

# Relationship between Social Media Addiction Levels and Academic Procrastination among Undergraduate Students in Malaysia: Grit as the Mediator

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## ABSTRACT

The current study examines grit as a mediator in the relationship between social media addiction and academic procrastination. Social media platforms were used to recruit 88 young adult undergraduates aged 18-26. This study was a non-experimental, correlational mediation design. Participants were asked to complete the Social Media Addiction Scale – Student Form, Academic Procrastination Scale – Short Form, and Short Grit Scale questionnaires. It was hypothesized that grit would be a statistical mediator for the effects of social media addiction on academic procrastination. The hypothesis was supported as results showed a full mediation. The current study suggests that social media addiction predicts lower level of grit and thus higher tendency of academic procrastination. It is advised that institutions encourage undergraduates to cultivate grit in order to break the vicious cycle of social media addiction and academic procrastination.

**Keywords:** social media addiction, academic procrastination, grit

## 1 Introduction

The use of digital technology has increased dramatically over the last two decades. It has increased human exposure to prolonged screen time, which is becoming an increasing concern. According to the latest Digital 2022 Global Overview Report by We Are Social and Hootsuite, the connected globe is growing faster than it was prior to the COVID-19 pandemic, with 4.62 billion active global social media users (Kemp, 2022a). Among these global social media users, Malaysia had 28 million active social media users, which equated to 86.0 percent of the country's population as of January 2021 (Kemp, 2022b). Moreover, it was found that Malaysians spend an average of three hours and one minute every day on social media platforms (Kemp, 2022b). The relevant report results show that social media occupies a significant portion of one's everyday life. As a result of this circumstance, discussions regarding social media addiction have erupted, particularly among young people.

Network social activities have steadily become a new means of interpersonal contact as time progresses. Social media platforms have profoundly influenced the mechanics of everyday life as they have become ingrained in people's lives and have an enormous influence on how individuals think, feel, and behave (Alzahrani & Bach, 2014). Rather than serving as neutral platforms, social media have altered the conditions and laws of social interaction. Social media platforms have evolved into a portal where users may get information (Balakrishnan & Griffiths, 2017) and showcase themselves (Kircaburun et al., 2018).

Young adults, in particular, are at the forefront of social media and are most prone to social media addiction compared to other age groups (Ni et al., 2017). Young adults aged between 18 and 26 are in a transition stage where they develop psychologically, take on new tasks and responsibilities and also adapt to the changes in their social environments (Bonnie et al., 2015). The majority of undergraduates are young

adults in the process of discovering and developing their own identities (Siah et al., 2020). This transitional period can be stressful for students, and it may even influence their psychological well-being and academic achievement (Pereira & Ramos, 2021).

With the rapid growth of social media in recent years, individuals have become increasingly reliant on social media platforms such as Facebook, Instagram, Twitter, and Tiktok for social networking, entertainment, and information acquisition. As frequent users of social media, young adult undergraduates are more likely to get addicted because social media provides users with a high degree of autonomy, opportunities for identity exploration, and a space not subjected to parental control (Reinecke et al., 2018). Besides, young adult undergraduates were more likely to be drawn in by pleasurable experiences and instant gratification provided by social media (Siah et al., 2020), particularly when users attempt to avoid tasks and procrastinate (Thatcher et al., 2008).

Frequent social media use might develop into an addiction and lead to mental and general health issues. There is scientific evidence that the symptoms of social media addiction are similar to those of substance-related addictions (Kuss & Griffiths, 2011). Some symptoms of social media addiction include investing more time than anticipated, failed attempts to cut down usage, a persistent desire, failing to meet essential role obligations and responsibilities at school or home (Kuss & Griffiths, 2011).

Social media has profoundly influenced undergraduates' academics. There is a long-standing and widespread phenomenon among undergraduates: academic procrastination. Academic procrastination is associated with dysfunctional learning outcomes for many students, such as poor academic performance, poor academic work quality, a lack of knowledge, time constraints, dropout, and an extended course of study (Jones & Blankenship, 2021). In this new era, social media use may be one of the most common practices associated with procrastination (Przepiorka et al., 2016). Many students suffer from uncontrollable procrastination in their learning lives, and social media use was one of the leading factors (Rozgonjuk et al., 2018). One recent research by Nwosu et al. (2020), stated that social media use may not induce academic procrastination until it becomes problematic, such as being addicted to social media. Individuals with social media addiction exhibit behaviors such as spending a significant amount of time on social media and having a strong desire to be notified of anything instantly (Şahin, 2018).

Aside that, the excessive social media usage also leads individuals to disrupt daily living obligations and simultaneously serves a detrimental role in performing academic tasks and responsibilities (Üztemur, 2020). With the spike of social media usage on public, especially students, self-regulation has become exceedingly challenging (Sun & Zhang, 2021). A growing corpus of research has documented the correlates of academic procrastination among undergraduate students in a variety of cultural contexts over the decades (Steel, 2007; Zhang et al., 2018; Chen, 2019), resulting in a more nuanced view of the academic procrastination phenomena. The inability to regulate one's behavior is cited in various studies as a primary cause of procrastination (e.g., Steel, 2007; Steel & Klingsieck, 2016).

A personality trait, grit, is defined as passion and perseverance in pursuing long-term goals despite setbacks, failures, and competitive pursuits (Duckworth et al., 2007). Generally, grit consists of two main components: consistency of interest and perseverance of effort (Duckworth & Quinn, 2009). It is believed that individuals' passions are sustained by their constancy of interest, while their perseverance of effort keeps them on the course (Perez, 2015).

Grit has been a subject of growing interest and has received widespread media attention, making its appearance in articles including the New York Times, Forbes Magazine, and over 25.5 million views as a TedTalk special (Agarwal, 2019; Duckworth, 2013; Shulevitz, 2016). Grit is a popular term in parenting and education circles to describe a characteristic of successful people. With the potential benefits of grit, parents and educators wish to cultivate grit in their children or students, as they want their children or students to realize their full potential, achieve their most meaningful goals and be successful in life.

Research on academic procrastination in undergraduates has established its prevalence and association with social media addiction. However, little is known about the role of long-term volitional processes such as grit, which are oriented towards long-term goal attainment that entails self-regulation on

social media addiction and academic procrastination. Furthermore, the negative influence of addictive social media's artificial and virtual instant gratification on cultivating grit, which enhances academic procrastination, is still underexplored.

For this reason, greater inquiry into the correlates of academic procrastination, as well as potential strategies for reducing academic procrastination is viewed as potentially beneficial in light of its prevalence among undergraduate students. In light of these gaps in the existing literature, the current research focuses on the association of social media addiction with academic procrastination and examine the mediating role of grit in the relationship between social media addiction and academic procrastination among Malaysian undergraduate students.

