Modification ($\alpha = 0.79$), (3) Tolerance ($\alpha = 0.78$), (4) withdrawal ($\alpha = 0.77$), (5) Conflict ($\alpha = 0.79$) and (6) relapse ($\alpha = 0.78$) exhibited acceptable to high reliability, exceeding the conventional threshold. Furthermore, Confirmatory Factor Analysis (CFA) was employed to verify the hypothesized six-factor structure. The results confirmed that all 20 items loaded significantly ($p < 0.05$) onto their respective latent constructs, with standardized factor loadings ranging from 0.75 to 0.91, all surpassing the recommended minimum value. The findings robustly support the conclusion that the adapted SMAQ is a psychometrically sound, reliable, and valid instrument for assessing social media addiction among the university student population in Pakistan. The validated scale can be effectively utilized in future research, screening, and intervention-based studies to better understand social media addiction and its academic and psychological consequences within the Pakistani cultural context.

Keywords: Social Media Addiction, SMA-Q, Psychometric Validation, Confirmatory Factor Analysis, University student

INTRODUCTION

The widespread use of social media sites has changed how people talk to each other, learn, and interact in today's world. University students, in particular, are one of the most active groups of social media users because they need to stay connected with friends, find information, and have fun. While moderate use of social networking sites may offer educational and social benefits, excessive and uncontrolled engagement has raised serious concerns regarding behavioral addiction, psychological well-being, and academic functioning (Andreassen, 2015; Kuss & Griffiths, 2017). According to Griffiths (2005), social media addiction is typically thought of as a behavioral addiction with symptoms like salience, mood modification, tolerance, withdrawal, conflict, and relapse. Social media addicts frequently prioritize their online activities over their offline obligations, which can lead to poor academic performance, diminished self-control, and psychological distress (Bányai et al., 2017; Hussain & Griffiths, 2018). Because of these ramifications, accurate evaluation of social media addiction has emerged as a crucial issue for psychologists and educators.

The Bergen Social Media Addiction Scale and other self-report questionnaires based on addiction theory are among the tools created to assess social media addiction (Andreassen et al., 2016). However, due to cultural, linguistic, and contextual differences, psychometric tools created in one cultural context might not show comparable validity and reliability when used with different populations (Van de Vijver & Tanzer, 2004). Therefore, before using measurement instruments in empirical research, they must be validated in particular cultural contexts. Due to widespread smartphone access and reasonably priced internet services, social media usage among Pakistani university students has significantly increased over the past ten years. There is a noticeable lack of culturally validated tools to evaluate social media addiction among Pakistani university students, despite increased scholarly interest in the negative effects of excessive social media use. Evidence-based interventions meant to address problematic social media behaviors in this population are weakened by the lack of psychometrically sound tools, which also limits the accuracy of research findings.

Psychometric validation refers to the comprehensive assessment of a measurement tool's reliability and validity, which includes examining its factor structure, internal consistency, and construct validity (DeVellis, 2017). Confirming these characteristics ensures that the tool effectively measures the desired construct and yields consistent outcomes across different samples. Both exploratory and confirmatory factor analyses are commonly recommended methods for evaluating the dimensionality and construct validity of psychological scales (Hair et al., 2019). Due to the cultural specificity of behavioral addiction constructs and the increasing prevalence of social media usage among Pakistani youth, it is essential to validate the Social Media Addiction Questionnaire in this particular context. This validation will enhance the existing literature by offering a reliable and culturally relevant measurement instrument for researchers, educators, and mental health professionals. Thus, the current study seeks to investigate the psychometric properties of the Social Media Addiction Questionnaire among university students in Pakistan, concentrating on its factor structure, reliability, and construct validity.

