Impact of Social Media on Students' Academic Performance

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ABSTRACT

Approximately 95% of U.S. teens report using the Internet (Vogels et al., 2022). As of January 2022, more than 4.95 billion people use the internet worldwide, and around 4.62 billion are active social media users (Johnson, & Basuray, 2022; Whiting & Williams, 2013; Shi et al., & 2020). According to the American Academy of Child and Adolescent Psychiatry (2018), 90 % of teens between 13-17 years old use social media, 70% report having at least one active social media profile, and 51% report visiting a social media site daily. On average, teens are online almost nine hours a day (Olubiyi, 2012) not including time for homework (Esam, 2015). Two-thirds of teens have their own mobile devices with internet capabilities (Oche & Aminu, 2010). Arnold and Paulus (2010) found that even when social media is used for an educational purpose, students incorporate the technology into their lives in a way that may differ from the intentions of the course instructor.

Social media can also negatively affect student grade point average (GPA), test scores, and the amount of time students spend preparing for class (Annetta et al., 2009; Junco, 2012b). Despite the benefits of social media such as sharing connections (Osarive, 2005) and doing business (Asemah & Edegoh, 2012), the use of social media may be harming them educationally. For example (Ndaku, 2013) claims that social media use has negatively affected study time, grammar, and spelling as well as distracting from their study time. Sheman refers to social media distraction as the phenomenon of social media cues (the distractors) drawing the students' attention away (Vorderer et al., 2018) from the task at hand (Rithika, 2013) and directing it instead toward social media (Wilimer et al.,). Thus, this study aims to investigate social media usage, social media multitasking as a kind of extraneous load, academic performance, and the amount of time students spend on social media. In addition, time management skill is the moderating variable on social media which in turn will help improve their study time. It will positively reflect in them performing better in their academics. Moreover, education is recognized as a powerful agent of change that improves health and livelihood and contributes to social stability (Tadese et al.,2022). At the micro-level, it is associated with better living standards for individuals through improved productivity, given that those who have received higher education tend to have more economic and social opportunities. However, gaining knowledge, attitudes, values, and skills through education is not a simple task; rather, it is a long and challenging task. Students are expected to spend much of their time studying and must graduate with good academic results.

Despite excessive government investment in education, most students fail to achieve strong academic performance at all levels of education (Imlach et al.,). A correlational study at Arba Minch University, South Ethiopia, reported that the trend of graduating students is not proportional to the trend of enrolled students, and more students commit readmission due to poor academic performance (Vigermal, 2017). This has resulted in unemployment, poverty, drug elicits, promiscuity, homelessness, illegal activities, social isolation, insufficient health insurance, and dependence. Additionally, a systematic review in India concluded that poor academic achievement causes significant stress for parents and low self-esteem among students (Karande,2005). Social media can be a powerful distraction most students seem to struggle with (Sieber, 2021). Among the social media users, Facebook, Snapchat, and TikTok users' academic performance were worse than the nonusers or users of any other social media network. Facebook and TikTok were found to be the major distraction among students (Kirschner & Karpinski, 2010). This distraction which is a divided attention is further amplified by multitasking as use attempt to navigate (Koessmeier, 2021) between social media, schoolwork, and personal activities. The seamless integration of social media into daily life poses a risk of diminishing productivity and hindering the ability to fully immerse oneself in a single task thereby

affecting their academic performance (Paasone, 2016). Moreover, many scholars go on to say that students multitask while studying which diverts (Kuppuswamy & Shankar, 2010; Liccardi & Ounnas, 2017; Massey, Kinnunen, Midy, & Sakar., 2007; Bucklin, & Pauwels, 2009) their attention (Kirschner & Karpinski, 2010). According to Al-Zoubi, (2016), time management is considered an inclusive process that is done through administrative functions which is deeply dependent on high personal skills so it can then produce positive effects to society and individuals at the same time. Time management is a fundamental issue with commitment to school activities, improved academic performance, and achieving a targeted goal. It is the coordination of tasks and activities to maximize the effectiveness of an individual's efforts (Rouse, 2019). Prachi, (2018) adds that to achieve success in their academics, students need to concentrate on their schoolwork and complete assignments at the right time instead of loitering and gossiping on social media.

Thus, this research will examine the effects of social media on students' academic performance. Time management and social media multitasking will be tested as possible moderators and mediators.

THEORETICAL OVERVIEW

Definition of Social Media

In this section, we will examine social media use and its functions. Social media is a type of information network designed to share content with other internet users' preferences to find content. The internet makes social media possible; thus, sharing, commenting, and viewing can be tracked and measured. It allows people to create an online community to express their opinions and to build "networks" between strangers.