### **1.1 Social Media Addiction and Academic Procrastination**

According to past research, between 75 and 90 percent of undergraduates procrastinate when it comes to academic responsibilities (Steel, 2007). Academic procrastination is the deliberate postponement of a planned course of action despite the negative repercussions related to study or academic area (Steel & Klingsieck, 2016). Academic procrastination was found to have negatively affected students' academic achievement, academic performance, and life satisfaction (Duru & Balkis, 2017; Goroshit & Hen, 2019; Özer & Saçkes, 2011; Vargas, 2017), where it is also associated with stress, anxiety, depression, and personality disorder (Steel & Klingsieck, 2016).

There is evidence that excessive use of social media or commonly named as social media addiction (Cao et al., 2020) can lead to decreased productivity at work (Kuss et al., 2014; Xanidis & Brignell, 2016). Social media addiction, problematic social media usage, and compulsive social media use are all terms used interchangeably to refer to the phenomena of maladaptive social media use; it is characterized by addictive-like symptoms that may occur in conjunction with or in the absence of inadequate self-regulation (Bányai et al., 2017; Marino et al., 2018; Tarafdar et al., 2020).

The appearance of social media features can, in some instances of use, have a significant influence in persuading users to procrastinate, both directly and indirectly (Alblwi et al., 2019). When the social media is used as a source of distraction, users are more likely to put off important tasks (Reinecke et al., 2018). Given the detrimental effects of social media use on academic procrastination, empirical studies show that social media addiction and academic procrastination were substantially linked and positively correlated (Üztemur, 2020). The level of social media addiction is thought to be a predictor of academic procrastination, as it has been suggested that social media use may not promote academic procrastination until one becomes addicted to social media (Nwosu et al., 2020).

### **1.2 Social Media Addiction and Grit**

Although personality traits are relatively stable over time, they change throughout the lifespan (Bleidorn et al., 2019). Like other personality traits, grit could also be influenced by certain social contexts, such as different social media platforms (Siah et al., 2020). Today, social media has been suggested to significantly influence young people's personality development as it influences how they think, feel, and behave (Alzahrani & Bach, 2014).

According to experts in the field of positive psychology, it is stated that there is limited understanding of how contextual circumstances foster or discourage grit (Park et al., 2018). For instance, different social media environment might provide different contextual circumstances that foster or discourage grit. Borghans and colleagues (2008) argued for the further critical assessment of contextual factors that might influence motivational personality traits. Despite not always being linked to proactivity, grit has been described as a motivational source of effortful and persistent conduct (Armstrong et al., 2018; Chaker et al., 2018). As such, grit is likely influenced by environmental circumstances as all other personality traits. As quoted by McGue and colleagues (1993, pp. 105-106), "Environmental influences are most likely to influence behavioral stability when they are regularly and repeatedly encountered."

As life moves online, the social media environments where one spends most of their time are highly influential to personality development. The term "social media environments" refers to online spaces where individuals create and maintain virtual social connections with one another (Wang, 2016). Thus, it is believed that the social media environments would influence individuals in cultivating grit.

Exposure to social media environments such as Instagram, Facebook, and gaming culture has ingrained a pattern of behavior characterized by unrealistically brief feedback mechanisms with dopamine bursts obtained from getting 'likes' on social media or completing a game level (Burhan & Moradzadeh, 2020; Gros et al., 2020). These activities and interactions on social media platforms were found to be rewarding and increase user engagements (Credé et al., 2013). Social media artificially stimulates the brain reward system, leading to behavioral addiction (Köse & Doğan, 2019). As a means of obtaining mental rewards, users tend to become more addicted to social media.

Social media is not only mentally rewarding, but it might also give the user a false sense of accomplishment. Individuals immersed in social media tend to be engrossed in a false sense of accomplishment in the social media environment, ignoring reality and important goals in life. It is believed that those who are addicted to these kinds of short-term incentive-based feedback provided by social media platforms can severely hamper the development and sustainability of grit.

In this age of digitization, social media users are bombarded with updates and notifications, creating an overwhelming distraction from goal attainment and a challenging test of self-control and self-regulation (Sun & Zhang, 2021). When it comes to obtaining gratification from social media, individuals with low autonomy and competence are particularly vulnerable to becoming addicted (Casale & Fioravanti, 2015; Masur et al., 2014). Adversely, much research has discovered that gritty individuals possess characteristics such as greater self-control (Duckworth et al., 2007), self-regulation (Wolters & Hussain, 2015), autonomy, and competence (Jin & Kim, 2017), and are therefore less susceptible to becoming addicted to social media. In such circumstances, social media addiction has been negatively associated with grit (Siah et al., 2020). As long-term goals take precedence over short-term desires (Lang and Carstensen, 2002), it is believed that grit is essential in reducing social media addiction.

### **1.3 Grit and Academic procrastination**

Students usually procrastinate because they have low achievement goals, failure of self-regulation (Rebetez et al., 2015), and poor goal management abilities (Gustavson et al., 2014). It was argued that when it comes to difficult or long-term learning tasks, they have difficulty motivating and encouraging themselves because they are still not fully independent and mature (Zacks & Hen, 2018). Thus, motivational, and volitional psychology has viewed procrastination as a failure in motivation (Zacks & Hen, 2018).

Research found a significant influence of grit, the lengthier volitional processes of goal attainment, on academic procrastination (Jin et al., 2019). According to numerous studies, one of the major contributing factors of procrastination is the failure of self-regulation (e.g., Steel, 2007; Steel & Klingsieck, 2016). As aforementioned, past research has found that gritty individuals possess characteristics such as greater self-regulation (Wolters & Hussain, 2015). Therefore, it is believed that gritty individuals are less prone to procrastinating academic tasks, as grit has also been identified as a protective factor against academic procrastination (Attia & Abdelwahid, 2020).

Findings have shown that grit is an important factor in academic success (Wolters & Hussain, 2015; Lam & Zhou, 2019). Although grit is not explicitly theorized as a catalyst for proactivity, recent findings have identified grit personality traits as a motivator of effortful and persistent action (Armstrong et al., 2018; Chaker et al., 2018). It has also been suggested that grit may help an individual persevere in difficult circumstances via self-efficacy and productivity, as well as regulating one's behavior of intentionally postponing a task (Andangsari et al., 2018; Siah et al., 2019). Indeed, to achieve demanding goals like achieving greater academic success, one must be willing to control urges, work hard, and manage distractions (Ivcevic & Brackett, 2014).

Grit has a beneficial effect in enhancing academic functioning, such as reduced tendency to procrastinate academically, according to studies (Wolters & Hussain, 2015; Crede et al., 2016; Lam & Zhou, 2019; Jin et al., 2019). In fact, grit was found negatively associated with academic procrastination as substantial studies show that grittier individuals exhibit lower levels of procrastination (Wolters & Hussain, 2015; Wyszynska et al., 2017).

#### **1.4 The Mediating Role of Grit**

Academic procrastination and social media addiction among university students has recently become a major societal problem. However, little is known about the relationship between the three variables as no previous studies investigated them together. The current literature suggests a possible triangular relationship with grit serving as a mediator between social media addiction and academic procrastination.

