

# Papua New Guinea Journal of Education

ISSN: 0031-1472

Volume 44, 2024



## **PREVALENCE OF PC/DEVICE OWNERSHIP AMONG UPNG LINGUISTICS MAJOR STUDENTS: SURVEY 2024**

Atase, S., Agali, M., Hauva E., Gizoria, E., Iga K., James, T., Harangu G., Nila D., Guri, E.,  
Kuni K., Tominde E., Terarup N. and Temple, O. (UPNG)

## PREVALENCE OF PC/DEVICE OWNERSHIP AMONG UPNG LINGUISTICS MAJOR STUDENTS: SURVEY 2024

Atase, S.<sup>1</sup>, Agali, M.<sup>1</sup>, Hauva E.<sup>1</sup>, Gizoria, E.<sup>1</sup>, Iga K.<sup>1</sup>, James, T.<sup>1</sup>, Harangu G.<sup>1</sup>, Nila D.<sup>1</sup>, Guri, E.<sup>1</sup>, Kuni K.<sup>1</sup>, Tominde E.<sup>1</sup>, Terarup N.<sup>1</sup> and Temple, O.<sup>2</sup>

<sup>1</sup> Linguistics Major LML SHSS UPNG final year student researchers

<sup>2</sup> Correspondent author: [stemple@upng.ac.pg](mailto:stemple@upng.ac.pg)

### ABSTRACT

This paper presents the findings of a survey conducted by a team of student researchers with the aim of determining the prevalence of pc and smartphone ownership amongst the Linguistics Major students in the University of Papua New Guinea (UPNG) in 2024. This survey also assessed the extent of student engagement and preferences in the two online learning platforms (Google Classroom/GC and Moodle) used in the UPNG. A pre-tested Google Form Questionnaire (in both digital and printed form) was used to collect survey responses. Convenience sampling method obtained data from a representative sample of all Linguistics Major students (95% Confidence Level;  $p < 0.5$ ).

Our findings revealed that more than a quarter (25.3%) of our peers do not have a computer, which adversely affects their ability to actively participate in online learning. Almost all - 96% of all respondents have smartphones, but the quality and, therefore, functionality of their phones is limited. At the same time, 4% of linguistics students have no digital tools whatsoever which, consequently, means no access to Internet learning resources.

**Keywords:** National Development Goals (NDGs), student computer ownership, Internet access, Learning Management Systems (LMSs), online learning platforms, Google Classroom (GC), Moodle

### Introduction

To meet our National Development Goals (NDGs), we need knowledgeable people, experts in science and technology. To gain knowledge, students need “learning tools” which, apart from the traditional literally *literacy*, now also include digital devices, Internet access and digital skills. To master using the first Learning Tool (English literacy), students in PNG must have quality bilingual (English + Tok Ples) education from Grade 1 onwards. To master the second Learning Tool (ICT and digital skills), we need Internet access through digital devices (pcs / smartphones) and Learning Management Systems (LMSs), such as GC and Moodle platforms.

The COVID-19 pandemic caused a rapid shift to online and Blended Learning (BL) in many educational institutions worldwide, including the University of Papua New Guinea (UPNG)

[1]. This transition to blended learning, which combines face-to-face instruction with online components, has increased the reliance on digital devices and technology-based learning platforms (World Health Organization, 2020). The adoption of these platforms facilitated continuity of education during the times of shutdowns and strictly imposed social distancing rules. At UPNG, Moodle and GC have become essential tools for students to access course materials, to communicate, and to collaborate.

### Statement of the Problem

Observed lack of ‘tech tools’ is currently adversely affecting Linguistics students’ potential achievement and academic output in the Linguistics and Modern Languages Strand (LML), School of Humanities and Social Sciences (SHSS) UPNG. This student research project was conceived to address this problem by investigating the levels of availability and usage of personal computers (PCs) and smartphones among Linguistics Major students at the SHSS UPNG. Our main research question, therefore, was “Do Linguistics Major students at SHSS UPNG have the necessary tools and resources for effective online learning?”