According to Azizi et al. (2019), social networking sites and applications are widely used by students. They spend a lot of time on these sites as a part of their daily lives. Studies have revealed that among the various age groups of students, university students are among the heaviest users of social networks. Kaplan and Haenlein (2010) defined social media as user- generated content shared on the Web 2.0. Kalamas et al. (2009, p.3) further defined social media as a communication medium that is devoted to or characterized by interaction between participants or consumers of the medium. Social media has both positive effects, such as creativity, academic and business connections, and enhances communication between teachers and students (Sharma, 2022, Oueder & Abousaber, 2018). Also, negative effects would include distraction, low self-esteem, cyberbullying, and poor academic performance (Amin et al., 2016) on students, but these effects depend on the way students use social media.

For this reason, since we are discussing the functions of social media, we will focus on the positive aspects that Chukwu et al. (2022) discuss, such as facilitating online learning, which enables students to access online learning platforms through social media, and online study groups. There is improved academic performance through collaborative learning, data gathering, and information gathering. Students gain wider knowledge in their course of study, which consequently improves their academic performance. Similarly, other studies have reported that students benefit from chatting (Jain et al., 2012), as it improves their vocabulary and writing skills (Yunus & Salehi, 2012). Massive open online courses (MOOCs) have been increasing since 2020 due to the COVID-19 pandemic (Raja & Kallarakal, 2020). MOOC courses are generally free, and anyone can enroll online. Many renowned institutions have online courses on the MOOCs platform, which provides flexible learning opportunities to students. Students find it useful to enhance their knowledge bases and career development (Chen, 2013).

Amount of social media use by Adolescent

In 2015, American adolescents aged 13 to 18 years reported using social media 1 hour and 11 minutes a day, 7 days a week (Uhls,2017). Meanwhile, currently in Indonesia, the most frequently used social media by adolescents in the first place are YouTube of 93.8%, then WhatsApp with a percentage of 87.6%, Facebook with a percentage of 85,5%, Twitter with 63.6%, TikTok with 38.7%, and others (Hidayat et al.,2022). According to a recent report, 71% of teenage social media users access more than one social media and 24% of adolescents are "almost constantly" online due to the widespread use and popularity of smartphones (Banyai et al.,2017). Users can access social media on different platforms (mobile or computer

devices), for different activities (e.g., interacting with real-life friends, meeting others based on shared interest, chatting, mailing, sharing, or creating pictures or videos, blogging, dating, playing games and gambling) Kuss DJ (2012). Moreover, during the Covid-19 pandemic, teenagers use social media as an alternative media when implementing social distancing, hence the use of social media continues to increase from year to year (Lubis, 2022). In addition, the average adolescent in Indonesia can spend a minimum of 3 hours 14 minutes per day (Hidayat et al.,2022).

Time Management as a Benefit to Academic Performance

A vast majority of research shows that social media harms time management (Elliot, 2013). Therefore, Prachi (2018) identified the following as benefits of time management: 1) punctuality–when time is well managed, students do their tasks at the specific time slots assigned to each activity; 2) improved academic performance – when time is planned well, students study according to course schedules in their personal time-table, which will eventually improve their academic performance; 3) lessening stress – good time management prevents frustration arising from failure to achieve objectives as a result of procrastination, delays, and unnecessary deviation from set priorities; 4) good time management promotes virtues like self-control and self-discipline in students because it makes them timely in whatever they do; 5) realization of goals – managing time effectively helps students to finish their work as at when due, thereby beating assignment deadlines and other meaningful activities; and 6) prioritize activities – good time management helps students learn how to prioritize their academic work and other useful school activities for their own convenience. However, improper management of time leads to poor schoolwork quality, poor performance, low academic achievement, high stress, and missing homework deadlines. To support this statement, Scherer et al. (2017) and Williams (2015) argued that when students do not manage their time well, they may feel agitated when they are to be examined or tested, thereby cheating among peers. It is evident that the main distractor is being constant on social media. This study posits that, since research on the impact on students' academic performance demonstrates that self- esteem and multitasking negatively affect students' academic performance, it is crucial to research how time management on SM use may positively influence their GPA not to mention that GPA is the grade point average of a student's academic work. To explain further, we will include limited capacity model in the next section which talks about having limited capacity resources available for information hence will affect how information is encoded into the memory and later retrieved which is why students should concentrate only on their studies and not combine social media with multitasking, certainly, this will have an effect on their academic performance.

Limited Capacity Theory

In order to develop the theoretical framework of this research, the foundations of limited capacity theory are used. Limited capacity theory suggests that Limited Capacity Model of Motivated Mediated Message Processing (LC4MP) is a theoretical framework that explores how cognitive resources are allocated during the processing of media messages (Weigersma, 1976). Developed by S. Shyam, (Lang 2000) this model builds on the Limited Capacity (LCM) and incorporates motivational and emotional factors into the understanding of how individuals process information in media contexts. The limited capacity model of motivated mediated message processing (LC4MP) is the most recent version of a data-driven model that tries to explain how human beings process all types of mediated messages (A. Lang 2000, 2006a, 2006b). This model differs from the vast majority of communication theories in several ways.