According to the existing literature, it is shown that both social media addiction and grit were associated with academic procrastination (Üztemur, 2020; Wolters & Hussain, 2015; Wyszynska et al., 2017). Studies also show that grit is negatively associated with social media addiction and academic procrastination (Siah et al., 2020; Wolters & Hussain, 2015; Wyszynska et al., 2017). Previous findings have suggested that grit mediates the relationship between social media addiction and academic adjustment (Siah et al., 2020). Similar findings have also shown that grit act as a mediator between internet addiction and academic procrastination (Siah et al., 2019). However, no research has been done on studying the triangular relationship between social media addiction, grit, and academic procrastination.

Based on empirical studies, one of the primary reasons for academic procrastination is a failure of self-regulation (Steel, 2007; Steel & Klingsieck, 2016). According to the temporal motivation theory, undesirable self-regulation tendencies, including self-regulation traits, may affect the nature of the relationship between social context such as social media and procrastination (Steel, 2007). Grit entails self-regulation, which is the ability to make decisions and engage in activities that ultimately lead to achievements.

The socioemotional selectivity theory (Carstensen et al., 1999) indicated that time perception influences goal selection and pursuit. As time is perceived as expensive and optimistic, long-term goals take precedence over short-term desires (Lang and Carstensen, 2002). According to Zimbardo and Boyd (1999), human functioning is fundamentally shaped by our perspectives on the past, the present, and the future. Indeed, educational psychology has also emphasized the need for a future temporal perspective regarding desirable educational outcomes, such as academic engagement (Horstmanshof & Zimitat, 2007). Putting a strong emphasis on future time orientation and taking a long-term stance is consistent with the character of grit (Jin et al., 2019).

Based on the time perspective theory, an individual's time perception influences their cognitions, behaviors, and emotions (Zimbardo & Boyd, 1999). Pointedly, individuals that hold past negativism (negative attitudes and judgments of past events) and present fatalism (focused on the present, believing one cannot alter the future) predicted social media addiction positively, where individuals that hold future time perspective (have goals and focused on future planning) predicted social media addiction negatively (Przepiorka & Blachnio, 2016). It was argued that individuals with a future time perspective are critical in the self-regulation of social interactions as well as the subjective experience linked (Lang & Carstensen, 2002).

It is believed that individuals who possess the grit personality trait hold on to the future time perspective are less susceptible to getting addicted to social media and less likely to procrastinate academically (Lang & Carstensen, 2002; Przepiorka & Blachnio, 2016; Zimbardo & Boyd, 1999). Due to the rapid changes in physical, cognitive, and social conditions globally, contextualists believe that personality is more likely to play the role of a mediator (Caspi et al., 2005; Chaplin, 2007; Specht et al., 2011). Grit was conceptualized as a drive toward a goal, which captures self-regulation's dynamic, motivational, and commitment aspects (Duckworth & Gross, 2014; Vazsonyi et al., 2019). Therefore, grit as a self-regulation

trait (Jin et al., 2019) is thought to be more suitable in this study and is proposed as the mediator in the current study.

### **1.5 Theoretical Implications**

The proposed study may contribute to the existing literature in understanding the relationship between social media addiction and academic procrastination by taking personality trait grit as the possible explanatory mechanism as suggested by past research (Siah et al., 2019; Siah et al., 2020). The proposed study may give guidance to the relationship between social media addiction and academic procrastination, adopting the fundamental premise that addiction levels of short-term incentive-based feedback may significantly hinder the development of grit and thus lead one to procrastinate tasks on hand. A new theoretical framework might be provided to future researchers who are interested in the field of positive psychology.

### **1.6 Practical Implications**

The current study suggests that grit personality is a plausible mechanism for understanding the relationship between social media addiction and academic procrastination. The suggested study may benefit students, educators, and college and university personnel. While the emphasis of this research is on social media addiction, college administrators may be able to influence grit development by encouraging students to be conscientious, establish attainable goals, and persevere in the face of adversity, such as resisting the temptation of social media. For instance, institutions could hold educational workshops to educate students on realistic goal setting, cultivating grit, and positive self-regulation strategies.

Students who have experienced some level of social media addiction and academic procrastination, in particular, may lack the critical problem-solving abilities required for task management. Thus, it is suggested that direct education regarding goal setting and problem-solving may provide the additional benefit of helping students with social media addiction issues to experience some self-efficacy, increase confidence in their ability to deal with problems, and lower students' academic procrastination rates. For example, instilling a mindset of building good habits can help students develop greater grit.

### **1.7 Description of Study**

Building on the notable gaps in the literature, the current study provides a better theoretical understanding of gritty motivating driving principles in the early stages. It links newer conceptualizations of how motivational factors like grit work together with established theories like socioemotional selectivity theory and time perspective theory. After establishing a theoretical understanding among the three variables, the current research aims to investigate the relationship between social media addiction and academic procrastination, with grit as the mediator. The current research question is, "Are individuals less susceptible to academic procrastination after reducing their level of social media addiction through developing grit?"

To answer the research question, the participants recruited in the current study were asked to fill out questionnaires to measure their social media addiction levels, academic procrastination rate, and grit levels. Based on the literature building on the theories mentioned, there were four hypotheses. The first hypothesis was that social media addiction is positively associated with academic procrastination. The second hypothesis was that social media addiction is negatively associated with grit. The third hypothesis was that grit is negatively associated with academic procrastination. The fourth hypothesis was that grit is a statistical mediator for the effects of social media addiction on academic procrastination.

## **2 Methodology**

### **2.1 Design**

The current study had a non-experimental correlational research design, where the Predictor was social media addiction, the Outcome was academic procrastination, and the Mediator was grit. Social media addiction is operationally defined as the total score across the 29 items on the Social Media Addiction Scale

– Student Form (Şahin, 2018), measured on a 5-point Likert scale, whereby a higher total score indicates higher levels of social media addiction. Academic procrastination is operationally defined as the total score across the five items on the Academic Procrastination Scale – Short Form (Yockey, 2016), measured on a 5-point Likert scale, whereby a higher total score indicates a greater tendency to procrastinate on academic tasks. Grit is operationally defined as the average score across the eight items on the Short Grit Scale (Duckworth & Quinn, 2009), measured on a 5-point Likert scale, whereby a higher average score indicates a grittier personality.

## 2.2 Participants

Ninety-five undergraduate students across Malaysia were recruited for this research; however, only 88 were included in the final sample as seven did not meet the inclusion requirements of being between 18 and 26 and currently an undergraduate in Malaysia. The inclusion criteria are assessed by the age stated by participants in the demographic form online, thus there may be a possibility of fake data entry by an ineligible candidate. The minimum sample size was calculated using the G\*Power 3.1 software (Faul et al., 2009) with .15 effect size, .05 probability of alpha error, and .80 power value as suggested from past research that studied grit as the mediator between the relationship of social media addiction and academic adjustment (Siah et al., 2020). Results from the G\*Power 3.1 software indicated that a minimum of 68 participants were required for this study. Hence, the current study met the minimum power threshold with the sample recruited. Participants ( $n=88$ ) were aged between 19 and 24 years old ( $M = 21.6$ ,  $SD = 0.89$ ).

