Digital Literacy at Divine Word University

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Abstract: Over the last two decades, Divine Word University, with its "paperless" university policy and the "one laptop per student" initiative has encouraged digital literacy among staff and students. Developments over time saw the introduction of online exams, and the expansion of the Moodle LMS across several campuses. In 2018 DWU conducted an exhaustive study with 289 student participants who were asked to complete sixteen assignments on the internet. The researchers noted necessary operational and formal skills, as well as the importance of developing information and strategic skills to ensure a meaningful and creative use of digital technologies. More recently, during and after the COVID pandemic, the university introduced new tools to support virtual teaching and learning, along with infrastructural upgrades to support those developments. The introduction of AI tools raises new issues of digital literacy, making AI literacy part of student learning. This presentation will identify the most recent issues for students learning digital literacy at Divine Word University.

Keywords: Digital competency, Digital literacy, AI literacy, Papua New Guinea, Divine Word University

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Philip Gibbs is President of Divine Word University in PNG. Originally from Aotearoa New Zealand, Prof. Gibbs is a Divine Word Missionary who has worked for over fifty years in Papua New Guinea. He holds an MBA from Divine Word University, and a Doctorate in Theology (STD) from the Gregorian University in Rome, Italy. His recent major academic work is in the field of social concerns, particularly Sorcery Accusation Related Violence in Papua New Guinea.

1. INTRODUCTION

Divine Word University (DWU) in Papua New Guinea has four faculties with 4,000 students in full-time and part-time programs (Diploma, Bachelor, and post-graduate programs, including Master's, and Doctorate. There are five campuses covering the main regions of the country: Madang, Port Moresby, Rabaul, Wewak, and, more recently, Mount Hagen. DWU has a vision to be recognized nationally and internationally by its value-based innovative application of technology to enhance learning and teaching, and to give the opportunity of higher education to as many learners as possible. Over the last two decades, Divine Word University, with its "paperless" university policy and the "one laptop per student" initiative, has encouraged digital literacy among staff and students. Developments over time have seen the introduction of online exams and the expansion of the Moodle LMS across campuses.

In 2018, researchers on the Madang campus conducted an important study to ascertain students' ability to work with digital technologies. More recently, during and after the COVID pandemic, the university introduced new tools to support virtual teaching and learning and upgraded its infrastructure to support those developments. Popular extracurricular courses offered include an eight-week course in Artificial Intelligence Literacy for Students and an eight-week course in Digital Citizenship.

This presentation traces several stages of the development in digital literacy and identifies the most recent issues for students becoming responsible digital citizens at Divine Word University.

2. EVALUATING DIGITAL SKILLS

In 2018, Divine Word University conducted an exhaustive study with 289 student participants who were asked to complete sixteen online assignments within a two-hour time period (Kolodziejczyk et al). The study utilized the framework of a study from the Netherlands (van Deursen et al). The research involved noting necessary operational and formal skills and the importance of developing information and strategic skills to ensure a meaningful and creative use of digital technologies.

Operational skills are the basic skills to operate digital media. In this category, students were expected to navigate an internet browser and operate an online search engine. Students were asked to go to the website of the National Statistical Office and locate final figures from the recent census. Most of the students were able to complete the two initial tasks, while the third task, involving locating, completing and saving a PNG Entry Permit Application Form, proved the most difficult, with only 3% completing it.

Formal skills enable us to handle the structure of digital media, including navigating the internet through hyperlinks and maintaining a sense of location while navigating the internet. Starting with the PNG Immigration & Citizenship Service Authority website, students were expected to navigate through internet websites by recognizing and using tabs and hyperlinks without getting disoriented and locating similar information in different website layouts. Students achieved only 13% completion across all tasks in this category.

