Students' Productivity in Relation to Social Media Algorithms

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Abstract— This study aimed to determine the status level of social media algorithms and the students' productivity and whether there is any substantial relationship between these two variables. More precisely, this research tried to find if the students stay on Facebook browsing and scrolling, content by content might affect their academic compliance. This study is quantitative research and also utilized a correlational research design that looks into correlations between variables without allowing the researcher to control or manipulate any of them (Bhandari, 2022). The respondents answered a questionnaire that was given out online via Google Forms. After the data gathering, the results have shown that the students have High Productivity in terms of their academic compliance. Moreover, the results of the study revealed that there is a significant relationship between social media algorithms and students' productivity. The productivity of the students is affected by the social media content that appears on their feeds.

Keywords— academic compliance, academic performance, Facebook, newsfeed, social media algorithm, social media content, students' productivity.

INTRODUCTION

Social media algorithms organize posts in a user's feed based on relevance rather than publish time. Social media platforms prioritize which material a person sees in their feed based on the likelihood that they will want to view it. Social media algorithms by default decide which material to display depending on your behavior (Barnhart, 2021).

In addition, Golino (2021) stated that they are used by social media networks to more organically filter through the huge amount of content available on each platform. Also, they are responsible for presenting material that is potentially more "interesting" for a user, at the expense of those that are deemed irrelevant or low-quality - either in general or to a single user.

As per Wise (2022), the most widely used social media site for networking, conversing, and watching media is Facebook. Mark Zuckerberg started the tech giant in 2004, and it has since expanded to become the single-largest social media platform, in specification to the abovementioned algorithm. According to a study conducted by Naseem in 2020, Facebook arranges the content shown to its users according to a set of guidelines. These rules, often known as "Facebook algorithms," are a series of calculations employed by Facebook to determine the information that everyone sees. It is proved to be a complicated issue that can either improve the value of your material or eliminate it. Every

post is evaluated by the Facebook algorithm. It assesses postings and then arranges them for each user in decreasing, non-chronological order of interest. This process occurs every time one of the 2.9 billion users refreshes their feed (Newberry, 2022).

The different types of content that usually exist in one's Facebook newsfeed are photo-based and text-based posts, videos, and sponsored advertisements. Thus, students who are active users of the said social media platform often spend their time on these types of content while browsing or scrolling through their Facebook feed and engage with these types of posts to keep themselves entertained, distracted, or simply piqued their interest.

According to a report by Wise (2022), social media is used by around 4.2 billion people, or 55% of the world's population, up from 81% when the epidemic hit. The majority of people's daily social media time (35 minutes) is spent on Facebook, with the Philippines being the state with the most usage (nearly four hours).

Naturally, Facebook is exploring ways to lengthen our time spent on the platform. Enhancing its News Feed by better catering to users' wants and interests based on how long they spend reading a particular material is an essential goal. Users that express a preference for it will see more videos near the top of the news feed. As users spend more time on Facebook, they will produce more

data on themselves, which will boost the company's performance (Stewart, 2016).

According to InoSocial (2021), using social media excessively shortens attention span. Studies show that those who use social media heavily have a considerably harder time focusing than people who use communication platforms mildly. In addition, social media has been shown to interfere with sleep. Sleep is less restorative and deeper when blue displays are used. As a result, fatigue causes a decline in productivity during the day. Last but not least, social media use may result in a decline in mental health. Doctors and neuroscientists agree that social media adversely harms the nervous system. It may make it difficult to concentrate on the accomplishment of schoolwork.

This study determined the status level of social media algorithms and the students' productivity and whether there is any substantial relationship between these two variables. More precisely, this research tried to find if the students stay on Facebook browsing and scrolling, content by content might affect their academic compliance. Hence, the result of the study will become a basis of the parents, guardians, teachers, and school administrators on how to guide the students for responsible usage of social media and for managing their time.

MATERIALS AND METHODS

The research used a quantitative research design. The process of gathering and interpreting numerical data is known as "quantitative research." It may be used to discover patterns and averages, make predictions, verify causal linkages, and generalize results to larger groups (Bhandari, 2022). According to Fleetwood (2022), quantitative research is the systematic examination of phenomena through the collection of measurable data and the use of statistical, mathematical, or computer methodologies. Quantitative research gathers information from current and future consumers using sampling methods and the distribution of online surveys, polls, and questionnaires, for example.

This study went forward by utilizing a correlational research design. A correlational research strategy investigates correlations between variables without allowing the researcher to control or manipulate any of them. A correlation is a measurement of the intensity and/or direction of a link between two (or more) variables. Its direction might be either positive or

negative (Bhandari, 2022). The students' social media algorithms were correlated to their productivity.

Research Instrument

A survey questionnaire was used by the researchers to collect the essential data for their investigation. The survey questionnaire assessed the association between social media algorithms and student productivity.

The survey questionnaire was made by the researchers and validated by a registered psychometrician. It was also reviewed and validated by a grammar expert. It is divided into two parts which are the Respondent's Profile and Student's Productivity. Part I is composed of the student's sex assigned by birth, age group, grade level, and most-seen social media content on Facebook. Part II has 10 statements that are about a student's productivity, it was also inspired by the researcher-made questionnaire by Jennilyn F. Balbalosa (2010).