Participants volunteered to participate in the study after seeing a research recruitment post on social media platforms. Participants were recruited using convenience sampling and snowball sampling. The researcher approached individuals online through the researcher's personal social media accounts, including Facebook Feed, Instagram Bio, Story, Post, and asked participants to spread the research recruitment post further to individuals they know that meet the inclusion criteria. Participants between the ages of 18 and 26 who were currently enrolled as undergraduates in Malaysia that met the inclusion criteria were recruited. There were no other criteria for inclusion or exclusion in this study.

## 2.3 Procedure

All of the materials were compiled into Google Forms, which prompted participants to declare their consent after reading the Informed Consent form. Following that, participants were asked to complete the demographic questionnaire, which included a question asking if they were currently enrolled as undergraduate students in Malaysia. Participants then completed the Social Media Addiction Scale – Student Form (Şahin, 2018), followed by the Academic Procrastination Scale – Short Form (Yockey, 2016), and the Short Grit Scale (Duckworth & Quinn, 2009). Participants then submitted their responses via Google Forms by clicking "Submit". Participants would have taken no more than 15 minutes to complete the questionnaire.

## 3 Results

The focus of this research was to test if grit could mediate the relationship between social media addiction and academic procrastination. The Social Media Addiction Scale – Student Form score for each participant was determined by summing the ratings across all items. The Social Media Addiction Scale – Student Form comprised of 29 items, each having a 5-point Likert scale for responses. A higher total score indicates higher levels of social media addiction. Then, the total score for each participant on the Social Media Addiction Scale – Student Form was correlated with each participant's tendency to procrastinate on academic tasks and their grit personality trait.

The Academic Procrastination Scale - Short Form was used to measure the tendency to procrastinate on academic tasks, where the score for each participant was computed by summing the ratings across all items. The Academic Procrastination Scale – Short Form had five items, each with a 5-point

Likert scale for responses. A higher total score indicates a greater tendency to procrastinate on academic tasks.

The Short Grit Scale was used to measure their grit personality trait, where the score for each participant was determined by averaging the ratings across all items, after reverse-scoring. The Short Grit Scale comprised of eight items, each having a 5-point Likert scale for responses. Items 1, 3, 5, and 6 were reverse-scored. A higher average score indicates a grittier personality. The collected data were imported into the IBM Statistical Package for Social Science (SPSS) statistical software (IBM Corp., 2019). The data that was analyzed by SPSS is presented below.

**Table 1: Descriptive Statistics and Normality Scores for Social Media Addiction, Academic Procrastination and Grit**

Scale	Mean	SE	Skewness	Kurtosis	W	df	Sig.
Social Media Addiction	81.95	1.75	.12	1.66	.98	88	.172
Academic Procrastination	13.95	.54	.17	-.80	.97	88	.039
Grit	3.15	.55	.28	-.25	.98	88	.215

In Table 1, the skewness and kurtosis for social media addiction, academic procrastination, and grit are considered acceptable as it is within the recommended range of  $\pm 2$  by the Field (2013). Shapiro-Wilk test of normality shows that the assumption of normality was met for both social media addiction (*Shapiro-Wilk*(88) = .98,  $p = .172$ ) and grit (*Shapiro-Wilk*(88) = .98,  $p = .215$ ). However, the assumption of normality was not met for academic procrastination (*Shapiro-Wilk*(88) = .97,  $p = .039$ ). Thus, the overall assumption of normality has been violated. However, the PROCESS Macro results can still be interpreted as it is a robust test.

**Table 2: Multicollinearity Test for Social Media Addiction and Academic Procrastination**

Model	Collinearity Statistics	
	Tolerance	VIF
Social Media Addiction	.93	1.08
Grit	.93	1.08

Note. Dependent Variable = Academic Procrastination.

Table 2 shows that for social media addiction and grit there was no multicollinearity, as the tolerance value for both variables was greater than 0.2 and VIF was less than 10 (Field, 2013).

**Table 3: Bivariate Correlation of Social Media Addiction, Academic Procrastination and Grit**

	1	2	3
1. Social Media Addiction	-	.23*	-.27*
2. Academic Procrastination	.23*	-	-.47**
3. Grit	-.27*	-.47**	-

Note. \* = Correlation is significant at the 0.05 level (2-tailed). \*\* = Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that there was a significant positive correlation between social media addiction and academic procrastination ( $r(88) = .23, p = .034$ ). This indicates that participants who score higher in social media addiction are more likely to score higher in academic procrastination. There is a significant negative correlation between social media addiction and grit ( $r(88) = -.27, p = .011$ ), indicating that participants who score higher in social media addiction are more likely to score lower in grit. There is a significant negative correlation between academic procrastination and grit ( $r(88) = -.47, p < .001$ ), indicating that participants who score higher in academic procrastination are more likely to score lower in grit.



**Table 4:** *The Total Effect Model of X (Social Media Addiction) on Y (Academic Procrastination)*

Model Summary	R	R <sup>2</sup>	F	df1	df2	p
	.23	.05	5.74	1.00	86.00	.019
Model	coeff	t	p	LLCI	ULCI	
constant	8.21	3.27	.002	3.22	13.20	
Social Media Addiction	.07	2.40	.019	.01	.13	

Note. Outcome variable = Academic Procrastination

Table 4 shows that social media addiction as a model significantly predicts academic procrastination,  $F(1,86) = 5.74, p = .019, R^2 = .05$ , explaining 5.1% of the variance in academic procrastination. Social media addiction significantly predicts academic procrastination,  $b = 0.07, 95\% \text{ CI } [0.01, 0.13], t(86) = 2.40, p = .019$ . Hence, the first hypothesis that there would be a significant positive relationship between social media addiction and academic procrastination is supported.

**Table 5:** *Direct effect of X (Social Media Addiction) on M (Grit)*

Model Summary	R	R <sup>2</sup>	F	df1	df2	p
	.27	.07	4.34	1.00	86.00	.040
Model	Coeff	t	p	LLCI	ULCI	
constant	3.85	10.73	.000	3.14	4.57	
Social Media Addiction	-.01	-2.08	.040	-.02	.00	

Note. Outcome variable = Grit

Table 5 shows that the model of social media addiction significantly predicts grit,  $F(1, 86) = 4.34, p = .040, R^2 = .07$ , explaining 7.2% of the variance in grit. Social media addiction significantly predicts grit,  $b = -0.01, 95\% \text{ CI } [-0.02, -0.00], t(86) = -2.08, p = .040$ . Hence, the second hypothesis that there would be a significant negative relationship between social media addiction and grit is supported.

