

Use of Technology and Innovations in Nursing Education: A Systematic Literature Review

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Abstract:-

Background. The emergence of technology and innovation continuously changes the landscape of the teaching-learning process. Due to technological evolution, diverse methodologies have been delivered in order to assure that learning is not boxed within the four corners of the classroom setting.

Aim. The aim of this literature review was to explore and discuss the use of technology and innovation in nursing education from published articles between 2015-2022.

Data Sources. A systematic search of primary articles on various electronic databases that included PubMed, Wiley, Science Direct, and ProQuest. Grey literature was also identified based on the references available and bibliographies from the different articles were also included in the pooling of literature of data.

Method. The criteria used for selecting the studies under review were: Studies included were in the English language, maybe in the quantitative, qualitative, or mixed method. The article included two(2) or more of the key search terms identified: technology in teaching nursing, innovations in teaching nursing, technology in nursing education, innovative approaches in nursing education, and lastly published from years 2015-2022.

Results. Analysis of the eleven research articles revealed four (4) themes: the emergence of technology and innovation in nursing education, its advantages, disadvantages, and its impact of it on nursing education.

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Keywords:- Technology Use, Innovations, Nursing Education, Digital Learning.

I. INTRODUCTION

Technology is changing the way students learn. Not only are most students now using their mobile devices as a primary source of information, but many are turning to online programs and virtual classes to finish their education faster than ever before. Technology is a magnificent tool to increase the efficiency and availability of education for students. Even though nursing is an old profession, education has been revolutionized with technology through the use of online courses, mobile applications, and other digital learning resources. Instead of using textbooks and lectures to teach students, nursing educators have used technology to create innovations such as interactive video platforms, assessment methods, simulations, and virtual tours that make the teaching and learning process interactive.

The demand for the use of technology and innovations in nursing education has been seen immensely especially during the surge of the COVID-19 pandemic. Thus various technological platforms have emerged to address this issue. The use of these platforms has not only tackled academic material delivery but also remote learning which has a significant impact on educators and students in terms of the available content's structure, language, class length, time management, methodologies, and hours of study, as well as communication techniques.

Furthermore, technology and various innovations have been complementary resource material to the traditional pedagogy in nursing. According to Loureiro (2021), continuous use of such, yield good results such as enhanced nursing students' problem-solving skills. Furthermore, the integration of technology use for teaching and learning in nursing education has proven to be the driver of innovative ideas in making sound clinical decisions in various areas. (DiMattio & Hudaceck, 2020). But despite the various advantages listed in multiple pieces of literature, the use of technology and innovations in nursing has issues that need to be addressed clearly as nursing deals with human lives.

As the healthcare industry continues to change, nursing must continue to adapt and evolve to meet the needs of the public and improve our practice. With technology playing an increasing role in our daily lives and the ability to connect and collaborate at a distance, the potential for nursing to integrate

these innovations is endless. With a growing demand for technology, now is the time to explore different solutions and integrate them into your program to prepare future nurses for the modern healthcare workforce. Thus this systematic review of literature aims to explore and describe technology and innovations in nursing education.

II. METHODS

A. Aim

This systematic review of literature aimed to identify and appraise studies on the use of technology and innovations in Nursing education. The primary objective of this literature review is to explore the advantages and disadvantages of the use of technology and innovations in nursing education, and what is its impact on student's performance.

B. Literature Search Strategy

A systematic search of primary articles on various electronic databases that included PubMed, Wiley, Science Direct, and ProQuest. Grey literature was also identified based on the references available and bibliographies from the different articles were also included in the pooling of literature of data.

The following keywords incorporating “*technology*” and “*innovation*” as part of the search were used:

C. Inclusion and Exclusion Criteria

Peer-reviewed papers were included in this review which focused on the following criteria;

➤ Inclusion Criteria:

- Studies included were in the English language.
- Quantitative and Qualitative in the method.
- The article included two(2) or more of the key search terms identified: technology in teaching nursing, innovations in teaching nursing, technology in nursing education, and innovative approaches in nursing education.
- Published from the year 2015-2022.