### Study Aims and Objectives

The overall aim of this quantitative study was to examine our learning environment and evaluate its strengths and weaknesses and look for ways to improve it. Our specific objectives were:

1. To measure the prevalence of Linguistics Major students’ PC and smartphone ownership – that is, to ascertain the percentage of our peers who have/don’t have these devices.
2. To assess the usage of available online learning platforms: To evaluate the frequency and effectiveness of Google Classroom and Moodle use among the Linguistics Major students.
3. To identify the preferred online learning platform: To determine which Learning Management System (LMS) is favoured by the Linguistics Major students for their studies.

We believe this research will contribute to a better understanding of the technological needs of Linguistics Major students and inform strategies for enhancing their learning experiences within the blended learning environment at UPNG.

### Literature Review

The literature on the impact of COVID-19 on higher education reveals the challenges faced by students in accessing technology and participating in online learning [2; 3]. In PNG, the digital

divide, characterized by unequal access to technology and internet connectivity, has been a major obstacle for many students [4]. The pandemic exacerbated this issue, as students from disadvantaged backgrounds may have struggled to acquire devices and gain reliable internet access. Studies have shown that access to personal computers (PCs) and smartphones is crucial for online learning success [5]. Students with these devices are more likely to engage in online activities and achieve better academic outcomes. However, the availability of such devices can be limited in PNG, particularly in the rural areas.

Internet connectivity is another critical factor for effective online learning. Reliable internet access is essential for accessing course materials, participating in virtual classes, and collaborating with peers. Unfortunately, many regions in PNG still lack adequate infrastructure, limiting students' ability to connect to the internet [6].

The transition to online learning also required students to develop new skills, such as using online platforms, participating in virtual discussions, and managing their own learning. Students with limited digital literacy face challenges in adapting to this new mode of learning [7]. The role of universities in providing technical support, training, and resources for online learning is crucial. Adequate institutional support can help mitigate the challenges faced by students and faculty in the transition to online learning [8; 9; 10].

## Methodology

Our Research Philosophy was positivist, seeking to establish verifiable facts regarding the prevalence of digital device ownership among the 96 registered Linguistics Major students in SHSS UPNG in Semester 2, 2024. The type of this research is quantitative, designed purely to establish the numbers of those among us who have their own digital devices and those who do not. This was also an effort to verifiably quantify the percentages of students who use the online learning platforms available at UPNG (GC/Moodle) and to discover the students' perception of their relative user-friendliness.

Our primary data collection tool was a self-designed online survey, using a pretested Google Form Questionnaire: <https://forms.gle/YNQ9o1N1oKTyGeqU6> (Fig. 1 below presents a sample of the questionnaire). This link was distributed to LML Lx students via email, FB and WhatsApp messenger groups. To address accessibility concerns, some of the online forms were printed and made available to students who do not own digital devices and so have no Internet access. Some printed copies of the questionnaire were distributed manually in class. This mix of survey distribution channels ensured maximum student participation in the survey.



## UPNG LML Students' Research - Online Survey

**B** *I* U  

This online survey is conducted by the 4th year LML Students of the University of Papua New Guinea, to investigate whether the current Linguistics Major students have the learning tools they need in their studies.

\*Please note that this survey is only for **ALL** the students **Majoring in Linguistics (Year 1 to Year 4)**  
Please use your **UPNG Student ID email** to answer the 4 questions below:

Email \*

Do you own a smartphone? \*

- Yes
- No

---

Do you own a PC/Computer? \*

- Yes
- No

Which of these learning platforms do you use? \*

- Moodle
- Google Classroom
- Both
- None

Which of these learning platforms do you find easier to use? \*

- Moodle
- Google Classroom
- Both
- Neither one

---

TENKYU TRU for participating in this survey!

**Fig. 1. Linguistics Major Students' Research Survey 2024**

## Sample Size calculation

The sample size for the finite population of 96 Linguistics students was calculated, using the online sample size calculator: <https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=96&x=Calculate> :

### Result

**Sample size: 77**

This means 77 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within  $\pm 5\%$  of the measured/surveyed value.

Confidence Level: (?)	95%	▼	
Margin of Error: (?)	5	%	
Population Proportion: (?)	50	%	Use 50% if not sure
Population Size: (?)	96		Leave blank if unlimited population size.

Thus, to get statistically significant results ( $p < 0.5$  at 95% Confidence Level) representing the target population of 96 linguistics students, the number of responses we had to get was 77 (77/96), which represents over 80% of the total population of Linguistics Major students in Semester 2 2024. This ensured the statistical significance of our findings, meaning that the survey was fair and representative of the entire population of 96 with a 95% confidence level.