First, it is not an effects theory. That is to say that it makes no effort to examine the relationship between some specific type of content in a media message and a later behavioral action (Varela, 2021). Second, it is not a theory about a specific type of media content (violence, politics, sex, advertising, health). Instead, its goal is to generalize to all types of content and to completely describe the realm of possible contents through psychologically relevant independent variables such as emotion, difficulty, relevance, redundancy, narrative strength, etc. (Lang et al., 1997). Third, this theory is not limited to a specific medium but is meant to be relevant to all currently existing media and those not yet invented. Again, this means that media are described not by their names (radio, TV, computer, video game) but instead by a set of psychologically relevant variables (Gardner et al., 1999).

This model has two major assumptions. First, people are information processors. Lang argues that it is a major task that people engage in is the processing of information (Lang, 1992, Butterfield, 1979). She further adds that the basic parts of information processing are to perceive stimuli (Lang 2000a), turn them into mental representations, do mental work on those representations, and reproduce them in the same or in an altered form. Second, a primary tenet in most cognitive psychological theorizing, is that humans are limited-capacity information processors (Cacioppo & Gardner 1999). This means that human beings have a fixed pool of resources with which to process their environment. If the demands of the tasks in which they are engaged exceed this limit, then some of those tasks will be done less well. This assumption gives rise to the fundamental concept of cognitive overload (Lang 2000). Cognitive overload is defined as a state that arises whenever the demands of an information-processing task exceed one's available processing capacity (Cacioppo et al.,1999). This is to say that a person's ability to process information is limited, and processing messages requires mental resources which are limited as well.

Given that every learning event creates cognitive load on the working memory (Hameed et al., 2021) and cognitive load pertains to the number of factors demanding attention and the cumulative mental effort required from working memory, an additional external load can harm learning. The capacity of working memory is limited, there is an unlimited capacity of long-term memory. Working memory is actively involved in the processing and coding of information into the long-term memory thus completing the learning process. Finally, working memory overload leads to futile learning. The limited capacity model presented by scholars with few evidence here is a general model of how people interact with mediated messages. Although most of the evidence presented in support of the model is specific to the television medium (Lang 2000), the model might be equally applied to others such as social media, and even to non-mediated situations (Heuer & Reisberg, 1992; Yuille & Tollestrup, 1992, lang, 1992).

The information-processing framework that Lang (2000) users maintain is that there are three basic cognitive processes: encoding, storage, and retrieval (Basil, 1994; Lang, 2000, 2006). Encoding includes those processes (e.g., attention, perception, comprehension) involved with bringing information into the cognitive system from the external environment. Storage involves incorporating the attended-to information in a mental representation and storing it in memory.

The final process is retrieval, which involves activating information that has been previously stored in memory (Krcmar et al., 2014). Given that these sub processes occur continuously and simultaneously, and given that individuals are limited-capacity processors, aspects of the media content, aspects of the environment, and aspects of the individual interact to determine what information is selected to be encoded, what is stored, and what is retrieved in a given moment (Krcmar et al., 2014). Although it is easy to think of these three stages as discrete and following a linear progression, the three processes interact dynamically, and all three operate simultaneously. Also, it is important to note that all three of these processes require resources to operate. If people do not have any cognitive resources available to encode information, then either the information will not be stored in long-term memory, or an impoverished representation of the information will result. To understand how media stimuli are processed requires an understanding of what resources are available and how they are allocated. This is accomplished within the LC4MP by considering the following: total resources, resources allocated, resources required, resources remaining, and resources available. Total resources refer to the total cognitive resources in the resource pool. Resources allocated refer to the resources that are available for a processing task. The resource allocated to a task may be equivalent to the total resources, but probably is not (Lang, 1999). Resources required are the resources that are necessary to complete a task. If the resources that are allocated are greater than the resources that are required, then the stimuli should be successfully processed (Lang 2006). Resources remaining refer to the difference between total resources and resources required. Again, resources remaining, and resources allocated may be the same if total resources are equivalent to allocated resources, but this is unlikely to be the case (Bradley et al., 1997).

Total cognitive load has three components; intrinsic load, extraneous load, and germane load (DeJong, 2010; Mayer and Moreno, 2003). The intrinsic load cannot be manipulated, as it is a property of learning material. However, extraneous and germane loads are the functions of instructional design and, thus, can be manipulated. Extraneous load is undesirable and does not contribute to learning, it is caused by ineffective instructions, unnecessary and excessive activities (Edwards et al., 2015). From a cognitive load theory

perspective, multitasking demands a correspondingly huge working memory capacity that can easily become unaffordable for the memory system (Hameed et al., 2021). Therefore, we will further gain more insight into social media multitasking in the next section.