➤ Exclusion Criteria:

- Studies involving postgraduate students.
- Studies involving other allied health professionals.

D. Search Outcomes

5272 research papers or articles were identified through academic search utilizing the different databases mentioned. After screening the research articles for any duplication available, 1348 articles were screened for their relevance and impact on the topic being reviewed. By screening the available full article, 680 articles were rejected based on the inclusion and exclusion criteria. Based on the quality appraisal, there are 11 studies were included, two (2) quantitative, six (6) qualitative, and three (3) mixed methods.

E. Data Extraction and Synthesis

The data extraction and synthesis were performed using an electronic data extraction table created in Microsoft Excel. From each study under examination, the following data was taken:

- Name of Authors
- Publication year
- Participants
- Research Design
- Research Instrument
- Key Findings and
- Conclusion.

The initial data was initially reviewed and extracted by the 1st corresponding author. The extracted data then was reviewed by the co-author of this study to ensure balanced and unbiased extraction of data. The researchers shall confirm and validate any issues on the data extraction such as errors in data entry and alike. Additionally, if a chosen study's details were insufficient or unclear, the associated author(s) of the pertinent study were contacted for extra information through electronic mail.

Once the database of extracted data had been completed, synthesis has been conducted by the primary researcher and was cross-checked by the co-researcher. The included paper in the pooled data was analyzed based on the themes identified.

