Overcoming Digital Divide: Lessons from Nursing Students with Low to Absent Connectivity and Capability

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Abstract: How to learn both theory and skills in nursing remains to be a compelling issue of nursing institutes as the world is still in the midst of an alarming public health concern, the COVID-19. While schools of nursing migrated to online teaching and learning and created various online flexible teaching and learning modalities and options, the effective transfer of knowledge and skills is muddled because of the expanding digital divide especially among nursing students with low to absent connectivity and capability. This qualitative-descriptive study found eight emerging themes (i.e., *Create and innovate, Save and curate, Establish learning space, Develop mental strength and resilience, Intrapersonal care and reflective practice, Seek help, support, and negotiate, Plan ahead, and Self-discipline)* that encapsulate the strategies used by nursing students in coping with their learning heavily afflicted by the phenomenon, digital divide. Collectively, the themes are considered future skills vital to succeed in online learning and soon, in the rapidly evolving world of work after graduation. It is recommended that institutes of nursing shall devise more effective flexible learning options that bridge learning gaps and facilitate the course of actions to help nursing students achieve quality learning outcomes in both theory and practice despite the digital divide.

Keywords: COVID-19, coping strategies, digital divide, online learning, nursing education

1. Introduction

The world needs to be nursed back to health. However, with the current global health crisis, COVID-19, learning both theory and skills in nursing becomes even more challenging as nursing institutes prepare nursing students to become competent and compassionate professional nurses (Dewart et al., 2020). Enabling them to foster promotive, preventive, curative, rehabilitative and palliative care among patients across the lifespan is crucial as they are the future of any healthcare system. However, the quality of teaching and learning in nursing is further aggravated by the digital divide. While other institutions may afford and enjoy simulations and augmented reality, most nursing institutes still resort to free or adopted online platforms at minimal costs as they try to employ various creative and innovative teaching and learning activities(Adrian et al., 2016; Wüller et al., 2019). Higher education is celebrated as a vehicle for economic success and when the massification and digitization of higher education mean it is available to more people, in more places, than ever but the digital inequality is getting worse (Hill & Lawton, 2018). The integration and adoption of digital technologies have enabled improvements in the quality of and inclusion in higher education. However, a significant proportion of the population has either remained or become digitally excluded (Khalid & Pedersen, 2016). Cognizant about the nature and implications of the digital divide, nursing education is not immune to experience this compelling concern especially among nursing students with low to absent connectivity. In this regard, the study explored the coping mechanisms of these nursing students relative to their experiences of the digital divide. Specifically, it sought to surface the phenomenon through the central questions: *What is it like to experience "digital divide" in a remote learning environment?* and *What coping mechanisms are being used to overcome "digital divide"?* The findings are the springboard to developing courses of action crucial to teaching and learning.

2. Research Methods

This study employed an exploratory sequential design with the preliminary qualitative results presented in this paper. Using a purposive sampling technique, the participants were ten (10) nursing students enrolled in a nursing institute in the Philippines. Using the CHED categorization of students, these students were identified as students who have some mobile phones or no access to technology, and with poor or no internet connection. In selecting the participants, a brief qualifying survey was conducted. The study used semi-structured interviews that were fully transcribed and analyzed subscribing to the tenets of trustworthiness in qualitative studies (Nowell et al., 2017).

3. Preliminary Results

Figure 1. Thematic map

Eight themes emerged in the findings: 1.) *Create and innovate*, 2.) *Save and curate*, 3.) *Establish learning space*, 4.) *Develop mental strength and resilience*, 5.) *Intrapersonal care and reflective practice*; 6. *Seek help, support, and negotiate*, 7.) *Plan ahead*, and 8.) *Self-discipline*. The first theme, *Create and innovate* refers to the creative and innovative approaches made by students such as the use of self-designed patient substitutes like dolls, bolsters, tomatoes, family members, among a few. The second theme, *Save and curate*, is related to the nursing students' efforts to downloading and saving extracted modules for printing, and videos to augment learning embracing "anytime, anywhere" kind of learning. The third theme, *Establish physical learning space*, reflects the nursing students' ways of finding and establishing a convenient spot, and quiet learning environment. The fourth theme, *Develop mental strength and resilience*, refers to resilience and adaptation or acclimatization in managing anxiety and stress relevant to their online engagement despite the digital gaps. The *Intrapersonal care and reflective practice*, the fifth theme, pertains to nursing students' capacity to foster self-love to pursue their future professional nursing career, and reflection to discern and define what the future holds despite the challenges brought by the digital divide. As regards the sixth theme, *Seek help, support and negotiate*, the nursing students often reach out to their classmates, more-knowledgeable-person, and teachers through Facebook messenger, mobile texting, and other low data-driven mechanisms of communication and collaboration. The seventh theme, *Plan ahead*, is associated with the nursing students' efforts to construct feasible goals and objectives specifying weekly goals and objectives to overcome procrastination and save data for learning purposes only. Lastly, *Self-discipline*, refers to the nursing students' capability to police the self regarding academic performance, either individual or collaborative modalities.