LITERATURE REVIEW

Social Media Addiction

The integration of digital resources into academic practices has created a challenge for today's university students. Smartphones and social media platforms offer access to educational content and peer networks. However, their excessive use can lead to new psychological issues that affect academic performance (Khan et al., 2023). Recent studies show that many university students struggle with smartphone overuse, which often also makes them addicted to social media (Al-Menayes, 2022; Gezgin & Çakir, 2023). Both of these issues are strongly linked to lower academic achievement (Rozgonjuk et al., 2021). Still, previous studies do not agree on whether social media is a helpful tool for assessment or a harmful distraction that prevents students from focusing on their work (Al-Yafi et al., 2018). Regarding social media addiction, there seems to be a general agreement among researchers that spending too much time on these platforms can lead to addictive behaviors, which likely harms academic productivity. Busalim et al. (2019) found that social media use among college students positively affects social media addiction, which then leads to poorer academic performance.

Social media is perhaps more accurately termed as the technologies associated with social interaction systems (Joosten, 2012). Specific definitions tend to be broad (Kaplan & Haenlein, 2010); however, social media platforms are often characterized through illustrative enumeration. These include, but are not limited to, social sites, wikis, multimedia platforms, online games, and virtual worlds (Barutçu, S., & Tomaş, M., 2013). For this review, social networking sites (SNS) will be emphasized due to the popularity of platforms like Facebook, MySpace, and LinkedIn.

While the use of social media is seen as an engagement that lacks problems, it can also lead to non-acute addictive behaviors. There is still very little discourse around SMA and how to best establish defining criteria, with researchers drawing parallels to internet gaming disorder as a benchmark. Hou et al. (2019) elucidate that social media addiction is the overpowering application of social media to an extent that it undermines 'real-life' activities and diminishes interpersonal relationships and productivity. Paul et al (2012) described social media addiction intense social networking, which is defined by diminished control over usage and negative outcomes. Andreassen and Pallesen (2014) characterized SMA as the urge to be excessively engaged online, spending too much time online to the detriment of health while disrupting social and professional activities, interpersonal relations, and well-being.

Social Media Addiction and Academic Performance

Although social media can facilitate student learning through interactions among students, incorporating it into an academic course can present challenges. For instance, the lack of familiarity or the lack of will to use certain social media tools may lead educators to overlook providing adequate materials or support aimed at student learning (Cole, 2009; Väljataga & Fiedler, 2009). Arnold and Paulus (2010) told that when students use social media for study purposes the addiction of social media incorporate into their live-in different ways which is totally different from the teacher's instruction, like non-academic discussion because the social media is basically design for social networking moreover the age factor attracts the students towards the use of non-academic purposes (Lin et al., 2020). It also shows that there is a negative effect of social media on students' GPA as well as their time management for class (Annetta et al., 2009; Junco, 2012b). Social media provides many stimulations that can

provoke students to engage in off-course discussions (Patera et al., 2008; Hurt et al., 2012). Another reason may be that students face difficulty managing time for online activities and academic preparations.

Social media is a challenging strategy because it tries to control the active participation of pupils and the authority of teachers. Social media collaboration fosters a constructivist learning paradigm, enabling students and educators to collaboratively develop a shared comprehension of a certain subject, as opposed to an approach that prioritizes individual contributions (Stevens, 2009). Because of this, both students and teachers are equal partners in the process of transferring knowledge. Despite its apparent advantages for information creation and dissemination, social media may also become a source of abuse and cyberbullying, as well as a privacy risk (Chen & Bryer, 2012; Frye et al., 2010).

Research Objectives

1. To examine the factorial validity of the Social Media Addiction Questionnaire (SMAQ) among Pakistani university students using appropriate factor analytic techniques.
2. To assess the internal consistency reliability of the SMAQ and its sub-scales (Salience, Mood Modification, Tolerance, withdrawal, Conflict and relapse within the Pakistani university students.
3. To evaluate the construct validity of the SMA-Q by conducting a Confirmatory Factor Analysis (CFA) to confirm the stability and significance of its hypothesized six factor model within the population of the study.
4. To establish the psychometric strength of the adapted SMA-Q as a valid and reliable tool for researchers and practitioners to accurately measure the prevalence and dimensions of social media in higher education settings.