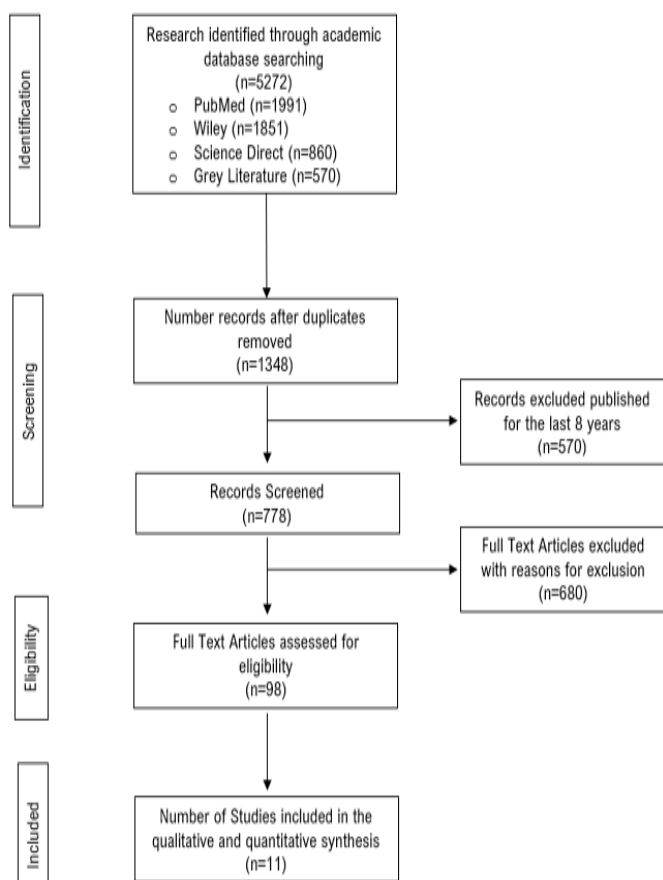


Fig 1. Flow Diagram of the Systematic Review Process

No .	Title	Author(s) Year	Purpose	Study Design	Highlights of Key Findings	Conclusion
1	Students' Perception of Technology Use in Nursing Education	2018 Williamson, Kathleen M. PhD, MSN, RN; Muckle, Janelle BA.	This study assisted in determining how students perceive the usefulness and ease of use of technology. The data helped to guide the process of implementing technology and establishing a culture of change and technology acceptance.	Explorative Descriptive study	There was a 95% response rate (356 responses) out of 375 responses. The data showed that 91% of the participants agreed or strongly agreed that the use of technology would allow them to accomplish tasks quickly.	The data showed that participants had a positive attitude toward the use of technology in nursing school because they perceive technology as useful and easy to use.
2	Use of Digital Educational Technologies among Nursing Students and Teachers: An Exploratory Study	2021 Antunes, V.	The purpose of this study is to contribute to the improvement of the teaching-learning process in the nursing undergraduate degree through the use of DET in non-presential classroom teaching. The objective is to evaluate the use of DET in non-presential classroom teaching, its benefits, constraints, and implications for the teaching-learning process in nursing students.	Exploratory Descriptive cross-sectional and Observational Study	Overall, 86% of our sample had no formal training on DET, which is in line with the literature. However, studies highlight that digital technologies are used both for academic and personal purposes. Due to their positive impact, these technologies are being implemented in continuing education and professional development. A good example is the use of immersive technologies that allow nurses to have dynamic experiences with patients and be more prepared for real-world clinical settings.	The results show that the use of DET in this research is it is still at an early stage. Both students and teachers are still unfamiliar with the scope and possibilities of these tools, not taking full advantage of the potential they have to offer.
3	Clinical Virtual Simulation in Nursing Education: Randomized Controlled Trial	Padilha, J. M., Machado, P. P., Ribeiro, A., Ramos, J., & Costa, P. (2019).	This study aimed to evaluate the effect of clinical virtual simulation with regard to knowledge retention, clinical reasoning, self-efficacy, and satisfaction with the learning experience among nursing students.	Experimental Study	This paper indicates that clinical virtual simulation improves knowledge retention and initial clinical reasoning over time (2 months) and improves student satisfaction with learning, without influencing the perception of general efficiency. Clinical virtual simulation enabled a 20.4% improvement in students' knowledge retention and clinical reasoning in the context of the study. This study showed that clinical virtual simulation is a pedagogical strategy that, combined with other strategies such as briefing, simulation, and debriefing,	Clinical virtual simulation is a pedagogical strategy that contributes to the improvement of knowledge retention initially and over time and increases the students' satisfaction. This paper reveals the impact of clinical virtual simulation use in nursing education and helps professors in the field of health to be aware of its pedagogical utility and appropriacy.

					improves both initial knowledge retention and knowledge retention over time.	
4	Educational technology “Anatomy and Vital Signs”: Evaluation of study of content, appearance, and usability	2015 <i>e Góes, F. dos S. N., Fonseca, L. M. M., de Camargo, R. A. A., de Oliveira, G. F., & Felipe, H. R</i>	Evaluate an educational technology known as Anatomy “ and Vital Signs with “ respect to content, appearance, and usability.	Mixed Method	The study established the importance of the evaluation of educational technologies by informatics and nursing specialists. It obtained positive results regarding the use of animations, the relevance of the clinical cases, the proper simulation of reality, and satisfying interaction.	The results obtained in this study may contribute to the adoption of educational practices based on the use of new information technologies and contribute to the improvement of the quality of nursing education.
5	Explaining Nursing Students’ Experiences of a Flipped Classroom	2015 Dehghanzadeh, S., & Alizadeh, S.	This study aimed to explain the nursing students’ experiences of a flipped classroom in order to provide proper strategies for nursing instructors.	The qualitative study had a conventional content analysis.	The main theme of the study was “the effectiveness of theory teaching”, which encompassed three classes “experience of a new approach in education”, “control over learning” and “interactive participation: a different experience”.	According to the results of the study, electronic contents help students learn theoretical knowledge to solve the problems of hypothetical patients. Therefore, our findings can be used by nursing instructors to obtain positive consequences by applying the flipped classroom method.
6	The effectiveness of web-based learning in supporting the development of nursing students’ practical skills during clinical placements: A qualitative study	2022 Gause, G., Mokgaola, I.O. & Rakhudu, M.A.	. The aim of this study was to explore the perception and effectiveness of web-based learning in facilitating the development of clinical skills in undergraduate nursing students.	Qualitative descriptive study	The integrated use of web-based learning in undergraduate nursing programs enables students to develop better clinical skills, with the potential to ensure a better quality of care and fewer risks for patients. Safety is an outcome that should be measured also in students, and not only in patients. The use of an application to learn practical skills could reduce the error gap between the experience with the manikin in the lab, and real life. Students can set an example for other health professionals that already work in the healthcare systems.	The use of web-based learning is rapidly expanding within nursing and healthcare. However, its use in teaching clinical skills to undergraduate students is not universal. Moreover, there are still few studies that provide evidence about the effectiveness of learning clinical skills through web-based learning.
7	Incorporating virtual reality in nurse education: A	2021 Saab M., Hegarty J., Murphy D.,	To explore nursing students' perspectives of incorporating virtual reality in nurse	Qualitative descriptive study	VR can enhance the link between theory and practice for students, through repeated	In conclusion, participants recommended embedding VR in

