REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1 (2024)
http://www.veterinaria.org

Wired For Success: The Synergy Of Research Skills And Digital Literacy In Filipino Nursing Students

Wilbert G. Panerio[1*], Arlene G. Vecino[2], Johanna Kaye G. Cabatingan[3], and Lloyd Matthew C. Derasin[4]

[1*,2,3,4]Clinical Instructor, College of Nursing and Allied Health Sciences, Cebu Institute of Technology - University

Abstract – the study focused on the Research Skills and Digital Literacy of Filipino Nursing Students. The study targeted nursing students enrolled in various year levels at a private university in the Philippines. The study utilized simple random sampling in the selection of the respondents. Furthermore, the research instrument is divided into two parts. The first instrument was adopted from the study of Meerah et. al., (2012), wherein the research skills are divided into two parts (1) Information seeking skills and the methodology skills. To measure digital Literacy, the researcher adopted a questionnaire from Son et. al. (2017). The study yielded that nursing students have an average level of research skills and a high level of digital skills. Moreover, the study found a significant relationship between the research skills and digital literacy of nursing students. The study highlighted that research education for nursing students depends critically on digital literacy, which implies that improving digital literacy training will greatly increase their research capacity. By enhancing their digital literacy skills, nursing students will be better equipped to navigate online databases, critically evaluate sources, and effectively utilize technology for their research projects

Keywords: Research Skills, Digital Literacy, Nursing Students, and Philippines.

Introduction

Proficient research abilities are essential for nursing students, as they significantly influence the development of professional nursing practice. Nursing research is crucial for the progression of the field and the enhancement of patient care by utilizing evidence-based practices. Elomaa (2003) states that the incorporation of research knowledge is considered a significant characteristic of evidence-based practice. Research knowledge provides a foundation for making informed decisions and implementing best practices in various fields. It helps professionals stay current with the latest advancements and improvements in their fields.

Moreover, to apply Evidence-based Practice, student nurses must possess a comprehensive understanding of and maintain good attitudes toward research. This includes being able to critically appraise research studies, integrate evidence into practice, and continually evaluate the outcomes. Additionally, nurses should also be open to new information and willing to adapt their practices based on the latest evidence available (Keib et. al., 2017; Halabi, 2016). Furthermore, Negative attitudes toward research prevent students from producing new knowledge or applying empirical findings to improve patient care (Unver, 2018). By fostering a positive attitude towards research, students can become more engaged in the process and see the value in contributing to the body of knowledge in their field. This can ultimately lead to advancements in healthcare practices and better outcomes for patients.

Moreover, Research experiences help students to better realize how much nursing research affects healthcare. Using these encounters, students get to understand the indispensable contribution research makes to enhance patient outcomes, guide healthcare policies, and forward to the nursing profession. Moreover, participation in research projects helps students to build critical thinking abilities, which will help them to evaluate and apply fresh knowledge into their clinical work. Apart from improving their capacity to make wise judgments in patient care, this practical experience helps them to support the evolution and use of evidence-based procedures in their own medical establishments. For nurses to remain current with changing medical knowledge and technologies, which finally results in improved patient care and healthcare advancements, this preparation is vital.

It is with these views and opinions that the researcher wishes to conduct this study. The researcher acknowledged the significance of enhancing the research abilities of nursing students. By evaluating the research aptitude of the students, the researcher aims to identify areas for improvement and develop strategies to enhance their skills. This study will contribute to the overall goal of improving the quality of research conducted by nursing students.

Methods and Materials

The study employed a descriptive correlational research design to assess the research skills and digital literacy of nursing students from the Philippines. This methodology is appropriate for clarifying the current condition of various variables and examining the connections between them without implying causation. In addition, this approach enables the gathering of quantitative data using surveys and questionnaires, facilitating a thorough investigation of the research abilities and digital literacy levels among nursing students. Additionally, it allows researchers to discern patterns and trends that may be present in the data, providing significant insights for future interventions or enhancements in nursing education.

