Digging Deeper Into the Outcomes of Social Media Use among College Students: The Mediating Effect of Academic Self-Efficacy

Full Paper

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Abstract

The use of social media is prevalent among college students. Additionally, youth and high school students, many of whom will eventually enroll in college, also use social media at high levels. With the near-ubiquitous use of social media and the culture that comes with it, it is important for researchers to understand the effects and relationships that social media use has on students and the different aspects of students’ lives. This study specifically considers the outcomes of academic performance and satisfaction with life and digs deeper into these relationships by looking at the mediating role of academic self-efficacy and controlling for the effects of self-regulation. Results from a sample of 234 college students indicate that social media use is negatively associated with academic self-efficacy and academic performance and that academic self-efficacy mediates the relationships with academic performance and satisfaction with life.

Keywords

Social media, academic performance, learning, self-efficacy, life satisfaction.

Introduction

Social media has emerged as an important and invasive technology in today’s society. Individuals, in general, spend large amounts of time viewing, interacting with, and contributing to social media. Moreover, today’s college students, part of the 18-25-year-old Generation Next, use technology consistently. Students are attached more to their phones and the internet throughout the day (The Pew Research Center, 2007). With the prevalent use of technology and social media among students, there are likely to be intended or unintended consequences of this use. For students, in particular, changes or consequences to beliefs, abilities, and performance are of particular interest. Additionally, understanding how this use and altered outcomes affect feelings of satisfaction is also of interest.

Although research on social media use among students has received a good amount of attention in the recent past (e.g., Frein, Jones, & Gerow, 2013; Lepp, Barkley, & Karpinski, 2014; Skues, Williams, & Wise, 2012), there remain important, unanswered questions and a lack of understanding about how and why it may be related to or causing altered outcomes. One particular focus of the current research is how and why social media use may contribute to or associate with altered beliefs, specifically academic self-efficacy beliefs. In this research, we also seek to isolate effects that stem from the social media use itself, rather than from poor regulation of behavior or squeezing out studying time because of the use of social media. Therefore, we control the effects of self-regulation in order to better understand the underlying mechanisms that may lead to unintended consequences of social media use.

In this research, we answer three main research questions. After controlling for self-regulation: (RQ1) How does social media use directly relate to academic performance and satisfaction with life? (RQ2) How does social media use relate to academic self-efficacy beliefs? and (RQ3) What is the role of academic self-efficacy beliefs in the relationships between social media use and academic performance and satisfaction with life? In order to answer these questions, we used a survey to measure levels and perceptions in a
sample of 234 students. We used covariance-based SEM for the analysis. The remainder of this paper describes the development of the research as well as the analysis and results.

**Background**

In recent years there has been a healthy amount of research involving social media use among students. The findings have been somewhat inconsistent, but, in general, higher social media use has been associated with negative academic outcomes.

On one hand, Alloway, et al. (2013) found that more experience on Facebook (more than one year) was correlated with higher scores in memory, verbal ability, and spelling compared to less experience with Facebook (less than one year). Additionally, Yu et al. (2010) found that social media use was associated with increased social learning and improved performance.

On the other hand, Kirschner and Karpinski (2010) found that higher time spent on Facebook led to lower GPA's in college students. The results were attributed to less time studying and preparing for class, and hence, lower performance, because more time spent on Facebook results in less time to prepare for class. Junco and Cotten (2012) also found that multitasking with Facebook and text messages while studying had a negative effect on students’ performance, attributed to a lack of focus and attention on studying.

Additionally, research has been moving toward better understanding and explaining the reasons for the consequences of social media use. Junco (2012) found that higher social media use contributed to weakened or lessened engagement in learning activities. With less engagement, students performed more poorly. In a study of memorization tasks, Frein et al. (2013) found a difference in memory and recall among high and low Facebook users. Students that had high Facebook use had poorer recall in the tasks. The researchers posit that the outcomes are the results of students developing habits of skimming information quickly, as they would on social media sites, and not actually processing the information. They also wonder whether a culture of social media skimming and information nibbling causes changes in individuals' abilities to process information.

In this research, we also seek to understand these relationships better. We specifically look at how social media use may alter beliefs and habits and how those changes affect performance. In addition to performance, we also look at how social media use relates to students' satisfaction with life and how these beliefs and habits contribute to satisfaction. We also believe that it is important to try to isolate the actual effects of social media use, rather than effects of poor regulation of time or behavior. Therefore, we measure and control for self-regulation.

