

Social Media Addiction and Academic Procrastination with Mediating Role of Cognitive Flexibility among University Students

Marium Imran¹, Fozia Akram², Aeman Rabbani³ and Mahnoor Kalim⁴

<https://doi.org/10.62345/jads.2025.14.1.135>

Abstract

The current study explores the relationship between social media addiction and academic procrastination, with a focus on the mediating role of cognitive flexibility among university students. It aims to investigate the relationship among these variables, assess the predictive role of social media addiction in academic procrastination, and examine the mediating effect of cognitive flexibility. The data for the study was collected from 600 undergraduate and postgraduate students aged 18-25 years from different universities in Faisalabad through Convenience sampling. The ethical approvals were taken from relevant committees and informed consent was also taken from the participants. Data analysis was conducted using SPSS 24 and Hayes Process Macro. Pearson Product Moment Correlation result reveals that Social Media Addiction significantly positively correlates with academic procrastination and has a significant negative correlation with cognitive flexibility. Academic procrastination negatively correlates with cognitive flexibility. Regression analysis shows that Social Media Addiction significantly predicts academic procrastination. Mediation Analysis reveals that cognitive flexibility partially mediates the relationship between social media addiction and academic procrastination. In light of the findings, interventions with the help of specific objectives should be made to tackle issues dealing with excessive use of social media, based on these interventions there should be training to improve the cognitive flexibility among students as well as educate them with time management skills to minimize cases of academic procrastination.

Keywords: Social Media Addiction, Academic Procrastination, Cognitive Flexibility.

Introduction

The addiction to social media can be presented as an impulse to use social media to a degree that it starts to negatively impact the individual's activities, responsibilities, and mental health (Ahmed, 2023). Addiction to social media is about the excessive and irresistible use of social platforms, which disturbs daily activities and life, productivity, and psychological health. This form of addiction is characterized by an overwhelming urge to use social media, a preoccupation with online interactions, and distress or dysfunction when access is restricted.

¹Department of Applied Psychology, Government College University, Faisalabad.
Email: youngresearcher2023@gmail.com

²Department of Applied Psychology, Government College University, Faisalabad.
Corresponding Author Email: foziaakram2013@gmail.com

³Department of Applied Psychology, Government College University, Faisalabad.
Email: aemanrabbani111@gmail.com

⁴Department of Applied Psychology, Government College University, Faisalabad.
Email: mahnoorkalim02@gmail.com



Recent global estimates indicate that approximately 210 million people worldwide suffer from social media addiction, representing about 4-5% of all social media users (Grateful Care ABA, 2025). Among university students, the prevalence is particularly alarming, with studies reporting addiction rates ranging from 9.7% to 41%. Research conducted in Iran found that 82.39% of students exhibited various levels of social media addiction, while a study in India revealed a 36.9% addiction rate among pre-university college students (Nguyen et al., 2020). Individuals with an addiction to social media often spend a lot of time on different sites and platforms, neglecting responsibilities, and experiencing negative impacts on their mental health and personal relationships (Zhao et al., 2022).

Technological characteristics are paramount to the development of various levels of individuals' addiction to social networks. Notifications, the endless scroll functionality, and other features within the application are deliberately placed in a way to engages users as much as possible. Availability and use of social media through mobile phones and constant internet connection makes it easier for the users to have continued use of the sites which fuels the addiction (Flayelle et al., 2023). In the present study third-party variables suggest that younger people are more likely to be socially addicted to social sites and media in comparison to the other age groups, this is because young people are more inclined to social media.

Studies reveal that university students spend significant amounts of time on social platforms, with 28.9% dedicating 4-6 hours daily and 13.6% spending more than 7 hours per day (Aslan & Polat, 2024). This excessive usage is reflected in the frequency of access as well, with 34.1% of students checking social media platforms more than 15 times daily. All-inclusive, people spend a normal of 2 hours and 23 minutes on social media every day, whereas U.S. youngsters report screen time of around 7 hours and 22 minutes per day (Grateful Care ABA, 2025). In some studies, there have been indications that the female gender perhaps is more prone to addiction to social media than the male gender because of gender differences and usage patterns as well as social motivation (Ciacchini et al., 2023).

