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EVALUATING LECTURERS' AND LEARNERS' PERCEPTIONS AND EXPERIENCES TOWARDS TECHNOLOGY-ENABLED LEARNING (TEL) AT UPNG.

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EVALUATING LECTURERS' AND LEARNERS' PERCEPTIONS AND EXPERIENCES TOWARDS TECHNOLOGY-ENABLED LEARNING (TEL) AT UPNG.

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Abstract

This research report presents the findings of a study conducted at the University of Papua New Guinea (UPNG) on learner's and lecturers' perceptions and experiences of Technology-Enabled Learning (TEL) in 2022. The study aimed to explore the extent of technology use in teaching and learning, investigate the TEL environment and practices at UPNG, and identify learners' and lecturers' perspectives on its benefits and challenges. A mixed-methods approach was employed, involving qualitative and quantitative methods with 73 learners and 56 academic staff participating. The findings indicate that both learners and lecturers recognize the importance of technology for teaching and learning, but there are differences in their levels of comfort and proficiency with technology. Benefits of technology use include increased engagement, flexibility, and access to resources, while challenges include technical issues, lack of training, and the need for more support from the university. The conclusion emphasizes the importance of technology in teaching and learning at UPNG and highlights the report's findings and recommendations to improve the TEL environment to meet the needs of learners and lecturers. The integration of TEL requires proper planning, training, ongoing evaluation, and feedback mechanisms for continuous improvement. The recommendations include developing an appropriate ICT policy, improving infrastructure and capacity building, and establishing partnerships with leading ICT companies to enhance e-teaching and learning. Implementation of these recommendations will transform the pedagogic teaching and learning experience at UPNG.

Keywords: TEL, UPNG, learners' perceptions, lecturers' perceptions, technology use, mixed-methods, benefits, challenges, ICT policy, pedagogic experience

1. Introduction

The University of Papua New Guinea (UPNG) has embraced Technology-Enabled Learning (TEL) in recent years to enhance student learning. This includes the use of Learning Management Systems (LMS) like Moodle and video conferencing for virtual classrooms. TEL policies have become important in higher education, and this study focuses on gathering insights from learners and lecturers at UPNG regarding the implementation of TEL. The report aims to provide an overview of the TEL implementation, identify challenges, and suggest solutions. A survey was conducted among students and lecturers, revealing positive perceptions of TEL but also highlighting aspects such as limited access to technology and insufficient training and support, promoting and collaborating among faculties.The survey included participants from various

schools at UPNG, including the school of Business and Public Policy, School of Law, School of Humanities and Social Sciences, School of Medicine and Health Sciences, School of Natural and Physical Sciences, and UPNG Open College.

2. Literature Review: Technology-Enabled Learning (TEL)

Technology-Enabled Learning (TEL) is an instructional approach that emerged in response to the advancement of digital technologies, providing various benefits to teaching and learning. Initially, computer-assisted instruction (CAI) introduced in the 1960s and 1970s paved the way for the current online learning platforms. TEL has expanded over time to include multimedia resources, educational apps, and virtual and augmented reality tools. In higher education, TEL offers increased access to education, flexible learning environments, personalized experiences, collaborative learning, and enhanced use of multimedia resources (Ora, 2018). However, challenges associated with TEL include the need for technical expertise, reliable technology and infrastructure, and ensuring accessibility for all learners (Mukherjee & Philip, 2019). Student perceptions of eLearning in higher education reveal positive attitudes toward its flexibility, convenience, and access to resources, though challenges such as technical issues, limited interaction with teachers and peers, and motivation difficulties have also been identified (Liu et al., 2010). Similarly, lecturers generally hold positive attitudes toward technology-enabled learning, perceiving it as a means to enhance teaching and improve student engagement. Nonetheless, challenges such as lack of technical support, student resistance, and concerns about online learning quality are also acknowledged (Wang et al., 2018). Effective TEL implementation requires alignment with learning objectives, incorporation of active learning strategies, and provision of interaction and feedback opportunities. Additionally, adequate training and support for academic staff are crucial (Harihran et al., 2008).

