Bridging the empirical gap in the relationship and effect of TikTok on students' engagement: A case of a local college in the Philippines

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ABSTRACT

An empirical gap was observed concerning published scholarly works conducted focusing on the relationship and direct effect of TikTok utilization on students' engagement. Therefore, conducting an inquiry regarding this issue is highly recommended. In this regard, this comparative, correlational, and causal study is focused on examining the relationship and direct effect of utilizing the said application to the engagement of students in the City College of Angeles, Angeles City, Philippines. Data are obtained by conducting an online survey to a sample of undergraduate students ($N_{Male} = 238$(38.5%), $N_{Female} = 380$(61.5%)). Based on the findings, it was discovered that no observed significant variance concerning TikTok utilization [Male ($Mdn = 2.67$) and Female ($Mdn = 2.62$), $U(N_{Male} = 238, N_{Female} = 380) = 116236.000$, $z = -.637$ $p = .524$, $r = -0.025$)] and students' engagement [Male ($Mdn = 3.29$) and Female ($Mdn = 3.19$), $U(N_{Male} = 238, N_{Female} = 380) = 114478.000$, $z = -1.451$ $p = .147$, $r = -0.058$)] with respect to gender. Interestingly, a positive association was observed between the two variables [$r(616) = .336$, p < .05)]. Finally, it was found that TikTok utilization positively predicts students' engagement [$F(1, 616) = 82.574$, $p < .001$], and the $R^2 = .118$ displayed that the model explains 11.8% of the variance in students' engagement. Based on the findings, proposals for students, teachers, and future studies are presented as a result of this investigation.

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INTRODUCTION

The novel coronavirus has halted daily activities for people all around the world. It has impacted our daily lives and hampered economies around the world (Haleem et al., 2020). From preventing individuals from going to the store to get necessities to having an immediate impact on the workforce and educational institutions, the virus had a profound effect on the lives of billions of people around the world (Adhikari et al., 2020; Bilinski & Emanuel, 2020; Dessie & Zewotir, 2021; Wiersinga et al., 2020). Because of the assault of COVID-19, classes at all levels of education, from primary schools to higher education institutions (HEIs), were required to be suspended around the world in order to stop the virus's further spread. Every institution was required to make the transition from the more traditional in-person classes to the more modern online learning format (J. Lobo, 2022a, 2022b). Nevertheless, even in the post-pandemic era, the online learning mode will still play a vital role in ensuring that students receive a high-quality education (Pokhrel & Chhetri, 2021). On the one hand, despite the convenience and ease of usage, this mode of communication has been linked to a wide range of negative psychological outcomes amongst student populations (Alibudbud, 2021; Baltà-Salvador et al., 2021; Chang et al., 2021). Students seek distraction from these stresses by using a variety of social media platforms (Cauberghe et al., 2021; Wiederhold, 2020), and the most prominent app that plays a significant role for students is TikTok (Hajriah et al., 2021; Hamami et al., 2022). In the Philippines, TikTok is among the most popular SNSs. From the conventional "meme" to numerous creative forms like dance and song covers, it has served as a platform for users of varying ages and ethnicities to communicate with each other and create content. Bytedance, a Beijing-based Chinese multinational internet technology business, released the aforementioned software in 2017 (Bhandari & Bimo, 2022; Sharabati et al., 2022). It's a platform where anyone can upload short movies (15-60 seconds) showcasing their skills in areas like acting, singing, comedy, and more (Guo, 2022; Kennedy, 2020). As it has evolved, TikTok has become a great hub for videos covering many different topics, from sports and style to how-to guides and instructional videos. For the previous years, this app has topped the charts as the most downloaded mobile app every single month (Juwariyah et al., 2022; Widyasari et al., 2022).

As of right now, TikTok has virtually become ubiquitous. While all students are confined to their homes due to the onslaught of the COVID-19 pandemic, and even in this post-pandemic situation, most of them spend a great deal of time looking and watching short-clip videos through their "for your page" (FYP), picking up on the latest dance fads and even making their own content. It's fascinating that educators all over the world have begun utilizing the app to make instructional videos. For lessons, they may have missed or as a quick review, students can use these clips as a resource. Some educators go beyond the day's lesson plan by using this site to inspire student exploration of related material beyond the classroom. Similarly, it has been used to advise students on how to be more productive or how to make the most of their course materials or to simply remind them of important dates or deadlines. No matter what medium is used to impart knowledge to students, research shows that they will pay close attention if the content is presented in the form of a mobile game or app (Jaeger, 2021).