**Hypotheses Development**

Based on prior research, finding that higher social media use is associated with lower academic performance (e.g., Junco & Cotten, 2012; Kirschner & Karpinski, 2010; Lepp et al., 2014), we believe that social media use will have a negative relationship with academic performance. This is in part due to time not spent on studying or preparing for classes and on using or checking or updating information during activities related to academics, which contributes to lower GPAs (Jacobsen & Forste, 2011).

H1: Social media use will be negatively related to academic performance.

There are many factors that affect satisfaction with life. Psychological problems, loneliness, and depression can result from extreme internet use (Yao & Zhong, 2014). Extreme internet usage can involve social media use, and these issues can contribute to less satisfaction with life. Additionally, if students spend more time using social media, it is likely that they will accomplish fewer tasks in other areas of their lives. This can also contribute to lower levels of satisfaction with life.

H2: Social media use will be negatively related to satisfaction with life.

Self-efficacy “is concerned with judgments of how well one can execute courses of action required to deal with prospective situations” (Bandura, 1982, p. 122). Those who tend to have higher self-efficacy feel that they can accomplish a lot and tend to have a more positive outlook than those with lower self-efficacy. People who have low self-efficacy feel that tasks are too hard for them. This causes people to view situations as ones that they would fail at. People spend time focusing on all the possible situations that
could potentially go wrong. In an academic setting, self-efficacy determines individuals’ motivation and beliefs in their ability to achieve accomplishments in their academic life (Bandura, 1993). Academic self-efficacy is a belief that individuals hold about their abilities and capacities to overcome academic challenges and achieve academic success.

We believe that the use of social media will have an influence on students’ academic self-efficacy. When individuals have high levels of social media use, they develop habits of skimming material and may struggle to process information (Frein et al., 2013). Without processing or grasping information, students are likely to believe that they do not comprehend or remember the information as well. This is likely to contribute to weak beliefs that they can succeed or overcome problems based on the information. Additionally, students that frequently check or use cell phones experience reduced academic performance (Jacobsen & Forste, 2011). This frequent checking of media devices may be a consequence or a symptom of a lack of focus or engagement. It is plausible that students become bored, disinterested, or discouraged by difficult concepts or seemingly insignificant material. Instead of pressing forward through the learning, students are likely to turn their attention to something more interesting or enticing, such as social media.

Because students who use social media more do not stay engaged in the learning as well (Junco, 2012), they likely recognize that they have not learned what they need to succeed, and they believe that they do not have the capacity to succeed. Therefore, they will experience lower levels of academic self-efficacy.

H3: Social media use will be negatively related to academic self-efficacy.

Academic self-efficacy plays an important role in students’ ability to perform in school. Several studies have found that academic self-efficacy is, in fact, related to academic performance (Chemers, Hu, & Garcia, 2001; Joo, Bong, & Choi, 2000; Zimmerman, Bandura, & Martinez-Pons, 1992). Consistent with prior research, we expect that academic self-efficacy will relate positively to academic performance.

H4: Academic self-efficacy will be positively related to academic performance.

Self-efficacy, in general, has been found to positively associate with higher satisfaction with life (Vecchio, Gerbino, Pastorelli, Del Bove, & Vittorio Caprara, 2007). We expect that this relationship will be true for academic self-efficacy as well. Students with a strong self-efficacy look at tasks that are tough to be a challenge rather than a threat. (Schunk & Zimmerman, 2008). This viewpoint likely helps students stay motivated and positive about academics and life in general. This positive attitude and beliefs in overcoming challenges are likely to contribute to higher satisfaction with life.

H5: Academic self-efficacy will be positively related to satisfaction with life.

If, as we argue above, social media use affects academic self-efficacy and academic self-efficacy affects both academic performance and satisfaction with life, then academic self-efficacy would mediate these relationships. Consequently, we argue that academic self-efficacy is an important mediator of the relationships between social media use and academic performance and social media use and satisfaction with life and helps to explain how and why social media use may have unintended consequences for students. Because we expect direct effects of social media use to academic performance and satisfaction with life even when academic self-efficacy is included in the model, academic self-efficacy is likely to partially mediate these relationships. We formally propose and test for the mediating role of academic self-efficacy.

H6: The relationship between social media use and academic performance will be partially mediated by academic self-efficacy.

H7: The relationship between social media use and satisfaction with life will be partially mediated by academic self-efficacy.

Control Variables

In undertaking this research, we recognized that there are likely to be many factors that play a role in or correlate with the relationship between social media use and important outcomes. One area that seems especially likely to influence this outcome is self-regulation. Self-regulation can be defined as “the process by which learners personally activate and sustain cognitions, affects, and behaviors that are systematically oriented toward the attainment of learning goals” (Schunk & Zimmerman, 2008, p. vii). If students struggle with staying focused and oriented toward learning goals, they are likely to experience poor
academic self-efficacy and academic performance. In this research, we control the effects of self-regulation in order to isolate the consequences of social media use rather than capturing the consequences of poor self-regulation and its likely association with higher social media use. Figure 1 below shows the research model.