2.1. TEL in the South Pacific

TEL has gained significance in universities across the South Pacific, addressing challenges related to distance, limited resources, and educational access in small island states (ADB Report, 2018). Several universities in Fiji, Tonga, Vanuatu, and the Cook Islands have implemented TEL initiatives:

I. Learning Management System (LMS): An LMS platform, like Moodle, enable online and blended learning, provide access to course materials, assessments and communication tools. The University of the South Pacific (USP) has successfully used Moodle for over a decade and now offer foundation and preliminary year programs through Pacific TAFE using online and blended modes.
II. Virtual Classrooms: Some universities have introduced virtual classrooms for live online classes, particularly benefiting students in remote areas.
III. Mobile Learning: Mobile learning has gained popularity, allowing students to access educational content through mobile apps, websites, or text message-based platforms.

IV. Blended Learning (BL): BL combines online and face-to-face learning, providing flexibility for students to study at their own pace and engage in group work and interactions.
V. Open Educational Resources (OER): Universities utilize OERs, such as textbooks, course materials, and multimedia resources, to offer free access to educational content online.

These TEL initiatives expand educational accessibility and can improve learning quality for students, necessitating proper training and support for both students and staff.

2.2. TEL at PNG Universities

TEL has been implemented in various ways in Papua New Guinea (PNG) universities, such as PNG University of Technology (PNG UoT), University of Natural Resources and Environment (UNRE), Divine Word University (DWU), Pacific Adventist University (PAU), and Western Pacific University (WPU) (Poropat, 2017). UNITECH integrates TEL through LMS platforms like Moodle and Blackboard, while UNRE supplements face-to-face teaching with online resources and virtual classrooms. DWU has a well-established TEL program utilizing e-learning platforms, multimedia resources, and online assessments. PAU offers a comprehensive TEL program, including blended learning, online courses, and mobile learning. WPU has embraced TEL from the beginning, employing an LMS, virtual classrooms, and mobile learning. PNG universities utilize technology to deliver debatable education, regardless of location, and provide flexible learning opportunities.

2.3. Technology-Enabled Learning (TEL) at UPNG

UPNG recognizes the potential of technology to enhance teaching and learning. Initiatives at the University include the adoption of LMS platforms like Moodle to deliver course materials, assignments, and engage in online discussions. While UPNG has made significant progress in integrating technology, utilizing LMS, e-books, video conferencing, and online assessments; challenges include limited infrastructure, technical support, training, high costs, and limited internet connectivity.

TEL benefits UPNG by enhancing education quality, increasing accessibility, promoting student engagement and motivation, and improving learning outcomes. To fully realize these benefits, UPNG must address challenges related to infrastructure, technical support, and training for staff and students.

3. Methodology

This section describes the methodology employed in the research study, including the research instruments, data samples, and data analysis techniques used.

a. Research Instruments

Two separate survey questionnaires were developed for data collection, one for the lecturers (academic staff) and another for the learners (students). The questionnaires were distributed using Google Survey for participants with internet access, allowing them to complete the surveys at their convenience. For participants without or with limited internet access, the

questionnaires were administered in person to both lecturers and learners, and their responses were manually entered into Microsoft Excel after obtaining their feedback.

b. Data Samples

The populations and samples for the lecturer and learner surveys are presented in Table 1. Of the 400 questionnaires distributed for each group, there was a sample size of 56 (28% response rate) for lecturers and 73 (36.5% response rate) for learners. The participation in the data collection process was voluntary for lecturers and learners across all Schools, including UPNG OC. Despite efforts to encourage participation, the response rate was relatively low.

Table 1. Populations and samples for Lecturer and learner surveys

Surveys	Sample Questionnaire	Response	Percentage (%)
Lecturers	200	56	28
Learners	200	73	36.5

c. Data Analysis

The collected data was analyzed using a combination of manual data entry into Microsoft Excel and statistical analysis with the SPSS software. Raw data from the questionnaires was manually entered into MS Excel, which facilitated the analysis and creation of charts. SPSS was utilized for conducting normality and correlation tests.

To obtain an accurate measure of the responses to individual items and overall constructs, the mean values of the data sets were calculated. Additionally, the standard deviation (s) was computed to determine the distribution or spread of responses for individual items.