Social media multitasking

Social Media multitasking can result from environmental disruptions or self-interruptions when individuals prioritize interaction with social media over other tasks (le Roux et al., 2017). Typically, multitasking requires individuals to rapidly switch between tasks, creating continuous disruptions and shifts in attention (Chen & Yan, 2016). Students are constantly bombarded by a stream of information and communication through their phones, computers, and other smart devices; as a result, social media multitasking has become the norm for members of the next generation (le Roux et al., 2017). As Demirilek and Talan (2017) explained, the constant and pervasive information stream created through social media and smart devices has resulted in a "multitasking generation" (p. 1). Today's students overwhelmingly engage in social media multitasking. In a study on media multitasking, Hwang et al. (2014) found that 90% of college students multitasked with social media. While few students may develop the ability to efficiently multitask, long-term rapid switching behaviors from social media multitasking typically led to reduced learning and poor performance on academic tasks (Kirschner & De Bruyckere, 2017). Kirschner and De Bruyckere (2017) explained that social media multitasking may create the illusion of effective multitasking and technical savvy, but for most users, social media multitasking undermines performance across many domains. Findings from the existing research largely indicate that non-academic social media multitasking with technology and social media has a negative effect on academic performance. Such findings support the scattered attention hypothesis, as attempting to pay attention to class materials while engaging with technologies can undermine learning by drawing learners' attention away from class materials (May & Elder, 2018).

In-class social media multitasking is increasingly problematic on modern school campuses. Smart devices and widespread access to wireless networks allow students to engage in multitasking activities, such as texting and browsing social media, during class (Demirilek & Talan, 2017). As May and Elder (2018) explained, "The ubiquity of social media multitasking among today's students raises concerns about its consequences and outcomes in relation to student learning and cognition" (p. 2). Researchers have found multitasking activities can create distractions, memory reductions, lack of attention and engagement, and declines in performance and productivity (Demirilek & Talan, 2017). According to Harrison and Risler (2015), the most common in-class multitasking activities that students engage in are texting and browsing social media. Social media multitasking can negatively affect academic performance (Lau, 2017), as frequent media multitasking can create habitual, scattered levels of attention (van der Schuur et al., 2019). The negative school-related outcomes of social media multitasking occur in the areas of academic performance, study behaviors, and perceived learning (van der Schuur et al., 2015).

Researchers have examined the effects of social media multitasking on various facets of academic performance. For example, Demirilek and Talan (2017) studied the relationship between off-task social media multitasking during class and grade performance among post- secondary students. Results confirmed that when students engaged in social media multitasking during lectures, their grade performance declined. Lau (2017) also found that social media multitasking had a negative effect on the academic performance of postsecondary students. The researcher surveyed 348 undergraduate students to assess nonacademic social media use, academic social media use, social media multitasking, and academic performance. Analysis revealed social media multitasking significantly and negatively predicted academic performance. More recently, Uzun and Kilis (2019) examined the relationships between media use, multitasking, self-regulation, and academic performance. Analysis of a survey completed by 631 college students revealed multitasking and media use were both negatively associated with academic outcomes; self-regulation appeared to have no effect on academic outcomes. Findings reported by Lau (2017) Demirilek and Talan (2017), and Uzun and Kilis (2019) echo those from previous researchers, who also reported in-class multitasking was correlated with lower GPA (Al-Menayes, 2015; Bellur et al., 2015; Walsh et al., 2013). Furthermore, Al-Menayes (2015) studied the ways social media use, engagement, and addiction affected academic performance and found that time spent using social media was negatively related to academic performance.

Brooks (2015) studied nonacademic multitasking with smartphones and found that students who used social media on these devices had lower academic performance. Indeed, social media, technology type, and several other factors, including academic subject matter, may influence the ways in-class social media multitasking affects academic performance. Le Roux and Parry (2017) examined differences in the effects of in-class media use on academic performance by subject matter. The researchers found that arts and social science students were negatively affected by in-class media use, while students in engineering, economics, medical, and health sciences classes did not experience these negative academic outcomes from in-class media engagement. In contrast, Gaudreau et al. (2014) found no significant subject area differences in the effect of media multitasking on students' academic performance. Importantly, not all researchers report that multitasking with smart devices and social media results in declines in academic performance. For example, Hartnell-Young and Vetere (2008) found that the use of smartphones during class was associated with increased creativity. Junco (2012) reported that social media multitasking was associated with increased rates of homework completion, while Corbeil and Valdes-Corbeil (2007) found such multitasking was associated with an increase in collaborative learning. Importantly, in the aforementioned studies, smart devices were leveraged as tools to support learning. When explicitly used as support tools, smart devices are associated with improved communication and social acceptance (Valkenburg et al., 2006), self-esteem (Yu et al., 2010), and student involvement (Heiberger & Harper, 2008).