	qualitative study of nursing students' perspectives	Landers M.	education		<p>exposure to content and related clinical skills.</p> <p>This current study participant reported that VR would potentially support knowledge retention and skill acquisition.</p> <p>This study highlighted that VR could facilitate the consolidation of pre-acquired information and skills.</p>	<p>nursing curricula. VR was perceived to help students acquire several psycho-motor, decision-making, and problem-solving skills and to promote equity among students, especially when exposed to certain clinical experiences is limited. Participants, however, cautioned against replacing pre-existing teaching and learning approaches with VR. Instead, they recommended using VR as an additional/supplemental resource to consolidate learning</p>
8	Virtually Nursing Emerging Technologies in Nursing Education	2017 Foronda, Cynthia L. PhD, RN, CNE, ANEF; Alfes, Celeste M. DNP, RN; Dev, Parvati PhD; Kleinheksel, A.J. PhD; Nelson, Douglas A. Jr BSE, BS; O'Donnell, John M. DRPH, RN, CRNA; Samosky, Joseph T. PhD.	<p>The aim of this article is to present 6 newly emerged products and systems that may improve nursing education.</p> <p>Technologies may present opportunities to improve teaching efforts, and better engage students, and transform nursing education.</p>	Descriptive Study	<p>These technologies provide promise to improve and transform nursing education as called on by the Carnegie Report. Technologies may prove a valuable resource for nursing faculty who are developing competency-based curricula or struggling to model and assess concepts such as clinical reasoning. Students benefit from the ability to engage in deliberate practice and receive immediate feedback.</p>	<p>With the expansion and advancement of AR and virtual simulation, nursing education is being transformed. The technologies described in this article are not comprehensive, but they serve to inform educators and administrators of some of the options to consider when planning to adopt new simulation technology.</p>
9	Collaborative Classroom Simulation (CCS): An Innovative Pedagogy Using Simulation in Nursing Education	2019 Berndt, Jodi; Dinndorf-Hogenson, Georgia; Herheim, Rena; Hoover, Carrie;	<p>The purpose of this descriptive study was to explore the effectiveness of CCS based on student perceptions.</p> <p>Baccalaureate nursing students (n = 98) participated in the study by completing a</p>	Single descriptive, nonexperimental study	<p>Students overwhelmingly perceived that the simulation promoted their ability to make sound clinical judgments. The debriefing method provided opportunities for students to articulate their clinical reasoning process and prepare for the next</p>	<p>The use of CCS unfolding simulations was found to be effective for student learning, critical reasoning, and increasing clinical judgment.</p> <p>Use of the unique CCS</p>