4. Findings: Lecturers use of Technology-Enabled Learning in UPNG

The Research Report on Lecturers' and Learners' Perceptions and Experiences on Technology-Enabled Learning at the University of Papua New Guinea reveals several key findings. In terms of demographic information presented in Table 2, the majority of respondents were male (66.15%), while females accounted for 33.9%. The age group with the highest proportion of respondents was 52-55 years, representing 39.3% of the participants. Lecturers constituted the majority of job levels (55.4%), and a significant portion of academic staff held Master's degrees (55.4%).

Regarding academic staff experience, the most common teaching experience range was 11-15 years, with 23.2% of the respondents falling within this category. Those with less than five years of experience made up 16.1% of the participants, while only a few respondents had more than 20 years of experience.

Regarding the use to internet and device access, all respondents owned desktops, laptops, and smartphones. However, tablet ownership was relatively low at 13%, indicating less emphasis on their use. The majority of academics accessed the internet from their office (100%) and home (74%), with the university's Wi-Fi network serving as the primary source of internet access.

In terms of computer-related skills, the overall mean computer-related skills level was 11.08 out of 56. Lecturers demonstrated proficiency in learning management systems and search engines.

However, areas such as Web 2.0 tools and digital audio were identified as needing more support and training.

Social media and online platforms played a significant role in technology-enabled learning. Facebook, Moodle, Google+, and LinkedIn were commonly used social media platforms. Lecturers frequently utilized discussion forums, although they held fewer moderation roles. In terms of device usages and accessibility, lecturers reported positive experiences with computer facilities and network bandwidth, highlighting satisfactory ICT facilities and services. However, areas such as ePortfolios and ICT maintenance and repair support were identified as needing improvement.

Face-to-face teaching remained the most widely adopted teaching mode, with a 96.4% adoption rate. The relatively low awareness of online teaching suggests limited infrastructure and resources dedicated to this mode of instruction.

Regarding the usage of digital resources, open textbooks and images were frequently used, while audio recordings and social bookmarking were less utilized. The most commonly used platforms for digital resources were OER Commons, followed by Saylor Academy and WikiEducator.

The integration of ICT in teaching and learning showed that lecturers demonstrated varying proficiency levels in using different technologies. However, proficiency in learning management systems and online collaboration tools was relatively consistent among the academic staff.

Access to library resources for teaching and learning was generally satisfactory, as reported by the respondents. However, there was variability in accessing specific resources, indicating the need for continued improvement in this area.

The usage of research support facilities showed that academic staff had a neutral to fair level of utilization. Plagiarism detection software had the least usage, while access to data storage varied among the respondents.

In conclusion, academic staff generally had positive perceptions towards technology-enabled learning, highlighting its potential benefits and opportunities for improvement. These findings provide valuable insights into the current state of technology-enabled learning at the University of Papua New Guinea and offer areas for further development and enhancement.

Table 2. Demographic profile of lecturer respondents at UPNG

Questionnaire Item (56)		
Attributes	**Number**	**%**
Gender		
Male	37	66.1
Female	19	33.9
Age group		
21-25	0	0.0
26-30	1	1.8
31-35	3	5.4
36-40	3	5.4
41-45	8	14.3
46-50	9	16.1
51-55	22	39.3
56-60	5	8.9
61-65	4	7.1

66-70	1	1.8
Job Level		
Professor	2	3.6
PhD	4	7.1
MPhil or MTech	3	5.4
Assistant Professor	1	1.8
Lecturer	31	55.4
Senior Tutor	5	8.9
Tutor	9	16.1
Teaching Fellow	1	1.8
Highest Qualification		
PhD	6	10.7
Phil or Mtech	3	5.4
Master's	31	55.4
Honours	14	25.0
Graduate Diploma	2	3.6
Primary Role		
Undergraduate Teaching	38	67.9
Graduate or Postgraduate Teaching	15	26.8
Doctoral research	3	5.4

4.1. Findings: Learners' use of Technology-Enabled Learning in UPNG

This section of the research journal article presents the findings on learners' access to and use of ICT at the University of Papua New Guinea (UPNG). The questions asked were related to their access to ICT devices, access to the internet, and use of ICT at UPNG. From the study, it has been shown that UPNG Open College had the highest response rate at 50.7%, followed by the School of Business and Public Policy (SBPP) at 20.56%. In contrast, the School of Humanities and Social Sciences (SHSS) had a response rate of 15.1%, while the School of Natural and Physical Sciences (SNPS) and the School of Medicine and Health Sciences (SMHS) had response rates of only 8.2% and 4.1%, respectively. Furthermore, the School of Law had the lowest response rate at 1.4%. Out of the 200 questionnaires distributed, only 73 responded.

