THE IMPACT OF TIKTOK USAGE ON ACADEMIC PERFORMANCE OF MULTIMEDIA NUSANTARA UNIVERSITY STUDENTS

Calvin Leo[1], Mochamad Daffa[2], Fransiscus Ati Halim[3]
[2]Informatics, Universitas Multimedia Nusantara, Kabupaten Tangerang, Indonesia
calvin.leo@student.umn.ac.id[1], mochamad.daffa1@student.umn.ac.id[2],
fransiscus.ati@lecturer.umn.ac.id[3]

Abstract-The growing prevalence of TikTok among university students has raised concerns about its potential impact on academic performance. This study examined the relationship between TikTok usage patterns and academic performance among students at Multimedia Nusantara University. Using a quantitative approach, data was collected from 51 students through online questionnaires measuring TikTok usage frequency, duration, and academic indicators including GPA. Statistical analysis revealed a weak negative correlation between TikTok usage and academic performance (coefficient = -0.06973, R^2 = 0.07686), though not statistically significant. While 88.2% of respondents regularly use TikTok, with 45.7% accessing it 5-10 times daily, the impact on GPA was less pronounced than expected. The findings suggest that students may have developed compensatory strategies to balance social media use with academic responsibilities, highlighting the need for targeted guidance on healthy social media usage in academic settings.

Index Terms: TikTok, academic performance, social media, students, GPA

I. INTRODUCTION

In today's digital era, social media has become an inseparable part of daily life, especially among university students. One rapidly growing social media platform is TikTok, which was initially known as an entertainment-based application featuring short videos. TikTok has now attracted many users, including students, with varied content ranging from entertainment to education. According to Salma (2024), Gadjah Mada University students conducted research on the impact of TikTok content on students' literacy skills, which showed that TikTok has the potential to influence various aspects of students' academic life, both positively and negatively

TikTok usage among university students is not limited to entertainment consumption alone but extends to educational content dissemination. TikTok offers an attractive and easily accessible video format, enabling students to learn new things through tutorial content, academic information, and relevant current news. As a dynamic platform, TikTok can significantly impact student motivation and engagement in academic activities (Yélamos-Guerra et al., 2022). However, there are concerns that excessive TikTok use may interfere with students' study focus and time management, ultimately leading to decreased academic performance (Regasa & Ettisa, 2023).

Several studies indicate that social media usage, including TikTok, can have varied impacts on students' academic performance. Daniati, Darliana, and Alwina (2022) note that excessive social media use can disrupt students' concentration and learning focus. Research by Haryanto et al. (2023) also shows that prolonged TikTok usage can reduce student learning productivity, interfere with time management, and cause decreased concentration. However, when used wisely, TikTok can serve as a valuable source of academic motivation.

Given this phenomenon, this study aims to examine more deeply the influence of TikTok usage on academic behavior among Multimedia Nusantara University students. The main focus of this research is to analyze the impact of TikTok usage duration and frequency on time management, study concentration, and academic motivation of students.

B. Purpose

This research aims to analyze the influence of TikTok usage duration and frequency on academic behavior among Multimedia Nusantara University students.

C. Hypothesis

- H_0: There is no significant impact of TikTok usage (in terms of duration, frequency, and purpose) on academic performance (including GPA, study concentration, and time management) of Multimedia Nusantara University studen

- H_1: There is a significant impact of TikTok usage on academic performance of

Multimedia Nusantara University students.

II. LITERATURE STUDY

A. Social Media Theory and TikTok Usage

Social media platforms, like TikTok, are internet-based tools that allow users to interact, communicate, and share content in various formats, such as text, images, and videos. According to Boyd and Ellison (2008), social media enables individuals to create public or semi-public profiles, interact with others, and share content. TikTok, a social media app that specializes in short videos, blends entertainment with education, offering a diverse range of content from entertainment to academic information. Its short-form video format makes it highly engaging and addictive (Liu & Ma, 2022). TikTok usage can affect students' productivity and the time spent on academic activities, both positively and negatively (Regasa & Ettisa, 2023).

B. The Influence of Social Media on Academic Behavior

Academic behavior refers to students' study habits, concentration, time management, and motivation to learn. Zimmerman (2008) states that good academic behavior is characterized by the ability to plan, manage time, and maintain focus on academic tasks. Social media usage, such as TikTok, can influence these behaviors. Daniati et al. (2022) found that excessive social media usage can disrupt students' concentration, leading to a decline in academic performance. On the other hand, when used for educational purposes, social media can enhance motivation to learn. Yélamos-Guerra et al. (2022) noted that TikTok, with its educational content, can have a positive impact if used wisely.

