

The Dilemma of Social Media Benefits to College Programming Students

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Abstract

Social media has become part and parcel of students' life in colleges as it occupies most of their free times. Over time, results of programming units have shown a downward trend among college students at Technical University of Mombasa in Kenya. Programming, like Mathematics, requires a lot of practice that is now consumed by social media. This study investigated the impact of Social Media on Grades in terms of hours spent and the time of day Social Media is used. Descriptive statistical research was used to gain understanding of the predictive power Social Media has on the Programming Grades. A total of 142 students pursuing Degree and Diploma courses in Information Technology participated in the study. The students were drawn from Technical University of Mombasa and Kenya Coast National Polytechnic. Over 90% of the students were active Social Media users. The research was conducted in 2018-2019 academic year. Results show that social media use could predict students who scored high grades in both Degree and Diploma courses. Such students controlled their usage of Social Media. They did not use Social Media in the early morning hours up to afternoons when they were engaged in serious studies. These students used Social Media anytime of the day - which means, in between serious study sessions. On the other hand, more average students used Social Media even in the early morning and up to afternoon sessions. Notably, more average Diploma students use Social Media at bedtime than anytime. Further research is recommended with more data using Machine Learning techniques to develop a model that will predict success or failure in Programming units depending on how one uses social media.

Key words: Academic performance, Social media, Programming units, Poor grades

Introduction

Social media are applications based on the Internet. They have content generated purely by users who are individuals or groups, they create their own profiles for the applications that are managed by the social media services (Obar & Wildman, 2015). These authors say that the Internet and World Wide Web served to connect people until the year 2000, then there was an abrupt need for human networks. This is what necessitated the development and use of Web 2.0 technologies having applications such as: Facebook, WhatsApp, WeChat, LinkedIn, Skype, Instagram, Twitter, Viber, Snap chat amongst others. Web 2.0 technology facilitates web applications with increased usability and allows users to participate in generating content (Lee et al., 2019). It is this Web 2.0 technologies that have motivated the use of

Social Media for people to collaborate and express themselves without restrictions (Kumar, 2018). What makes Web 2.0 technologies appeal to everyone is that people who are not technical can create their content and connect with others in a virtual community. This feature was not available in Web 1.0 version, it allowed access to only what has been created, and there with no capacity for instant feedback (Cormode & Krishnamurthy, 2008).

Social media has created a digital space that is ubiquitous, and affected communities in the way they communicate, geographical boundaries have been broken to create online communities (Dwivedi et al., 2018). The Social media applications are everywhere, enabling social networking and content sharing (Adilova, 2017). Social media has been broadly used in areas such as

marketing, social networks, in politics, and in education (Alalwan et al., 2017).

In marketing, social media makes it possible for businesses to reach many people at the same time (Adilova, 2017). With social media it is possible to sale a product to as many people as possible who may be interested, thus improving sales (Social Media Marketing, n.d.). Social media has also been used as a strategic method by business owners to engage and improve relations with customers (Alalwan et al., 2017). Customer satisfaction has also been as sales persons are able to engage more with customers (Agnihotri et al., 2016). On social networks, research has reported improved communication with family and friends especially among college students (Sponcil & Gitimu, 2013). College students have also been reported to improve their communication ability among themselves (Chan et al., 2020).

In Politics, social Media technology has been used to influence opinion, leaders use their social networks to share their policies and agenda (Weeks et al., 2017). Over time, people have learnt to depend on social media for political news through their networks rather than taking the initiative to find out the facts (Gil de Zúñiga et al., 2017). Further, in political campaigns, social media has been used to manage communication among citizens for political mileage (Kreiss & McGregor, 2018). Additionally, social media has been used as a mobilising tool for masses in political uprising as demonstrated during the 2011 Egyptian Uprising (Clarke & Kocak, 2020).

Finally, Social Media has been used extensively in education. For example, a study conducted among university students sought to determine whether social media could enhance learning. Results showed that some of the social media applications are useful and could be incorporated in the formal learning process (Al-Sharqi et al., 2016). In an earlier study, educators incorporated Facebook in learning a difficult unit. The results indicate that students had a positive perception and appreciated the innovation as it supported their learning and also improved their self-efficacy (Tower et al., 2014). Therefore, as a learning tool, university students have looked at Social

media tools with a positive attitude and acceptance by college students and that explains its wide spread use (Al-Sharqi & Hashim, 2016).