It is worth noting that the sample size of student respondents in each profile component does not correspond to the total sample size, indicating that some components were not answered. Additionally, a comparison of the respondents' demographics reveals that the majority of respondents were female (58.9%) compared to male (36.99%). Moreover, most of the respondents were undergraduate students (98.63%) in the 21-25 age group. The respondents were distributed across different years of study at UPNG, with the majority being Year 1 and 2 students (57.14% and 22.23%). In terms of disciplines, 43.28% of respondents came from SBPP, while the School of Law (SoL) had a 2.7% representation.

Looking at the ownership of devices among learners at UPNG, it is evident from Table 20 that the majority of learners own a laptop (80.8%), followed by smartphones (100%) and desktops (4.1%). However, tablet devices were owned by a small number of learners. Additionally, a significant

percentage (12.3%) of learners plan to buy a desktop within the next 12 months, while most do not have plans to buy a laptop or smartphone.

In terms of accessibility to devices at UPNG, the majority of learners (55.3%) have access to desktops provided by the university, while 44.7% use their personal laptops. It is important to note that no learners are allowed to use university-provided desktops or tablet devices, and all learners can use their smartphones for accessing ICTs. Therefore, laptops and smartphones are the most commonly owned and accessible devices for learners at UPNG.

When considering device usage for internet connectivity, the majority of respondents (89%) use mobile devices to connect to the internet. In contrast, wireless connectivity is used by 58.9% of respondents, while leased line and dial-up connectivity are used by only 8.2% and 1.4%, respectively. Hence, mobile devices and wireless connectivity are the most popular modes of internet connectivity among the respondents.

Regarding the locations where learners access the internet, the research indicates that students at UPNG primarily use hostels (94.5%), laboratories (90.4%), and the library (83.6%) for broadband internet access. Additionally, classrooms (61.6%), seminar halls (72.6%), and open areas (80.8%) are also frequently used. On the other hand, student common rooms (53.4%) and reception lounges (38.4%) are the least preferred locations for accessing the internet. These results suggest that learners value reliable and fast internet connectivity in the areas where they spend most of their time on campus. Therefore, the university should consider improving internet connectivity in all areas of the campus, especially student common rooms and reception lounges. Furthermore, providing learners with affordable personal data packages may enable them to access the internet outside of the campus. In terms of proficiency in using software applications for technology-enhanced learning (TEL), the overall mean proficiency level is 14.6, indicating a moderate level of proficiency among learners. However, there is variation in proficiency levels among different software applications, as indicated by the standard deviation values ranging from 8.4 to 19.4. Learners tend to have higher proficiency in using search engines, databases, and multimedia authoring software, while web page design shows lower proficiency. To improve learners' proficiency in software applications for TEL, it is important to provide adequate training and support. Moreover, the research reveals that Facebook, Google+, and research sharing sites are the most popular platforms among the surveyed population. All respondents have access to Facebook and Google+, while all respondents have access to research engines. Twitter and social bookmarking sites are also widely used. However, LinkedIn and presentation platforms have moderate usage, while photo sharing and book-related platforms have lower usage. These findings indicate the importance of certain social media platforms for communication and information sharing among the surveyed population. In relation to evaluation of ICT services at UPNG, the eClassroom facilities received a rating of "Good" from the majority of learners, while computer labs received a rating of "Neutral". The institutional email service was rated "Excellent" by most learners. However, the learning management system (LMS) received the lowest rating, with some learners rating it as "Poor". These results suggest the need for improvement in ICT services, particularly the LMS, data visualization software, and institutional repository for research sharing. In terms of inclusivity and accessibility, learners without disabilities make up the majority, while learners with physical disabilities and those with physical and learning disabilities account for significant percentages. To ensure inclusivity and accessibility, it is important to encourage learners to disclose their disabilities and provide them with support and resources.