		Lang, Nicole; Neuwirth, Janet; Tollefson, Bethany.	survey after participation in the CCS experience.		scene in the simulation scenario by anticipating potential patient complications and desired outcomes. One overall goal of using simulation as a classroom pedagogy could be to reduce anxiety and increase confidence for future clinical experiences.	pedagogy provided an alternative to the traditional classroom teaching techniques and should be further explored as an active learning strategy.
10	Evaluation of vSIM for Nursing™: A Trial of Innovation	2016 Foronda, C. L., Swoboda, S. M., Hudson, K. W., Jones, E., Sullivan, N., Ockimey, J., & Jeffries, P. R.	The purpose of this study was to report students' experience with vSim for Nursing as a learning methodology.	Descriptive mixed-method design	vSim for Nursing employs a Web-based platform to simulate nursing scenarios whereby students have the opportunity to interact with patients and receive direct feedback on their performance. The findings of this study supported findings from the literature review suggesting that students felt virtual simulation was an effective pedagogy.	Preliminary evidence with vSim for Nursing suggests that students were satisfied with learning this way. The virtual simulation could be used as innovative classroom pedagogy, content preparation for lectures, clinical make-up, independently, or as part of a simulation day to enhance or reinforce knowledge and learning.
11	Exploring the experiences of nursing students in using immersive virtual reality to learn nursing skills	Chang, Y. M., & Lai, C. L. (2021)	The research objective is to understand the experience of nursing students in using virtual reality skill learning process.	This study is qualitative research that adopts focus group research methods.	This study revealed that most students also agreed that the VR-supported skill-learning system provided clear and standardized steps. Furthermore, the system notifies the user of incorrect steps. Because the system provides students with unlimited access and time to practice, it resolves the location and time limitations of conventional skill learning modes. In addition, first-time learners of the skill can use the system to understand the procedures and reduce learning tension.	Instead of replacing conventional skill teaching methods, future applications of the virtual reality nursing skill education support system shall serve as a student self-learning support tool. Additionally, the research and development of the virtual reality nursing skill education support system should focus on its stereognosis aspect and include an interactive function to upgrade the system into practical teaching and learning support material.

III. RESULTS

The key results of this literature review are described under the following themes: (1) Emergence of Technology and Innovation, (2) Advantages of Technology and Innovation in Nursing Education, (3) Limitations of Technology and Innovation as a Teaching Method, and (4) Impact on the Students' Performance.

➤ *Theme 1: Emergence of Technology and Innovation*

The first theme discusses the frequency of the emergence of various technologies and innovations as pedagogies in teaching nursing. Literature suggests that the indicated data supports the increasing trend in the use of various technologies as this facilitates an increase in student retention on the subject matters being discussed and enhances the capabilities on the aspect of critical thinking whether in the classroom or clinical area.

The most recent advancements in nursing education, including virtual learning and adaptive technology, assist nurse educators in producing better student performances, such as better results on their clinical performance, qualifying examinations, and improved readiness for critical thinking situations.

The increasing trend in the use of innovative approaches has been widely seen especially in this 21st century as technology continuously changes and improves based on the needs of the students. According to the National League for Nursing's 2015 Vision Statement on the Changing faculty role, there is a developing need to "*reframe how nursing students are taught and how graduates engage with patients and their caregivers in the connected age of health care.*" The NLN asserts that it is crucial for faculty to comprehend how students use and engage with technology during their educational experiences.

Nursing schools are shifting paradigms now by integrating technology into the teaching environment to foster active and meaningful learning experiences, (Williamson, K.M., & Muckle, K, 2018). According to the article of Saab et.al (2021), the incorporation of web-based learning innovation in teaching into undergraduate nursing programs allows students to advance their clinical knowledge, potentially improving patient care and lowering patient risks. This is also supported in the context of Foronda et.al (2017), that the use of technology such as virtual simulation and augmented reality are successful in enhancing student learning results.

The authors in the articles being reviewed in this systematic literature also highlighted over the last decade, and more recently in the context of the COVID-19 pandemic, challenges to nurse education have resulted in increased use of innovative technologies such as virtual reality (VR). The use of these technologies acts as a more immersive medium for the transfer of theoretical and practical learning in nursing education than traditional teaching and learning methods, which have been proven to be effective.

➤ *Theme 2: Advantages of Technology and Innovation in Nursing Education*

The identified theme discusses the overall advantages provided by various technologies and innovations indicated in the aforementioned articles.