Moreover, many published scholarly works have looked at how using TikTok affects students' attention in the classroom. Indicative of this is the research conducted by Christopher and Swathi (2020) on the effects of TikTok use on students' academic achievement. Researchers showed that using platforms like TikTok might have both a beneficial and detrimental effect on students' academic achievement. However, Christopher and Swathi have pointed out that there are other media (factors) that could affect students' performance outside of the different social media available to them. Furthermore, Mekler (2021) discovered that if students from Bridgewater State University and UMass Amherst continue to use TikTok, it will have an effect on their ability to pay attention in class and get their course assignments done. As a result, students that utilize the aforementioned program may end up doing worse academically. Also, it was discovered that students' clever use of the TikTok app is strongly correlated with and can affect their level of engagement (J. Lobo et al., 2022; Salasac & Lobo, 2022). On the basis of the above-mentioned fragments of data, it can be concluded that the application in question may have both positive and negative effects on student involvement, but the published research on this topic is currently insufficient. The majority of published research publications on TikTok's effect are mostly concerned with mental health issues related to it (Basch et al., 2022; McCashin & Murphy, 2022). Indeed, it is plausible to hypothesize that there is an

empirical gap about the relationship between the two variables, and it is strongly recommended that a study be conducted to fill the dearth of published publications. Due to the necessity of conducting a study, the purpose of this analysis is to identify any gender-related differences in TikTok usage and student participation. But most importantly, it focuses on strengthening the relationship and impact of using the application on student participation. Consequently, this study seeks to address the following research questions:

RQ1: How may the respondents be described in terms of:
   a. Gender;
   b. Institute;
RQ2: Is there a significant different on gender in terms of:
   c. TikTok utilization;
   d. Students' engagement
RQ3: Is there a significant relationship between TikTok utilization and students' engagement?
RQ4: Does TikTok utilization predicts students' engagement?

Based on the aforementioned research questions above, this present study tested the following hypotheses (the formulated conceptual frameworks are illustrated in Figures 1 and 2):

H_1: There is no significant relationship between TikTok utilization and students' engagement.
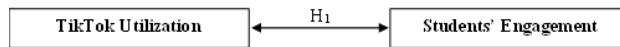H_2: TikTok utilization does not predict students' engagement.

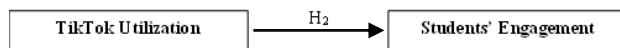Figure 1. Relationship between TikTok utilization and Students' Engagement

Figure 2. Direct effect of TikTok utilization and Students' Engagement

MATERIALS AND METHODS

Population and sampling

Respondents are 1st-4th year undergraduates at City College of Angeles, Angeles City, Philippines, during the 2nd semester of Academic Year 2022-2023. This study used two sampling methods. The study required specific responses; hence *Purposive Sampling* was adopted. It's a non-probability sampling strategy where researchers chose respondents for the study based on their traits (Calica & Lobo, 2022); hence, City College of Angeles undergraduates. Finally, *convenience sampling* was used. It's a non-probability sampling method based on respondents' availability (Frey, 2018). Availability is normally defined by accessibility, but it can also include known contacts. Table 1 shows the gender and institute breakdown of survey respondents [($N_{\text{Male}} = 238(38.5\%)$, $N_{\text{Female}} = 380(61.5\%)$], and the institute they belong [($N_{\text{Institute of Education, Arts, and Sciences}} = 348(56.3\%)$, $N_{\text{Institute of Business and Management}} = 214(34.6\%)$, and $N_{\text{Institute of Computing Studies and Library Information Science}} = 56(9.1\%)$].