Figure 1: Research Model of Hypotheses

Method

Survey

We used an online survey to examine the relationships between social media usage and academic performance and satisfaction with life. Undergraduate business students from a large university in the United States were invited by the researchers to participate in the study. Students were contacted in-person or by email and were offered a small amount of extra course credit in exchange for their participation.

Participants

There were 262 students who completed the survey. Of the 262 responses, 3 were removed because the respondents entered invalid GPA’s. Additionally, when examining the distribution, we found that several participants did not provide valid responses to some of the important survey items. Because of this, we removed an additional 25 responses from the analysis. The final sample included 234 responses. There were more male participants (155) than female participants (79). The average age of the participants was 21.03 years old.

Measures

To assess social media usage, the survey included a question that asked the respondents to estimate the number of hours that they spent using social media, per week, during the previous 12 months. Academic Self-Efficacy was measured using a seven-item scale that we developed, loosely based on the self-efficacy subscale from the Motivated Strategies for Learning Questionnaire (Pintrich, Groot, & V, 1990). Examples of the items used in this scale were “I’m certain I can master the skills that are taught in the courses” and “I can do almost all the work in the courses if I don’t give up.” To measure satisfaction with life, we used the Satisfaction With Life Scale (SWLS) developed by Diener et al. (1985). This scale consisted of five items. Examples of the items used in this scale are “In most ways my life is close to my ideal” and “If I could live my life over, I would change almost nothing.” The preceding scales were measured on a seven-point Likert-type scale anchored by Strongly Disagree (1) and Strongly Agree (7). Academic performance
was assessed by asking the students to report their grade point average (GPA) for courses taken during the prior semester. GPA was on the 4.0 scale, ranging from 0 for F to 4 for A.

**Control Measures**

Self-Regulation was measured using a shortened version of the Self-Regulation Index Questionnaire developed by Brown et al. (1999). Our scale consisted of 26 items. Examples of the items used in this scale were “I usually judge what I’m doing by the consequences of my actions” and “Before making a decision, I consider what is likely to happen if I do one thing or another.” This scale was also measured on a seven-point Likert-type scale anchored by Strongly Disagree (1) and Strongly Agree (7).

**Analysis and Results**

**Analysis**

We analyzed the data using covariance-based SEM and AMOS, version 19, software. The CFA model exhibited excellent fit on multiple key indicators. The \( \chi^2 = 59.1531 \), d.f. = 51 (p-value = 0.2024). The CFI = 0.9941, which should be and is above the recommended cutoff level of 0.95 (Hu & Bentler, 1999). The SRMR = 0.0419, which should be and is below the recommended cutoff level of 0.08 (Hu & Bentler, 1999). The RMSEA = 0.0262, which should be and is below the recommended cutoff level of 0.06 (Hu & Bentler, 1999).

The final analysis included three items from the academic self-efficacy scale. Using the three items, the scale achieved a Wert’s, Linn, Joreskog (WLJ) Composite Reliability score of 0.857. We eliminated one item from the SWLS, leaving four items and a WLJ Composite Reliability of 0.846. The self-regulation scale was reduced to five items that appear to center around the concept of considering the consequences of actions. The WLJ Composite Reliability for this scale was 0.887. These final scales all achieved acceptable reliability as indicated by WLJ Composite Reliability scores greater than 0.70 (Hair, Tatham, Anderson, & Black, 1998).

The constructs exhibited convergent validity as indicated by the model demonstrating acceptable fit, and the Average Variance Extracted (AVE) for each construct being greater than 0.5. Additionally, the constructs also demonstrated discriminant validity because the AVE for each construct is greater than the shared variance between each of the constructs (Fornell & Larcker, 1981). The AVEs, correlations, and composite reliabilities are shown in Table 1 below.