In summary, Studies investigating the effect of SMM on academic performance report that it has a negative impact on three dimensions of students, namely academic performance, behaviors and attitudes, and perceived academic learning (Van Der Schuur et al., 2015). Lau (2017) asserted that academic performance is significantly negatively predicted by SMM. University students who indulged in SMM during class lectures stated that their learning was hindered (Demirbilek and Talan, 2018). The negative effect of SMM can be related to time displacement and the limited information processing capacity premise. Time displacement suggests that the students spend more time on social media than on their academic activities. We will examine social media multitasking as a kind of extraneous load in the next section.

Social media multitasking as a kind of extraneous load.

Social media multitasking, as discussed in the previous section, consumes a high amount of attention capacity (David, 2018). As central executive resources are limited (Lang, 2000), social media multitasking can easily exceed users' capacities and, thus, function as a potential stressor. In fact, there is evidence that social media multitasking and perceived stress are associated (e.g., Freytag et al., 2021; Liu et al., 2015; Reinecke et al., 2017). Consequently, when adolescents stick to their smartphones, they cannot complete the task at hand. Moreover, central bottleneck theories and cognitive resource theories (e.g., Lang, 2000; Pashler, 1994) argue that people can only handle one task at a time. Hence, when two activities draw one's attention simultaneously, such as homework and the smartphone, activities will have to be processed serially and one of the two activities will be impaired or delayed. However, information overload on the internet may prevent users from devoting their full cognitive capacity to elaborating every piece of information (Lang 2000). This is partly because human beings are naturally economic animals who prefer spending little cognitive effort when there is no need to expend more (Bohner, Moskowitz, and Chaiken 1995).

Cognitive load theory (Sweller, 1994) as discussed briefly in section 2.5 posits that the performance of one task can be undermined when another task is simultaneously performed because of limitations to cognitive processing abilities. That is, task performance declines when multiple tasks are performed at once. Sweller's (1994) cognitive load theory proposes that an individual's total cognitive processing abilities are the sum of intrinsic, extraneous, and germane loads. In cognitive load theory, Intrinsic load represents the mental demand required to process learning materials (Edwards et al., 2015). Germane load is the demand placed by transferring processed learning materials into a schema for storage in long-term memory (Paas et al., 2004).

Extraneous cognitive load is the type of load created by the way information is presented to the person. The cognitive load is the result of irrelevant or unimportant pieces of information that are given to the person (Troupe, 2012). For example, in online articles, you find multiple advertisements and pictures that serve no actual purpose and are included merely to make the item more attractive. These are the inessential pieces of information that interfere with the learning process and cause an extraneous load (Bannert, 2002). Edward et

al., (2015), add that extraneous load represents "unnecessary materials or activities that are unrelated to or distracting from the learning tasks; this includes multitasks and distractions" (Edwards et al., 2015, p. 3028) and can be seen as "noise" that distracts learning process (Fred et al., 2006). It can also include instructional aspects that do not directly contribute to learning.

According to Paas et al. (2004), learning is negatively affected when the demand imposed by extraneous load interferes or distracts from the construction of schemas; thus, for learning to be effective, extraneous loads must be kept low. Extraneous loads, such as nonacademic social media multitasking, have the potential to override the processing of learning materials when competition for cognitive resources occurs. This potential effect of extraneous loads becomes even more evident when extraneous demands are more engaging, motivating, and require more attention (Edwards et al., 2015). They constitute an extraneous load, causing unnecessary processing, transfer losses, and poor storage. All aforementioned effects defeat the ultimate goal of instruction (Edwards et al., 2015). The components of cognitive load are related to each other and collectively comprise the total capacity. The total cognitive capacity remains the same, hence, using it on one activity reduces the space for other undertakings. Social media has images, texts, graphs, and videos which all take the extraneous load. The use of social media causes more utilization of extraneous load, and less space is available for intrinsic and germane load. Similarly, social media multitasking increases cognitive usage to a greater extent because more than one activity is being undertaken at a single point in time when as a student it should be solely for academics because of the goal of achieving academic success.

Unlike intrinsic load and extraneous load, higher levels of germane load are viewed as more useful to the learning process (Cierniak et al. 2009). Specifically, germane load represents how well students understand the contents, which directly contributes to learning. Furthermore, some researchers claim that germane load reflects the effort to construct a schema to gain a better understanding of the processed information (Kolfschoten, Lukosch, Verbraeck, Valentin & Vreede 2010; Sweller et al. 1998).

Furthermore, Leppink et al., (2013) states that it is an integration of new information into long-term memory. It is the result of the constructive method of handling information in a way that contributes to learning. This significantly accelerates the learning process. Further, Pande, 2012 argues that germane load develops patterns of thoughts or behavior to organize categories of information. The more practiced the use of these behavioral schemas becomes, the more effortless the behavior becomes and the more amount of studying students put in their studies the more successful they become academically (Paas et al., 2004). Schnotz and Kürschner argued that what qualifies a cognitive load as germane is conscious learning/processing because it requires the devotion of cognitive effort. Otherwise, the germane load would not be different from the intrinsic and extraneous load in the sense of occupying working memory capacity without significant contribution to learning.