Information skills involve locating information in digital media. Information skills are measured by locating required information by choosing an appropriate search system or website, the ability to define search queries, selecting information from search results, and evaluating information for accuracy of data and the reliability of the sources. One-third (30%) of students were able to complete all the tasks successfully. For example, one of the tasks was, "Imagine you are planning for a holiday trip overseas and you need to apply for a passport. Use a search engine (e.g. www.google.com.pg, or the one you use at home) to find the complete address to which you need to send your application if you live outside Port Moresby."

Strategic internet skills involve using the network's sources to achieve a specific goal and improve one's status in society. The strategic skills category required students to define search queries and select proper resources to decide whether to vote for a particular party, depending on the party's specific policies. Almost one-third (28%) of students successfully completed all tasks in this category.

Results of the digital skills study indicate that age and gender were not significant; however, performance was significantly different for students from the capital city as compared to those coming from a rural town or village environment, and performance improved as students moved through the four years of university training. Only 2% of year one students completed the formal skills tasks.

If operational and formal skills are necessary but not sufficient conditions for performing higher-level information and strategic skills, then tertiary institutions, particularly those facing the effects of the so-called digital divide, must ensure that those necessary skills are provided for. Having ensured digital competency at that level, further efforts can be made to develop information and strategic skills to ensure a meaningful and creative use of digital technologies.

Digital literacy is important in education, particularly tertiary education. Duncan- Howell (2012) has researched the nature of the digital competency exhibited by undergraduate students in an Australian University. She found that they had a high level of "digital comfort" but that did not necessarily translate from consuming content to creating content. She concluded that there is a strong need in higher education "for meaningful use of digital technologies as learning tools and the development of digital professional skills within programs that is beyond the current practice of being limited to LMS use and email" [Duncan-Howell].

The 2018 DWU research points to the need for training and formal schooling right from the first year of tertiary education in PNG, since a good number of students will come with little prior experience. Divine Word University meets a felt need by giving a laptop to every new fully registered student and providing formal coursework in the use of computers and the internet in their first semester at the university. The effect of such training may be seen in the relative improvement between first and second-year students in the DWU study.

3. DIGITAL INITIATIVES AT DWU

DWU has since developed various initiatives for technology enhanced teaching and learning leading from digital competency to the promotion of digital literacy.

3.1 Most exams at DWU are now online, and for this, a Safe Exam Browser is used to lock down the testing environment safely and restrict access to other websites, system functions, and applications. It prevents students from using unauthorized resources during an exam. Essentially, it turns the student's computer into a secure workstation for the exam duration.

3.2 Text-matching software (Turnitin) checks for plagiarism and helps students learn about proper citation and academic writing. It generates a Similarity Report that highlights any matching text, allowing us to assess whether the matches are properly cited or indicative of plagiarism.

3.3 Interactive activities utilizing HTML5 Package (H5P) enable creating interactive content like quizzes, drag-and-drop activities, videos, and presentations. Some lecturers use a tool called Menti meter, which allows presenters to create engaging experiences for their students' using polls, quizzes, and other interactive elements. Students can participate in real-time using their own devices, and results are displayed instantly, fostering active participation and feedback.

3.4. There are Integrative Open Educational Resources (OER) providing learning units available for skill development. Some students and staff use Coursera's microlearning modules which are short learning units available for skill development.

3.5 Virtual meetings using Zoom or Teams conveniently save on time and the cost of travel, and allow for international conferences that would otherwise be impossible.

3.6 AI-powered virtual assistants include Amazon Alexa, Apple Siri and Google Assistant. Some staff have been using Otter to transcribe and summarize meetings.

3.7 Social media, utilizing Facebook and WhatsApp groups, are popular
The University is also working to provide student and staff capacity-building initiatives and support.