METHODOLOGY

The study was conducted on a sample of 300 university students who were not included in the sample. The primary objectives of the study were to: (a) assess the clarity and comprehensibility of the questionnaire items; (b) estimate the average time required for completion; and (c) most importantly, evaluate the construct validity of the scale and its sub-scales within the target demographic. The inclusion criteria were based on the sixth and eighth semesters, requiring respondents to be active students registered in a BS degree. They have smartphones and are social media users.

Table 1 shows that a total of 300 students were conveniently allocated across the two universities as sample. The gender distribution shows a higher representation of females (170) compared to males (130). Regarding academic progression, students were distributed across semesters; 165 (55%) were from the 8th semester 135 (45%) were from the 6th semester. The majority of participants belonged to the Social Sciences faculty, 198 (66%), while those from Physical Sciences were 102 (34%). Public sector universities accounted for the majority of the samples, 201 (67%). It includes the University of Education 201 (67%) and Private sector universities, with the University of Faisalabad contributing 99 samples (33%). Academic performance, measured by CGPA, ranged from 2.0 to 4.0, with a mean CGPA of 2.99 (SD = .605), indicating generally good academic standing among the students.

Table 1 Characteristics of Sample Allocation Across Universities

Background Variables/Sample Features		N=300
Gender	Female Male	170 (56%) 130 (43%)
Semester	8 th 6 th	165 (55%) 135 (45%)
Faculty	Physical Sciences Social Science	102(34%) 198 (66%)
University Sector	Private Public	99 (33 %) 201 (67%)
University	UOF UEF	99 (33%) 201 (67%)
CGPA	Min: 2.0 to Max: 4.0	M (2.99), SD (.605)

Research Instrument

The current study used the Social Media Addiction Questionnaire (SMA_Q) as the main tool to evaluate social media addiction levels among university students in Pakistan. The SMA_Q is a standardized self-report measure that identifies problematic and compulsive social media use patterns. This scale was developed by Shahnawaz, M., & Rehman, U. (2020) and comprises 20 items. The questionnaire evaluated the six dimensions of social networking addiction: (1) Salience (SA), (2) mood modification (MM), (3) tolerance (TA), (4) withdrawal (WA), (5) conflict (CO), and (6) relapse (RE). The standardized questionnaire is adopted and structured for participants to respond to each item using a 1-to-7-point Likert scale.

Table 2 Description of SMA_Q Subscale, Scope, Items, and Reliability of the scale.

Factors	Scope	No of items	After CFA	α
SA	Refer to specific activity which become the primary focus of individual's life and dominate on their feelings, thoughts and emotions.	4	4	0.81
MM	Describes the personal experience that individuals report as a result of participating in a specific activity and usage of SNSs enhances one's mood, such as from bad to good.	3	3	0.79
TA	Refers to the phenomenon in which larger amounts of a specific behavior are necessary to achieve the same effects previously experienced.	3	3	0.78
WA	Concerns the unpleasant feeling when one is When a Person is unable to use social media because of a network or a dead battery	4	4	0.78
CO	Measuring Social networking addiction would result in a disturbance in real life.	3	3	0.79
RE	Assesses the tendency to revert to earlier patterns of excessive behavior after a period of abstinence or control	3	3	0.78

Construct Validity of SMA_Q. The construct validity of the questionnaire was ensured through CFA through LISREL version 8.80. A model of SMA_Q is given in the fig 1.

