

Individual Report

Module Name: Digital Skills and Research Methods

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Section 1: Introducing the Research Paper and Topic Development

1.1 Paper Details (Title, Author(s) and Year of Publication)

The research paper selected for this report is “A cross-sectional study of discipline-based self-perceived digital literacy competencies of nursing students” by Martzoukou et al. (2024), published in the Journal of Advanced Nursing. The study involved students from the School of Nursing, Midwifery and Paramedic Practice at Robert Gordon University in Scotland. The paper looks at how confident students felt about their digital skills for university study and future healthcare work.

1.2 Main Topic or Problem Explored in the Paper

Digital technology is now an important part of nursing and healthcare. Nurses use electronic records, online information, communication systems and other digital tools in daily work. Nursing students therefore need more than basic computer skills. They also need to find reliable information, communicate professionally online, use digital research tools and manage their digital identity.

Martzoukou et al. (2024) explored students' self-perceived digital competencies in areas including information literacy, digital research, digital communication, digital learning, digital innovation and digital wellbeing. The researchers wanted to identify areas where students felt confident and areas where more support may be needed.

Harerimana, Duma and Mtshali (2022) also found that nursing students need suitable digital literacy education and support. This shows that students may need help developing digital skills before they enter professional practice.

1.3 Who Is the Research About?

The research mainly focused on nursing students, although midwifery and paramedic students were also invited. All 1,200 students in the school were invited to complete the online survey and 182 students responded (Martzoukou et al., 2024). Most respondents were nursing students and most were undergraduates. The researchers also compared students by age and by whether they were studying pre-registration or post-registration courses.

1.4 Why Is This Topic Important in UK Health and Social Care?

This topic is important because UK health and social care is becoming more digital. Booth et al. (2021) explain that the nursing profession needs to adapt to a digital future. Future nurses therefore need confidence using technology safely and effectively. If nursing students have gaps in digital skills, this may affect how they find evidence, use online systems or communicate in practice. Understanding these gaps can help universities provide better training before students enter professional healthcare work.

Section 2: Understanding the Purpose and Research Question

2.1 Research Question(s) or Objectives

The wider project had several objectives, but this paper mainly reported two. First, the researchers wanted to adapt an existing digital-competency survey so it reflected the needs of nursing, midwifery and paramedic students. Second, they wanted to explore students' digital competencies and identify differences connected to age and course type (Martzoukou et al., 2024). In simple words, the main question was: How confident are nursing students in different areas of digital literacy, and are there differences between student groups? This was important because the researchers also wanted to see which digital areas may need more teaching and support before students enter healthcare practice.

Section 3: Understanding the Research Methods

3.1 Overview of Quantitative, Qualitative, and Mixed-Methods Research

There are three common research approaches: quantitative, qualitative and mixed methods. Quantitative research mainly uses numbers and statistics. Researchers may use questionnaires, measurements or closed questions and compare the results. This is useful when researchers want to measure something, identify patterns or compare groups (Saunders, Lewis and Thornhill, 2023). For example, a health researcher could survey nursing students and calculate how many feel confident using electronic patient records.

Qualitative research focuses more on people's experiences, views and meanings. It may use interviews, focus groups, observations or open-ended questions. Pyo et al. (2023) explain that qualitative research is useful in healthcare when researchers need a detailed understanding of people and their experiences. For example, researchers could interview nurses to understand how they feel about using new digital systems in practice.

Mixed-methods research combines quantitative and qualitative approaches. Researchers may collect survey scores and then interview participants to understand the reasons behind the results (Saunders, Lewis and Thornhill, 2023). In health and social care this can be useful because numbers can show the size of a problem, while interviews can explain why the problem happens.

3.2 Research Methodology Used in Your Chosen Paper and Why

Martzoukou et al. (2024) describe their study as a cross-sectional quantitative research design. A cross-sectional study collects information from participants at one period of time. The main method was an online questionnaire. Students rated their own digital competency using a five-point scale from novice to expert. This produced numerical data that could be analysed statistically.

The questionnaire covered areas including everyday digital participation, ICT skills, information literacy, digital creation, digital research, communication, learning and development, innovation, identity management and digital wellbeing. The survey also included some open-ended questions. These allowed students to explain how they learned digital skills, kept them up to date and used them to deal with academic challenges. Therefore, the main study was quantitative but it also included some qualitative information. The quantitative approach was suitable because the researchers wanted to measure digital competency and compare different student groups. It also gave the researchers a clear way to compare scores by age and course type. The open-ended questions added some explanation, but they did not change the main quantitative design of the study.

3.3 Primary and Secondary Data: Definitions, Differences, and Application to Your Paper

Primary data is new information collected directly by researchers for a particular study. Examples include questionnaires, interviews and observations. Secondary data is information that already exists, such as previous studies, government reports or datasets (Saunders, Lewis and Thornhill, 2023). The main data in this study were primary because Martzoukou et al. (2024) collected information directly from students through the questionnaire. The researchers also used secondary information in the background, including previous research about nursing students' digital skills and digital healthcare. This helped explain why the study was needed.