Table 1 depicts the rating and its interpretation used for students' productivity.

Table 1. Scale and Description of Students' Productivity

Rate	Description
5	Always
4	Often
3	Sometimes
2	Rarely
1	Never

Research Procedure

The study focused on the link between social media algorithms and students' productivity. It was intended to examine and collect data on how social media algorithms affect student productivity. The research procedure began with a letter to the School Principal asking permission to conduct the study at Lumil Integrated National High School (LINHS). Approval letters were also accorded to the junior high school's grade level coordinators, along with request letters for the researchers to gather a list of all enrolled students by grade level. Subsequently, each of the target respondents who were still minors was issued a letter of assent from their parent(s)/guardian(s). The researchers looked forward to receiving each letter's response. Moreover, the researchers did not require the target respondents to participate if they would not want to. Importantly, all

respondents of the study were provided with information on the study's rationale and procedures.

The survey questionnaires were distributed to 180 LINHS students last April to May 2023. Also, a Google Form Survey was created and disseminated via private message on Facebook Messenger to the target respondents.

The collected data were statistically treated, analyzed, and interpreted. The mean scores ascertained the level of productivity of students. These were interpreted using Table 2.

Table 2 displays the scale and description to be used in interpreting the students' productivity.

Table 2. *Scale and Description of the Level of Students' Productivity*

Scale	Description
4.21 – 5.00	Very High Productivity
3.41 – 4.20	High Productivity
2.61 – 3.40	Moderate Productivity
1.81 – 2.60	Low Productivity
1.00 – 1.80	Very Low Productivity

RESULTS AND DISCUSSIONS

Table 3 shows the frequency of respondents' social media algorithms.

Table 3. *Frequency of Respondent's Social Media Algorithms*

SOCIAL MEDIA ALGORITHMS	FREQUENCY	PERCENTAGE
Facebook reels	31	17.22%
Photo-based posts	58	32.22%
Sponsored Advertisements	2	1.11%
Text-based posts	52	28.89%
Videos	37	20.56%
TOTAL	180	100.00%

Based on the information in the table, this is the students' frequent social media algorithms. The majority of the respondents, 32.22%, mostly see photo-based posts on their social media newsfeeds. The students who have text-based posts encountered more on their feed came in second with 28.89%, followed by videos with 20.56%. Next is the Facebook reels with 17.22% and the sponsored advertisements came in last with 1.11%.

Table 4 shows the mean scores of the respondents' level of productivity based on the results of the survey.

Table 4. *Mean Score and Description of the Level of Productivity of the Students*

RESPONDENTS	N	MEAN	SD	DESCRIPTION
STUDENTS	180	3.71	0.79	High Productivity

Table 5 shows the result of the test of the significant relationship between social media algorithms and students' productivity.

Table 5. *Results of the Chi-square Test of Independence as Reflected by the Survey for Students' Productivity in Relation to Social Media Algorithms*

SOCIAL MEDIA ALGORITHMS	VERY HIGH	HIGH	MODERATE	LOW	VERY LOW	x^2	p-value
Facebook reels	3	10	11	4	3	32.442	0.008
Photo-based posts	20	18	11	9	0		
Sponsored Advertisements	2	0	0	0	0		
Text-based posts	15	22	11	4	0		
Videos	11	16	9	1	0		

CONCLUSIONS

The research's findings have led to the following conclusion that there is sufficient evidence to support that there is a significant relationship between social media algorithms and students' productivity. It was shown that photo-based posts had the majority of responses of most-seen social media content that falls under Facebook algorithms. Furthermore, the productivity of the students in terms of their academic performance is characterized as High Productivity according to the results of the survey. However, it was

later proven that there is a significant relationship between social media algorithms and students' productivity. To summarize the findings from the chi-square test used, it can be concluded that students' productivity is affected by social media algorithms. Also, social media algorithms significantly affect a student's academic performance.

RECOMMENDATIONS

To students, this study's result may indicate that social media algorithms might possibly affect one's productivity. This may help them know how social media works and how it persuades them to stay on the platforms longer.

To parents, the results of this study may be an awareness and reminder that social media algorithms might possibly interfere with their child's scholastic performance.

To psychologists, the findings of the study may help the level of effects of social media algorithms and how their components affect one's productivity and mental state, especially for students.

Other researchers who will conduct this research in the future are advised to include the demographic profile of their prospective respondents as their variable to measure. It would also be advised to conduct the research to a larger sample size or population.

Since the study has proven that social media algorithms have a significant relationship with students' productivity, future researchers are recommended to recreate this study by the utilization of TikTok algorithms as their independent variable that is also possible to affect the student's academic performance.

It is recommended that future researchers conduct an adaptation of this study using Instagram algorithms as their independent variable because the study has shown that social media algorithms have a discernible relationship with students' productivity.

It is recommended that future researchers conduct an adaptation of this study using Instagram algorithms as their independent variable because the study has shown that social media algorithms have a discernible relationship with students' productivity and using the said platform can also bring out the same results.

The study has demonstrated that social media algorithms have an evident relationship with students' productivity, hence it is advised that future researchers modify this study utilizing Twitter algorithms as their independent variable.

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