<table>
<thead>
<tr>
<th></th>
<th>ASE</th>
<th>SWL</th>
<th>SR</th>
<th>Comp. Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Self-Efficacy</td>
<td><strong>0.667</strong></td>
<td>0.336</td>
<td>0.609</td>
<td>0.857</td>
</tr>
<tr>
<td>Satisfaction With Life</td>
<td>0.113</td>
<td><strong>0.581</strong></td>
<td>0.309</td>
<td>0.846</td>
</tr>
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<td>Self-Regulation</td>
<td>0.371</td>
<td>0.095</td>
<td><strong>0.616</strong></td>
<td>0.887</td>
</tr>
</tbody>
</table>

Note: diagonal represents AVEs, above diagonal represents correlations, below diagonal represents squared correlations

**Table 1: AVEs, Correlations, and Composite Reliabilities**

The path model also exhibited excellent fit (all reported statistics include the control variable). The \( \chi^2 = 81.9662 \), d.f. = 70 (p-value = 0.1551). The CFI = 0.9915, which should be and is above the recommended cutoff level of 0.95 (Hu & Bentler, 1999). The SRMR = 0.0441, which should be and is below the recommended cutoff level of 0.08 (Hu & Bentler, 1999). The RMSEA = 0.0271, which should be and is below the recommended cutoff level of 0.06 (Hu & Bentler, 1999).

**Results**

The mean level of social media use was 1-5 hours per week. Academic self-efficacy had a mean of 5.32 with a standard deviation of 0.98. The mean GPA was 3.15 with a standard deviation of 0.54. Satisfaction with
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life had a mean of 4.87 with a standard deviation of 1.23. The mean value for self-regulation was 5.60 with a standard deviation of 0.86.

When analyzing the results, we chose a significance level of 0.10. Unless noted, all statistics are reported with controlling for the effects of self-regulation on each of the endogenous variables.

There was a significant negative relationship between social media use and academic performance. The β = -0.1091 (p-value = 0.0922), indicating that higher social media usage was related to lower academic performance. Therefore, Hypothesis 1 was supported. There was not a significant relationship between social media use and satisfaction with life. The β = -0.0336 (p-value = 0.6198), thus, Hypothesis 2 was not supported, and we did not observe that higher social media usage directly contributed to lower satisfaction with life. Social media use had a significant, negative relationship with academic self-efficacy; the β = -0.1124 (p-value = 0.0649). Hypothesis 3 was supported, suggesting that higher social media use is associated with lower academic self-efficacy beliefs. The relationship between academic self-efficacy and academic performance was positive and significant. The β = 0.2177 (p-value = 0.0161). Hypothesis 4 was supported, and the data suggest that higher academic self-efficacy beliefs are related to higher academic performance. The relationship between academic self-efficacy and satisfaction with life was also positive and significant. The β = 0.2502 (p-value = 0.0084). The results support Hypothesis 5 and indicate that higher academic self-efficacy beliefs are related to higher satisfaction with life.

Hypotheses 6 and 7 are based on the mediating effect of academic self-efficacy on the relationships between Social Media Use and both academic performance and satisfaction with life. We used a combination of techniques to test for a mediation effect. We first used a modified version of the Barron and Kenny (1986) test for mediation. This test overcomes the limitations of the original method when no direct effect is present or when the directions of the effects may be positive on one path and negative on the other path (Williams, Vandenberg, & Edwards, 2009). In the updated method, to show mediation, researchers only need to show that the dependent variable is related to the mediator and that the mediator is related to the independent variable (Kenny, Kashy, & Bolger, 1998).

Using the modified test of mediation, we found that there was a significant, negative relationship between Social Media Use and academic self-efficacy (β = -0.1124, p-value = 0.0649) and a significant, positive relationship between academic self-efficacy and academic performance (β = 0.2177, p-value = 0.0161). Therefore, this test shows support for Hypotheses 6. Additionally, we also used the bootstrap procedure to test whether the product of the paths between Social Media Use and academic self-efficacy and academic self-efficacy and academic performance are significant (Bollen & Stine, 1990). The statistical test using the bootstrap procedure was significant (p-value = 0.0528), also showing support for Hypothesis 6. Based on these tests and the significant direct relationship between Social Media Use and academic performance, the results indicate that academic self-efficacy partially mediates the relationship between Social Media Use and academic performance (Bollen & Stine, 1990). Therefore, we can conclude that a portion of the negative effect of social media use on academic performance is because of the influence of academic self-efficacy beliefs.

We also used the modified test of mediation to test Hypotheses 7. We found that there was a significant, negative relationship between Social Media Use and academic self-efficacy (β = -0.1124, p-value = 0.0649) and a significant, positive relationship between academic self-efficacy and satisfaction with life (β = 0.2502, p-value = 0.0084). Therefore, this test shows support for Hypotheses 7. Additionally, we also used the bootstrap procedure to test whether the product of the paths between Social Media Use and academic self-efficacy and academic self-efficacy and satisfaction with life are significant. The statistical test using the bootstrap procedure was significant (p-value = 0.0587), also showing support for Hypothesis 7. Based on these tests and the non-significant direct relationship between Social Media Use and satisfaction with life, the results indicate that academic self-efficacy fully mediates the relationship between Social Media Use and satisfaction with life. Therefore, we can conclude that with this data, the effect of social media use on satisfaction with life is through the influence of academic self-efficacy beliefs.