**Table 6:** *Direct effect of M (Grit) on Y (Academic Procrastination), Controlling for X (Social Media Addiction) and Direct Effect of X (Social Media Addiction) on Y (Academic Procrastination), Controlling for M (Grit)*

Model Summary	R	R <sup>2</sup>	F	df1	df2	p
	.48	.23	10.77	2.00	85.00	.000
Model	Coeff	t	p	LLCI	ULCI	
constant	24.91	4.21	.000	13.15	36.68	
Social Media Addiction	.03	.90	.369	-.04	.11	
Grit	-4.34	-3.57	.001	-6.75	-1.93	

Note. Outcome variable = Academic Procrastination

Table 6 shows that the overall model of social media addiction and grit significantly predicts academic procrastination,  $F(2,85) = 10.77, p < .001, R^2 = .23$ , explaining 23.3% of the variance in academic procrastination. Grit significantly predicts academic procrastination when controlling for social media addiction,  $b = -4.34, 95\% \text{ CI } [-6.75, -1.93], t(85) = -3.57, p = .001$ . Hence, the third hypothesis that there would be a significant negative relationship between grit and academic procrastination is supported. Notably, social media addiction did not significantly predicts academic procrastination when controlling for grit,  $b = 0.03, 95\% \text{ CI } [-0.04, 0.11], t(85) = .90, p = .369$ .

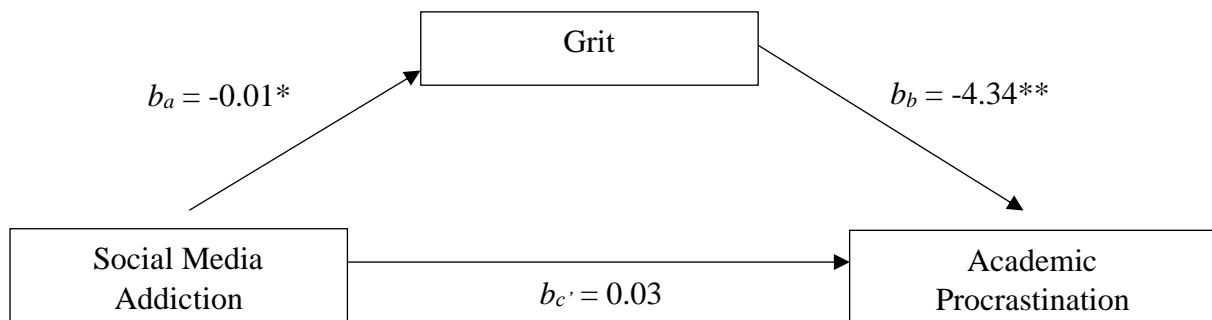
**Table 7:** Indirect Effect of X (Social Media Addiction) on Y (Academic Procrastination) via M (Grit)

	Effect	BootSE	BootLCI	BootULCI
Grit	.04	.02	.01	.08

Table 7 shows that the indirect effect of social media addiction on academic procrastination through grit was significant ( $b = 0.04$ ), as the bias-corrected bootstrapped confidence interval does not contain zero, BCa CI [0.01, 0.08]. Social media addiction is no longer a significant predictor of academic procrastination while controlling for grit ( $b = 0.03$ ,  $p = .369$ ), indicating that grit fully mediated the relationship between social media addiction and academic procrastination.

Therefore, a lower level of social media addiction predicts a higher level of grit ( $b_a = -0.01$ ), which subsequently predicts lower academic procrastination ( $b_b = -4.34$ ). A bias-corrected bootstrap confidence interval for the indirect effect ( $b_{ab} = 0.04$ ) based on 5000 bootstrap samples did not contain zero, BCa CI [0.01, 0.08]. Hence, the indirect effect of social media addiction on academic procrastination through grit is significant, indicating that mediation likely occurred.

As social media addiction is not a significant predictor of academic procrastination while controlling for grit ( $b_{c'} = 0.03$ ,  $p = .369$ ), the relationship between social media addiction and academic procrastination is fully mediated by grit. As a measure of the effect size for the mediation model, the completely standardized indirect effect is reported, whereby  $ab_{cs} = 0.12$ . Hence, the hypothesis that there would be an indirect effect between social media addiction and academic procrastination via grit is supported. The conceptual mediation diagram between social media addiction, academic procrastination, and grit are as summarized in the figure 1 below.



Notes. Levels of significance: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Figure 1:** Grit as a Full Mediator in the Relationship Between Social Media Addiction and Academic Procrastination

#### 4 Discussion

Similar to previous research (Üztemur, 2020), the current study demonstrates a positive relationship between undergraduates' social media addiction and academic procrastination tendencies. Results align with past research that has pointed out that social media addiction symptoms include investing more time than anticipated neglecting to meet vital role tasks and responsibilities at school or home (Kuss & Griffiths, 2011). Likewise, social media addiction leads individuals to neglect their everyday commitments while also interfering with their ability to execute academic work and responsibilities (Üztemur, 2020). Especially when the social media features were built, in some instances of use, could, directly and indirectly, have a major impact on convincing users to procrastinate (Alblwi et al., 2019).

As for the relationship between social media addiction with grit, in line with previous study (Siah et al., 2020), the current study results have shown that social media addiction was negatively linked with grit. Just as other personality traits, social media platforms were found to be influential towards the

development of grit (Siah et al., 2020). Individuals who are more likely to get addicted to social media have lower self-control, self-regulation, autonomy, and competence (Casale & Fioravanti, 2015; Masur et al., 2014; Sun & Zhang, 2021). Adversely, research has found that gritty individuals possessed higher self-control (Duckworth et al., 2007), self-regulation (Wolters & Hussain, 2015), autonomy, and competence (Jim & Kim, 2017). Thus, gritty individuals are less likely to get addicted to social media. This may be due to the reason that grit serves as a motivational source of effortful and persistent conduct (Armstrong et al., 2018, Chaker et al., 2018) for individuals to pursue their long-term goals, as long-term goals take precedence over short-term desires (Lang and Carstensen, 2002).

The results on the relationship between grit and academic procrastination showed a negative correlation, in accordance with the study that proposed grit as a protective factor against academic procrastination (Attia & Abdelwahid, 2020). Conforming to past research (Wolters & Hussain, 2015; Wyszynska et al., 2017), the current study found that grittier individuals do exhibit lower levels of procrastination. As a consequence of grit as a motivator of effortful and persistent behaviors (Armstrong et al., 2018, Chaker et al., 2018), grit was proposed to aid in individual perseverance in difficult circumstances via self-efficacy and productivity, where individuals who possess grit have higher self-regulation and reduced tendency of intentionally postponing tasks on hand (Andangsari et al., 2018; Siah et al., 2019).

Another possible explanation for the current research results is that the data of the current research was collected during the COVID-19 pandemic lockdown period in Malaysia. Life has changed dramatically since the commencement of the COVID-19 pandemic. Research done during the COVID-19 pandemic investigating addictive behaviors among university students in Malaysia found that time spent on social media had increased, and there was a greater procrastinating tendency during the lockdown period (Ting & Essau, 2021). Anxiety, acute stress, posttraumatic stress symptoms, depression, suicidality, and addictive behaviors were projected to surface when the COVID-19 outbreak disrupted normal routines (Polizzi et al., 2020).