C. Duration and Frequency of TikTok Usage

The duration and frequency of TikTok usage are crucial factors in analyzing its impact on academic behavior. Haryanto et al. (2023) revealed that the longer students spend on social media, the more likely their study concentration is to be disrupted. This aligns with distraction theory in psychology, which suggests that irrelevant activities can divert attention from primary goals (LaBerge, 1995). Frequent use of TikTok can also affect time management skills. Excessive or uncontrolled usage may reduce students' ability to balance study time and social activities, negatively impacting their academic performance. However, when used strategically, TikTok can provide educational benefits, such as engaging students in learning and exposing them to relevant information (Robingatun et al., 2024).

D. Concentration and Time Management

Several factors affect concentration, one of which is external distractions like social media. Mekler (n.d.) found that students who spend a lot of time on social media tend to have lower concentration levels while studying, as their attention is divided between academic tasks and social media. Effective time management allows students to balance study, rest, and social activities. However, excessive social media use can reduce the time allocated for academic activities, leading to an imbalance and a decline in academic quality (Idrus, 2024).

III. METHODOLOGIES

A. Object of Research

This study focuses on the influence of TikTok usage on the academic behavior of students at Multimedia Nusantara University. The research aims to explore how the frequency, duration, and purpose of TikTok usage impact key academic behaviors, including time management, study concentration, and academic achievement. The study specifically examines the patterns of TikTok usage among university students and their correlation with academic performance metrics, considering both direct and indirect effects on learning outcomes.

B. Research Method

A descriptive quantitative approach was employed in this study. The cluster sampling method was used to select a sample of 51 active students who regularly used TikTok, either for entertainment, academic purposes, or both. The sample size was determined using Slovin's formula with a 5% margin of error, ensuring statistical significance at a 95% confidence level. The sampling process involved stratification across different faculties to ensure representative distribution.

The study examined two primary variables:

- Independent Variable: TikTok usage, measured by frequency (daily/weekly usage patterns), duration (average time spent per session), and primary purpose (entertainment, educational, or mixed usage).
- Dependent Variable: Academic behavior, which includes time management (study scheduling and adherence), study concentration (focus duration and quality), and academic achievement (GPA and course performance).

C. Data Collection and Analysis Procedures

Data were collected through a structured questionnaire distributed via Google Forms. The questionnaire underwent rigorous validation through expert review and pilot testing with a focus group of 51 students. The questionnaire was designed to gather comprehensive data on how TikTok usage affects students' academic behaviors

at Multimedia Nusantara University, focusing on aspects that influence time management, study concentration, and academic achievement. Each section utilized validated measurement scales with demonstrated reliability (Cronbach's α > 0.7).

After the data were collected, they were processed and analyzed using RStudio. The analysis followed a systematic approach:

1. Initial Data Processing:
   - Data cleaning and normalization
   - Missing value treatment
   - Outlier detection and handling
2. Statistical Analysis:
   - Descriptive statistics to summarize TikTok usage patterns and academic behaviors
   - Normality tests (Shapiro-Wilk) to ensure data distribution conformity
   - Correlation analysis using Spearman's Rank Correlation
   - Multiple regression analysis to examine relationship strengths
   - Non-parametric tests for group comparisons

IV. RESULT AND ANALYSIS

1) Descriptive Statistics

The study involved 51 active students from Universitas Multimedia Nusantara, aiming to explore TikTok usage among university students. The results showed that TikTok is highly popular, with 88.2% of respondents reporting its use. Most students spend around one to two hours a day on the app, indicating a high level of engagement. TikTok serves various purposes, with entertainment being the top reason at 87%, followed by relaxation or stress relief at 65.2%, educational content at 28.3%, and staying in touch with friends at 19.6%. In terms of frequency, 45.7% of the respondents open TikTok 5 to 10 times a day, 34.8% less than five times, and 19.6% more than 10 times daily.

Additionally, TikTok usage in a single session is generally short, with 58.7% of respondents spending less than 30 minutes per session. Only 15.2% of respondents use the app for over an hour in one session. When asked about the impact of TikTok on their study habits, 43.5% of respondents stated that they never delay studying due to TikTok. However, 19.6% admitted to frequently postponing their study time, while 15.2% do so occasionally. These findings suggest that although TikTok is frequently used, most students manage their usage effectively, ensuring it does not significantly interfere with their academic activities.