Table 1. Demographic characteristics

Item	Values	N(%)
Gender	Male	*238*(38.5%)
	Female	*380*(61.5%)
Institute		
	Institute of Education, Arts, and Sciences	*348*(56.3%)
	Institute of Business and Management	*214*(34.6%)

Institute of Computing Studies and Library Information Science	*56*(9.1%)

Instruments and Data Gathering

Data was collected through a Google form survey administered online. An online survey offers the ability to collect massive amounts of data quickly, cheaply, and easily (Li et al., 2021; Regmi et al., 2017). Two instruments were modified to collect information from the participants. To begin, there is the questionnaire with eight (8) particular situations developed for the study by De Guzman Jr. (n.d.). The researchers only used one of the eight potential situations (consisting of 23 questions) to describe the respondents' use of the social networking site (TikTok in this case) (e.g., "*I use my TikTok account for schoolwork*"). Finally, Handelsman et al. (2005) developed the Student Participation Questionnaire (SEQ), a 23-item questionnaire to measure the amount of students' engagement in learning (for example, "*Raising my hand in class*"). There is a 4-point Likert Scale for recording responses, with 1 representing "not at all characteristic of me" and 4 representing "very characteristic of me."

Data Analysis

A test of normality, reliability test, and bivariate correlation for inter-variable relationship were performed. Table 2 typifies the results from the normality test across various subscales. Based on the findings, the skewness and kurtosis values did not obtain the threshold value [-2, 2] across all subscales. Hence, it can be postulated that data are not normally distributed. In relation to this, a non-parametric test applicable to test the variance between groups concerning TikTok utilization and Students' engagement, and the association between the two variables. Moreover, the aforementioned table explains the results from the reliability test of each scale. Grounded on the findings, it can be postulated that all scales are highly reliable with Cronbach's Alpha values of .89 and .94. Lastly, the bivariate correlations for each scale are also exhibited in the table which displayed the significant relationship across all variables ($p < .05$).

Table 2. Descriptive statistics, normality estimates, internal consistency coefficients, and bivariate correlations

Items	M ± SD	Skew	SE	Kurt	SE	*1*	*2*
TikTok Utilization	2.65 ± .44	-.056	.098	2.384	.196	(.89)	
Students' Engagement	3.30 ± .43	-.018	.098	-.988	.196	.34**	(.94)

* Statistically significant at p < .05.
** Statistically significant at p < .01.

Mean (M) and *Standard Deviation* (SD) were used to describe students' TikTok utilization and engagement. In order to interpret the gathered data, a descriptive interpretation guide was adapted (J. T. Lobo, 2022) based on each total weighted mean, illustrated in Table 3.

Table 3. Descriptive interpretation guide

Range of weighted mean	TikTok Utilization	Students' Engagement	Description
3.26 – 4.00	Strongly Agree	Very characteristic of me	Very high
2.51 – 3.25	Agree	Characteristic of me	High
1.76 – 2.50	Disagree	Not characteristic of me	Low
1.00 – 1.75	Strongly Disagree	Not at all characteristic of me	Very low

To further examine the variation in TikTok usage and student engagement by gender, a *Mann-Whitney U* test was likely used. With the premise that data are not normally distributed, this non-parametric test compares the means of two unrelated groups (Sundjaja et al., 2022). A non-parametric variant of Levene's test of homogeneity of variances was carried out to further determine if the aforementioned statistical analysis could be carried out; *p*-values for this test of assumption should be <.05, as stated by scholars (Ahmed & Hamarai, 2022). Table 4 shows that neither TikTok usage nor student engagement violates the concept of homogeneity of variances. This allows for Mann-Whitney *U* testing to be conducted.

Table 4. Non-parametric version of Levene's test of Homogeneity of Variances results

	Levene Statistic	df1	df2	Sig.
TikTok utilization (gender)	.021	1	615.982	.886
Students' engagement (gender)	1.805	1	610.886	.180

In addition, a *Spearman Rho's* (r_s) analysis was performed to examine the correlation between TikTok App consumption and student interest. It is a rank-based alternative to Pearson's r that similarly assesses the degree of association between two sets of data (Akoglu, 2018). Finally, *Linear regression* was employed to foretell how TikTok use would be related to students' engagement. It is a method of modeling where the prediction of a dependent variable is made using only a single independent variable (Kraemer & Blasey, 2016).