As a result of continuous indoor isolation, there was an elevated risk of acquiring undesirable behavior, such as spending excessive time on social media platforms (Lippi et al., 2020). Due to the rapid digital transformation of information sharing, social media users are often bombarded with information (Bawden & Robinson, 2009). The experience of overwhelm can lead to a loss of control over a situation, especially for persons who are focused on being in touch (constant partial attention), distracted by overt mental stimuli, and being disruptive while multitasking where one experiences cognitive overload (Ting & Essau, 2021). Thus, in such circumstances, social media were more influential towards developing grit as one was more prone to get addicted to it.

The findings of this study suggest that the relationship between social media addiction and academic procrastination is mediated by grit. That is to say, undergraduates who exhibit higher levels of social media addiction tend to have lower grit levels and higher academic procrastination rates; those who had lower levels of social media addiction tend to have higher grit levels and lower academic procrastination rates.

In accordance with the socioemotional selectivity theory (Carstensen et al., 1999), time perspective theory (Zimbardo and Boyd, 1999) and related studies (E.g., Jin et al., 2019; Lang & Carstensen, 2002; Przepiorka & Blachnio, 2016; Steel & Klingsieck, 2016) that suggest individuals who possess the grit personality trait hold on to the future time perspective are less susceptible to getting addicted to social media and less likely to procrastinate academically. The current study findings suggest that gritty individuals are less likely to get addicted to social media and less inclined to procrastinate on academic tasks for the sake of social media.

## 5 Conclusions

The current study aims to investigate the mediating role of grit in the relationship between social media addiction and academic procrastination among young adult undergraduates in Malaysia. The first aim

of the current study is to identify the connections between social media addiction, academic procrastination, and grit. Furthermore, the second aim is to investigate if grit is a mediator for the effects of social media addiction on academic procrastination.

According to the findings, social media addiction and grit are significant predictors of academic procrastination. The findings of the current study suggest that undergraduates who have lower levels of social media addiction predict lower academic procrastination tendency, which supports the first hypothesis, which was that social media addiction would be positively correlated with academic procrastination. The second hypothesis that social media addiction would negatively associate with grit was also supported. Results indicate that undergraduates with lower levels of social media addiction were also found to predict higher grit levels.

Higher levels of grit predict lower academic procrastination, supporting the third hypothesis, which was that grit would negatively correlate with academic procrastination. According to the findings pertaining to the second aim of the current study, the findings have implied that grit mediates the relationship between social media addiction and academic procrastination. Supporting the last hypothesis that grit would be a statistical mediator for the effects of social media addiction on academic procrastination.

The findings showed that social media addiction positively predicted academic procrastination, social media addiction negatively predicted grit, and grit negatively predicted academic procrastination. A mediation analysis demonstrated that the effect of social media addiction and academic procrastination was fully mediated by grit. Indicating that higher levels of social media addiction predict a lower level of grit and a higher tendency of academic procrastination. As grit has been mainly focused on the academic field, it is suggested that further research into grit at the workplace can be carried out in the near future.

## **6 Declarations**

### **6.1 Study Limitation**

One of the limitations of the current study the inability to establish a causal relationship between the variables. The correlational relationship between the three variables are found to be significant. However, due to its non-experimental correlational mediation design, no conclusion can be drawn regarding the causal ordering of the examined associations. Future studies can consider experimental and longitudinal designs to establish causal relationships that will likely provide additional insights. Over the course of a longitudinal study, researchers examine the same individuals on multiple occasions in order to detect changes that may have occurred over time which might provide more accurate findings.

The current study proposed that social media addiction predicts academic procrastination. However, academic procrastination also influences individual social media addiction levels. It was found that when users seek to avoid tasks and procrastinate, they are more likely to be drawn in by pleasurable experiences and instant gratification provided by social media (Siah et al., 2020; Thatcher et al., 2008). That is to say, it is possible that the relationship between social media addiction and academic procrastination is bidirectional. Future researchers could examine the possible bidirectional association between social media addiction and academic procrastination to better understand the nature of the relationship between the two variables.

Another limitation of the current study is that because all data were based on self-reports from the participants and the data was collected via an online survey, and there is a possibility that there is some degree of shared method variance, which could have artificially inflated the observed associations in the current study. As a result, it is recommended that future researchers could employ more consideration in terms of the research complexity and the design of the questionnaire.

### **6.2 Ethical Approval**

This study is approved by the Ethnic Review Board of HELP University, Kuala Lumpur, Malaysia. Approval code: E202111/021.

### 6.3 Informed Consent

Informed consent was obtained from the participants in the introductory part of the questionnaire. No respondent was forced to participate in the study.

### 6.4 Competing Interests

The authors declare that no conflict of interest exist in this study.

### 6.5 Publisher's Note

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### References

- Agarwal, P. (2019, February 17). Here Is Why Grit Is So Important For Entrepreneurs. *Forbes*.
- Alblwi, A., Stefanidis, A., Phalp, K., & Ali, R. (2019). Procrastination on social networks: types and triggers. 2019 6th International Conference on Behavioral, Economic and Socio-Cultural Computing (BESC).
- Alzahrani, S., & Bach, C. (2014). Impact of social media on personality development. *International Journal of Innovation and Scientific Research*, 3(2), 111-116.
- Andangsari, E. W., Djunaidi, A., Fitriana, E., & Harding, D. (2018). Loneliness and problematic internet use (PIU) as causes of academic procrastination. *International Journal of Social Science Studies*, 6(2), 113. <https://doi.org/10.11114/ijsss.v6i2.2834>
- Armstrong, A., Van der Lingen, E., Lourens, R., & Chen, J. Y. (2018). Towards a new model of grit within a cognitive-affective framework of self-regulation. *South African Journal of Business Management*, 49(1), 1-16. <https://doi.org/10.4102/sajbm.v49i1.13>
- Attia, N. M., & Abdelwahid, A. E. (2020). Grit, self-regulation and self-efficacy as predictors of academic procrastination among nursing students. *International Journal of Nursing Education*, 12(1), 130-135. <https://doi.org/10.5958/0974-9357.2020.00029.X>
- Balakrishnan, J., & Griffiths, M. D. (2017). Social media addiction: What is the role of content in YouTube? *Journal of Behavioral Addictions*, 6(3), 364-377. <https://doi.org/10.1556/2006.6.2017.058>
- 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), 10-14. <https://doi.org/10.1371/journal.pone.0169839>
- Bawden, D., & Robinson, L. (2009). The dark side of information: Overload, anxiety and other paradoxes and pathologies. *Journal of Information Science*, 35(2), 180-191. <https://doi.org/10.1177/0165551508095781>
- Bleidorn, W., Hill, P. L., Back, M. D., Denissen, J. J., Henneke, M., Hopwood, C. J., Jokela, M., Kandler, C., Lucas, R. E., Luhmann, M., Orth, U., Wagner, J., Wrzus, C., Zimmermann, J., & Roberts, B. (2019). Connect failed: User 942227\_alan already has more than 'max\_user\_connections' active connections. *American Psychologist*, 74(9), 1056-1067. <https://doi.org/10.1037/amp0000503>
- Borghans, L., Duckworth, A. L., Heckman, J. J., & Ter Weel, B. (2008). The economics and psychology of personality traits. *Journal of Human Resources*, 43, 972-1059. <https://doi.org/10.26481/umaror.2008001>
- Burhan, R., & Moradzadeh, J. (2020). Neurotransmitter dopamine (DA) and its role in the development of social media addiction. *Journal of Neurology & Neurophysiology*, 11(7), 1-2.
- Cao, X., Gong, M., Yu, L., & Dai, B. (2020). Exploring the mechanism of social media addiction: An empirical study from WeChat users. *Internet Research*, 30(4), 1305-1328. <https://doi.org/10.1108/intr-08-2019-0347>
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54(3), 165-181. <https://doi.org/10.1037/0003-066x.54.3.165>
- Casale, S., & Fioravanti, G. (2015). Satisfying needs through social networking sites: A pathway towards problematic internet use for socially anxious people? *Addictive Behaviors Reports*, 1, 34-39. <https://doi.org/10.1016/j.abrep.2015.03.008>
- Chaker, N. N., Zablah, A. R., & Noble, C. H. (2018). More than one way to persist: Unpacking the nature of salesperson persistence to understand its effects on performance. *Industrial Marketing Management*, 71, 171-188. <https://doi.org/10.1016/j.indmarman.2018.01.002>
- Chen, B. (2019). Academic procrastination and bedtime among Chinese undergraduates: The indirect and moderating effects of sensation seeking and goal disengagement. *Current Psychology*, 38(1), 187-193. <https://doi.org/10.1007/s12144-017-9605-9>
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ADO about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492-511. <https://doi.org/10.1037/pspp0000102>
- Duckworth, A. L. (2013). Grit: The power of passion and perseverance [Video]. TED: Ideas worth spreading.
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the short grit scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166-174. <https://doi.org/10.1080/00223890802634290>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087-1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Duckworth, A., & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*, 23(5), 319-325. <https://doi.org/10.1177/0963721414541462>