2) Graph
a) Histogram
- GPA
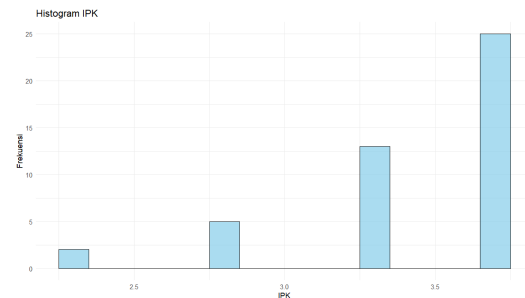
Fig 1. Histogram showing distribution of student GPA (n=51)

From the histogram presented, it is evident that the majority of respondents fall within the average to high range of scores, as indicated by the two tallest bars on the graph. A smaller portion of respondents have scores in the lower categories, with significantly fewer occurrences. This distribution shows that most respondents in the dataset demonstrate good to excellent performance. Meanwhile, only a small number of respondents fall into the lower or moderate score categories. This pattern can serve as a basis for evaluating the relationship between respondents' scores and other variables to determine whether there is a significant influence or correlation between them.

- Frequency of TikTok Usage
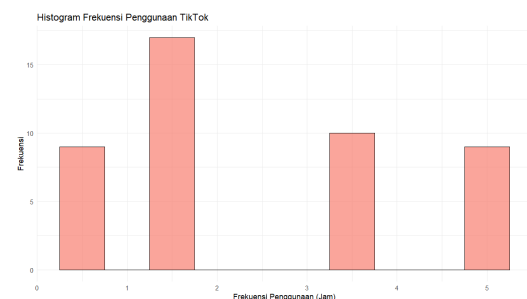
Fig 2. Histogram shwoing Frequency of TikTok Usage

The histogram of TikTok usage frequency shows that most respondents spend 1–2 hours per day on TikTok, as indicated by the tallest bar, while fewer respondents report usage of less than 1 hour or more than 4 hours per day. This distribution highlights that moderate usage habits (1–2 hours) are most common, with extreme durations being less frequent. These insights provide a basis for evaluating the potential impact of TikTok usage on other variables, such as academic performance (GPA).
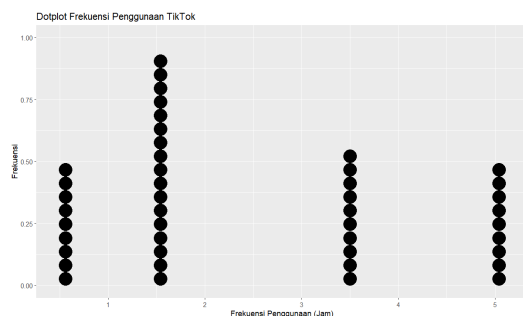
b) Dotplot
- GPA
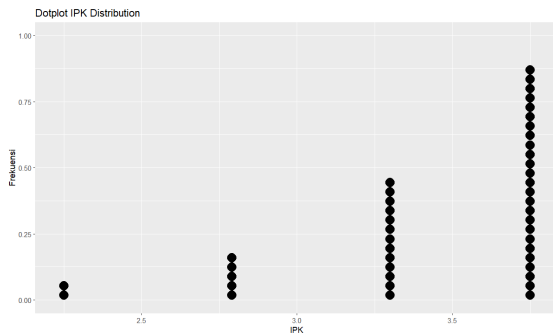
Fig 3. Dotplot of GPA

The dotplot of GPA distribution reveals that the majority of respondents fall within the 3.6–4.0 range, indicating excellent academic performance, followed by the 3.1–3.5 range, reflecting good performance. Respondents with lower GPAs, such as 2.6–3.0 and below 2.5, are very few. This suggests that most respondents exhibit moderate to excellent academic achievement (GPA above 3.0), with only a small proportion showing lower performance. The distribution highlights the strong academic quality of the respondent population, which may influence further analysis on the relationship between GPA and other variables, such as TikTok usage duration. The GPA distribution is further detailed in the table below:

1.1 GPA DISTRIBUTION OF RESPONDENTS

Value Range	Frequency
< 2.5	2
2.5 - 3.0	5
3.1 - 3.5	13
3.6 - 4.0	25

- Frequency of TikTok Usage

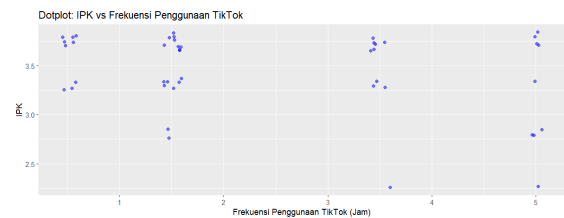**Fig 4.** Dotplot of Frequency of TikTok Usage

The dotplot of TikTok usage frequency shows that the majority of respondents spend 1–2 hours per day on TikTok, as indicated by the dense concentration of points in this category. A smaller number of respondents reported lower usage (less than 1 hour) or higher usage (3–4 hours and more than 4 hours), with

significantly fewer occurrences. This distribution reflects a moderate usage pattern, where most respondents use TikTok within a reasonable duration. Extremely low or high usage durations are observed in only a small portion of respondents, providing an initial insight into social media usage habits within the respondent population. The usage frequency distribution is further detailed in the table below:

1.2 TABLE OF FREQUENCY OF TIKTOK USAGE

Usage Range	Frequency
< 1 Hour	8
1 - 2 Hour	19
3 - 4 Hour	10
> 4 Hour	9

- GPA and Frequency of TikTok Usage

Fig 5. Dotplot of GPA and Frequency of TikTok Usage

The dotplot of the relationship between GPA and TikTok usage frequency shows a random scatter of points, with no clear pattern indicating a consistent positive or negative linear trend between the two variables. Respondents with high GPAs (3.6–4.0) are observed across both low usage durations (<1 hour) and high durations (>4 hours), while those with lower GPAs are similarly dispersed across various usage levels. This suggests that TikTok usage duration does not exhibit a strong visual relationship with GPA. However, this conclusion remains descriptive and requires further confirmation through formal statistical analyses, such as Spearman's correlation or simple linear regression, to determine whether a significant relationship exists. If such a relationship is identified, further investigation can explore the potential influence of TikTok usage on academic performance.

3) Data Distribution

The impact of TikTok on various aspects, such as academics and concentration, shows different distribution patterns. For academic impact, with a mean of 2.391 and a median of 2, the distribution is slightly positively skewed. This suggests that most respondents feel TikTok has a low or moderate impact on their academic performance, but a small group perceives a stronger effect. In other words, while the majority are not significantly impacted, a few individuals report a greater influence on their academic outcomes.

Regarding concentration, the mean of 2.847 and median of 3 suggest a negatively skewed distribution. This means that more respondents feel TikTok does not interfere with their concentration, and some even believe it could help improve focus. However, there is still a small group who feel that TikTok disrupts their concentration. Overall, most respondents don't think TikTok has a major effect on their ability to focus.

For the overall impact, the mean of 2.347 and median of 2 also indicate a positively skewed distribution. This shows that most respondents perceive TikTok's overall effect on their lives as relatively low. While a few report a stronger impact, the majority believe that TikTok's influence on their daily lives is not very significant.

Finally, in terms of GPA, the mean of 3.08 and median of 3.3 point to a negatively skewed distribution. This suggests that most respondents have a GPA slightly above average, though some have lower GPAs. The overall trend reflects that the respondents perform well academically, but there is some variation in their academic achievements.

4) Statistical Inference Test One Population Mean
- GPA

The one-sample t-test for GPA shows a t-value of 5.9619, with df = 44 and a p-value = 3.839e-07. Since the p-value is far below the significance level of 0.05, we reject the null hypothesis. This indicates that the mean GPA (3.4478) is significantly different from the hypothesized mean (3.08). The 95% confidence interval for the mean ranges from 3.3235 to 3.5721, confirming that the true mean GPA is higher than the hypothesized value.

- Frequency of TikTok Usage

The one-sample t-test for TikTok usage frequency shows a t-value of 0.2179, with df = 44 and a p-value = 0.8285. Since the p-value is greater than the significance level of 0.05, we fail to reject the null hypothesis. This indicates that the mean TikTok usage frequency (2.44) does not differ significantly from the hypothesized mean (2.391). The 95% confidence interval for the mean ranges from 1.95 to 2.94, further supporting that the observed mean is consistent with the hypothesized value.