Academic procrastination is when students delay the start or finish of their schoolwork even when they know it could hurt their grades and well-being. It's pretty common among students. They often delay important tasks like studying for tests, working on assignments, or getting ready for presentations (Gargari et al., 2011). There are lots of reasons why students procrastinate (Rice et al., 2012). Understanding why students procrastinate is important as it eventually leads to ways to alleviate procrastination. Strategies can include: teaching time management skills so students can develop better planning, as well as preparing the students to develop their interest in completing school work and relate their school work to personal goals. CBT, cognitive behavioral therapy can also be utilized to change students' negative thought patterns and develop their self-esteem (Hailikari et al., 2021).

Cognitive flexibility is our brain's capacity and ability to shift gears between different ideas or give thought to several ideas and planes at once. This important skill helps them adjust how they think when they face new and surprising. It's super key for solving problems, being creative, and because it lets folks change their thoughts based on what's happening around them (Cañas, 2006). There are lots of things that can affect cognitive flexibility. These come from three main areas: the brain, psychology, & the environment. From a brainy point of view, the prefrontal cortex is big here. This part of our brain handles higher-level thinking tasks. If it works well, we can switch our thought processes easily. But if someone has a brain injury, ADHD, or certain types of dementia, this flexibility can suffer (Uddin, 2021).

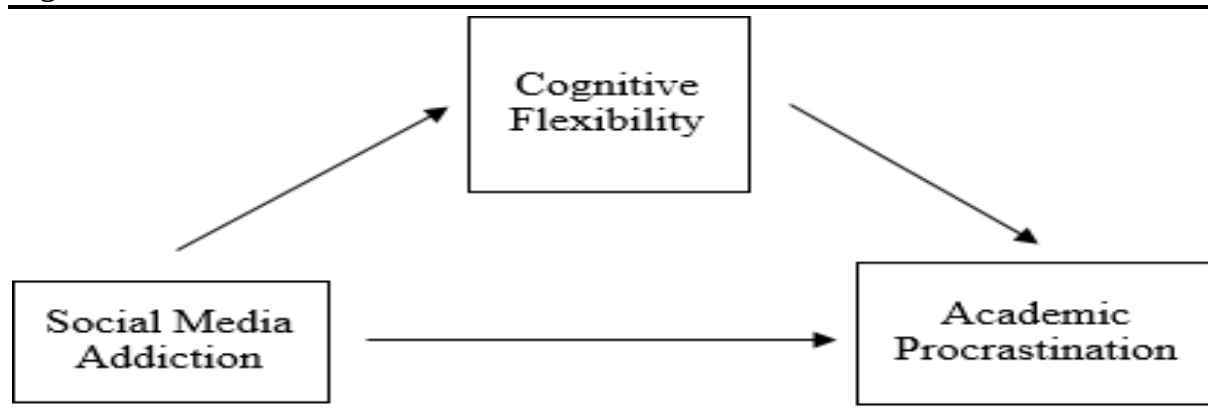
When life is difficult and stressful, our ability to shift our thinking is invaluable support. Even our feelings can prompt a shift in flexibility; stress and anxiety can make it difficult to step outside the box because we are focusing narrowly and blocking out creativity (Chen, 2019). A good understanding of what enables cognitive flexibility is very important as we search for ways to develop cognitive flexibility. Through the process of developing cognitive flexibility,

we can improve our problem-solving abilities, not engage in boring tasks as much, and help people manage their lives both personally and professionally. Understanding how all these factors brain-based, psychological, & environmental connect helps researchers and people in the field support cognitive growth for everyone throughout their lives (Dajani & Uddin, 2015).

The Rationale of the Study

This study aims to probe and examine how cognitive flexibility mediates the relationship between social media addiction and academic procrastination among university students. Despite the increasing focus on these issues, there is limited understanding of the underlying psychological mechanisms that connect them. Cognitive flexibility is a critical factor that shapes how individuals handle distractions and adapt to challenges, yet its role in mediating this relationship in-between addiction to social media and procrastination remains underexplored. This study is noteworthy as it has the potential to play a part in existing fields of study and knowledge and exert a substantial impact on the field of psychology and education for several reasons. The findings of this study may help create more efficient and effective strategies and new interventions and give a direction to academic procrastination by identifying the underlying mechanisms, such as cognitive flexibility, which link social media addiction to academic behavior.