The study targeted nursing students enrolled in various year levels at a private university in the Philippines. The inclusion criteria for participants are enrollment in an undergraduate nursing program, willingness to participate in the study, and

access to digital tools and the Internet. By focusing on these students, the research aims to provide a comprehensive overview of their research skills and digital literacy levels. This approach ensures that the sample is representative of the nursing student population at the selected private university, facilitating a thorough analysis of the status and relationships between these critical skills. A random sampling technique will be used to select participants from the nursing student population at the private university. The sample size was calculated using Cochran's formula, aiming for a confidence level of 95% and a margin of error of 5%. A total of 40 respondents were selected.
Furthermore, the research instrument is divided into two parts. The first instrument was adopted from the study of Meerah et. al., (2012), wherein the research skills are divided into two parts (1) Information seeking skills and the methodology skills of the respondents. To measure digital Literacy, the researcher adopted a questionnaire from Son et. al. (2017)

Ethical Considerations
To guarantee informed consent, participants will be given comprehensive information on the goal, methods, risks, and rewards of the study. Before survey involvement and orally before focus group meetings, consent will be requested online. Strict confidentiality will be followed; hence all gathered data will be kept private and utilized just for research needs. Maintaining participants' anonymity in all reports and publications would help to safeguard their privacy. The Institutional Review Board (IRB) of the cooperating private university will also review the study plan to make sure all ethical criteria are satisfied, and that participant welfare and rights are safeguarded all through the research process.

Results
This section offers a three-part presentation of the results of the investigation. The digital literacy, the research abilities, and the correlation of these two factors. The digital literacy section evaluates participants' proficiency in using technology, while the research abilities section assesses their skills in conducting research. The correlation analysis examines how these two factors interact and influence each other in the study context.

Part 1. The research skills of the Respondent
This part presented the research skills of the respondents. This variable is subdivided into two parts: (1) Information seeking skills and the methodology skills of the respondents.

Table 1.1 Information Seeking Skills

	Mean	Description
I premeditate the types of information that I need like books, articles, journals, and others.	3.21	Average
I am aware that information found in journals is more often checked, edited, and criticized compared to information found in magazines.	3.18	Average
I am aware that information can be obtained through various means (e.g. electronic media, images, audio and video).	3.16	Average
I am aware that the primary source is the first source (original source) that records work related to the literature.	3.15	Average
I am aware that the secondary source is the source that discusses the work of others.	3.14	Average
I use other sources besides the library in my institution such as the inter-library loan service.	3.05	Average
I identify and look for synonyms, themes or keywords that can be used to find information based on my topic.	3.19	Average
To find information, I read general texts like dictionaries or encyclopedia articles to gain more understanding of the terminologies used in my topic.	3.22	Average
I need to broaden my search using keywords given that the existing source of information indicates that my topic of research is too narrow.	3.28	Average
I am aware that I can use truncation (or shortcuts) in my search, or I can also use root words to start my search.	3.10	Average
I am aware that I can find a book based on the title given.	3.24	Average
I have to conduct the search according to the field in order to identify the materials titles according to a particular field.	3.20	Average
I will look at the strategy to find information again in order to	3.25	Average
get exactly what I want if it is not successful the first time.		Average
I usually evaluate the writer's expertise to see if he/she is qualified in the written field.	3.26	Average
I evaluate the accurateness of the content by reading other sources mentioned by the writer.	3.15	Average
I understand the contextual effect for instance how various cultures, history, and geography can influence the perspective of the information.	3.20	Average
I realize that time is a factor that influences the relevance of the information to my topic of research.	2.35	Average
I get the confirmation of my understanding of a certain topic by getting an opinion or an expert's view (through individual interviews, email, telephone, and others)	3.23	Average
When searching for information, I arrange each item to store it into my disk or to email it to my email.	3.30	Average
I can record quotations in order to seek information.	3.25	Average
I write down the important concepts myself using my own words.		Average
I use the main ideas obtained from the information researched in order to support my topic.	3.12	Average
I combine the main ideas from one source or more in order to form a new idea.	3.17	Average
I can construct my own conclusion based on the information gathered.	3.20	Average
Grand Mean	3.20	Average

Legend

Rating Score	*Adjectival Rating*	*Scale*	*Verbal Interpretation*
5	*Strongly Agree*	*4.21 – 5.00*	*Very High*
4	*Agree*	*3.41 – 4.20*	*High*
3	*Neither agree nor disagree*	*2.61 – 3.40*	*average*
2	*Disagree*	*1.81 – 2.60*	*Low*
1	*Strongly Disagree*	*1.00 – 1.80*	*Very Low*

The table above explains the Information Seeking Skills of the respondent. It revealed several significant insights about the average proficiency of individuals in various information-seeking behaviors. Most notably, individuals frequently plan the types of information they need and understand the importance of using synonyms and keywords to refine their searches, with mean scores of 3.21 and 3.19, respectively. They also often evaluate authors' expertise with a mean of 3.26 and review their search strategies if initial attempts are unsuccessful with a mean of 3.25. Additionally, storing and organizing found information is a common practice with a mean of 3.30. However, the awareness that time influences the relevance of information is relatively low, with a mean score of 2.35, indicating a significant area for improvement.