5) Regression Analysis

The linear regression analysis revealed the relationship between TikTok usage frequency and GPA. The model produced an F-statistic of 3.58, with a p-value of 0.0652, which is slightly above the 0.05 significance level. This suggests that the relationship is not statistically significant at the conventional 5% level.

The model explains approximately 7.69% of the variance in GPA, as indicated by the R^2 value of 0.07686 (Adjusted R^2 = 0.05539). The regression equation indicates that for every one-unit increase in TikTok usage frequency, GPA decreases by 0.0697

units (β = -0.0697, p = 0.0652). The formal regression equation derived from the analysis is as follows:

$$Y = 3.61828 - 0.0697X + \epsilon$$

Where:
Y = GPA
X = TikTok usage frequency (hours)
ϵ = Error term (Residual standard error = 0.4022)

6) Spearman

In this study, a Spearman correlation analysis is used to investigate the relationship between TikTok Usage Frequency and Cumulative Grade Point Average (GPA) of students. The analysis revealed a correlation coefficient of -0.1988546, indicating a weak negative correlation between TikTok usage and academic performance. This suggests that as TikTok usage increases, the GPA tends to decrease. However, the strength of this relationship is very weak and statistically insignificant. The p-value obtained, which is greater than 0.05, shows that the relationship between the two variables is not statistically significant enough to reject the null hypothesis. Therefore, this study cannot provide sufficient evidence to suggest a meaningful linear effect of TikTok usage on students' academic achievement.

V. CONCLUSION

The analyzed data on the effects of TikTok usage on the academic performance of Universitas Multimedia Nusantara students revealed a weak negative relationship between the frequency of TikTok use and GPA, with a coefficient of -0.06973. This suggests that each additional hour of TikTok usage could potentially lower GPA by 0.06973 points. However, this relationship is statistically weak, as the coefficient of determination (R^2) indicates that only 7.69% of the variation in GPA can be explained by TikTok usage frequency, implying the presence of other more influential factors on GPA.

Further statistical tests reinforced these findings, with the Chi-square test (p-value = 0.4578) and Mann-Whitney test (p-value = 0.4474) showing no significant relationship between TikTok usage categories and GPA. Nonetheless, the average GPA of students (3.447778) remained significantly higher than the hypothesized value of 3.0, with a p-value < 0.05, and Spearman's correlation indicated a weak negative relationship (rho = -0.1988546) with a p-value of 0.1904.

Regarding usage patterns, most students (37%) used TikTok for 1-2 hours daily, with 58.7% spending less than 30 minutes per session. A majority (87%) used the platform for entertainment, while only 15.2% utilized it for academic purposes. Although 43.5% of students reported that TikTok affects their study concentration, and 30.5% admitted to frequently postponing studies due to TikTok, this did not

significantly reflect in their GPA.

In conclusion, while there are indications of a negative relationship between TikTok usage and academic performance, the statistical insignificance of this relationship suggests that TikTok does not directly impact students' academic performance. This indicates that students may have developed effective compensatory strategies to mitigate potential negative effects of TikTok usage. Moreover, there remains potential to optimize the platform as a learning tool, given its currently low academic utilization and lack of significant negative impact on GPA.

VI. RESOURCES

[1] Salma, "UGM Students Research Impact of TikTok Content on Student Literacy Skills - Universitas Gadjah Mada," *Universitas Gadjah Mada*, May 21, 2024. https://ugm.ac.id/en/news/ugm-students-research-impact-of-tiktok-content-on-student-literacy-skills/

[2] D. L. Ettisa and A. Regasa, "The Impact of TikTok on Students: A Literature Review," *Qeios*, Oct. 2023, doi: https://doi.org/10.32388/EPFGO6.

[3] B. Busch, "The impact of TikTok on students' grades | InnerDrive," *InnerDrive*, May 22, 2023. https://www.innerdrive.co.uk/blog/tiktok-students-grades/

[4] N. Daniati, Eka Darliana, and Sakura Alwina, "Korelasi Pengaruh Media Sosial Tik Tok Terhadap Prestasi Belajar Mahasiswa Prodi Pendidikan Ips Semester V STKIP Al-Maksum Langkat," *Jurnal Berbasis Sosial*, vol. 2, no. 1, pp. 38–44, 2022, Accessed: Dec. 26, 2024. [Online]. Available: https://www.ojs.yayasanalmaksum.ac.id/index.php/jbs/article/view/275/

[5] M. S. Yélamos-Guerra, M. García-Gámez, and A. J. Moreno-Ortiz, "The use of Tik Tok in higher education as a motivating source for students," *Porta Linguarum Revista Interuniversitaria de Didáctica de las Lenguas Extranjeras*, no. 38, pp. 83–98, Jun. 2022, doi: https://doi.org/10.30827/portalin.vi38.21684.