This study therefore, seeks to answer 1) what is the effect on the grades of college programming students by the number of hours spent on social media? and 2) what is the effect on the grades of college programming students by the number of hours used in social media? The answers to these questions could be used to come up with policy recommendations for social media use among college students.

Literature Review

This section focuses on previous studies conducted to verify the effect of social media usage on academic performance among college students. Studies show that social media has been used as a tool to enhance learning and therefore, improve results (Dyavarishetty & Patil, 2017; Chester et al., 2018). However, others think the use of social media among college students has a negative contribution to the student's grades (Feng et al., 2019). A number of studies aligned to the two opinions have been conducted. A study conducted in Singapore among college students show the possibility of addiction to social media that could comorbid other disorders such as depression and anxiety (Tang & Koh, 2017). Such conditions could negatively affect student performance. Similarly, a study conducted among medical college students revealed that only up to 40% of the students used social media for academic studies, the majority used it for socialisation, keeping up to date with news and entertainment (AlFaris et al., 2018). Social media has the potential to destruct students as echoed by a study where WhatsApp was incorporated in learning. In this study, the results were poorer and the explanation was that students were destructed as they tried to multi-task (Clavier et al., 2019). Seemingly, multitasking between social media and study among college students has been seen to be a negative indicator of student academic performance (Lau, 2017). Clearly, students need to be guided in their use of social media otherwise they will get distracted as another study shows, in the study, students who were senior and had self-discipline to restrict multi-tasking had

less of the negative effect in their grades (Junco, 2015). On gender, it was found that there are more female students who use social media, and that they spent on average up to 3 hours daily and this had a direct and significant negative impact on academic success (Maqableh et al., 2015).

The studies reviewed have shown that social media is addictive and could destruct students from their core study tasks. The destruction, has been seen to negatively affect academic performance. However, no literature that was reviewed clearly associates grades attained with social media usage. This study seeks to contribute to the association of social media with college programming student grades attained.

Methods

Participants

All students surveyed were college level students. In Kenya, the Government has restricted the use of mobile phones among Secondary and Primary school students. The participants were drawn from two Government institutions in Mombasa County, the Technical University of Mombasa (TUM) and Kenya Coast National Polytechnic (KCNP). In order to secure their consent, the students were first talked to by the researchers before being given a physical questionnaire. A total of 142 students pursuing Degree and Diploma courses in Information Technology participated in the study. Nearly 100% of the questionnaires were filled and analysed for information. The data was digitised as an Excel file before being transferred into SPSS for processing and analysis.

The sample was split into two, one contained undergraduate Information Technology students from TUM, and the other contained Diploma in Information Communication Technology students from KNCP. The Diploma students are those who scored a minimum mean grade of C- (minus) in their O-Level examinations, they were admitted to do a three stage course before proceeding to do an undergraduate degree. The undergraduate students are these who scored a minimum mean grade of C+ (plus) in O-Level. All the students had completed at least one year in their studies. Over 90% of the students were active Social Media users. The

research was conducted in 2018-2019 academic year.

Data Collection

The researchers were interested in associating the use of social media applications and the grades scored in programming units at both Diploma and Degree level. First, students were asked to state the most recent programming language they had learnt and have results. Next, for the undergraduate students, they were asked to state the grade they scored, either A, B, C, D, or Others (Supplementary/fail). For Diploma, the grades stated were, Distinction (A), Credit (B), Pass (C) or Others (Supplementary/fail). The students then were asked the number of hours they spent on social media in a day, options were to choose between, 1 hour and to over 4 hours. Students were asked what time of day they visited social media, the key choices were: early in the morning, over lunch time, afternoon, before going to bed, and any time of day. The researchers also wanted to know the type of social media applications students used often among Facebook, WhatsApp, twitter and others. A number of variable of interest were created from the questionnaire: the grades attained, the number of hours spent on social media, the number of students in each grade, the time of day one used social media.