- Duru, E., & Balkis, M. (2017). Procrastination, self-esteem, academic performance, and well-being: A moderated mediation model. *International Journal of Educational Psychology*, 6(2), 97. <https://doi.org/10.17583/ijep.2017.2584>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. SAGE.
- Goroshit, M., & Hen, M. (2019). Academic procrastination and academic performance: Do learning disabilities matter? *Current Psychology*, 40(5), 2490-2498. <https://doi.org/10.1007/s12144-019-00183-3>
- Gros, L., Debue, N., Lete, J., & Van de Leemput, C. (2020). Video game addiction and emotional states: Possible confusion between pleasure and happiness? *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.02894>
- Gustavson, D. E., Miyake, A., Hewitt, J. K., & Friedman, N. P. (2014). Genetic relations among procrastination, impulsivity, and goal-management ability. *Psychological Science*, 25(6), 1178-1188. <https://doi.org/10.1177/0956797614526260>
- Horstmanshof, L., & Zimitat, C. (2007). Future time orientation predicts academic engagement among first-year university students. *British Journal of Educational Psychology*, 77(3), 703-718. <https://doi.org/10.1348/000709906x160778>
- IBM Corp. (2019). *IBM SPSS Statistics for Windows, Version 26.0*. Armonk, NY: IBM Corp. [Computer software].
- Ivcevic, Z., & Brackett, M. (2014). Predicting school success: Comparing conscientiousness, grit, and emotion regulation ability. *Journal of Research in Personality*, 52, 29-36. <https://doi.org/10.1016/j.jrp.2014.06.005>
- Jin, B., & Kim, J. (2017). Grit, basic needs satisfaction, and subjective well-being. *Journal of Individual Differences*, 38(1), 29-35. <https://doi.org/10.1027/1614-0001/a000219>
- Jin, H., Wang, W., & Lan, X. (2019). Peer attachment and academic procrastination in Chinese college students: A moderated mediation model of future time perspective and grit. *Frontiers in Psychology*, 10. <https://doi.org/10.3389/fpsyg.2019.02645>
- Jones, I. S., & Blankenship, D. (2021). Year two: Effect of procrastination on academic performance of undergraduate online students. *Research in Higher Education Journal*, 39.
- Kemp, S. (2022, February 15). *Digital 2022: Malaysia*. DataReportal – Global Digital Insights.
- Kemp, S. (2022, January 26). *Digital 2022: Another year of bumper growth*. We Are Social UK.
- Kircaburun, K., Alhabash, S., Tosuntaş, Ş. B., & Griffiths, M. D. (2018). Uses and gratifications of problematic social media use among University students: A simultaneous examination of the Big Five of personality traits, social media platforms, and social media use motives. *International Journal of Mental Health and Addiction*, 18(3), 525-547. <https://doi.org/10.1007/s11469-018-9940-6>
- Köse, Ö. B., & Doğan, A. (2019). The relationship between social media addiction and self-esteem among Turkish University students. *Addicta: The Turkish Journal on Addictions*, 6(1), 175-190. <https://doi.org/10.15805/addicta.2019.6.1.0036>
- 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(9), 3528-3552. <https://doi.org/10.3390/ijerph8093528>
- Kuss, D., Griffiths, M., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, 20(25), 4026-4052. <https://doi.org/10.2174/13816128113199990617>
- Lam, K. K., & Zhou, M. (2019). Examining the relationship between grit and academic achievement within K-12 and higher education: A systematic review. *Psychology in the Schools*, 56(10), 1654-1686. <https://doi.org/10.1002/pits.22302>
- Lang, F. R., & Carstensen, L. L. (2002). Time counts: Future time perspective, goals, and social relationships. *Psychology and Aging*, 17(1), 125-139. <https://doi.org/10.1037/0882-7974.17.1.125>
- Lippi, G., Henry, B. M., Bovo, C., & Sanchis-Gomar, F. (2020). Health risks and potential remedies during prolonged lockdowns for coronavirus disease 2019 (COVID-19). *Diagnosis*, 7(2), 85-90. <https://doi.org/10.1515/dx-2020-0041>
- Marino, C., Gini, G., Vieno, A., & Spada, M. M. (2018). The associations between problematic Facebook use, psychological distress and well-being among adolescents and young adults: A systematic review and meta-analysis. *Journal of Affective Disorders*, 226, 274-281. <https://doi.org/10.1016/j.jad.2017.10.007>
- Masur, P. K., Reinecke, L., Ziegele, M., & Quiring, O. (2014). The interplay of intrinsic need satisfaction and Facebook specific motives in explaining addictive behavior on Facebook. *Computers in Human Behavior*, 39, 376-386. <https://doi.org/10.1016/j.chb.2014.05.047>
- McGue, M., Bacon, S., & Lykken, D. T. (1993). Personality stability and change in early adulthood: A behavioral genetic analysis. *Developmental Psychology*, 29(1), 96-109. <https://doi.org/10.1037/0012-1649.29.1.96>
- Ni, X., Qian, Y., & Wang, Y. (2017). Factors affecting pathological internet use among Chinese University students. *Social Behavior and Personality: an international journal*, 45(7), 1057-1068. <https://doi.org/10.2224/sbp.6039>
- Nwosu, K. C., Ikwuka, O. I., Ugorji, O. M., & Unachukwu, G. C. (2020). Does the association of social media use with problematic internet behaviours predict undergraduate students academic procrastination? *Canadian Journal of Learning and Technology / La revue canadienne de l'apprentissage et de la technologie*, 46(1). <https://doi.org/10.21432/cjlt27890>
- Özer, B. U., & Saçkes, M. (2011). International Conference on Education and educational psychology (ICEEPSY 2010) effects of academic procrastination on college students' life satisfaction. *Procedia - Social and Behavioral Sciences*, 12, 512-519. <https://doi.org/10.1016/j.sbspro.2011.02.063>
- Park, D., Yu, A., Baelen, R. N., Tsukayama, E., & Duckworth, A. L. (2018). Fostering grit: Perceived school goal-structure predicts growth in grit and grades. *Contemporary Educational Psychology*, 55, 120-128. <https://doi.org/10.1016/j.cedpsych.2018.09.007>
- Pereira, L. D., & Ramos, F. P. (2021). Academic procrastination in university students: A systematic review of the literature. *Psicologia Escolar e Educacional*, 25. <https://doi.org/10.1590/2175-35392021223504>
- Perez, M. (2015). Obtaining academic success: Nurturing grit in students. *Journal of Interpersonal Relations, Intergroup Relations and Identity*, 8, 53-63.
- Polizzi, C., Lynn, S. J., & Perry, A. (2020). Stress and coping in the time of COVID-19: Pathways to resilience and recovery. *Clinical Neuropsychiatry*, 17(2), 59-62. <https://doi.org/10.36131/CN20200204>
- Przepiorka, A., & Blachnio, A. (2016). Time perspective in Internet and Facebook addiction. *Computers in Human Behavior*, 60, 13-18. <https://doi.org/10.1016/j.chb.2016.02.045>
- Rebetz, M. M., Rochat, L., & Van der Linden, M. (2015). Cognitive, emotional, and motivational factors related to procrastination: A cluster analytic approach. *Personality and Individual Differences*, 76, 1-6. <https://doi.org/10.1016/j.paid.2014.11.044>