Furthermore, the survey results indicate that only a small percentage of respondents have taken online courses (24.7%). This low participation rate may be attributed to a lack of awareness and promotion of online courses, as well as limited accessibility to technology resources. To increase student participation, it is crucial to improve marketing and promotion of online courses, provide more technology resources, and offer support. Additionally, there is a lack of awareness and understanding of Massive Open Online Courses (MOOCs) among the student body at UPNG. Therefore, efforts should be made to raise awareness and understanding of MOOCs among the students.

In conclusion, the findings highlight learners' access to and use of ICT at UPNG, as well as areas for improvement in terms of technology resources, infrastructure, proficiency, and support services. Addressing these areas can enhance the learning experience and promote inclusive education at UPNG.

5. Discussion

The findings of the research reveal a mixed experience among lecturers at UPNG regarding Technology-Enabled Learning (TEL). On the positive side, some lecturers report significant impacts on their teaching practices, including the ability to employ new methodologies and facilitate collaboration among students. They find TEL beneficial for fostering innovation and creating interactive learning experiences by incorporating online quizzes, discussion forums, and video lectures. TEL also offers flexibility in delivering course content, enabling students to access materials at their convenience and from any location. However, it is important to acknowledge the challenges faced by some lecturers in implementing TEL effectively. They express the need for additional training and support to make the best use of TEL tools and platforms. Limited technical expertise among lecturers, as well as frequent technical issues such as poor internet connectivity, pose obstacles to the smooth delivery of online education. Furthermore, adapting course materials to fit an online environment is seen as burdensome and time-consuming by some lecturers. Despite these challenges, both lecturers and learners perceive benefits associated with TEL at UPNG. Learners particularly appreciate the increased flexibility provided by online learning, allowing them to access course materials at their own pace. TEL also opens up access to a diverse range of resources, including e-books, journals, and videos. Collaborative opportunities through online forums and assignments are valued by both lecturers and learners. Nevertheless, there are existing challenges that need to be addressed for TEL to reach its full potential at UPNG. Technological barriers, such as limited access to devices and poor connectivity, hinder the effectiveness of TEL initiatives. Some learners face difficulties in accessing online resources due to technological limitations. Additionally, the lack of face-to-face interaction in an online environment is seen as a challenge, as it limits opportunities for relationship-building and community creation. To fully realize the benefits of TEL, it is crucial to address these challenges. UPNG should prioritize improving the quality of technological infrastructure, ensuring reliable access to devices and stable internet connectivity. Providing adequate training and support for lecturers is essential to enhance their proficiency in using TEL effectively. Active engagement with TEL has shown to have positive impacts on learning outcomes, but it is necessary to overcome barriers such as limited access and technological challenges. Furthermore, efforts should be made to foster face-to-face interaction, even in an online environment, to promote community engagement and a sense of

belonging among learners. By addressing these key areas, UPNG can enhance the overall effectiveness of TEL and provide a more enriching learning experience for its students.

6. Conclusions and Recommendations

In conclusion, the implementation of Technology-Enabled Learning (TEL) at UPNG holds the potential to revolutionize teaching and learning by leveraging technology for innovative content delivery. The utilization of online learning management systems, multimedia tools, social media platforms, and mobile devices can create a flexible and accessible learning environment. However, successful integration of TEL necessitates proper planning, training, and support for both lecturers and learners. To this end, it is recommended that UPNG invest in comprehensive professional development programs and resources to equip academic staff with the necessary skills and knowledge to effectively utilize TEL in the classroom. Furthermore, the establishment of ongoing evaluation and feedback mechanisms is crucial to monitor the effectiveness of TEL and make continuous improvements.

To facilitate the integration of TEL, the following key recommendations are proposed based on the research findings:

1. Development of an appropriate ICT policy: UPNG should develop a well-defined policy related to TEL that ensures the university's information resources and technology are utilized for their intended purposes. This policy will provide guidelines and standards for the implementation of TEL across the institution.

2. Improvement of ICT infrastructure: There should be a focus on enhancing the ICT infrastructure at UPNG to enable reliable and efficient communication capabilities. Adequate internet connectivity, access to up-to-date hardware and software, and reliable power supply are essential for effective TEL implementation.