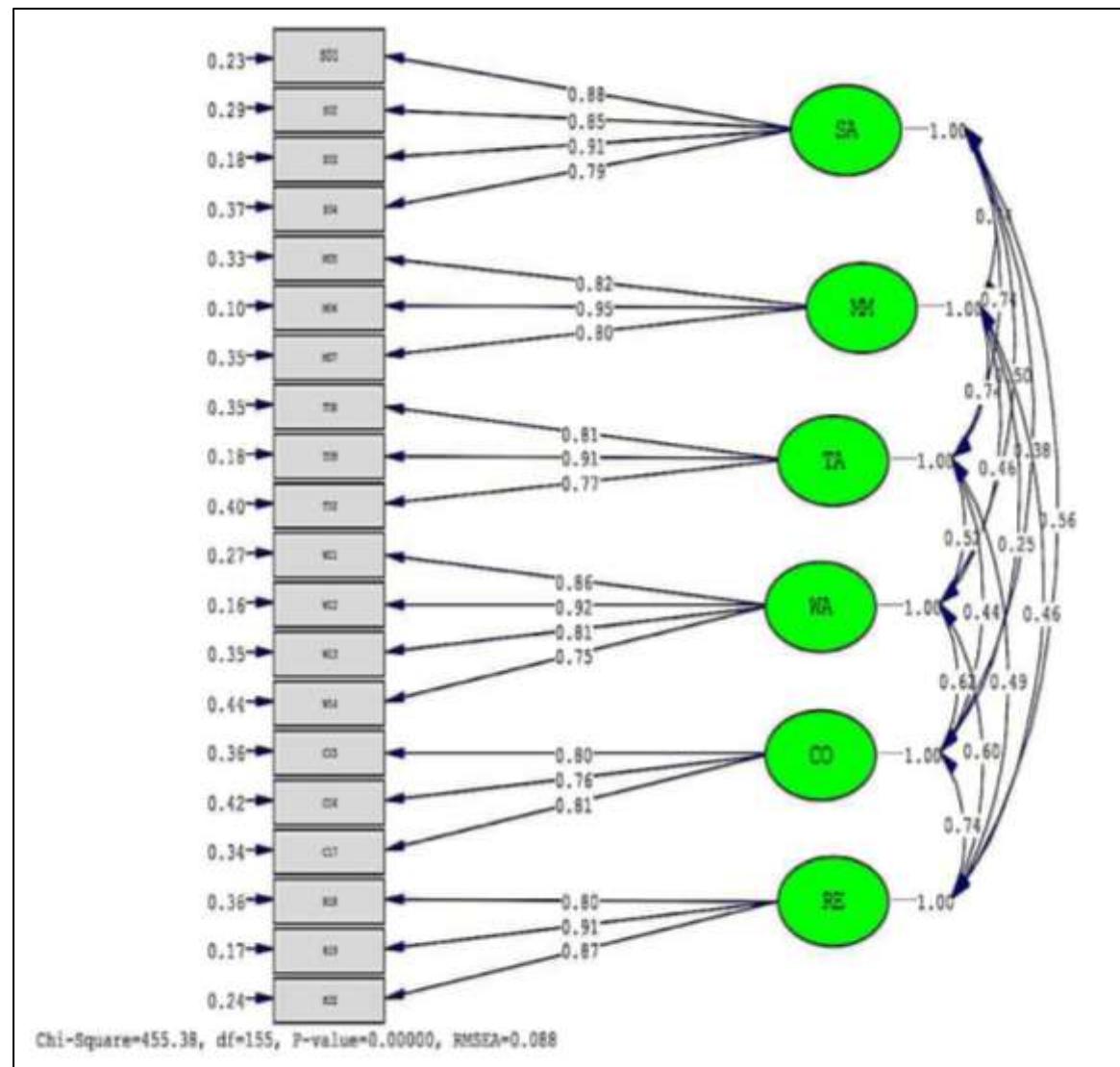


Figure 1 Confirmatory factor analysis of SMA_Q

Factor loading of SMA_Q

CFA was performed on 20 content-valid items. All 20 items were selected for the final questionnaire, having a factor loading of more than 0.40. Table 3 presents the findings from the confirmatory factor analysis of SMA_Q.

Table 3 SMA_Q Factor Loading for Items (CFA)

Statements No.	SA	MM	TA	WD	CO	RE
S_1	0.88					
S_2	0.85					
S_3	0.91					
S_4	0.79					
S_5		0.82				
S_6		0.95				
S_7		0.80				
S_8			0.81			
S_9			0.91			
S_10			0.77			
S_11				0.86		
S_12				0.92		
S_13				0.81		
S_14				0.75		
S_15					0.80	
S_16					0.76	
S_17					0.81	
S_18						0.80
S_19						0.91
S_20						0.87

Table 3 presents standardized factor loading for confirmatory factor analysis is displayed in the results. At the five percent significance level ($p < .05$), almost all of the factor loading were statistically significant. A well-fitting model would further demonstrate that the data adequately support the six-factor structure. The strong and significant factor loading presented here serve as primary and robust indicators of good construct validity.