These behaviors collectively contribute to an average grand mean score of 3.20, suggesting that while many information-seeking skills are moderately well-developed, there is room for enhancement, particularly in recognizing the temporal relevance of information.

Table 1.2 The methodology skills of the Respondent

	Mean	**Description**
Ability To Plan a Research	3.15	Average
Developing A Research Question	3.18	Average
Searching For a Research Problem	3.09	Average
Doing A Literature Review	3.24	Average
Design An Experiment Study	3.16	Average
Selecting An Instrument	3.20	Average
Developing An Instrument	3.25	Average
Collecting Of Survey Data	3.20	Average
Writing An Abstract	3.18	Average
Preparing A Manuscript for Publication	3.22	Average
Selecting An Appropriate Research Method	3.14	Average
Choosing An Appropriate Method Analysis Of Data	3.19	Average
Interpretating The Result of a Research Study	3.12	Average
Grand Mean	3.17	Average

Legend

Rating Score	*Adjectival Rating*	*Scale*	*Verbal Interpretation*
	Strongly Agree	*4.21 – 5.00*	*Very High*
4	*Agree*	*3.41 – 4.20*	*High*
3	*Neither agree nor disagree*	*2.61 – 3.40*	*average*
2	*Disagree*	*1.81 – 2.60*	*Low*
1	*Strongly Disagree*	*1.00 – 1.80*	*Very Low*

The table above emphasizes several research skills, showing personal top and lowest degrees of competency. With a mean score of 3.25, building an instrument for data collecting boasts the highest aptitude. This shows that people are very skilled in designing and developing tools required for data collecting, therefore highlighting their capacity to precisely create instruments essential for reliable data collecting in research. Conversely, with a mean score of 3.09, the search for a research problem shows the lowest proficiency. This implies that, in a crucial first stage of the research process, people find it rather difficult to recognize and create a research problem. This lower score suggests that the capacity of their field of research to identify important and researchable problems must be improved.

Overall, while nursing students excel in developing data collection instruments, there is a clear need to enhance their skills in identifying and formulating research problems to ensure a strong foundation for their research projects.

Table 2. Digital Literacy Skills of the Respondent

Digital Literacy skills	Mean	Description
1. Do you understand the basic functions of computer hardware components?	3.18	High
2. Do you have a personal homepage or personal profile on the web?	3.25	High
3. Do you use keyboard shortcuts?	3.26	High
4. Do you use the computer for learning purposes?	3.24	High
5. Do you find it easy to learn something by reading it on the computer screen?	3.16	High
6. Do you find it easy to learn something by watching it on the computer screen?	3.26	High
7. Do you use social networking services?	3.12	High
8. Do you have any online friend you have never met in person?	3.24	High
9. Do you feel competent in using digital learning resources?	3.32	High
10. Do you have mobile apps you use for language learning purposes?	3.06	High
11. Can you change the computer screen brightness and contrast?	3.14	High
12. Can you minimize, maximize and move windows on the computer screen?	3.30	High
13. Can you use a 'search' command to locate a file?	3.07	High
14. Can you scan disks for viruses?	3.16	High
15. Can you write files onto a CD, a DVD or a USB drive?	3.20	High
16. Can you create and update web pages?	3.00	High
17. Can you take and edit digital photos?	3.01	High
18. Can you record and edit digital sounds?	3.02	High
19. Can you record and edit digital videos?	3.04	High
20. Can you download and use apps on digital devices?	3.08	High
Grand Mean	3.16	High

Legend

Rating Score	*Adjectival Rating*	*Scale*	*Verbal Interpretation*
4	*Strongly Agree*	*3.26 – 4.00*	*Very High*
3	*Agree*	*2.51 – 3.25*	*High*
2	*Disagree*	*1.76 – 2.50*	*Low*
1	*Strongly Disagree*	*1.00 – 1.75*	*Very Low*

The table above clarifies the respondents' digital literacy. With a mean of 3.32, competency in using digital learning tools boasts the highest mean score. This shows that, in modern educational environments, respondents feel especially confident in accessing and using different digital resources for learning—which is vital. Moreover, with a mean of 3.00, the ability with the lowest mean score is building and updating web pages. Although this is still rated as high, it implies that respondents might have less knowledge or trust in the more technical side of web development. Overall, the grand mean of 3.16 signifies a high level of digital literacy across all measured skills.