4. Future Works

To further validate the results of this study, the researcher will develop an instrument representing the dimensions of the themes identified in its first phase. This instrument shall undergo a statistical test to establish convergent validity, discriminant validity, and construct reliability prior to full deployment. The structural model will be administered to select universities with nursing programs that utilized online learning platforms as the primary mode of delivery. The survey results shall be analyzed using the Partial Least Squares Structural Equation Model or PLS-SEM using the latest version of smartPLS (Hair et al., 2014). The design for this stage of the study is guided by the context of the study, prior research on the impact of technology in nursing, and intended sample size (de la Cuesta et al., 2019; J. Hair et al., 2017)

5. Implications in Nursing Education

Institutions of nursing envision themselves to provide quality nursing education that prepares nursing graduates to have social importance and contribute to the development of a nation. Oftentimes, quality education is measured by standard metrics designed to assess, monitor, and evaluate teaching and learning, community engagement and service, and research. Nursing graduates from these education institutions are products of the whole educational process and they echo what transpires from their learning experiences into their future workplaces. Therefore, it is imperative for institutions of learning to revisit their approaches in shaping and preparing their students as the educational landscape keeps on changing especially that they face the adversities elicited by the COVID-19 pandemic. The quality of learning in an online environment may be compromised by the digital divide in this regard. The digital divide is caused by various limitations in learning resources such as low or lack of connectivity and devices, absence of prolific infrastructures, or learning management system, among others. The digital divide in a general sense can increase learning gaps in students. For instance, a low or absent connectivity and capability rapidly expand the widening gaps in online learning. Like any other institution, nursing education institutes should help address the surmounting digital divide that contributes largely to learning inequality among students. Looking at the findings of this study, future skills have emerged based on the themes generated from the interviews. The nursing students have mentioned several strategies to resolving connectivity and capability concerns. The coping strategies used by the nursing students in dealing with their experiences related to the digital divide are needed not only for successful learning but also for them to succeed in an evolving world of work. Considerably, while the theory in nursing can be learned by students through independent or self-regulated learning in a remote learning environment, skills in nursing such as performing a nursing procedure, are difficult to assimilate and execute hence the need to get these reinforced by teachers in a manner they find effective. Indeed, the concern regarding theory and skills acquisition in nursing can be augmented by established and reliable resources only if the digital divide is minimized, if not resolved. Students' future skills, however, are equally paramount to succeed in learning and in the future workplace. As the findings of this study posit, the future skills derived from the experience on digital divide become an anchor for learning to take place as students endure the learning environment constantly challenged by the digital divide.

References

Adrian, R., Pugoy, D., Ramos, R. C., Figueroa, R. B., Harold, M., Rivera, C., Siritarungsri, B., Cheevakasemsook, A., Noimuenwai, P., & Kaewsarn, P. (2016). *Augmented Reality in Nursing Education: Addressing the Limitations of Developing a Learning Material for Nurses in the Philippines and Thailand. 2*(1), 11–24.

de la Cuesta, J., Catedrilla, J., Ebardo, R., Limpin, L., Leaño, C., & Trapero, H. (2019). Personality traits of future nurses and cyberchondria: Findings from an emerging economy. *ICCE 2019 - 27th International Conference on Computers in Education, Proceedings*, *2*, 274–279.

Dewart, G., Corcoran, L., Thirsk, L., & Petrovic, K. (2020). Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurse Education Today*, *92*, 104471.

Hair, J. F., Hult, G., Ringle, C., & Sarstedt, M. (2014). Partial least squares structural equation modeling (PLS-SEM). In *Sage Publisher*. https://doi.org/10.1108/EBR-10-2013-0128

Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management and Data Systems*, *117*(3), 442–458.

Hill, C., & Lawton, W. (2018). Universities, the digital divide and global inequality. *Journal of Higher Education Policy and Management*, *40*(6), 598–610. https://doi.org/10.1080/1360080X.2018.1531211

Khalid, M. S., & Pedersen, M. J. L. (2016). Digital Exclusion in Higher Education Contexts: A Systematic Literature Review. *Procedia - Social and Behavioral Sciences*, *228*(June), 614–621.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods*, *16*(1), 1–13. https://doi.org/10.1177/1609406917733847

Wüller, H., Behrens, J., Garthaus, M., Marquard, S., & Remmers, H. (2019). A scoping review of augmented reality in nursing. *BMC Nursing*, *18*(1), 1–11. https://doi.org/10.1186/s12912-019-0342-2