Figure 1: Theoretical Framework



Hypotheses of the Study

The current study has following hypothesis:

H1: There would be significant relationship between social media addiction, academic procrastination and cognitive flexibility among university students.

H2: Social media addiction would be significant predictor of academic procrastination among university students.

H3: Cognitive flexibility would significantly mediate between social media addiction and academic procrastination.

Methodology

Research Design

The correlational research, design was used for current research. Convenience sampling technique was used for the selection of research participants

Sample

The participants N= 600 both men and women, were selected from the different private and public universities of Faisalabad using convenience sampling. Students of under-graduation

and post-graduation were the part of the study. The demographic characteristics of the sample concerning gender, age, locality, institute and family system were collected.

Inclusion and Exclusion Criteria

Students with the age group of 18 to 25 years were included. Male and female both were included in this study. Students especially of Undergraduate i.e., BS, Postgraduate i.e., MS and M.Phil. were the part of this study. Ph. D scholars, married students, having any psychological or medical illness, participants with any physical disability were not included in the sample.

Instruments

Following measures were used in the study.

Informed Consent

Informed Consent were obtained from each student for ensure their volunteer participation and confidentiality in the research process.

Demographics Form

The demographics question sheets were obtained from every respondent which were included gender, age, locality, institute and family system etc.

Bergen Social Media Addiction Scale (Andreassen et al., 2016) (English Version)

Frequency of using social media for the previous week and addiction to social media was evaluated using this scale. Each item on the six-item BSMAS is assessed on a Likert scale of 5 points, with first denoting "very rarely" and last denoting "very often." The overall result is between six and thirty (6 & 30). The higher probability concerning social media addiction is indicated by a higher BSMAS score. Numerous investigations have shown that the BSMAS has appropriate psychometric qualities and has been translated into multiple languages.

Academic Procrastination Scale (McCloskey & Scielzo, 2015) (English Version)

The Academic Procrastination Scale consists of 25 items that are scored using a self-assessment scale from first Disagree to fifth Agree (1= Disagree and 5= Agree). The sum of the scale responses is used to determine the scores. To get the scale's score, the answers to each of the 25 separate items were added together, where the APS scores varied from 25 to 125.

Cognitive Flexibility Scale (Martin & Rubin, 1995) (English Version)

It is a self-report instrument comprises twelve question that assess various dimensions of cognitive flexibility in a communicative context, or communication competence as defined by the authors (Martin & Rubin, 1995). The respondent assesses intensity of being agree and disagree individually with belief/feeling on 6-point Likert scale. Each item depicts a statement of beliefs and feelings regarding behavior.

Procedure

First of all, the proposal was presented in the open defense and BOS of Govt. College University, Faisalabad, and got approval from the Institutional Review Board (IRB). After that, permission was taken from universities of Faisalabad. All ethical considerations were followed during all procedures. Reliable and valid psychological testing tools were used in this study. After getting permission from the authors of psychological testing tools, the data for the study was gathered from different universities using these tools. After getting permission from the authorities of different universities in Faisalabad, the researcher narrated the purpose and benefits of the study while ensuring the confidentiality to be maintained. The informed consent

forms were signed by the participants after reading them, if they agreed to participate. Each participant was instructed before administering any questionnaire to provide their true responses. For demographic information, a demographic sheet was used. Participants were requested to fill the questionnaire. Moral and legitimate thought was followed in such a manner that participant's privacy and confidentiality were given much attention.

Ethical Considerations

In this study, several ethical considerations were upheld. Participants were thoroughly informed about the questionnaire and the research topic. The dignity of the research participants was given utmost priority. Informed consent was given to all participants of the study before they took part in the study. Confidentiality of the participants and the data they provided was strictly maintained. Additionally, for the quantitative research component, prior permission was obtained from the authors of the scales used.