## Data analysis

This is a purely descriptive statistical analysis of indicators, quantifying the prevalence of device ownership and LMS use/preferences among Linguistics Major UPNG students. GF analytics were used for data analysis, and GF Charts are used below to visualize our survey results.

78% (75/96) of the total linguistics student population filled the questionnaire. Responses were received (online and manually). This is short of the 80% (77/96) sample size required; however, the difference of 2% was deemed immaterial. Our findings are presented below.

## Findings and Discussion

In response to Question 1, “Do you have a smartphone?”, 96% (72/75) of our representative sample responded “Yes” (See Fig. 2 below). This means that only 4% (3/75) of the Linguistics Major students in 2024 do not own a smartphone. This, in turn, indicates that they do not have

this basic digital learning tool to enable their effective participation in the currently used blended learning curricula.

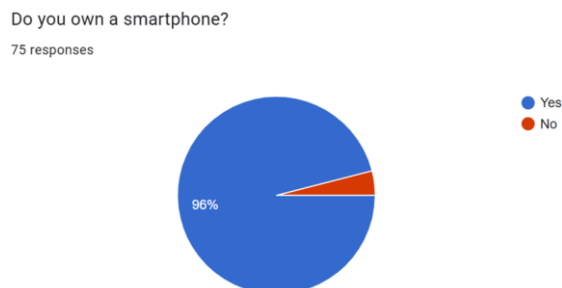


Fig. 2. Responses to Question 1. “Do you own a smartphone?”

In response to Question 2, “Do you own a PC/Computer?”, 74.7% (56/75) of our representative sample responded “Yes” (See Fig. 3 below). This means that over a quarter of LML Linguistics Major students do not have the most useful technological tool for their studies.

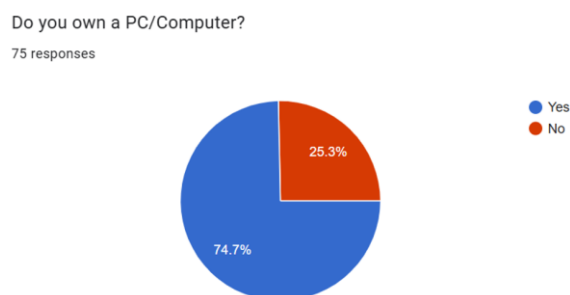


Fig. 3. Responses to Question 2. “Do you own a PC/Computer?”

However, our investigation of the students’ access to and use of the LMSs available to us (GC/Moodle), the responses to Question 3, “Which of these learning platforms do you use?” revealed that most of all Linguistics Major students – 66.7% (50/75) use both GC and Moodle (Fig. 4):

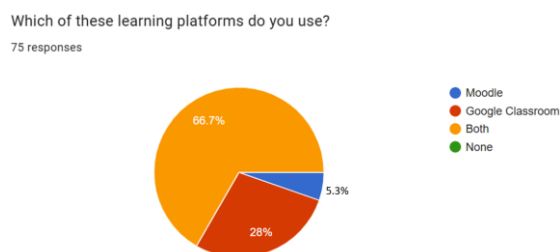


Fig. 4. Responses to Question 3 “Which of these learning platforms do you use?”

28% (21/75) of students used GC exclusively, while 5.3% (4/75) used only Moodle. Interestingly, all 75 students, even those without the digital devices, participated in online learning.

Regarding student preferences and perceptions of the relative user-friendliness of these LMSs, most students (56%; 42/75) prefer using GC, while 40% (30/75) find both LMSs equally easy to use and 4% (3/75) like Moodle best.

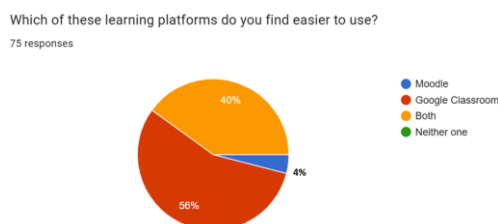


Fig. 5. Responses to Q 4 “Which of these learning platforms do you find easier to use?”