Discussion

In seeking to understand how social media use affects important outcomes for college students, it is important to look at both direct relationships and mediating effects. Our first hypothesis was concerned with the direct relationship between social media use and academic performance. Controlling for
individuals’ levels of self-regulation, we found that higher social media use was associated with lower academic performance. Although there are likely to be many other factors influencing this relationship, because of the control measure, the results suggest that the significant findings are not just the result of individuals using their scarce time resources on social media instead of studying. It is conceivable that social media use, or the habits or culture of social media use, is related to or causes fundamental changes in things like beliefs, attitudes, or mental fortitudes.

To provide additional insight into this relationship, we looked at how academic self-efficacy, an important predictor of and contributor to academic performance, may mediate the relationship between social media use and academic performance. Controlling for self-regulation, we found that academic self-efficacy did, in fact, have a mediating effect on the relationship. Because higher levels of social media use were associated with lower levels of academic self-efficacy beliefs, this helps explain part of the reason why social media use is negatively related to academic performance. This relationship suggests that perhaps social media use causes or is related to changes in fundamental beliefs about an individual’s ability to perform or succeed, and these reduced beliefs contribute to lower levels of academic performance.

We also looked at the relationship between social media use and satisfaction with life. The results suggest that social media use does not directly associate with or lead to lower levels of satisfaction with life. However, when including the mediating effect of academic self-efficacy, there is a relationship between social media use and satisfaction with life, even after controlling for self-regulation. Academic self-efficacy has a strong, positive relationship with satisfaction with life, and students with higher self-efficacy beliefs are more satisfied. Therefore, because social media use is associated with lower levels of academic self-efficacy beliefs, this relationship provides additional insight into how social media use negatively relates with or negatively contributes to satisfaction with life.

In seeking to better understand the outcomes and consequences of social media use among college students, we believe that it is important to consider what may really be happening or changing because of social media use. Although, studying these particular constructs is beyond the scope of this research, we believe that there are vital changes in beliefs (like self-efficacy) and attitudes because of habits or a culture of frequent use of social media. Our supposition is that beyond becoming distracted by social media, students may use social media as a diversion from things that are boring, uninteresting, or challenging. Instead of struggling with challenges and boredom, students communicate with friends, check for or post new status updates, or seek videos or information that is interesting and enticing. After a period of time, a habit or culture of this kind of behavior results in unfinished work piled up and challenges and problems unsolved and unresolved. One of the consequences of not enduring through and learning to conquer challenges is increased beliefs that one is not capable of conquering challenges, thus, a reduction in academic self-efficacy and an absence of the satisfaction that comes from conquering academic challenges. Equally interesting is that these consequences and changes are present even when individuals are competent or perceive themselves to be competent at regulating themselves.

We acknowledge that we cannot resolve all of these additional issues in this research and that there are limitations to this work. Specifically, we cannot prove that causality exists between social media use and the outcomes of interest, but we do find statistical relationships. There are also limitations to our measure of social media use. By have students volunteer their level of use, they may over or under estimate their usage. Additionally, perhaps there are other interesting nuances of social media usage that contribute to academic performance and life satisfaction. By only looking at time spent on social media, we are limited in identifying some of these nuances. Also, having students volunteer their own GPA’s may have resulted in an inflated measure of academic performance. Finally, the results we found pertain only to these students and this data. There are limitations in generalizing to other students and populations.

It would be beneficial for future research to look deeper into some of the additional reasons why social media use causes or is related to changes in beliefs and performance. Future research should also dig deeper into the habits and culture that surround college students’ use of social media. Additionally, looking at interventions and other mediators of social media use and outcomes is also important so that research can better understand the relationships and help students achieve better outcomes.
Conclusion

In this research, we set out to better understand how social media use affects academic performance and satisfaction with life in college students. Because of the near-ubiquitous use of social media among college students, it is important to understand what the outcomes of this use are in order to help students and identify policies or interventions around social media use. Based on the results of this research, we conclude that students who spend a lot of time on social media also have lower academic self-efficacy beliefs, GPAs, and satisfaction with life. It is not just the students that poorly regulate their time and activities that have lower academic self-efficacy, GPAs, and satisfaction with life, these relationships are present even when accounting for individuals’ differing levels of self-regulation. Consequently, it is important for researchers, students, and parents to understand these relationships and to find and use interventions to help individuals maintain high academic performance and satisfaction with life.

References

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