3. Capacity building for TEL: Continuous training and professional development programs should be provided to academic staff to enhance their capacity in integrating TEL effectively into the courses offered. This includes strengthening both human and ICT infrastructure capacities at the university, from policy formulation to implementation.

4. Partnerships with leading ICT companies: UPNG should explore collaborations and partnerships with established ICT companies to enhance e-teaching and learning. Such partnerships can provide access to cutting-edge technologies, expertise, and resources that can further enhance the TEL experience at UPNG.

By implementing these recommendations, UPNG can facilitate the successful integration of TEL, transforming the pedagogic teaching and learning experience for both lecturers and learners. This will enable UPNG to harness the full potential of technology in education and foster a culture of continuous improvement and innovation.

References

1. Asian Development Bank (2015). ICT FOR BETTER EDUCATION IN THE PACIFIC https://www.adb.org/sites/default/files/publication/428221/ict-education-pacific.pdf
2. Aristovnik, A (2012), THE IMPACT OF ICT ON EDUCATIONAL PERFORMANCE AND ITS EFFICIENCY IN SELECTED EU AND OECD COUNTRIES: A NON-PARAMETRIC ANALYSIS: https://files.eric.ed.gov/fulltext/EJ989207.pdf
3. Czerniewiz, L., &Brown, C. (2012). Exploring the state of e-learning in Papua New Guinea's higher education institutions. Distance Education, 33(2), 253-270
4. Kirkwood, A., & Price, L. (2016). *Technology-enabled learning implementation handbook*.
5. Burnaby, Canada: Commonwealth of Learning.
6. Liu, T, Lu, L & Yu,T (2010). Computers in Human Behavior: The National Chung Cheng University, Taiwan. wT,Cww.elsevier.com/locate/comphumbeh
7. Lockwood. & Koul, B, B, B, (2010).Review of the UPNG Open College
8. Njekwa, A. N., Winduo, S., & Pahau, D. D. (2020). The Role of Open Educational Resources in Promoting Technology-Enabled Learning in Papua New Guinea. International Journal of Information and Education Technology, 10(7), 504-508. https://doi.org/10.18178/ijiet.202.10.7.1421
9. Ora, M. (2018). The Impact of Mobile Learning on Students'' Learning Performance: Evidence from Papua New Guinea. Journal of Educational Technology Development and Exchange, 11(1), 1-16.
10. Philip, K., & Mukherjee, S. (2019). Challenges and opportunities for technology-enhanced learning in Papua New Guinea. Australasian Journal of Educational Technology, 35(2), 1-12.
11. Poropat, A.E., & Poropat, A. (2017). Technology-enabled learning in Papua New Guinea: A case study of the University of Papua New Guinea. The International Review of Research in Open and Distributed Learning, 18(3), 105-123.
12. Ramachandran, G.S., Hariharan, R., & Unnikrishnan, R. (2019). Exploring Mobile Learning for Enhancing Tertiary Education in Papua New Guinea. Journal of Interactive Media in Education, 2019(1),8.https:jime.open.ac.uk/article/10.5334/jime.510/
13. Rena, R., Rajendra, J. C. N., & Gope, M. (2021). Online Learning in Papua New Guinea: The Need for Paradigm Shift. International Journal of Emerging Technologies in Learning, 16(10), 214-224.
14. Report on Implementation of Evolving Telecommunication/ICT Infrastructure for Developing Countries (2017): https://www.itu.int/en/ITU-D/ https://files.eric.ed.gov/fulltext/EJ989207.pdf T
15. Sharma, B, (2019).report on the Baseline Study of Technology-Enabled Learning at the University of PapuaNew Guinea, Burnaby, Canada: Commonwealth of Learning.
16. Technology-Enabled Learning, Western Sydney University https://www.westernsydney.edu.au/tel#:~:text=Technology%2DEnabled%20Learning%20(TEL),the%20consideration%20of%20pedagogical%20principles
17. Winduo, S. (2018). Technology-Enabled Learning in Papua New Guinea: Opportunities and Challenges. Journal of Open, Flexible and Distance Learning, 22(1), 1-13.htpps://www.jofdl.nz/index.php/JOFDL/article/view/380