[6] Milfian Haryanto, Agnes Citra Sidauruk, Yohani Baptista Hendy, Januarti Anjela Sabailaket, Dihan Rahul Purba, and Emanuel Ristian Handoyo, "Pengaruh Penggunaan Aplikasi TikTok terhadap Produktivitas Belajar Mahasiswa di Yogyakarta," *Konstelasi*, vol. 3, no. 2, pp. 330–341, Dec. 2023, doi: https://doi.org/10.24002/konstelasi.v3i2.7213

[7] Atik Robingatun, Yuni Kartika, Nawal Mahda, Phasya Permata, L. Nai'ilatur, and Joko Tri Nugraha, "Hiburan atau Distraksi? Mengurai Pengaruh TIKTOK pada Prestasi dan Interaksi Mahasiswa," *JMAN Jurnal Mahasiswa Ilmu Administrasi Negara*, vol. 8, no. 1, pp. 25–34, 2024, Accessed: Dec. 26, 2024. [Online]. Available: https://jom.untidar.ac.id/index.php/jman/article/view/4348

[8] N. A. Putri, K. Kamaluddin, and A. Amrina, "TikTok Application on Achievement and Learning Motivation at Influence Colleges," *Scientechno: Journal of Science and Technology*, vol. 2, no. 1, pp. 80–96, Apr. 2023, doi: https://doi.org/10.55849/scientechno.v2i1.62.

[9] S. W. Al Idrus, "Analisis Dampak Penggunaan Media Sosial Terhadap Indeks Prestasi Kumulatif (IPK) Mahasiswa Prodi Pendidikan Kimia FKIP Unram," *Jurnal Ilmiah Profesi Pendidikan*, vol. 9, no. 2, pp. 1327–1332, May 2024, doi: https://doi.org/10.29303/jipp.v9i2.2304.

[10] Y. Febrianti, M. Herawati, and S. Hanifah, "Effect of using TikTok as learning media on academic achievement of pharmacy students," *THE 4TH INTERNATIONAL SEMINAR ON CHEMICAL EDUCATION (ISCE) 2021*, 2022, doi: https://doi.org/10.1063/5.0113787.

[11] K. Hill *et al.*, "The role of a major social media platform on students' academic performance: Perception versus reality," *European Journal of Interactive Multimedia and Education*, vol. 5, no. 1, p. e02401, Jan. 2024, doi: https://doi.org/10.30935/ejimed/14135.

[12] Gul, Amna Talpur, Sumreen Chachar, Tania, and A. Chachar, "Impact of TikTok on BSN Students' Academic Performance, Mental Health, and Educational Engagement," *Zakariya Journal of Social Science*, vol. 3, no. 2, pp. 36–44, Sep. 2024, Accessed: Dec. 26, 2024. [Online]. Available: https://www.journals.airsd.org/index.php/zjss/article/view/470

[13] A. Mekler, "The Effects of TikTok Use on College Student Learning," *Undergraduate Review*, vol. 16, no. 1, pp. 145–153, Jan. 2021, Available: https://vc.bridgew.edu/undergrad_rev/vol16/iss1/19/

[14] Gada Wayessa, Wondimu Legese, and Tesfaye Gebeyehu, "The Relationship between TikTok Use Experiences, Socio-demographics, and Academic Performance among Jimma University Students," *The Ethiopian Journal of Social*

Sciences and Language Studies (EJSSLS), vol. 11, no. 1, pp. 107–130, 2024, Available: https://journals.ju.edu.et/index.php/ejssls/article/view/5583

[15] A. N. NUR NADIA ROSLYNNA, M. A. NUR FAIZA, and I. MUHAMAD SHAMSUL, "THE RELATIONSHIP BETWEEN THE IMPACT OF SOCIAL MEDIA AND STUDENTS' ACADEMIC PERFORMANCE," *The Asian Journal of Professional and Business Studies*, vol. 2, no. 2, Mar. 2022, Available: https://eprints.kuptm.edu.my/2182/