3.8 DWU has an active Centre for Learning & Teaching with programs such as:

- Training in online teaching pedagogies
- Numeracy programs (Excel, Financial Modeling and Business Analysis)
- AI Literacy
- Self-paced online self-study skills programs

3.9 DWU also has the expansion of facilities for digital initiatives

- A video studio with dedicated staff for developing online teaching materials
- Lecture Capture System for simultaneous online lecture delivery
- An integrated system of Student Data Management (University10) with Learning Management System (Moodle) and Student Financial System to enhance student experience and satisfaction

4. TRAINING IN DIGITAL CITIZENSHIP

Learning in new ways presents challenges such as cyberbullying, privacy issues, and misinformation. Training in digital citizenship (from Common Sense in UK) focuses on responsible use of technology so as to learn, create,

participate and think critically. Topics covered are as follows:

4.1 Finding a balance in digital life. How does it add or take away value from your life?
4.2. Privacy and security. Should DWU monitor social media? Can governments use data fairly or without violating our privacy?
4.3. Digital footprint and identity - one's public presence (not just self-promotion). Everyone who uses technology leaves a footprint behind, so it is important to always be careful when using any social media platform.
4.4. Relationships and communication. Strategies to avoid uncivil discourse. Respectful and constructive dialogue. Not making another person look bad and how to approach people we disagree with.
4.5. Cyber-bullying, digital drama and hate speech. How to make the online world safer?
4.6. News and media literacy. How best to read news online. Being wary of sensationalized headlines. Checking the source's reputation and biases, and looking for supporting evidence and multiple perspectives.

Student participants in this course took particular interest in issues of mass surveillance, including compulsory SIM card registration in PNG and the government's ban on Facebook, as happened for a month in 2018 and on March 24, 2025 (reputedly for a test under anti-terrorism laws).

Students debated whether the government should be able to access social media and cellphone information, and if so, under what circumstances? The students pointed out that the government's role should be to protect rights, not to restrict them. Any regulation should be transparent, legally justified, and aimed at addressing specific harms, not silencing voices or invading personal lives. People in PNG deserve both security and freedom, not one at the cost of the other.

A student wrote, "I never knew that my online behavior could leave a digital footprint that could affect my future till I attended the program and I wish the program could continue so I can learn more about being a digital citizen". Another adds, ". It prepares us not only to deal with our profession but also gives us enough knowledge to face the twenty-first century with its advanced technology

5. ARTIFICIAL INTELLIGENCE (AI)

With advances in technology, one interested in digital literacy must face the reality that today it is easy to access content fully generated by Artificial Intelligence (AI). However, it is considered dishonest and plagiarism to take and use AI-generated ideas and represent them as one's own. DWU has developed a Plagiarism and Integrity Policy to make clear the importance of academic honesty and integrity in all University endeavors by academic staff, researchers, administrators and students.

The University uses Turnitin electronic text-matching software and a web-based tool that compares submitted text against electronic text found on the publicly accessible Internet, published works, commercial databases, and other student assignments.

Students are instructed on how to legitimately access and reference AI-generated work and Academic staff should clearly specify their position on AI usage in any unit taught. The information should include under what circumstances AI use is permitted, if at all, and how students should cite or credit AI. Offenders can be given a warning and told that the work is to be revised and re-submitted.

DWU also has an Assessment Policy, which offers guidelines to provide transparency on using Artificial Intelligence (AI) in assessment practices so that assessment purposes and quality are maintained. According to that policy, GenAI should not be used for coursework and assessment except where authorized. The permission to use GenAI for coursework and assessment is granted by the Faculty Curriculum and Assessment Committee. For that purpose, a lecturer must explain the purpose, parameters of AI use, the assessment procedures and indicate in what ways the use of GenAI in the proposed assessment item supports the achievement of the unit learning outcomes.

It is noted that Bloom’s taxonomy levels 1-2 are easily solved by GenAI. Instead, assessment should measure learners’ critical thinking, problem-solving and reasoning skills using such methods as in-person

observation, assessment practices or interactive activities. The Assessment may encourage students to show their work-in-progress, for example, by asking for drafts, outlines, and notes to be submitted as part of formative assessment or requesting a student to provide an annotated bibliography to demonstrate sources of evidence used. It is acknowledged that there are circumstances when AI tools and other third-party assistance may be appropriate, including developing initial ideas for the purposes of critical examination or generating practice questions and summaries as part of revision and preparation for assessment.