DISCUSSION

This study intended to assess the psychometric properties of Social Media Addiction Questionnaire (SMAQ) among Pakistani university students. The results provided strong empirical support for the reliability and validity of the scale in this cultural setting. Factor analytic procedures yielded a coherent and interpretable factor structure that is consistent with theoretical conceptions of behavioral addiction and are meaningful for Pakistani university students. The finding is consistent with the elements of addiction such as the salience, tolerance, withdrawal, mood modification and conflict components as per Griffiths' (2005) model of components of addition. Adequate factor loadings also indicate that the items sufficiently measure what they are assumed to measure (i.e., construct validity) for social media addiction.(Andreassen et al., 2016; Bányai et al., 2017).The results shows that the SMAQ is valid in a different cultural context, specifically in Pakistan, is both theoretically intriguing and practically important. This suggests that the frameworks surrounding behavioral addiction are universally

applicable, indicating that social media addiction manifests similarly across different cultures. It also provides empirical support for the idea that excessive use of social networking sites is influenced by underlying psychological processes, even though there may be some cultural differences to consider (Van de Vijver & Tanzer, 2004). Furthermore, these findings align with recommendations from the psychometric literature, emphasizing the importance of Confirmatory Factor Analysis (CFA) in validating latent constructs and ensuring measurement accuracy (Hair et al., 2019).

CONCLUSION

In conclusion, the confirmatory factor analysis revealed that the revised Social media addiction questionnaire (SMA-Q) is a highly appropriate tool for this research. The notably high internal consistency reliability ($\alpha = 0.92$) for the complete scale and the significant factor loading from the CFA present strong evidence for both the reliability and construct validity of the questionnaire. The psychometric evaluation confirmed a stable factor structure, consistent with the original conceptualization of the construct, demonstrating that the core dimensions of social media addiction are recognizable and measurable among Pakistani youth. The scale exhibited excellent internal consistency reliability, indicating that its items cohesively measure the same underlying trait. Consequently, the (SMA-Q) is considered a methodologically robust instrument for evaluating the levels and aspects of social media addiction among university students in Pakistan.