Ethical considerations

Each respondent had a thorough understanding of the study's aims, the methods to be used, and the variables to be evaluated. There was also information on how the study would help the school and the scientific world. It was also mentioned that there were some minor risks involved, such as feeling awkward answering personal and sensitive survey questions and receiving no financial remuneration for participating. Under these conditions, we needed respondents' approval, which they signaled by checking a box in our Google forms.

RESULTS AND DISCUSSION

Undergraduate students' average use of TikTok is depicted in Table 5. The results show that comments emphasizing the negative impact of TikTok on students' academic performance received the lowest mean scores, while those describing beneficial uses of the app received better mean scores. Intriguingly, *"I only use TikTok when I have the time for it"* (3.33 ± .77), which correlates to "strongly agree," was the statement with the highest mean across all statements. This may suggest that most undergraduate students only use TikTok in their free time. In addition, many view the application as merely a pastime. In addition, the data suggest that the vast majority of students make ethical use of TikTok. This is just another method for them to kill time in between classes and after a long day of studying. Students utilize TikTok at a "high" rate (2.65 ± .44).

Table 5. Level of TikTok Utilization

Statements	M ± SD	Interpretation
I use my TikTok account for schoolwork.	2.46 ± .86	D
I use my TikTok account to communicate with my classmates.	2.28 ± .77	D
I use my TikTok to communicate for group projects.	2.29 ± .78	D
I use my TikTok as a break while studying.	2.95 ± .85	A
I use my TikTok as a free time activity.	3.27 ± .79	SA
I use my TikTok to procrastinate when I should be studying.	2.25 ± .75	D
I use my TikTok to procrastinate if I am struggling.	2.57 ± .88	A
TikTok is time-consuming.	2.85 ± .82	A
TikTok is an academic distraction.	2.40 ± .85	D
TikTok decrease my academic performance.	2.28 ± .84	D
TikTok takes time away from studying.	2.39 ± .80	D
TikTok distracts me from studying.	2.23 ± .80	D
I multitask with my TikTok while studying.	2.50 ± .84	D
I am a responsible person about schoolwork.	3.25 ± .68	A
I am good at multitasking with TikTok.	2.70 ± .85	A
No one on my TikTok is worth me getting failing grades.	2.77 ± .80	A
I do not spend an excessive amount of time on my TikTok.	3.04 ± .74	A

I do not go on TikTok during class.	3.02 ± .79	A
I check my TikTok during class.	2.26 ± .76	D
I do not have TikTok up while doing homework.	2.83 ± .80	A
I don't allow TikTok to impact my academics.	3.09 ± .80	A
My academics are my main focus.	3.39 ± .66	SA
When I am doing my work for school, I do not check my TikTok	3.03 ± .78	A
I only use TikTok when I have the time for it.	3.33 ± .77	SA
Total weighted mean	2.65 ± .44	H

Note: values are expressed as Mean ± Standard deviation. SA- Strongly agree, A- Agree, D- Disagree, SD- Strongly disagree; VH- Very high, H- High, L- Low, VL- Very low.

The students' engagement is summarized in Table 6. The results showed that the majority of the profiles had very high mean scores. The results show that undergraduates are actively participating in their classes. Surprisingly, "Coming to online classes every day" (3.51 ± .56) was the statement with the highest mean score. This suggests that the vast majority of undergraduates regularly attend all of their classes. The average student engagement level is (3.30 ± .43), which indicates a "very high" level of engagement.