Social media and time management as a moderator

Time management as a moderator to social media is the coordination of tasks and activities to maximize theeffectiveness of an individual's efforts (Rouse, 2019). Rouse (2019) further said that the purpose of time management is to help people get more and better work done in less time. Time management is the ability to plan and control time effectively so that the right time is assigned to appropriate school activities to accomplish set goals and get good grades (Elliot, 2013; Prachi, 2018; Shutterstock, 2019). From these definitions, it can be deduced that time management is the act of planning and consciously exercising control over the amount of time to be spent on specific academic activities to increase performance and achievement. It can also be seen from the definitions that time management is the ability to accomplish greater and better useful tasks at the appropriate time. This implies that for students to be committed to their studies and improve their academic performance (Al-Zoubi, 2016), they need to effectively plan and manage their time. Time management is a fundamental issue in relation to commitment to school activities, improved academic performance, and achieving a targeted goal. To every student, time is crucial to succeed in their academic work.

The secret to achieving success in life is effective and efficient management of time and knowing the skill. Time management skills are the ability of a student to allocate time to his or her daily activities and follow them strictly and sequentially to achieve set goals (Al-Zoubi, 2016). Ahmed (2019) observed that the

lack of proper time management skills by students is one of the major causes of mass failure and decline in academic performance. It is expected of students to allocate time in order of importance to reading and study their course by preparing a functional timetable that will cover all course areas. To effectively allocate time to tasks by students, tools such as calendars, planners, timetables, and reminder alarm systems among others can be used. The competitive environment we live in today compels people from as early as elementary education to plan and manage time effectively (Nasrullah & Khan, 2015).

For students to manage their time well, they need to be organized by arranging their useful activities according to urgency or importance (Skillsyouneed.com, 2019). They need to concentrate on their schoolwork and complete assignments at the right time instead of chatting on Facebook and its likes. Also, they need to focus on effective use of time management to improve their academic performance. When students manage their time effectively by identifying what is expected of them, placing them in order of urgency, allotting appropriate time to their responsibilities, being focused, and carrying out those activities as planned, it assists them to achieve more within a reasonable time. Goodluck (2018) submitted that effective use of time will enable students to get higher marks throughout the school year as well as on quizzes, tests, and examinations.

Research gaps in the literature

Research by Choney (2010), Karpinski and Duberstein (2009), Khan (2009), and Kubey et al. (2001) was done mostly in developing countries to analyze the impact of social media on the student's academic performance, the effect of social media on adolescence, and addictiveness of social media in students. In reviewing the literature, I have identified a research gap that must be addressed. Research suggests relationships between certain variables. However, there has not been research conducted and published that explicitly examines the juncture between social media usage, time management, social media multitasking, and academic performance. The study described here addresses these gaps. Through investigating this gap, we may determine whether social media multitasking through extraneous load impacts the students' test scores and if time management through germane load can positively influence academic performance.

Aim

The purpose of this study was to first explore the predictive relationship between social media use and academic performance. Second, the purpose was to determine whether time management moderates the relationship and whether multi-tasking mediates social media usage on academic performance. Therefore, this study will utilize an experiment and several measures to evaluate the relationships between social media use, social media multitasking (SMM), SMM as a kind of extraneous load, germane load positively influencing the amount of study with time management and how they impact students' academic performance.

LITERATURE REVIEW

When social media is used for educational purposes, it improves academic performance and some associated challenges also come along with it (Rithika & Selvaraj, 2013). According to Englander et al. (2010), the use of social media in academics has more disadvantages than advantages. Social media severely impacts students' academic performance. Addiction and social media multi-tasking are found more common among students of higher studies, which ruins the academic excellence of an individual (Nalwa & Anand, 2003). On the other hand, According to Junco et al. (2010), social media is a gaggle of Internet websites, services, and practices that support collaboration, community building, participation, and sharing." The growing dimension of the utilization of social media among the youth today cannot be overemphasized. Over the years, social networking has become increasingly popular among second-cycle students. It is how to form connections not only on campus but also with friends outside of the faculty. Social networking may help many people feel as if they belong to a community. A study conducted at Whittemore School of Business and Economics on one thousand students, 127 students revealed that there's no correlation between what proportion of time spent on social networking sites and grades (Martin, 2009).