The result implied that Nursing students possess a high level of digital literacy across all measured skills. While there are minor variations, with certain technical skills like web page creation and media editing being slightly less proficient, the overall competence remains strong. This suggests a well-rounded digital skill set among Nursing students is essential for navigating and thriving in a digitally driven environment.

Table 3 Correlation of the Research Skills and the Digital Literacy of the Respondents

Variables	Pearsons' Coefficient	P - Value	Decision	Interpretation
Information Seeking Skills and Digital Literacy	.451**	.003	Reject the null hypothesis	Significant relationship
The methodology skills and Digital Literacy Skills	.574**	.000	Reject the null hypothesis	Significant relationship

**. Correlation is significant at the 0.01 level (2-tailed).

The table shows a Pearson correlation analysis revealing a moderate positive correlation between Information Seeking Skills and Digital Literacy, with a p-value of.003, indicating statistical significance, suggesting that as individuals improve their information-seeking skills, their digital literacy also improves. Moreover, The Pearson's coefficient shows a stronger positive correlation between methodological skills and digital literacy skills, with a p-value below the 0.05 threshold, confirming a significant relationship.

Discussion

The findings suggest that the Nursing students' ability to seek knowledge is moderately advanced and has room for further enhancement. Additional training and resources could assist these nursing students in improving their information-seeking skills and becoming more adept at acquiring and assessing information efficiently. According to Whitmire (2004), the capacity for planning and premeditating information needs determines how effectively college students seek information. Meola (2004) further underlined that separating trustworthy sources from less dependable ones depends on strong critical assessment abilities. Likewise, Rowlands et al. (2008) discovered that users sometimes ignore the importance of the timeliness of information, therefore affecting the relevance and applicability of their research.

Moreover, the study also revealed that, while nursing students excel in developing data collection instruments, Hinkin (1995) underlined that many researchers spend a lot of time learning this crucial ability since the construction of valid and reliable instruments is a necessary competence in research and guarantees data accuracy and reliability. IN addition, DeVellis (2016), described that reliable study results depend on the creation of effective measuring instruments, which is usually the main emphasis of researchers' skill enhancement. Also, Boateng et al. (2018) underline that instrument development is a methodical process whose correct application greatly improves the quality of research data.

Additionally, the study also found that there is a clear need to enhance their skills in identifying and formulating research problems to ensure a strong foundation for their research projects. According to Creswell (2014), many researchers struggle with the initial step in conducting a research study due to its complexity and the need for a deep understanding of the existing literature and gaps in knowledge. The ability to effectively search for and define a research problem is foundational but often underdeveloped. On the same vein, Ellis and Levy (2008) noted that the usual obstacles that researchers encounter in developing a research question, stressing that this ability calls for experience and extensive knowledge of the research landscape.

Another finding of the study is that Nursing students have strong digital literacy, with some technical skills lacking, indicating a well-rounded digital skill set is crucial for success in a digitally driven environment (Derasin et. al., 2021; Canque et. al., 2021; Canque et. al., 2023; Medico et. al., 2023; Cantago et. al., 2024; Abojon et. al., 2022, Milloria et. al., 2024; Romeo et. al., 2023).

Finally, the study found a significant relationship between the research skills of nursing students and their digital literacy skills. This highlights the importance of incorporating digital literacy training into nursing education programs to enhance students' research capabilities. According to McGowan et al. (2012), advanced practice nurses commonly utilize mobile devices to retrieve information, emphasizing the crucial importance of digital literacy in doing research and providing evidence-based practice. Fisher and King (2013) also spoke about how digital literacy and self-directed learning might help nursing students improve their research skills. Advocating for its inclusion into college courses, Peña-López (2010) looked at how digital literacy training affected students' academic and research capacity. Finally, Candy (2004) underlined the critical part that digital literacy plays in promoting self-directed learning and research abilities, therefore underlining the significance of digital literacy training in nursing education initiatives.

Conclusion

Research education for nursing students depends critically on digital literacy, which implies that improving digital literacy training will greatly increase their research capacity. By enhancing their digital literacy skills, nursing students will be better equipped to navigate online databases, critically evaluate sources, and effectively utilize technology for their research projects. This will not only enhance the quality of their research but also prepare them for the increasingly digital nature of healthcare practice.

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