Our findings contrast sharply with the situation in other countries – and not just in the so-called “1st world” societies. In Indonesia, our neighbour, a similar study investigated student ownership of desktops, laptops, smartphones, and tablets in Indonesian universities. That 2016 study found that “98% of students own at least two of these personal computing devices. Laptop + smartphone is the most common bundle to have, owned by 41% while 15% own all four of them” [11].

## Conclusions

In contrast to leading world universities with near universal student pc ownership, over a quarter of Linguistics and Modern Languages students are struggling to cope with their studies, because they have no computers to access the Internet resources and the online learning programs used in blended curriculum delivery.

96% of Linguistics students have smartphones (their quality should be assessed in future studies but, based on observation, most are cheap, old, and barely functional); 4% of our students struggle without smartphones.

GC platform is more popular than Moodle, as most students find it more user-friendly.

The students’ academic outputs would improve, if they had the digital tech tools they need to access their learning materials and resources.



## Recommendations

1. **Improve access to Computers:** Many linguistics students lack personal computers, limiting their ability to complete assignments, research, and engage in online learning platforms. Providing access to shared computer labs or workstations, specifically for linguistics students would greatly bridge this gap.
2. **Enhance Internet Access:** Reliable internet access is essential for accessing online learning platforms like Moodle and Google Classroom and is of great use for conducting research.
3. **Contract mass ICT providers:** Partnering with ICT providers can help students acquire the necessary tech. Laptops, tablets, and software can be provided at discounted prices.
4. **IT support systems:** Even with access to computers and the Internet, students may still struggle with technical issues (login-in to online platforms, troubleshooting software, etc.) and other general usability information. ICT support would greatly help students overcome these issues.
5. **Regular assessment and feedback Mechanism:** To continuously meet the evolving needs of the students, the University should implement annual surveys or focus groups to gather information about students' access to technology and resources. This can facilitate the University to plan and monitor developments and adjust its strategies accordingly.

## REFERENCES

1. DWU Staff. (2020). Increasing blended and online learning in PNG universities: the DWU experience. <https://devpolicy.org/increasing-blended-and-online-learning-in-png-universities-the-dwu-experience-20200520-2/>
2. Shahzad, A., Hassan, R., Aremu, A.Y. et al. Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Qual Quant* 55, 805–826 (2021). <https://doi.org/10.1007/s11135-020-01028-z>
3. Shahzad, A., Khan, A., & Ali, A. (2021). The impact of COVID-19 on higher education: A systematic review. *International Journal of Educational Technology in Higher Education*, 9(1), 1-26.
4. Smith, J., & Brown, A. (2017). Education in Papua New Guinea: Challenges and Opportunities for Reform. *Journal of Pacific Development*, 2(1), 45-63.
5. Johnson, R., & Kari, M. (2015). Socioeconomic Factors Affecting Student Success in Papua New Guinea: A Case Study of Rural Communities. *International Journal of Education Research*, 10(3), 112-129.
6. O'Brien, L., & Wong, S. (2019). Language Diversity and Education in Papua New Guinea. *Pacific Educational Review*, 5(2), 78-95.

7. Taylor, K. (2018). The impact of online learning on student engagement at the University of Goroka. *Journal of Distance Education*, 20(1), 73-85.
8. Green, L., & Grey, B. (2017). Challenges and opportunities of online learning at the University of Goroka. *International Journal of Distance Education*, 12(3), 45-56.
9. Hemon, S. (2019). Culturally relevant online learning: Strategies for enhancing student engagement in Papua New Guinea. *Journal of Online Learning and Teaching*, 17(2), 98-110.
10. Information and Education Technology. (2024). Student survey - Winter 2024. University of California, Davis. <https://studentaffairs.ucdavis.edu/satisfaction-survey>
11. Pratama, A. (2017). Exploring personal computing device ownership among university students in Indonesia. In *Proceedings of the 1st International Conference on Information Technology and Education* (pp. 835-841). Springer International Publishing. [https://doi.org/10.1007/978-3-319-59111-7\\_70](https://doi.org/10.1007/978-3-319-59111-7_70)
12. Ministry of Education, Papua New Guinea. (2020). COVID-19 Education Response Plan. <https://www.unicef.org/png/press-releases/papua-new-guinea-launches-its-covid-19-education-emergencies-response-and-recovery>