- Reinecke, L., Meier, A., Beutel, M. E., Schemer, C., Stark, B., Wölfling, K., & Müller, K. W. (2018). The relationship between trait procrastination, internet use, and psychological functioning: Results from a community sample of German adolescents. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00913>
- Shulevitz, J. (2016, May 4). 'Grit,' by Angela Duckworth (Published 2016). *The New York Times - Breaking News, US News, World News and Videos*. <https://www.nytimes.com/2016/05/08/books/review/grit-by-angela-duckworth.html>
- Siah, P. C., Brian Siew, Y., & Sai, Z. Y. (2020). Social media addiction and academic adjustment: The mediating or moderating effect of grit personality. *International Journal of Psychology and Educational Studies*, 7(3), 143-151. <https://doi.org/10.17220/ijpes.2020.03.013>
- Siah, P. C., Ng, A. H., Dharmaraj, E., Carmen, F., Tan, S. M., & Wider, W. (2019). Grit personality as a mediator or moderator for the effects of internet addiction on procrastination. *Journal of Institutional Research South East Asia*, 17(2), 18-32.
- Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133(1), 65-94. <https://doi.org/10.1037/0033-2909.133.1.65>
- Steel, P., & Klingsieck, K. B. (2016). Academic procrastination: Psychological antecedents revisited. *Australian Psychologist*, 51(1), 36-46. <https://doi.org/10.1111/ap.12173>
- Sun, Y., & Zhang, Y. (2021). A review of theories and models applied in studies of social media addiction and implications for future research. *Addictive Behaviors*, 114, 106699. <https://doi.org/10.1016/j.addbeh.2020.106699>
- Tarafdar, M., Maier, C., Laumer, S., & Weitzel, T. (2020). Explaining the link between technostress and technology addiction for social networking sites: A study of distraction as a coping behavior. *Information Systems Journal*, 30(1), 96-124. <https://doi.org/10.1111/isj.12253>
- Thatcher, A., Wretschko, G., & Fridjhon, P. (2008). Online flow experiences, problematic internet use and internet procrastination. *Computers in Human Behavior*, 24(5), 2236-2254. <https://doi.org/10.1016/j.chb.2007.10.008>
- Ting, C. H., & Essau, C. (2021). Addictive behaviours among university students in Malaysia during COVID-19 pandemic. *Addictive Behaviors Reports*, 14, 100375. <https://doi.org/10.1016/j.abrep.2021.100375>
- Üztemur, S. (2020). The mediating role of academic procrastination behaviours in the relationship between pre-service social studies teachers' social media addiction and academic success. *International Journal of Education Technology and Scientific Researches*, 5(11), 63-101. <https://doi.org/10.35826/ijetsar.112>
- Vargas, M. A. (2017). Academic procrastination: The case of Mexican researchers in psychology. *American Journal of Education and Learning*, 2(2), 103-120. <https://doi.org/10.20448/804.2.2.103.120>
- Vazsonyi, A. T., Ksinan, A. J., Jiskrova, G. K., Mikuška, J., Javakhishvili, M., & Cui, G. (2019). To grit or not to grit, that is the question! *Journal of Research in Personality*, 78, 215-226. <https://doi.org/10.1016/j.jrp.2018.12.006>
- Wang, V. (2016). Handbook of research on learning outcomes and opportunities in the digital age. IGI Global.
- Wolters, C. A., & Hussain, M. (2015). Investigating grit and its relations with college students' self-regulated learning and academic achievement. *Metacognition and Learning*, 10(3), 293-311. <https://doi.org/10.1007/s11409-014-9128-9>
- Wyszyńska, P., Ponikiewska, K., Karaś, D., Najderska, M., & Rogoza, R. (2017). Psychometric properties of the Polish version of the short grit scale. *Polish Psychological Bulletin*, 48(2), 229-236. <https://doi.org/10.1515/ppb-2017-0026>
- Xanidis, N., & Brignell, C. M. (2016). The association between the use of social network sites, sleep quality and cognitive function during the day. *Computers in Human Behavior*, 55, 121-126. <https://doi.org/10.1016/j.chb.2015.09.004>
- Zacks, S., & Hen, M. (2018). Academic interventions for academic procrastination: A review of the literature. *Journal of Prevention & Intervention in the Community*, 46(2), 117-130. <https://doi.org/10.1080/10852352.2016.1198154>
- Zhang, Y., Dong, S., Fang, W., Chai, X., Mei, J., & Fan, X. (2018). Self-efficacy for self-regulation and fear of failure as mediators between self-esteem and academic procrastination among undergraduates in health professions. *Advances in Health Sciences Education*, 23(4), 817-830. <https://doi.org/10.1007/s10459-018-9832-3>
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual differences metric. *Journal of Personality and Social Psychology*, 77(6), 1271-1288. <https://doi.org/10.1037/0022-3514.77.6.1271>

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