Statistical Analysis

Different scores for subscales were calculated. AMOS and SPSS were used for analysis. PROCESS was used for Mediation Analysis.

Results

Table 1: Socio-demographic Characteristics of Participants

Characteristics	N	%
Gender		
Male	250	41.70
Female	350	58.30
Age		
10-20	201	33.50
20-30	399	66.50
Family System		
Nuclear	427	71.20
Joint	173	28.80
Locality		
City	473	78.80
Village	127	21.20
Institute		
Public	494	82.30
Private	106	17.70

The gender distribution shows that 58.3% are female, and 41.7% are male. The majority of participants (66.5%) fall within the 20-30 age range, with the remaining 33.5% between 10-20 years old. Most participants (71.2%) come from nuclear families, while 28.8% are from joint families. In terms of monthly income, 41% of participants earn between 50k to 1 lac, followed by 37.7% earning between 20k to 50k, and 21.3% earning above 1 lac. A significant portion of the sample (78.8%) resides in urban areas, with 21.2% from rural settings. 82.3% of the participants are enrolled in public institutions, while 17.7% attend private institutions.

Table 2: Variables Descriptive Statistics and Reliability Analysis (n = 600).

Scales	Min.	Max.	M	SD	α
Social Media Addiction	6	29	14.2	3.9	.67
Academic Procrastination	36	112	74.3	12.9	.78
Cognitive Flexibility	28	72	43.6	7.08	.65

Note: M = Mean, SD = Standard Deviation, α = Reliability Coefficient

This table of analysis for the study variables among 600 participants show varying levels of internal consistency across the scales. Social Media Addiction, measured by six items, has a mean score of 14.2 with a reliability coefficient (α) of .67, indicating moderate reliability. Academic Procrastination, with 25 items, shows a higher reliability ($\alpha = .78$) and a mean of 74.2, reflecting consistent responses. Cognitive Flexibility has a mean of 43.5 and moderate reliability ($\alpha = .65$).

Table 3: Bivariate Correlation between social media addiction, academic procrastination, and cognitive flexibility among university student.

Variables	1	2	3
Social Media Addiction	1	0.527	-.0205
Academic Procrastination		-	-.261
Cognitive Flexibility			-

Note: SMA = Social Media Addiction, AP = Academic Procrastination, CF = Cognitive Flexibility
 *** $p < .001$, ** $p < .01$, * $p < .05$

The bivariate correlation table presents the different results. Notably, Social Media Addiction is significantly positively correlated with Academic Procrastination ($r = .527$, $p < .01$), whereas Social Media Addiction has significant negative correlation with Cognitive Flexibility ($r = -.20$, $p < .01$). Academic Procrastination has significant negative correlation with Cognitive Flexibility ($r = -.26$, $p < .01$).

Table 4: Regression Coefficients of Social Media Addiction on Academic Procrastination

Variables	B	B	SE
Constant	49.88		1.67
Social Media Addiction	1.713	.527	.113
R^2	.278		
ΔR^2	.277		

The analysis reveals that social media addiction significantly predicts academic procrastination among university students ($n = 600$). With an R^2 of .27, the model explains 27% of the variance

Table 5: Mediation analysis between Social Media Addiction and Academic Procrastination through Cognitive Flexibility

