

AN ANALYSIS OF PREFERRED EDUCATIONAL PLATFORMS AMONGST GAME DESIGN AND DEVELOPMENT MAJOR AT FEU INSITUTE OF TECHNOLOGY, METRO MANILA

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ABSTRACT

Identifying device requirements for college students is crucial for supporting their academic and career planning. This study examined device preferences among Bachelor in Science in Information Technology, major in Animation and Game Development (BSIT-AGD) students at Far Eastern University (FEU) Institute of Technology, focusing on factors influencing their choices. A survey revealed that most students owned certain devices for quick communication, and devices that are capable of heavy workloads for demanding tasks such as programming, aligning with program expectations. Using Discrete Event Simulation (DES) to validate results, the study underscores the importance of bridging the technology gap for financially challenged students to promote academic success.

KEYWORDS

Discrete Event Simulation (DES), frequency, compatibility, device preferences

1 INTRODUCTION

The Animation and Game Development program requires students to have devices capable of handling the demands of specific technologies and platforms. The Bachelor of Science in Information Technology, with a major in Animation and Game Development, combines multimedia art with programming to turn visual concepts into playable games, focusing on 2D and 3D animation and theoretical gaming practice stated by the Utah Valley University (n.d) of Animation and Game Development [1]. Animators and game developers should be skilled in generating game ideas, translating visuals into code, prototyping, and refining gameplay, collaborating across roles, ensuring platform stability, reviewing, improving code, and porting games between systems (Coursera, 2024) [2].

To accomplish these tasks, a student must get a hand with the most preferred digital devices to get the desired result in the industry. In a study, as stated in the research of the evolving landscape by EDUCAUSE, students' device ownership varies from mobiles, laptops, personal computers, and tablets [1]. Of 2,025 students, only two lack a mobile device. 76% own a laptop, half have a tablet, and 35% own a desktop, suggesting that mobile phones, in particular, are ideal for multimedia students. Students noted that desktops and laptops are preferred for tasks namely video viewing, presentations, simulations, and gaming due to their efficiency [3].

According to The Media School - Indiana University Bloomington (n.d.), by experience, owning a laptop is a great recommendation in the first year of college in the game design program. Later on, as years go by under the program, a laptop becomes a necessity as the work and projects become serious, difficult, and technical [4].

Understanding platform preferences for educational purposes is crucial for game design and development students, as it helps them optimize their platforms for organizing files, scheduling, programming, and arts. As noted by Bhandari, P. (2020), these platforms vary based on students' devices [5].

1.1 Significance of the Study

By identifying preferred educational platforms, this research offers valuable insights for instructors and administrators to tailor teaching strategies and resources to support student's academic and creative growth in areas that cater to programming, animation, and game development. Additionally, the findings aim to highlight the most effective tools and resources to address specific educational needs, helping students acquire industry-relevant skills and optimize their academic outcomes.

1.2 Statement of Hypothesis

The first hypothesis suggests that mobile phones are the most preferred device among students due to their portability and flexibility, making them ideal for both academic and gaming activities. In contrast, the second hypothesis argues that mobile phones may not be the preferred device, as factors like performance, software compatibility, and the need for more powerful hardware for tasks like coding or game development may lead students to favor laptops or personal computers instead.

2 METHODS

2.1 Research Design

This quantitative, survey-based study assessed device preferences among BSIT-AGD students at FEU Tech, focusing on factors like cost, performance, reliability, and usability. A structured questionnaire revealed patterns in preferences and the impact of device specifications and user experience. Consistent survey structure and clear question framing enhanced the reliability of the data for this technology-focused population.

2.2 Population and Sample of the Study

The study at Far Eastern University Institute of Technology (FEU Tech) in Metro Manila focused on BSIT-AGD students, who are trained in technical and creative skills for animation and game development. Using Slovin's formula to determine an appropriate sample size, a sample of 30 respondents was selected to provide insights into their educational platform preferences, aiming to inform FEU Tech stakeholders about student needs and challenges. The population used for the Slovin formula was based on an estimated number of students per section per year.

$$n = \frac{N}{1 + N * e^2}$$

Where:

N = population size

n = sample size

e = marginal error

Population = 42.86 (N = 42.86)

Margin of error = 0.10 or 10%

With Slovin's formula, the researchers concluded that the result of 30 would be the appropriate sample size, considering the short timeline of this analysis research.

2.3 Sampling Techniques

Participants were selected using simple random sampling, allowing the study to efficiently reach a representative group of respondents who provided high-quality insights. This method ensured that each BSIT-AGD student at FEU Tech had an equal chance of being chosen, promoting fairness and reducing selection bias. This approach ensured a sample of students familiar with the program's demands and engaged with educational platforms, providing valuable

insights for the study. This also encouraged transparency and respect for participants' rights, fostering a trustworthy environment for data collection and reinforcing ethical standards throughout the research process.