5.1. AI Literacy for Students

DWU has a course titled AI Literacy for Students, which runs one hour per week for eight weeks of instruction. (Course content adapted from Commonsense.org in UK).

This much-appreciated online course includes a collection of quick lessons (twenty minutes or less!) that provide an introduction to AI and help address its social and ethical impacts, as well as academic integrity with reference to the University's academic policies. The aim is to help students think critically and be responsible and ethical users of AI.

6. THE WAY FORWARD

A few possible initiatives in digital literacy include the following.

6.1 Teaching and Learning may allow for digital learning ecosystem enhancement. For example, with Moodle upgrades, it is possible to integrate tools like Big Blue Button, as an open-source web conferencing system integrated into Moodle, specifically designed for online learning, allowing educators to create virtual classrooms where they can share audio, video, presentations, and collaborate with students in real-time.

6.2. There are also opportunities for Online Program Development, to convert selected undergraduate and postgraduate programs into fully online or hybrid formats, and developing micro-credentials and short professional development courses (e.g. for teachers, nurses, public servants).

6.3. As mentioned previously AI Tools such as ChatGPT, Grammarly, and Canva AI can be used in lesson planning, content generation and student support.

6.4 With research and scholarship there are moves to developing an open access digital research repository to host staff and postgraduate research outputs, theses and reports.

6.5. DWU intends to develop online research collaboration platforms, and is investigating the possibility of using platforms such as Notion or Microsoft Teams for cross-campus and international research projects.

6.6. For governance and Administration, a centralized system (e.g., Microsoft SharePoint) for managing agendas, minutes, policies, and board documents is possible.

6.7. The University can develop a data dashboard for university leadership with business intelligence (MS Power BI) to support evidence-based decision-making associated with student performance, enrolment trends, staff workload, services satisfaction, etc.).

6.8 For Student Experience and Support, DWU hopes to develop a Digital Wellbeing Hub offering mental health resources, counselling booking, and student support services. Full utilization of the Student Virtual University Portal will allow for easy access to timetable announcements, grades, student finance updates, etc. Faith-based digital resources encompass a wide range of online materials and platforms designed to support individuals and communities in their religious and

spiritual practices

7. CONCLUSION

The 2018 DWU Digital Competency Study offered an important foundation by categorizing digital skills into operational and formal competencies, those essential for basic engagement

with digital tools. At the time, such competencies allowed individuals to browse, search, and navigate online environments with some confidence. These skills may be likened to obtaining a driver's license to operate a small manual vehicle in familiar territory—enabling one to move through familiar digital spaces with purpose but limited in scope and depth.

Eight years on, this analogy is no longer sufficient. The digital landscape has dramatically shifted, and with it, our expectations. The conversation has evolved from simply being competent to being *literate* in digital environments. Today, digital literacy encompasses much more than technical ability; it demands a deeper understanding of digital citizenship. This includes navigating complex issues like online privacy, cybersecurity, misinformation, and engaging in respectful communication in increasingly diverse and interconnected digital spaces.

Furthermore, the emergence of Artificial Intelligence has introduced ethical complexities—particularly in educational settings—requiring strong policies to safeguard academic integrity. As collaborative technologies and AI-driven tools become more integrated into our professional and academic lives, the challenges of secure communication, ethical use, and strategic collaboration become more pronounced.

To truly thrive in this environment, it is not enough to use digital tools competently; we must learn to use them strategically**,** meaningfully**,** and creatively**.** This means harnessing digital technologies not just for convenience or efficiency, but for innovation, ethical engagement, and transformative learning. Developing this higher-order literacy at Divine Word University involves critical thinking, adaptability, and a proactive attitude toward lifelong learning. In this sense, digital literacy is no longer just a skill set—it is a mindset and a way of being in a digitally mediated world.

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