Results and Discussion

Number of hours spent in social media

Figure 1 shows the students who scored grade A were as follows: 20% were on social media for 0-1 hours, 40% spend 1-2 hours, 26.7% spend 2-3 hours, while 13.3% spend over 4 hours. A similar pattern is replicated for those who scored grade B, where 22% spent 0-1 hours, 39%, 1-2 hours, 22% spent 2 -3 hours, and 14.6% of the students spent over 4 hours. The students who scored grade C were as follows; 16% used 0-1 hours, 44% used 1-2 hours, 16% used 2-3 hours, and 24% used over 4 hours. Finally, those who scored grade D were as follows: 14.3% spend 0-1 hours, 35.7% spend 1-2 hours, another 35.7% spend 2-3 hours, and 14.3% spend over 4 hours. The results show that a smaller percentage of students use social media for about one hour, while majority use social media for

up to two hours a day. Those who spend up to 3 hours and 4 hours are slightly fewer

but definitely more than those who spend up to 1 hour.

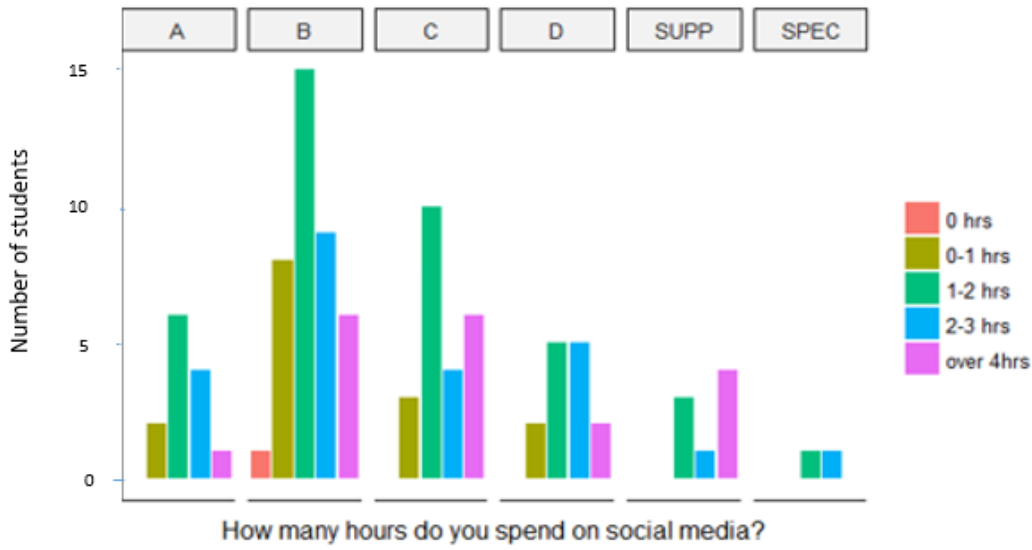


Figure 1. The number of hours spent by University programming students on social media

Although the percentages form a pattern for the four grades, the results showed that there were fewer students ($n = 12$) who used social media for 2 hours and more and scored grade *A* compared to those who used social media for 2 hours and more and scored grade *B* ($n = 41$). A similar pattern is seen for those who scored grade *C* and grade *D*. The results show that spending 2 hours and more on social media could actually affect ones grade in semester exams. Such university students are more likely to score grade *B* and below.

An extension of the study was conducted with 36 Diploma students from a

neighbouring institution (The Kenya Coast National Polytechnic; Figure 2). For the Diploma course, students scored *B (Credit)*, *C (Pass)*, and *Supplementary*. Grade *B* was scored by 2.8% of the students who spend 0-1 hour and, 11.1% who spent 1-2 hours. There were no students who spent 2 hours and above. Those who scored Grade *C* realised the following results: 22.2% spent 0 - 1 hours, 16.7% spent between 1 - 2 hours, 25% spent between 2 -3 hours and 5.6% spent more than 4 hours. The supplementary cases spent between 1 hour to over 4 hours, although this was an insignificant number of only 2.8% for all the three categories.