Due to its increased popularity, economists and professors are questioning whether the grades of scholars are suffering from the proportion of time spent on these sites (Choney, 2010). According to Lenhart et al., (2010),

about 57% of social network users are 18-29 years old and have a private profile on multiple social media websites. In a study by Pempek, Yermolayeva, & Calvert (2009), the quantity of time spent daily on social network sites varied greatly. Quan-Haase and Young (2010), found that 82% of school students reported logging into Facebook several times each day. Many researchers like Choney (2010), San Miguel (2009), and Enriquez (2010) studies on students' use of social media sites revealed a negative effect of the use of social media sites on students' academic performance. Nielsen Media Research study conducted in June 2010 stated that nearly 25% of students' time on the web is spent on social networking sites (Jacobsen & Forster 2011). The American Educational Research Association conducted research and declared at its annual conference in San Diego California (2009), that social media users study less and generate lower grades (Abaleta et al, 2014). San Miguel (2009), focused on the connection between time spent on Facebook and the academic performance of scholars. The overall findings indicated "more time on Facebook equals slightly lower grades." In his study, the typical Facebook user had a GPA of three .0 to 3.5, while the non-Facebook user had a GPA of three .5 - 4.0. Also, the typical Facebook user studies for 1 – 5 hours per week, while the non-Facebook user studies 11 – 15 hours per week. Enriquez (2010) revealed that students who multitask between social networking sites and residential work are likely to possess 20% lower grades than a student who doesn't have a social networking site. Similarly, Choney (2010), in watching the time spent on Facebook and its effect on academic performance, said a user of Facebook has a mean "GPA of three .06, while nonusers have a mean GPA of three .82". Furthermore, a study conducted by Karpinski and Duberstein (2009), of Ohio Dominican University on college students who use social networks have significantly lower mark averages (GPAs) than people who don't. They also mentioned that among various unique distractions of every single generation, Facebook remains a big distraction to the current generation's academic performance.

In a survey of Spanish high school students Sanchez-Martinz and Otero (2009), found a correlation between "intensive" mobile use and faculty failure. So, in the present study, the impact of social media will be evaluated on student's academic performance by taking social media, social media multi-tasking, academic performance (GPA), Time management as a moderator, and multitasking as mediating variables.

Current study

The current study attempts to take findings a step further and connects germane load to the amount of study time, and SMM on extraneous load. The current study will also focus findings on academic performance, social media use, and time management. This will inform the impact of social media use on students' academic performance. Consequently, social media may have a negative effect that may lead to poor health, poor concentration in class, poor time management, and poor academic performance. All these impacts negatively on the student's academic performance and success. Therefore, the following hypothesis is proposed in the specific context of SMM on AP.

H1: There will be a negative effect of time spent on social media on students' academic performance.

Hence, cognitive resources are wasted by excessive social media use and social media multitasking as a kind of extraneous load. This study revealed that there is a strong negative effect of social media usage and academic performance, thus the following study predicts that:

H2: The effect of SMM on Academic Success will be moderated by time management.

RESULTS

The survey yielded 167 responses, and 159 were included in the sample after data cleaning procedures. Demographic information was the first measure for the survey. First, the participants' age in years ranged from 18 to 23, with 21 years being most common at 33.1% of the participants. Next, the genders of the participants were found to be 65.6% female, 33.7% male, and 0.6% preferred not to disclose this information. Then, participants' years in their undergraduate studies ranged from freshman to senior, with juniors making up 37.4% of the responses, seniors at 34.4%, sophomores at 18.4%, and freshmen at 9.8%. Lastly, participants' ethnicity was found to vary with Caucasian being most common at 75.5%, African American second most common at 18.4%, and Asian third most common at 6.7%.

Social media usage was the second area measured in the survey. The questions were targeted towards Facebook, Instagram, and TikTok. To start, 20.5% of participants use Facebook and 27.3% of those that use it were found to use it for 10 minutes or more each day. Also, 97.5% of participants use Instagram with 95.7% of those participants using it for 10 minutes or more each day and 55.8% using it for more than 60 minutes each day. In addition, 77.6% of participants use TikTok with 78.3% using it for more than 10 minutes each day and 54.7% using it for more than 60 minutes each day. Finally, a few more concepts with social media usage were evaluated. 12.8% of participants were found to learn something new that is academically related on social media 10 times or more in a day. Participants were also found to use social media in their free time to relax with a measure of 4.17 for the one to five scale of five signaling strong agreement.

Time management and academic performance were the third and fourth areas measured in the survey. Likert scales that ranged from one to five for strongly disagree to strongly agree were used to capture these measures. A few statements about these measures stood out. For time management, "I made sure that I kept up with the weekly readings and assignments for my courses," yielded a mean response of 4.11. For academic performance, "I feel my academic performance was outstanding," yielded a mean response of 3.70.

Extraneous cognitive load on social media multitasking and germane cognitive load on the amount of study were the fifth and sixth areas being measured in the study. Likert scales that ranged from one to five for strongly disagree to strongly agree were once again used to capture these measures. For the extraneous cognitive load on social media multitasking, "I successfully accomplished goals while engaging in social media," yielded a mean response score of 3.56. For germane cognitive load on the amount of study, "I felt I could apply course concepts to things I saw on social media," yielded a mean response score of 3.32.