The survey was carried out between November and December 2021. All 1,200 undergraduate and postgraduate students in the School of Nursing, Midwifery and Paramedic Practice were invited by email. Participation was voluntary and 182 students responded (Martzoukou et al., 2024). The survey was administered through JISC Online Surveys. Participants gave informed consent, the survey was anonymous and the study received university ethical approval.

Students rated their digital competencies using a five-point Likert scale, where Level 1 was novice and Level 5 was expert. The quantitative data were analysed using IBM SPSS Statistics version 28. The researchers used descriptive statistics such as frequencies, percentages, mean, median and mode. They also used Mann-Whitney U and Kruskal-Wallis tests to compare groups. A p value below .05 was treated as statistically significant (Martzoukou et al., 2024). In simple terms, this helped the researchers decide whether differences between groups were likely to be meaningful rather than only happening by chance.

The open-ended answers were analysed using thematic analysis. Braun and Clarke (2022) explain thematic analysis as a way of finding meaningful patterns across qualitative data. The results showed lower self-reported competence in information literacy, digital research and digital innovation. The researchers also found significant differences between some age groups and between pre-registration and post-registration students (Martzoukou et al., 2024). Open-ended comments showed that many students developed digital skills through everyday experience, trial and error, previous education or work.

There were strengths and limitations in this method. A questionnaire made it possible to invite many students at the same time, and numerical answers allowed comparison between groups. The open-ended questions also gave students a chance to explain their experiences. However, only 182 of around 1,200 invited students responded and the study was carried out at one university. This means the results should not automatically represent every nursing student in the UK. The study also depended mainly on self-assessment, so students may overestimate or underestimate their real ability. Martzoukou et al. (2024) recognise this limitation. Midwifery and paramedic students were also under-represented, so the findings mostly reflect nursing students. Harerimana, Duma and Mtshali (2022) also show that digital literacy can vary between nursing students and that education should respond to these differences.

Section 4: Conclusion

This report examined Martzoukou et al.'s (2024) study about self-perceived digital literacy competencies of nursing students. The researchers wanted to understand how confident students were in different digital areas and whether age or course type made a difference. The study mainly used a cross-sectional quantitative method. Primary data were collected through an online questionnaire and analysed using descriptive statistics and statistical comparison tests. Some open-ended questions were also analysed thematically.

The study found lower confidence in information literacy, digital research and digital innovation. This is important because nurses are expected to work in an increasingly digital healthcare environment. Digital skills can support evidence-based practice, communication and safe use of health information (Booth et al., 2021).

From completing this report, I learned that choosing the correct research method is important. Quantitative research is useful for measuring and comparing numerical information, while qualitative research can provide more detail about people's experiences. Mixed methods can use both. I also learned that we should not only look at the results of a research paper. We should check who took part, how information was collected, how it was analysed and what limitations may affect the findings.

In future studies, this will help me understand research papers better and decide whether evidence is reliable and useful. In future health or social care work, I will also be more careful when reading evidence before using it to support a decision. It also helped me understand why digital skills are important for future nurses and other healthcare professionals.

References

- Booth, R.G., Strudwick, G., McBride, S., O'Connor, S. and Solano López, A.L. (2021) 'How the nursing profession should adapt for a digital future', *BMJ*, 373, n1190. Available at: <https://doi.org/10.1136/bmj.n1190>.
- Braun, V. and Clarke, V. (2022) *Thematic Analysis: A Practical Guide*. London: SAGE Publications.
- Harerimana, A., Duma, S.E. and Mtshali, N.G. (2022) 'First-year nursing students' digital literacy: A cross-sectional study', *Journal of Nursing Education and Practice*, 13(1), pp. 31–37. Available at: <https://doi.org/10.5430/jnep.v13n1p31>.
- Martzoukou, K., Luders, E.S., Mair, J., Kostagiolas, P., Johnson, N., Work, F. and Fulton, C. (2024) 'A cross-sectional study of discipline-based self-perceived digital literacy competencies of nursing students', *Journal of Advanced Nursing*, 80(2), pp. 656–672. Available at: <https://doi.org/10.1111/jan.15801>.
- Pyo, J., Lee, W., Choi, E.Y., Jang, S.G. and Ock, M. (2023) 'Qualitative research in healthcare: necessity and characteristics', *Journal of Preventive Medicine and Public Health*, 56(1), pp. 12–20. Available at: <https://doi.org/10.3961/jpmph.22.451>.
- Saunders, M.N.K., Lewis, P. and Thornhill, A. (2023) *Research Methods for Business Students*. 9th edn. Harlow: Pearson.