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Smartphone Features and Students' Engagement in Academic Activities

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Abstract

This study examined the relationship between smartphone features and students' engagement in academic activities among college students at Palompon Institute of Technology, Palompon, Leyte, Philippines. Specifically, it assessed students' usage of smartphone features in terms of capturing/recording, searching, editing, downloading/uploading, and presenting; determined the level of students' engagement; and tested the significant relationship between smartphone feature usage and engagement. Anchored on the Technology Acceptance Model and Student Involvement Theory, the study employed a descriptive-correlational design with 65 respondents selected through universal sampling. Data were gathered using a structured questionnaire and analyzed using mean, standard deviation, and Pearson's r correlation. Findings revealed a high level of students' engagement and high levels of smartphone usage across all features. Results further showed significant positive relationships between students' engagement and all smartphone features, with searching and capturing/recording demonstrating the strongest associations. The findings indicate that smartphone features serve as valuable academic tools that support student engagement in technology-enhanced learning environments. The study concludes that increased utilization of smartphone features is associated with higher academic engagement and recommends integrating smartphone-supported learning strategies in higher education.

Keywords:

Smartphone features, student engagement, academic activities, mobile learning, technology acceptance.

I. INTRODUCTION

The increasing integration of smartphones into higher education has transformed students' approaches to learning, communication, and academic participation. As multifunctional mobile technologies, smartphones provide access to educational applications, online resources, learning management systems, and collaborative platforms that can potentially enhance student engagement. Features such as capturing and recording, searching,

editing, downloading/uploading, and presenting have become embedded in students' academic practices, offering opportunities for flexible, self-directed, and interactive learning.

Student engagement, broadly defined as students' behavioral, emotional, and cognitive investment in learning, is widely recognized as a predictor of academic success, persistence, and achievement. However, the role of smartphones in fostering engagement remains contested. While smartphones facilitate access to learning materials and support collaborative learning environments, studies have also raised concerns regarding distraction, academic procrastination, and disengagement associated with problematic smartphone use, Li et al., (2023).

Recent studies suggest that smartphone use may positively contribute to student engagement and academic performance when appropriately integrated into learning environments. Mbinda et al. (2024) found that smartphone use enhanced student engagement and satisfaction in blended learning contexts, while Minhas et al. (2024) reported that acceptance of mobile learning technologies improved instructional accessibility and student involvement. Similarly, Kearney and Maher (2021) confirmed that smartphone-supported access to educational content positively influenced engagement and learning satisfaction. Nevertheless, other studies have emphasized that excessive or unstructured smartphone use may reduce attention span and hinder academic participation (Shokeen & Ruwali, 2024; Li et al., 2023).

Despite growing scholarship on mobile learning, limited empirical evidence specifically examines how individual smartphone features influence student engagement. Much of the existing literature treats smartphone use as a general construct, overlooking the distinct contributions of specific functionalities such as capturing/recording, searching, editing, downloading/uploading, and presenting. This gap necessitates a more focused investigation into which smartphone features are significantly associated with students' engagement in academic activities.

This study is anchored on the Technology Acceptance Model (Davis, 1989) and Student Involvement Theory (Astin, 1984). The Technology Acceptance Model posits that perceived usefulness and perceived ease of use shape individuals' acceptance and utilization of technology. In the context of this study, these constructs explain students' adoption of smartphone features for academic purposes. Meanwhile, Student Involvement Theory emphasizes that learning and development are functions of the quality and quantity of student involvement in academic experiences. Taken together, these theories provide a conceptual basis for examining how smartphone features may influence student engagement.

Thus, this study investigates the relationship between students' usage of smartphone features and engagement in academic activities among selected college students. Specifically, it seeks to determine the level of smartphone feature usage, assess students' engagement in academic activities, and test the significant relationship between these variables.

METHODOLOGY

This study employed a descriptive-correlational research design to examine the relationship between students' usage of smartphone features and engagement in academic

activities. The descriptive component was used to determine the level of smartphone feature utilization and student engagement, while the correlational component assessed the association between the two variables. This design is appropriate when examining naturally occurring relationships without manipulating variables.

The study was conducted at the Palompon Institute of Technology, Palompon, Leyte, Philippines. The institution was selected due to its accessibility and relevance to the study population.

The participants consisted of 65 students from the Bachelor of Science in Business Administration major in Marketing Management (first- and second-year students) and one section of Bachelor of Science in Hospitality Management students. Universal sampling was employed, wherein all members of the identified population were included as respondents.

Data were gathered using a structured questionnaire composed of three sections. The first section captured demographic information of respondents. The second measured students' usage of smartphone features, specifically capturing/recording, searching, editing, downloading/uploading, and presenting, using a five-point Likert scale. The third section assessed students' engagement in academic activities through sixteen indicators measured using a five-point Likert scale. The questionnaire was modified to align with the objectives of the study and ensure relevance to the research problem.

Prior to data collection, permission was obtained to administer the survey. Respondents were informed of the purpose of the study, voluntary participation, and confidentiality of responses. Data were collected through either paper-based questionnaires or Google Forms, depending on participant accessibility. Completed questionnaires were retrieved, checked for completeness, and prepared for statistical analysis.

Descriptive and inferential statistics were used in analyzing the data. Mean and standard deviation were used to determine the level of smartphone feature usage and students' engagement in academic activities. A normality test was conducted to determine whether the data met assumptions for correlational analysis. Spearman's rho was employed to test the significant relationship between students' usage of smartphone features and engagement in academic activities at the established level of significance.