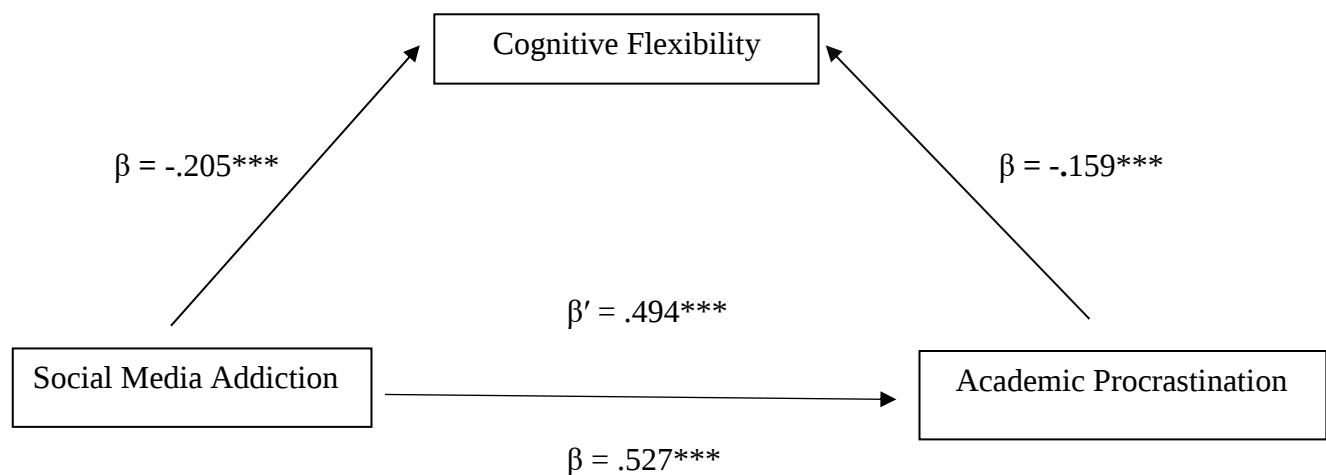
Antecedent	Cognitive Flexibility			Consequent		
	Coeff.	SE	p	Coeff.	SE	p
Constant	48.75	1.05	.000	1.606	.113	.000
Social Media Addiction	-.205	.071	.000	.494	.071	.000
Cognitive Flexibility		-		-.159	.063	.000
	$R^2 = .0421$			$R^2 = .3021$		
	$F(1,598) = 26.25$, $p < .001$			$F(1,598) = 129.2$, $p < .001$		

Note: Coeff= Standardized regression coefficient

in academic procrastination. The unstandardized coefficient for social media addiction is 1.71 ($SE = .167$, $t = 15.16$, $p < .001$), indicating a strong positive relationship. This suggests that more use of social sites and media is linked with more procrastination especially academic, highlighting the impact of digital distractions on academic performance.

Table shows mediation analysis through process macro (Hayes). Above table shows that Social Media Addiction is found to be significant negative Predictor of Cognitive Flexibility (a_1 ; $\beta = -.205$, $p < .001$) and positive predictor of Academic Procrastination ($\beta = .494$, $p < .001$). Whereas Cognitive Flexibility was found to be significant negative predictor of Academic procrastination (b_1 ; $\beta = -.159$, $p < .001$). Furthermore, the results of indirect effect ($\beta' = .494$) showed that cognitive flexibility found to be significant mediator between Social Media Addiction and Academic Procrastination. As there is a significant direct effect (c' ; $\beta = .527$, $p < .001$) so, there is a partial mediation.

Figure 2: Relationship of Social Media Addiction and Academic Procrastination with mediating role of Cognitive Flexibility.



Discussion

This study investigates the mediation of cognitive flexibility in the connection within academic procrastination among university students and social media addiction. 600 people serve as the sample size for this study, which is selected using a convenience sampling method. Various scales were employed during study. The research design used was cross-sectional, and SPSS and Process were utilized for analyses of the data.

It was hypothesized that among university students, there will be a correlation in social media addiction and academic procrastination. Notably, social media addiction showed a significant positive correlation with academic procrastination, as students who reported lower social media use also reported lower academic procrastination (Ch'ng & Soo Hoo, 2022).

It was also revealed from the analysis that addiction to social media was significantly negatively correlated with cognitive flexibility. This finding is consistent with the Self-Regulation Theory (Baumeister et al., 1994), which suggests that excessive engagement in pleasurable activities like social media can impair individuals' ability to control their behaviors flexibly across contexts. Similar results are also validated by Sağar (2021), who found that an increase in social media addiction results in decreased cognitive flexibility. Moreover, academic procrastination was found to have a significant negative correlation with cognitive flexibility. This is supported by the Temporal Motivation Theory (Steel & König, 2006), which posits that procrastination arises when individuals fail to adjust their actions according to situational demands due to cognitive inflexibility. The more students avoid procrastination in general, the more they embrace cognitive flexibility (Khan et al., 2021).