2.4 Data Gathering Procedures

The survey was conducted online via Google Forms over one week, allowing participants to respond to maintain a steady rate and address any technical issues. The questionnaire included devices such as mobile phones, tablets, consoles, PCs, and laptops, enhancing data reliability. Given that students may own multiple devices, the researchers allowed multiple responses for device ownership, device usage, and the factors influencing their purchasing choices. These responses were tabulated and analyzed via Microsoft Excel, contributing to the study's interpretation and findings. Thus, creating accurate variables for the simulation model that was created to verify and validate the findings.

3 RESULTS

1.0 Device Ownership and Usage

Table 1.1 Device Ownership

Devices	Respondents' Devices owned with Percentages
Mobile Phones or Smartphones	29 (96.7%)
Tablet or iPad	11 (36.7%)
Consoles	11 (36.7%)
Personal Computer/PC	16 (53.3%)
Laptop	21 (70%)

Table 1.1 shows device ownership among students. Most own mobile phones, which are essential for communication, social networking, and academics. Laptops are also commonly owned, reflecting their importance for schoolwork and projects. Personal computers, consoles, and tablets have similar, lower ownership rates, likely serving supplementary or recreational purposes.

Table 1.2 Devices Usage for Academic Purposes

Devices	Respondents' Device usage with Percentages
Mobile Phones or Smartphones	26 (86.7%)
Tablet or iPad	5 (16.7%)
Consoles	1 (3.3%)
Personal Computer/PC	13 (43.3%)
Laptop	20 (66.7%)

Table 1.2 shows that students primarily use mobile phones and laptops for academic activities like accessing resources, online classes, and communication. Laptops are preferred for complex tasks such as coding, while

smartphones offer multitasking convenience. Tablets and PCs are less commonly used, as students favor the portability of laptops and phones.

2.0 Cost Estimation

Table 2.1 Cost Estimation Summary

Device	Do Not Own	Below PHP 10,000	PHP 10,000 - 20,000	PHP 20,001 - 30,000	PHP 30,001 - 40,000	Above PHP 40,000	TOTAL
Mobile Phones	3.3%	13.3%	36.7%	20%	20%	6.7%	100%
Tablets/iPads	60%	6.7%	6.7%	13.3%	3.3%	10%	100%
Consoles	56.7%	6.7%	13.3%	13.3%	3.3%	6.7%	100%
Personal Computers/ PCs	43.3%	6.7%	6.7%	6.7%	16.7%	20%	100%
Laptops	26.7%	3.3%	6.7%	10%	20%	33.3%	100%

Table 2.1 presents students' cost estimations for various devices. The table above aggregates the distribution of device ownership and estimation costs among respondents. Overall, mobile phones are widely owned, with the majority of devices priced between PHP 10,000-20,000. In contrast, most students do not own tablets or consoles. Higher-cost laptops and PCs are more prevalent among those who own these devices.

3.0 Usage Frequency

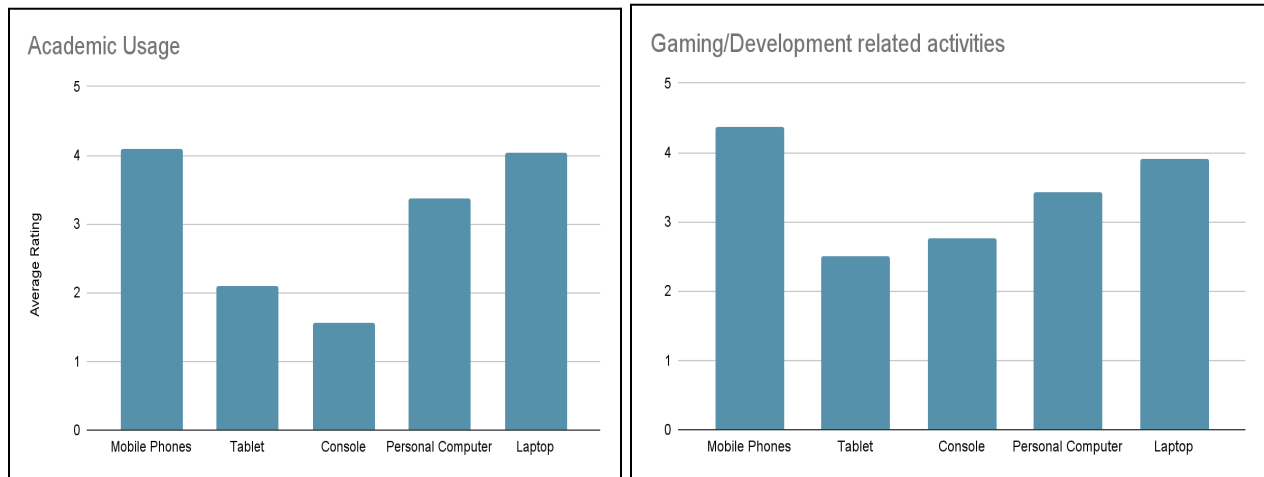


Figure 1. Comparison of Frequency Usage
(Academic and Gaming/Development activities)