REFERENCES

1. AlMenayes, J. J. (2015). The relationship between social media use and academic performance in a sample of Saudi university students. *Journal of Educational and Developmental Psychology*, 5(1), 2329.
2. Al-Yafi, K., El-Masri, M., & Tsai, R. (2018). The effects of using social network sites on academic performance: The case of Qatar. *Journal of Enterprise Information Management*, 31(3), 446–462. <https://doi.org/10.1108/JEIM-08-2017-0118>.
3. Andreassen, C. S. (2015). Online social network site addiction: A comprehensive review. *Current Addiction Reports*, 2(2), 175–<https://doi.org/10.1007/s40429-015-0056-9>
4. 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. *Psychology of Addictive Behaviors*, 30(2), 252–262. <https://doi.org/10.1037/adb0000160>
5. Andreassen, C.S. & Pallesen, S. (2014). Social network site addiction: An overview. *Current Pharmaceutical Design*, 20(25), 4053-4061.
6. Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., Andreassen, C. S., & Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE*, 12(1), e0169839.<https://doi.org/10.1371/journal.pone.0169839>
7. Barutçu, S., & Tomaş, M. (2013). Sustainable social media marketing and measuring social media marketing effectiveness. *Journal of Internet Applications & Management*, 4(1), 5-24. <https://doi.org/10.5505/iuyd.2013.69188>.
8. Busalim, A. H., Masrom, M., & Zakaria, W. N. B. W. (2019). The impact of Facebook addiction and self-esteem on students' academic performance: A multi-group analysis. *Computers & Education*, 142, 103651.
9. Chen, B., & Bryer, T. (2012). Investigating instructional strategies for using social media in formal and informal learning. *International Review of Research in Open and Distributed Learning*, 13(1), 87-104.
10. Cole, M. (2009). Using wiki technology to support student engagement: Lessons from the Communication. *Computers in Human Behavior*, 29, 140–144.
11. Frye, E. M., Trathen, W., & Koppenhaver, D. A. (2010). Internet workshop and blog publishing: Meeting student (and teacher) learning needs to achieve best practice in the twenty-first-century social studies classroom. *Social Studies*, 101(2), 46-53. doi:10.1080/00377990903284070
12. Gezgin, D. M., Türk Kurtça, T., Mihci, C., Lin, C. Y., & Griffiths, M. D. (2025). The role of self-regulated learning in modelling the relationships between learning approaches, FoMO and smartphone addiction among university students. *British Journal of Educational Technology*.
13. Griffiths, M. D. (2005). A “components” model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10(4), 191–197. <https://doi.org/10.1080/14659890500114359>
14. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
15. Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 13(1), 1-18. *Human Behavior*, 29(1), 140–144. <https://doi.org/10.1016/j.chb.2012>.
16. Hurt, N. E., Moss, G. S., Bradley, C. L., Larson, L. R., Lovelace, M. D., Prevost, L. B., Camus, M. S. (2012). The ‘Facebook’ effect: College students’ perceptions of online discussions in the age of social networking. *International Journal for the Scholarship of Teaching and Learning*, 6(2), 1-24. Retrieved from <http://academics.georgiasouthern.edu/ijstol/v6n2.html>

17. Hussain, Z., & Griffiths, M. D. (2018). Problematic social networking site use and comorbid psychiatric disorders: A systematic review of recent large-scale studies. *Frontiers in Psychiatry*, 9, 68. <https://doi.org/10.3389/fpsyg.2018.00686>

18. Joosten, T. (2012). Social media for educators: Strategies and best practices. Hoboken, NJ, USA: Jossey-Bass.

19. Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1), 59–68. <http://dx.doi.org/10.1016/j.bushor.2009.09.003>.

20. Khan, M. N., et al. (2023). Time management as digital mediator. *Computers & Education*, 196, 104721.

21. Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311. <https://doi.org/10.3390/ijerph14030311>

22. Lin, C., Imani, V., Griffiths, M., Broström, A., Nygårdh, A., Demetrovics, Z., & Pakpour, A. (2020). Temporal associations between morningness/eveningness, problematic social media use, psychological distress and daytime sleepiness: Mediated roles of sleep quality and insomnia among young adults. *Journal of Sleep Research*, 30(1). <https://doi.org/10.1111/jsr.13076>

23. Patera, M., Draper, S., & Naef, M. (2008). Exploring Magic Cottage: A virtual reality environment for stimulating children's imaginative writing. *Interactive Learning Environments*, 16, 245-263. doi:10.1080/10494820802114093

24. Paul, J. A., Baker, H. M., & Cochran, J. D. (2012). Effect of online social networking on student academic performance. *Computers in Human Behavior*, 28, 2117e2127.

25. Rozgonjuk, D., et al. (2021). Social media use and academic outcomes. *Learning and Instruction*, 82, 101658.

26. Stevens, V. (2009). Modeling social media in groups, communities, and networks. *Tesl-Ej*, 13(3), 1-16

27. Shahnawaz, M. G., & Rehman, U. (2020). Social networking addiction scale. *Cogent Psychology*, 7(1)1832032. <https://doi.org/10.1080/23311908.2020.1832>

28. Väljataga, T., & Fiedler, S. (2009). Supporting students to self-direct intentional learning projects with social media. *Educational Technology and Society*, 12(3), 58-69.

29. Van de Vijver, F., & Tanzer, N. K. (2004). Bias and equivalence in cross-cultural assessment: An overview. *Revue Européenne de Psychologie Appliquée*, 54(2), 119–135. <https://doi.org/10.1016/j.erap.2003.12.004>