This study tested the null hypothesis: **H_0:** There is no significant relationship between students' usage of smartphone features and engagement in academic activities.

RESULTS

Students' Engagement

The level of students' engagement in academic activities when grouped according to sex is presented in Table 1.

Table 1
Level of Students' Engagement by Sex

Sex	n	M	SD	Interpretation
Male	19	4.23	0.62	High
Female	46	4.33	0.59	High

Note. M = Mean; SD = Standard Deviation.

Table 1 shows that both male (M = 4.23, SD = 0.62) and female students (M = 4.33, SD = 0.59) demonstrated a high level of engagement in academic activities using smartphones. Female students showed slightly higher engagement than male students, although the difference was minimal. This suggests that students, regardless of sex, actively use smartphones in support of academic participation.

This finding aligns with studies indicating that female students often demonstrate higher levels of smartphone engagement associated with communication, information seeking, and online interaction (Lopez-Fernandez et al., 2017; Wang et al., 2022). The result further suggests that smartphones have become embedded in students' academic and social routines, supporting access to learning resources, collaboration, and digital literacy.

Students' Smartphone Usage

The level of students' smartphone usage across key functional features, grouped according to sex, is presented in Table 2.

Smartphone Feature	Male M (SD)	Female M (SD)	Interpretation
Capturing/Recording	4.08 (0.75)	4.18 (0.58)	High
Searching	4.28 (0.58)	4.33 (0.49)	High
Editing	4.08 (0.79)	4.37 (0.52)	High
Downloading/Uploading	4.09 (0.87)	4.39 (0.69)	High
Presenting	3.93 (0.92)	4.18 (0.83)	High

Note. M = Mean; SD = Standard Deviation.

Table 2 indicates that students reported high smartphone usage across all dimensions. Female students consistently obtained slightly higher mean scores across all smartphone features. Searching and downloading/uploading recorded the highest usage levels, suggesting that students primarily use smartphones for information access and academic resource management.

These findings support earlier studies emphasizing that smartphones serve not only communication purposes but also support research, content development, and academic productivity (Aljomaa et al., 2016; Chen et al., 2021). The results further imply that smartphones have become essential tools that support students' academic activities and digital engagement.

Relationship Between Students' Engagement and Smartphone Usage

The relationship between students' engagement and smartphone usage across the five smartphone features is presented in Table 3.

Smartphone Feature	r	p	Interpretation
Capturing/Recording	.512***	< .001	Moderate Positive Significant Relationship
Searching	.522***	< .001	Moderate Positive Significant Relationship
Editing	.354**	.004	Moderate Positive Significant Relationship
Downloading/Uploading	.506***	< .001	Moderate Positive Significant Relationship
Presenting	.484***	< .001	Moderate Positive Significant Relationship

Note. N = 65. Pearson's r correlation.**p** < .01**; **p** < .001***.

Table 3 reveals statistically significant positive relationships between students' engagement and all smartphone usage features. Searching showed the strongest relationship with engagement ($r = .522$, $p < .001$), followed by capturing/recording ($r = .512$, $p < .001$) and downloading/uploading ($r = .506$, $p < .001$). Editing showed the weakest, though still significant, relationship ($r = .354$, $p = .004$).

These findings indicate that increased utilization of smartphone features is associated with higher levels of academic engagement. The strong associations for searching and capturing/recording suggest that students rely heavily on smartphones for accessing information and documenting learning materials. This supports previous studies suggesting that mobile technologies enhance student motivation, participation, and learning interaction (Kim et al., 2019; Liu et al., 2020).

The significant relationship across all dimensions supports the rejection of the null hypothesis. The findings imply that smartphone features function as academic tools contributing to participatory, resource-driven, and technology-enhanced learning. In this regard, smartphones are not merely communication devices but integral components of students' academic engagement in contemporary higher education.

Conclusion

This study concludes that students demonstrated a high level of engagement in academic activities and a high level of smartphone usage across the features of capturing/recording, searching, editing, downloading/uploading, and presenting. The findings further revealed significant positive relationships between students' engagement and all smartphone usage features, indicating that increased utilization of smartphone functionalities is associated with higher academic engagement. Among the features examined, searching and capturing/recording showed the strongest relationships with engagement, emphasizing the importance of smartphones as tools for information access, documentation, and participation in learning activities. Overall, the findings support the view that smartphones serve as valuable

academic tools that contribute to technology-enhanced learning and support the rejection of the null hypothesis.

Recommendations

Based on the findings and conclusion of the study, the following are recommended:

1. Students should maximize the academic use of smartphone features, particularly for information searching, recording learning materials, editing academic outputs, and presenting class requirements to enhance engagement in academic activities.
2. Faculty members should integrate smartphone-supported learning strategies into instruction by utilizing mobile-friendly activities, digital resources, and interactive learning tasks that promote student participation and engagement.
3. School administrators should develop policies and support mechanisms that encourage responsible and educational use of smartphones while minimizing distractions associated with non-academic use.
4. Curriculum planners and policymakers should consider incorporating mobile learning strategies and digital literacy initiatives that strengthen the productive use of smartphones in higher education.
5. Future researchers should conduct similar studies using larger samples, other academic programs, or additional variables such as academic performance, digital literacy, or self-regulated learning to further validate and extend the findings of this study.

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