Table 6. Level of Students' Engagement

Statements	M ± SD	Interpretation
Raising my hand in class	3.07 ± .82	COM
Participating actively in small group discussions	3.34 ± .67	VCOM
Asking questions when I don't understand the instructor	3.14 ± .80	COM
Doing all the homework problems	3.43 ± .59	VCOM
Coming to online classes every day	3.51 ± .56	VCOM
Going to the professor's office during hours to review assignments or tests, or to ask questions	2.89 ± .84	COM
Thinking about the course between class meetings	3.07 ± .69	COM
Finding ways to make the course interesting to me	3.27 ± .67	VCOM
Taking good notes in class	3.18 ± .68	COM
Looking over class notes between classes to make sure I understand the material	3.19 ± .73	COM
Really desiring to learn the material	3.36 ± .56	VCOM
Being confident that I can learn and do well in the class	3.31 ± .62	VCOM
Putting forth effort	3.45 ± .57	VCOM
Being organized	3.43 ± .60	VCOM
Getting a good grade	3.40 ± .56	VCOM
Doing well on the tests	3.33 ± .58	VCOM
Staying up on the readings	3.18 ± .67	COM
Helping fellow students	3.37 ± .56	VCOM
Making sure to study on a regular basis	3.31 ± .58	VCOM
Finding ways to make the course material relevant to my life	3.43 ± .62	VCOM
Applying course material to my life	3.36 ± .62	VCOM
Listening carefully in class	3.45 ± .55	VCOM
Total weighted mean	3.30 ± .43	VH

Note: values are expressed as Mean ± Standard deviation. VCOM- Very characteristic of me, COM- Characteristic of me, NCOM- Not characteristic of me, NACOM- Not at all characteristic of me; VH- Very high, H- High, L- Low, VL- Very low.

Variance in terms of TikTok utilization and Students' Engagement with respect to gender

After performing Mann-Whitney U, no significant variance was observed concerning TikTok utilization [Male ($Mdn = 2.67$) and Female ($Mdn = 2.62$), $U(N_{Male} = 238, N_{Female} = 380) = 116236.000, z = -.637\ p = .524, r = -0.025$)] and Students' engagement [Male ($Mdn = 3.29$) and Female ($Mdn = 3.19$), $U(N_{Male} = 238, N_{Female} = 380) = 114478.000, z = -1.451\ p = .147, r = -0.058$)] for both genders. Based on the findings, it can be posited that regardless of gender, all students are equal in terms of application utilization and class engagement which echoed the findings of various scholars (Baloran et al., 2021; J. Lobo et al., 2022; Nugroho et al., 2021). In light with the results, this study highly suggests conducting a similar investigation on other set of samples or populations determining if the findings of this study may be supported or repudiated.

Furthermore, Table 7 illustrates the findings after performing the Spearman-Rho's (r_s) analysis. Based on the findings, a significant relationship was observed between TikTok utilization and Students' engagement [$r(616) = .336, p < .05$)], supported by previously conducted studies (Hayes et al., 2020; J. Lobo et al., 2022; Nepali, 2021). Grounded on the findings, it can be concluded that as students' intelligent use of the TikTok application increases, their engagement in schooling is also bolstered. On the contrary, various published scholarly works have displayed the negative association of TikTok on students' engagement (Guo, 2022; Maretha & Anggoro, 2022; Montag et al., 2021). For example, the study by Mekler (2021) uncovered that the more college students spend time on TikTok every day, the more they are distracted when trying to pay more attention in class. Additionally, it was also discovered that there is a negative association between time spent on TikTok and class participation (Christopher & Swathi, 2020). To conclude, this finding is still considered inconclusive. Hence, performing a similar study will help to deepen the relationship between the two variables. In conclusion, H_1 has been rejected.

Table 7. Relationship between TikTok utilization and Students' Engagement

			TikTok utilization	Students' Engagement
Spearman's rho	TikTok utilization	Correlation Coefficient	1.000	.336**
		Sig. (2-tailed)	.	.000
		N	618	618
	Students' Engagement	Correlation Coefficient	.336**	1.000
		Sig. (2-tailed)	.000	.
		N	618	618

**. Correlation is significant at the 0.01 level (2-tailed).

Finally, Table 8 displays the result on the direct effect of TikTok utilization to students' engagement after performing linear regression analysis. Based on the findings, it unraveled that TikTok utilization predicts Students' engagement, which posits that the utilization of the application has a direct effect to engagement [$F (1, 616) = 82.574, p < .001$]. Additionally, the $R^2 = .118$ displayed that the model explains 11.8% of the variance in students' engagement. This can be interpreted that students' smart use of the application may result to highly engaged students which echoed the findings of previously conducted studies (Hayes et al., 2020; J. Lobo et al., 2022). On the other hand, various findings have also reported the negative effect of the application to the engagement of students. Such as the findings of Vhatkar and Mali (2021) in which they have revealed that TikTok has a negative impact to Management students due to 1-2 hours of daily use of the application for entertainment purposes. Additionally, students who are highly absorbed in using the application are facing less concentration toward studying, and are much prone to mental issues such as mental instability and depression (Kaur, 2020). With respect to the findings, future researchers may find curiosity on conducting a similar study by comparing results in order to support or reject this study's claim. Overall, H_2 has been rejected.