Over the years, a lot of technological advancements have been used in nursing education. Nursing students are regularly encouraged to familiarize themselves with these innovations so they may make the most of and learn from them. In difficult situations, like the current pandemic, where all these components have experienced a quick acceleration, making it is even more crucial not to stop the learning paradigm that nursing has.

The use of technology and innovation in teaching nursing proved that it was indeed valuable in so many aspects as it provides numerous advantages as mentioned by the authors in this systematic review. In the article of Padilha et. al. (2019), the introduction of clinical virtual simulation which is a new methodology in nursing education has the potential to improve knowledge retention and clinical reasoning in the initial stage and over time, and it increases satisfaction with the learning experience among nursing students. Furthermore, clinical virtual simulation can provide a strategy to act as a facilitator of learning.

In another article, students were able to use their theoretical knowledge to address the issues of fictitious patients with the help of teaching innovation and a student-learning-oriented technique called flipped classroom approach. Additionally, the approach helped students feel less isolated and become more involved in small groups with their classmates, where they could share experiences and talk about the solutions to problems.(Dehghanzadeh, Shadi & Alizadeh, Shiva., 2018). This enhances the class in terms of students' control over learning and interactive participation.

It was also documented that the integration of multiple learning tools, low cost, and access without time or space limits are considered the main benefits of digital educational technologies, (Loureiro F, Sousa L, Antunes V, 2021). It was also inferred that it has various benefits not only for the learners but also for the teachers. The use of web-based cameras and only video conferencing such as Skype saves time for instructors especially if they are limited to handling large groups of students (Berndt, J., 2019). This only implies that the teaching-learning process can occur at any time when either is at a convenient location due to its flexible characteristics.

Thus equipping students with their nursing skills through the use of technology can go a long way in improving the future of nursing. This is pivotal as many institutions are slowly shifting and transcending in making nursing education more accessible to all sorts of situations.

➤ *Theme 3: Limitations of Technology and Innovation as a Teaching Method*

This theme explored the indicated limitations of the identified technology and innovation in teaching Nursing.

Despite the various advantages listed in the articles presented in this systematic review, there are also listed disadvantages or limitations, in the use of technology and innovation as a teaching methodology in nursing education.

According to Loureiro F. et.al (2021), the decreased interaction between students and teachers with the use of various technology such as asynchronous applications and web-based activities results in less physical contact, and technical difficulties, which is seen as a greater constraint in learning. Moreover, poor connectivity and technological illiteracy are also the challenges that were enumerated in the use of technology for teaching and learning in nursing. This can be supported by an article published by Gause, G. et. al, (2022), in which the use of technology is not universal due to unavailability in some aspects of certain nursing skills to be studied.

The use of virtual reality as well in some countries as a recent innovation in nursing education may not be feasible and accessible to all since the estimated cost of such technology outweighs the benefit compared to the traditional counterpart which is actual scenario mentorship. In a study conducted by Saab M. et.al (2021), the research participants expressed reservations about the resources needed for the technology of virtual reality, including the cost of obtaining and maintaining headgear as well as having enough resources to translate PowerPoint slides and text into VR. Some participants believed that these difficulties might result in inequalities.

Also, VR technology documented the inability of the students to multitask, which is an important skill in nursing. According to Chang, Y. M., & Lai, C. L. (2021), in a study about vSim- a virtual reality technology discussed that students indicated the desire to multitask but were having difficulty while vSim was ongoing. These revelations generated a wider conversation regarding students' demands for completing procedures swiftly and getting feedback immediately.

Although digital educational technologies offer a wide range of possibilities, with multiple benefits beyond measure, some do perceive that the quality of learning is never guaranteed, especially when we need to consider the different external factors present in a learner. (Loureiro F, Sousa L, Antunes V, 2021).