Figure 1 provides a comparison of device usage for academic and gaming/development activities. For academic tasks (Figure 1), mobile phones (4.10) and laptops (4.03) are the most commonly used devices, while tablets/iPads (2.10) and consoles (1.57) are less favored. In contrast, for gaming and development activities, mobile phones (4.37)

lead, followed by laptops (3.90) and personal computers (3.43). While mobile phones and laptops are preferred for both academic and gaming tasks, consoles and tablets are less relevant for both contexts.

4.0 Factors Influencing Platform Choice

Table 4.1 Factors that Influence Respondent's Platform Choice

Influential Factors that Affect Platform Choice	Respondents' choice of factors with percentages
Price	18 (60%)
Device Accessibility	21 (70%)
Portability	25(83.3%)
Performance	27 (90%)
Learning Resources	17 (56.7%)
Peer influence	8 (26.7%)
Device compatibility	23 (76.7%)

Table 4.1 shows that the top factors influencing students' platform choices are performance, device compatibility, and portability. Students prioritize performance for speed and graphics, compatibility with necessary software, and portability for easy transport. Additionally, 21 respondents highlighted device accessibility, emphasizing the importance of readily available platforms for purchase, rental, or use in public spaces like libraries.

4 DISCUSSION

The Animation and Game Development program at FEU Tech requires devices that handle demanding workloads. A survey of 30 BSIT-AGD students showed that mobile phones and laptops are the most commonly owned devices, valued for their portability, performance, and compatibility in supporting academic and personal tasks. Laptops are preferred for complex tasks like coding, while mobile phones allow quick access to resources. Despite a small sample size and limited device range, the survey offers insights into device preferences that keeps the demands up to date. Future research with a larger sample and more technologies could better assess technology's impact. Recommendations include providing device loans or flexible payment options to ensure students have the necessary academic tools.

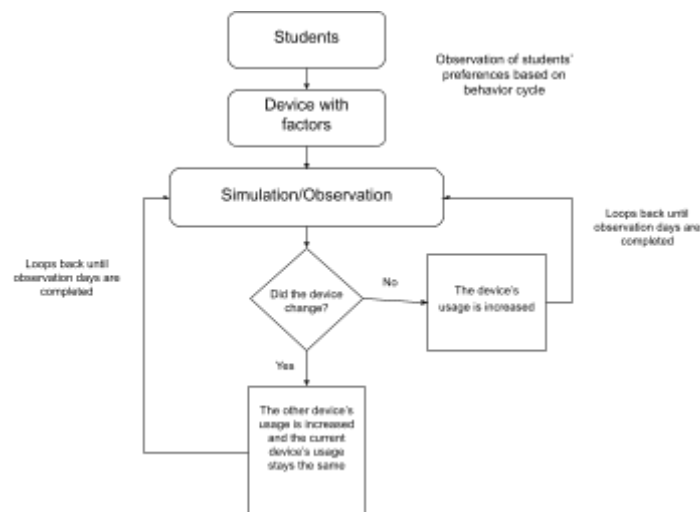


Figure 2. DES of Observation of Students' Preferences Based on Behavior Cycle

Through a structured observation process, the researchers developed a Discrete Event Simulation. It is designed to simulate a specified number of students and their devices over a thirty-day period. This simulation allows for the testing and validation of the data, evaluating the accuracy of the results. The key variables in the simulation include:

Students and Days: The number of students and the duration of the simulation will define the sample size and the timeline for the study.

Devices: The devices provided by the researchers serve as the primary variables, influencing the outcomes of the simulation.

Parameters: These are the variables used to determine the metrics for computing the frequency and validating the accumulated results of the study.

Simulation/Observation: This will determine the frequency of the devices that were used in the simulation.

In this study, the researchers will observe student behavior over a span of thirty days, focusing on their academic needs and the devices they use. The initial number of students and the range of devices provided will be established to monitor usage patterns. The primary change that the researchers are tracking is the shift in device usage. If a student does not switch devices, the frequency of usage for that particular device will increase. However, if the student switches to another device, the frequency of usage for the original device will remain the same, while the new device's usage frequency will increase. This will help the study to understand how students adapt their device usage in relation to their academic requirements over time.

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