Table 8. TikTok utilization and Students' Engagement – Linear regression result

Hypothesis	Regression weights	Beta Coefficient	R^2	F	t-value	p-value	Decision
H_2	TU $\rightarrow$ SE	.337	.118	82.574	9.087	.000	Rejected
R^2	.476						
F (1, 616)	116.142						

*p <.05. TU- TikTok utilization, SE- Students' Engagement

CONCLUSION

The purpose of this research is to look at how the two sexes utilize and interact with TikTok differently, as well as their engagement in class. The study also attempted to examine the connection between the app's use and engagement amongst students at City College of Angeles in the Philippines. Hypotheses were rejected because there were insufficient empirical accounts of this topic at hand to rule them out. Based on the results, we can infer that the strategic operation of the app has the potential to boost and influence students' participation and engagement. The following findings illuminate the significance of students' appropriate use of TikTok and how it can aid in improved academic performance. Undergraduates at the college are determined to be responsible app users who do not wish to be diverted from their studies, as evidenced by the results presented above. It was also discovered that students utilize TikTok as a form of stress relief in addition to other forms of social media, thanks to the wide variety of entertaining short clips that may be seen after lengthy hours of class, in between courses, and after completing course duties.

Teachers and the College Guidance Office can collaborate to offer interventions like instruction on how social networking apps can be both a helpful tool and a disruptive distraction in the classroom. In addition to the previously mentioned partnership, it is strongly suggested that correct guidance be provided by means of enormous information dissemination concerning the appropriate use of TikTok and other social media, as well as the benefits and drawbacks of doing so. In contrast, the findings of the current research suggest that the administration should provide substantial training on how to supervise and address students' excessive use of the application from the perspective of professional growth. In light of this, policymakers and experts may implement an intervention to enhance teachers' ability to deal with such situations, which can also greatly benefit the teachers' professional futures. Finally, educators should undergo training on how to transform TikTok into an "educational tool," a move that is consistent with the findings of a number of recently published articles that suggest the app can be utilized as a pedagogical tool that can boost students' engagement in the classroom. It might be used by educators to share helpful snippets on class topics. In addition, instructors can use TikTok to collect student work that exemplifies their abilities and comprehension of course material. Given the rapid pace at which technology is evolving today, these recommendations are more relevant than before.

Finally, readers and researchers should be aware of several caveats with this study. To begin, only undergraduates from City College of Angeles were included in the data collection for this study. Therefore, the results of this study may not be applicable to other HEIs across the country, especially those belonging to other Local Colleges and Universities (LCUs), State Universities and Colleges (SUCs), Private Higher Education Institutions (PHEIs), or those with strong focus on Technical and Vocational Education. To further explore the connection and impact of TikTok usage on students' engagement in the tertiary level context, future researchers may be interested in conducting a similar study, comparing the results to evaluate if the assertions of this investigation may be supported. In addition, this research recommends including students from elementary and secondary schools, as well as public and private institutions, as respondents. Data collected from elementary and secondary school settings may be compared to those from a higher education institution to see if there is a discernible difference in TikTok usage and student involvement based on student age and year level. This research also suggests including and testing for additional external variables that may mediate or moderate the connection between the two. As a result, teachers in secondary and primary schools will have a better understanding of the potential confounding variables between the two. Since a structured questionnaire may not be able to measure all relevant information, it is recommended to use other, more advanced methods, such as qualitative or mixed-

method, to investigate this. Finally, it is recommended to use a multi-informant method by collecting teachers' reports, as these influential people may provide a more in-depth academic insight that may aid in developing a more nuanced understanding of the connection between the two factors. To sum up, this research adds to the body of knowledge and literature by addressing a significant gap in the literature: the dearth of empirical studies examining the connection between TikTok and student engagement.

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