➤ *Theme 4: Impact on the Students' Performance*

The theme explored the various impacts indicated on the aspect of the performance of the students upon the use of the identified technology and innovation. As advantages and limitations were identified,

The advancement of technology and innovation has opened up new modalities for the type of learning that nursing

students may obtain in various settings. It has also been noted that innovation does not always entail the creation of brand-new technologies; rather, it can also involve the redesign of previously developed technologies. Its impact on the student's performance was indeed phenomenal as it is supported by evidence-based research.

In an article published by Gause G, et.al. (2022), they emphasize online education as an adjunct approach to traditional pedagogical practices, like lectures in the classroom and practical skill laboratories using manikins, combined with virtual learning strategies improved student comprehension and performance of the proper movements.

Similarly, current study participants reported that the use of virtual reality would potentially support knowledge retention and skill acquisition in their performance in various nursing skills making a huge impact on the mastery of the procedure especially nursing targets mastery of the procedure to decrease the risk of error. (Saab M. et.al. 202)

The application of these various technologies in nursing education and its effects on student learning is still relatively new but on the other hand, it appears that everyone is in agreement that digital instructional technology may increase the performance of students and foster skills retention thereby enhancing patient outcomes in the near future.

IV. DISCUSSION

The results of this systematic review showed that, while there are still some issues with the use of technology and innovation in nursing education. The results of this research showed that technology and innovation are generally being adopted in a variety of institutions, while there are still certain limitations to mainstream adoption that need to be addressed. The study conducted by Williamson, K.M. et. al (2018), relates to the results of this literature review as the majority concluded that the use of technology and innovation in nursing education makes the task easier to accomplish and learning is facilitated faster. The upward trend in the use of technology and innovation as well is supported in this paper.

Furthermore, the findings of this study emphasized that technology and innovations in nursing education are not limited to the corners of the classroom, but go beyond boundaries depending on the platform to be used. It was also found that the benefits outweigh the risks and limitations offered by the use of technology and innovation in nursing education. This is supported by the article of Loureiro, F. et. al (2021) which reports that the use of digital educational technologies in nursing teaching enhances motivation for learning. When used in nursing education digital educational technologies can improve the learning experience, particularly in clinical learning settings.

Like any other approach to teaching, there are limitations to technology and innovation used in nursing education. In this review, limitations were also discussed as a form of disadvantage. According to Loureiro F. et.al (2021), the decreased interaction between students and teachers with

the use of various technology such as asynchronous applications and web-based activities results in less physical contact, and technical difficulties, which is seen as a greater constraint in learning. Loss of actual physical touch and activity among learners may serve as a factor in the decreased ability of students to learn although, each learner is unique and different in their capability to learn things.

It was also discussed in the findings during theme identification, that some institutions or educators in general does not have capacity to implemented various technologies and innovations due to unavailability of resources due to high cost.

Generally speaking, the mentioned technology and innovations are still a working progress.

V. LIMITATION OF STUDY

All articles included in this literature review utilized “innovations in teaching nursing”, “technology in nursing education” and “innovative approaches in nursing education” as search terms in the study. As a result, there is a high probability that a similar study would be conducted with different keywords, which may yield different results depending on the shortlisted articles for review. Another limitation that was identified is the current timeframe of shortlisted articles. This study has only utilized articles from 2015-2022, limiting currently available data to a seven years span. Lastly, the dimensions of technology and innovations are wide, not only in the field of nursing education but as well in other paradigms. Results may vary once the coverage of the study will be widened.

VI. CONCLUSION

The outcome of this integrative review demonstrated that, despite the acknowledged limitations and difficulties related to the use of technology and innovation, its usage has continued to expand rapidly especially now that we are still in the COVID-19 pandemic.

Furthermore, the results show that technology and innovation in nursing education have been adjunct approaches to further strengthen the teaching-learning dynamics that nurse educators have. Now, the authors recommend that further studies should explore this field as this is a developing concept that would be beneficial in the teaching profession. Researchers can focus on enhancing the effectiveness of these technological advancements on the other hand and focus on best practices so educators would have a vast array of pedagogies to use.

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