DISCUSSION

Hypothesis

1. There will be a negative effect of time spent on social media on students' academic performance.

2. The effect of social media multitasking on academic performance will be moderated by time management.

The composite variables that were made for social media usage (SMU) , social media multitasking (SMM), students' academic performance (AP) and amount of time spent (TM) on social media were checked for correlation among the variables.

There was a .-111 correlation between student academic performance (AP) and Social Media usage (SMU), .-080 correlation between Social media multitasking (SMM) and Social media usage (SMU), -077 correlation between the amount of time spent on social media and social media multitasking and .116 correlation between the amount of time and academic performance (AP).

H1:

This study evaluated the relationship between social media usage and academic performance among college-aged students at Wake Forest University. Specifically, a regression analysis provided several findings about the relationship. To review, the first hypothesis predicted that there will be a negative effect of time spent on social media on students' academic performance. Descriptive statistics from the analysis show that the average academic performance response score was 3.259 (SD = 0.501) and the average social media usage response score was 3.746 (SD = 0.728). A significant positive correlation was found between the two measures (r = .220, p = .003). It can therefore be concluded that increased social media usage is related to increased academic performance for this sample of students.

Next, the analysis used a linear regression model. Social media usage was defined as the independent variable and academic performance as the dependent variable and were found to be statistically significant (F(1, 159) = 8.082, p = .005). An R-squared value of .048 was found and this shows that approximately 4.8% of the variance

in academic performance can be described by social media usage. Also, the unstandardized coefficient for the social media usage measure was $B = 0.151$ ($SE = 0.053$) while the standardized beta coefficient was .220 ($t = 2.843$, $p = .005$). This can be interpreted to show that an increase in social media usage of one unit predicts an increase of academic performance by 0.151 units. Also, the beta coefficient being a positive value once again shows that higher social media usage is related to improved academic performance.

H2:

This next part of the study considers the relationship between the measure for extraneous cognitive load on social media multitasking and time management. Again, a linear regression model was used for analysis. The descriptive statistics output presents the average response score for time management as 3.340 ($SD = 0.501$) with the average response score for extraneous cognitive load as 2.868 ($SD = 0.317$). The correlation analysis had a positive correlation between the two measures but this was ultimately not significant ($r = .039$, $p = .313$).

For the regression, extraneous cognitive load on social media multitasking was the independent variable and time management was the moderating variable and the analysis did not deliver significant results. The linear regression model was not statistically significant ($F(1, 159) = 0.238$, $p = .627$) which shows that extraneous cognitive load has no significant impact on time management. In addition, an R-squared value of .001 was found and shows that 0.1% of the variance in time management skills can be described by extraneous cognitive load. Lastly, extraneous cognitive load's unstandardized coefficient for was $B = 0.061$ ($SE = 0.125$) and the standardized beta coefficient was .039 ($t = 0.488$, $p = .627$). This finding specifies that extraneous cognitive load on social media multitasking is not significant in predicting a student's time management skills due to the high p-value.

Limitations

The sample size is small which is not representative of the wider student population, therefore, the findings are not generalizable to all students.

We deleted columns that were not necessary for the analyses because some columns were omitted and changed some columns to minutes instead of hours. The students' GPAs were not collected hence no actual result. In the future, we hope to use a more rigorous method of measurement, expanding the range of variables considered, and ensuring a diverse and representative sample.

CONCLUSION

This research embarked on exploring the intricate relationship between social media usage and academic performance among college students, with a special focus on the roles of social media multitasking and time management. The findings suggest a complex interplay where social media use, often perceived as a hindrance to academic success, shows potential positive associations with academic performance when moderated by effective time management strategies. Interestingly, our results challenge the traditional narrative that social media is fundamentally detrimental to student outcomes. Instead, they indicate that when students are equipped with robust time management skills, the distractions typically associated with social media can be mitigated to harness its educational benefits. This finding underscores the importance of cultivating strong organizational skills and self-regulation among students to balance their academic and digital lives.

Moreover, the study highlights the need for further exploration into how different types of social media activities affect students' academic engagement and performance. While some aspects of social media use can serve as educational tools, others, if not managed properly, can lead to cognitive overload and diminished academic performance. Despite its limitations, including a small sample size and lack of GPA data, this study contributes to a nuanced understanding of the social media-academic performance nexus and calls for more comprehensive research. Future studies should aim to include a broader, more diverse sample and integrate more precise measures of academic achievement to build on these preliminary findings.

In conclusion, this study not only adds to the existing body of knowledge but also prompts educational

management practices, educators can help students navigate the challenges and opportunities presented by social media, potentially enhancing both their learning experiences and academic outcomes.

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