Additionally, it was proposed that university students' delay in their academic work could be explained by social media addiction. There is consensus that social media addiction is a notably

positive predictor of academic procrastination, data shown in Table 4. This suggests that procrastination in the students rises with addiction to social media, supporting negative consequences of digital distraction on performance. As we have shown, a finding that is aligned with Ch'ng and Soo Hoo (2022) according to which students with less use of social media addiction predict little academic procrastination. Our research's conclusions corroborate those of Anierobi et al. (2021) comparable investigation into the connection between students' addiction to digital media and procrastination in their task especially academic task, and they confirmed that social media addiction was a significant positive predictor of academic procrastination among student.

The last hypothesis is that in university students, cognitive flexibility will significantly be a mediator between social media addiction and academic procrastination, results presented in Table 5 indicate that, although social media addiction directly causes procrastination, a considerable amount of this effect is mediated by reduced cognitive flexibility. This suggests that cognitive flexibility mediate partially between addiction to social media and academic procrastination. Another research conducted by Erdem (2022) throws light on the fact that problematic internet se can negatively predict cognitive flexibility among students. Similarly, Khan et al. (2021), Rostami et al. (2016) and Emamverdi and Taher, (2020) had discussed the predictive role of cognitive flexibility regarding academic procrastination, which validates the findings of our study. Furthermore, Cognitive Load Theory (Sweller, 1988), offers a theoretical framework to understand these results as students become addicted to social media, their cognitive resources become overloaded with non-academic stimuli, leaving fewer resources available for academic tasks. This cognitive overload reduces cognitive flexibility and, consequently, increases academic procrastination.

Conclusion

According to the results social media addiction was related with prominent level of academic procrastination but was negatively related with cognitive flexibility. The findings showed that addiction to social media is a strong positive predictor of academic procrastination, particularly academic procrastination among university students. This highlights the effect of digital distraction on student's academics by indicating a relationship between high addiction of social media and increasing procrastination especially academic procrastination and this relationship is partially mediated by cognitive flexibility, this means that although social media addiction directly causes procrastination, a significant part of this effect is mediated by lower cognitive flexibility.

Implications

On the basis of results, the schools, education institutes and psychologists can design special approaches and curriculum to facilitate the control and limiting use of digital and social media among learners. Hence, programs that would help in increasing student 's cognitive flexibility could be useful since cognitive flexibility was found to mediate to a limited extent, in the relation between social media additions and academic procrastination. Perhaps, performing cognitive exercises and practicing mindfulness will help students improve their problem-solving skills, flexibility, so they stop procrastinating. On the other hand, developing gender-sensitive interventions is particularly important. If programs were to be designed to fit the need of the male and female students in as much as they tend to show traits of procrastination, then it would yield better results.

References

- Ahmed, M. (2023). Psychological Impact of Social Media Addiction on Interpersonal Relationships in Pakistan. *International Journal of Psychology*, 8(4), 53–65. <https://doi.org/10.47604/ijp.2421>

- Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). *Bergen Social Media Addiction Scale (BSMAS)* [Database record]. <https://doi.org/10.1037/t74607-000>
- Anierobi, E. I., Etodike, C. E., Okeke, N. U., & Ezennaka, A. O. (2021). Social Media Addiction as Correlates of Academic Procrastination and Achievement among Undergraduates of Nnamdi Azikiwe University Awka, Nigeria. *International Journal of Academic Research in Progressive Education and Development*, 10(3), Pages 20-33. <https://doi.org/10.6007/IJARPED/v10-i3/10709>
- Aslan, I., & Polat, H. (2024). Investigating social media addiction and impact of social media addiction, loneliness, depression, life satisfaction and problem-solving skills on academic self-efficacy and academic success among university students. *Frontiers in Public Health*, 12, 1359691. <https://doi.org/10.3389/fpubh.2024.1359691>
- Cañas, J. J. (2006). *Cognitive Flexibility*. Unpublished. <https://doi.org/10.13140/2.1.4439.6326>
- Chen, X. (2019). *Relationships between openness to experience, cognitive flexibility, self-esteem, and creativity among bilingual college students in the U.S.*
- Ch'ng, L. T. X., & Soo Hoo, P. Y. (2022). Relationship between Social Media Addiction Levels and Academic Procrastination among Undergraduate Students in Malaysia: Grit as the Mediator. *Advanced Journal of Social Science*, 11(1), 13–27. <https://doi.org/10.21467/ajss.11.1.13-27>
- Ciacchini, R., Orrù, G., Cucurnia, E., Sabbatini, S., Scafuto, F., Lazzarelli, A., Miccoli, M., Gemignani, A., & Conversano, C. (2023). Social Media in Adolescents: A Retrospective Correlational Study on Addiction. *Children*, 10(2), 278. <https://doi.org/10.3390/children10020278>
- Dajani, D. R., & Uddin, L. Q. (2015). Demystifying cognitive flexibility: Implications for clinical and developmental neuroscience. *Trends in Neurosciences*, 38(9), 571–578. <https://doi.org/10.1016/j.tins.2015.07.003>
- Erdem, A. (2022). The Mediating Role of Coping with Stress in Problematic Internet Use and Cognitive Flexibility Relation. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi*, 2. <https://doi.org/10.38151/akef.2022.20>
- Flayelle, M., Brevers, D., King, D. L., Maurage, P., Perales, J. C., & Billieux, J. (2023). A taxonomy of technology design features that promote potentially addictive online behaviours. *Nature Reviews Psychology*, 2(3), 136–150. <https://doi.org/10.1038/s44159-023-00153-4>
- Gargari, R. B., Sabouri, H., & Norzad, F. (2011). *Academic Procrastination: The Relationship Between Causal Attribution Styles and Behavioral Postponement*, 5(2).
- Hailikari, T., Katajavuori, N., & Asikainen, H. (2021). Understanding procrastination: A case of a study skills course. *Social Psychology of Education*, 24(2), 589–606. <https://doi.org/10.1007/s11218-021-09621-2>
- Khan, I., Schommer-Aikins, M., & Saeed, N. (2021). Cognitive Flexibility, Procrastination, and Need for Closure Predict Online Self-Directed Learning Among Pakistani Virtual University Students. *International Journal of Distance Education and E-Learning*, 6. <https://doi.org/10.36261/ijdeel.v6i2.1860>
- McCloskey, J., & Scielzo, S. (2015). *Finally!: The development and validation of the Academic Procrastination Scale*. <https://doi.org/10.13140/RG.2.2.23164.64640>
- Nguyen, T. H., Lin, K.-H., Rahman, F. F., Ou, J.-P., & Wong, W.-K. (2020). *Study of depression, anxiety, and social media addiction among undergraduate students*. 23(4).
- Rice, K. G., Richardson, C. M. E., & Clark, D. (2012). Perfectionism, procrastination, and psychological distress. *Journal of Counseling Psychology*, 59(2), 288–302. <https://doi.org/10.1037/a0026643>
- Rostami, C., Jahangerlu, A., Ahmadian, H., & Sohrabi, A. (2016). The role of cognitive flexibility and mindfulness in predicting student Procrastination. *Journal of Medical Sciences*, 17(53), 50–61.
- Steel, P., & König, C. J. (2006). Integrating Theories of Motivation. *Academy of Management Review*, 31(4), 889–913. <https://doi.org/10.5465/amr.2006.22527462>
- Sweller, J. (1988). *CognitiveLoadDuring ProblemSolving: Effects on Learning*.
- Uddin, L. Q. (2021). Cognitive and behavioural flexibility: Neural mechanisms and clinical considerations. *Nature Reviews Neuroscience*, 22(3), 167–179. <https://doi.org/10.1038/s41583-021-00428-w>
- Zhao, J., Jia, T., Wang, X., Xiao, Y., & Wu, X. (2022). Risk Factors Associated With Social Media Addiction: An Exploratory Study. *Frontiers in Psychology*, 13, 837766. <https://doi.org/10.3389/fpsyg.2022.837766>