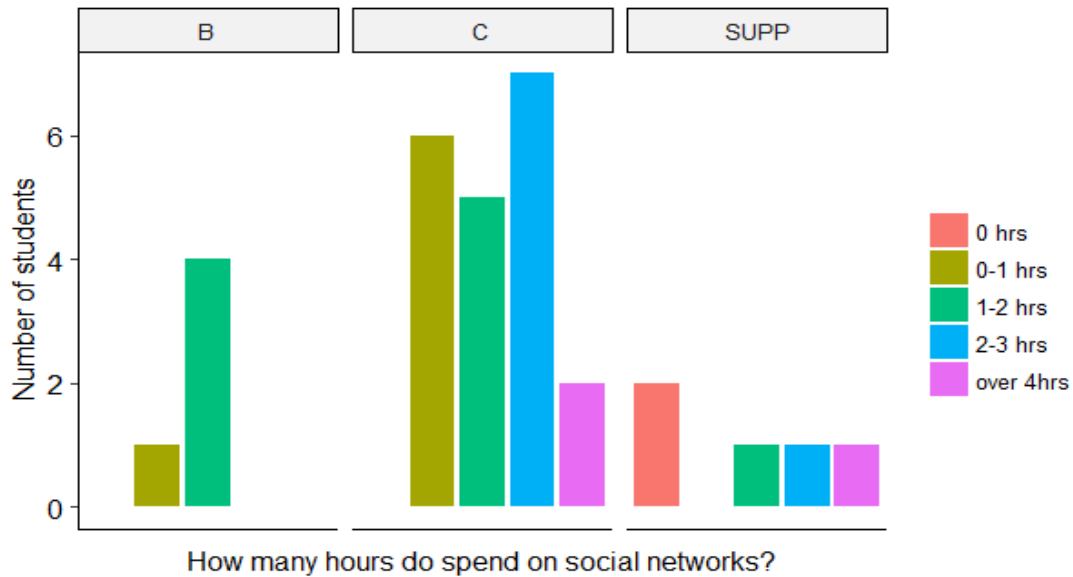


Figure 2. The number of hours spent by Polytechnic programming students on social media

Clearly, the results (Figure 2) show that those who score the top-grade B used less of social media compared to those who got the average grade of C. These results are comparable to the Degree Students, where a smaller percentage of the top students used social media compared to the average students. Similarly, the students who got poor grades and supplementary in both cases were quite few.

Time of the day that students spend on social media

The study needed to know the impact of time of use of social media on student grades (Figure 3). These results show that

very few students (6.7%; n = 7) who scored grade A used social media in the early part of the day, over lunch or afternoon and before bedtime. However, a good number of students (12 out of 15) who scored grade A used Social media anytime of the day. The small number of Grade A students who use social media in the early mornings up to afternoon could be explained by the fact that these are serious students who concentrated on their studies during these times. Therefore, most of them only use social media during the times when they were taking a break from their studies.

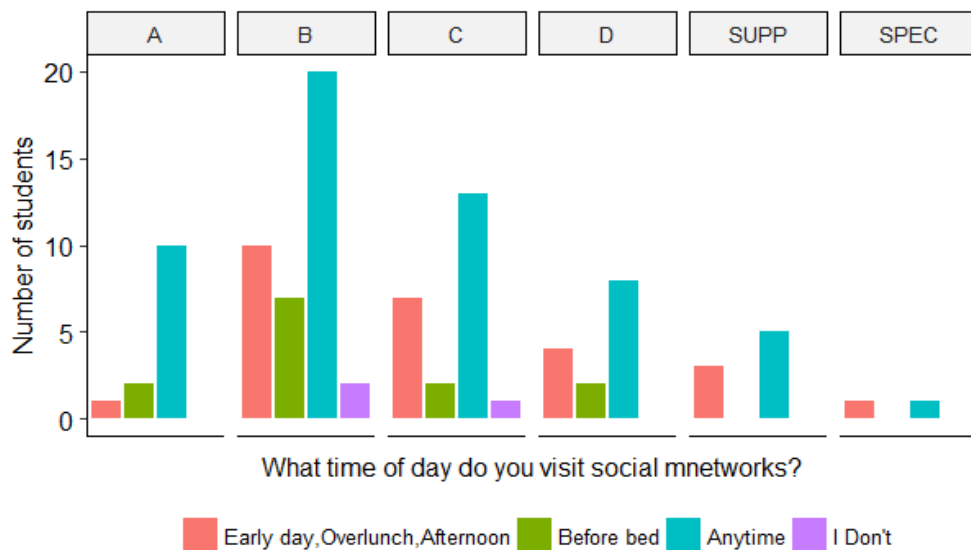


Figure 3. The time of day university students used social media against the grades they scored

For those students who scored grade B, the largest number of 51.3% (n = 54) were those who used social media anytime of the day. This is comparable to those who scored grade C, at 52%, those who scored grade D, at 57.1%, and the Supplementary cases at 62.5%. However, those who used social media from early in the morning to afternoon were 25.6% of the grade B, a trend that follows for those who scored grade C at 32%, grade D at 28.6% and Supplementary cases at 37.5%. These results show that, the number of students who used social media early in the morning and up to afternoon and scored grade B and below are more

compared to those who scored Grade A. Similarly, there were more students of Grade B (n = 20) and C (n = 13) who used social media anytime of the day than those who scored Grade A (n = 12). Although the number of participants was not large enough, these results indicate that students who use social media in the morning up to afternoon and anytime of the day could be affected by social media usage. This study was also extended to students who were doing Diploma courses in Information Technology at the Kenya National Coast Polytechnic (KNCP) (Figure 4).

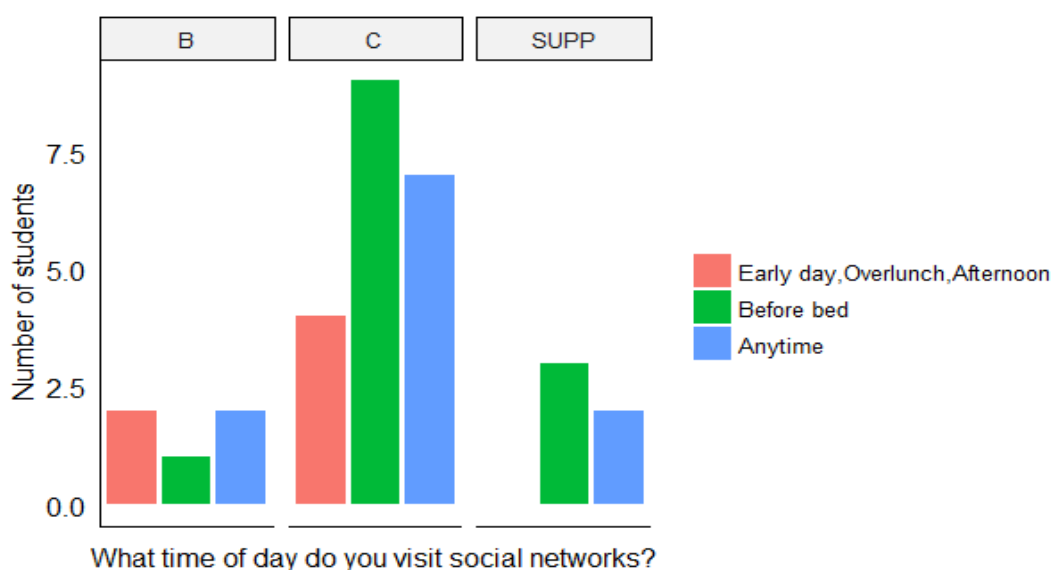


Figure 4. The time of day Diploma students used social media against the grades they scored

Very few students who scored grade B (credit) used social media during any of the three categories of times. However, a good number of students who scored the average, Grade C, used social media: 11.4% early in the day up to afternoon, 34.3% before bed and 25.7% anytime of the day. Notable, more students who do Diploma used social media before bed than any other time categories. Generally, the results agree with those of the university students; especially, that more students who score average grades use social media.

Conclusions

The present study has shown that most university students who spend up to 2 hours a day on social media score grade B or C. While, most Diploma students who

spend up to 3 hours a day on social media Score Grade C. On the time of day students use social media, most graduate students who use social media any-time-of day scored grade B followed by grade C, while for diploma students, majority of them using social media before bed time scored grade C. However, a good number of students who used social media any-time of the day also scored grade C. The study agrees with the reviewed literature that used of social media affects academic performance. The contribution of this study is the association of grades obtained by programming students as impacted by the hours and the time of day used in social media.

Further study should be conducted to determine the actual impact of social media

usage by using a control group who will not use social media.

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