

Online Teaching Effectiveness of Nurse Instructors: A Systematic Literature Review

Catabona, Zuzette B.¹, Borrico, Carlo Bryan C.²

¹*Nueva Ecija University of Science and Technology, Cabanatuan City, Nueva Ecija 3100, Philippines*

²*Holy Angel University, Angeles City, Pampanga 2009, Philippines*

*Corresponding author's email: zuzettecatabona@ineust.ph.education

Abstract. The online teaching effectiveness of nurse instructors builds a systematic literature review that aimed to identify and critically assess available research publications for identifying online teaching effectiveness in nursing education. The review process undergoes five stages namely: framing of questions for review, identifying relevant work, data screening, assessing the quality of studies, and interpretation of findings. The articles were thematically analyzed. The articles' patterns were observed and grouped accordingly. The themes were subsequently aggregated and organized into a thematic map. The thematic map served as the basis for the generation of item statements. The three main themes that emerged based on the thematic analysis of the systematic literature review were: active learning, instructor–learner connection, and modern teaching.

Keywords: Nurse instructors; Online education; Online teaching, Online teaching effectiveness

1. Introduction

The field of education is currently undergoing a profound and dynamic transformation driven by the advent of the digital age. Over the last two decades, there has been a remarkable surge in the proliferation of online courses within higher education institutions (Kucuk & Richardson, 2019). This paper aims to shed light on the pervasive influence of online education, elucidating its prevalence and the escalating enrollment rates in online programs (Seaman et al., 2018). Moreover, it explores how online education has seamlessly integrated into the overarching educational policies of numerous institutions, emerging as an indispensable component of contemporary pedagogical paradigms (Allen & Seaman, 2017). The pressing consideration among universities to potentially replace conventional classrooms with online learning environments underscores

the far-reaching impact of this transformative trend (Peters et al., 2020). This paper synthesizes existing literature to delineate the inevitable evolution of education into the digital realm, offering insights into its profound implications for the future of learning.

Currently, the highest priority of the education sector is utilizing technological advancement to prepare students for the evolving workforce and help them to adopt the globalized, competitive nature of the 21st century (Raja & Nagasubramani, 2018). Online education has gained relevance in higher education as it offers a platform to develop 21st-century skills among students (Dakhi et al., 2020). The integration of technology in nursing education has been accelerated in the 21st century and has consistently benefited from technologies that support enhanced learning over the last decade.

The effectiveness of online education is primarily dependent on the instructor's ability to teach effectively in an online environment (Sun & Chen, 2016). Teaching nursing online is not a recent phenomenon and has really been around for a while because nursing programs have used existing and developing technology to organize, administer, and evaluate nursing education (Christoffers et al., 2023). The importance of using technology-enhanced educational adjuncts to assist in transforming nursing education (Stone, 2016).

The Online Teaching Effectiveness (OTE) literature outlines the competencies essential for effective online instruction and lists the necessary skills for online educators, as identified by the majority of the literature.

In 1987, according to Chickering and Gamson (1987), the seven guiding principles for good practice in undergraduate education are: (1) encouraging contact between students and faculty, (2) developing reciprocity and cooperation among students, (3) encouraging active learning, (4) giving prompt feedback, (5) emphasizing time on tasks, (6) communicating high expectations, and (7) respecting diverse talents and ways of learning. Subsequently, with the development of seven principles, new technologies have appeared that are used to put the principles into practice in blended and online learning settings. Chickering and Ehrmann (1996) expanded on the original seven principles and added an eighth principle, which is to use technology to support frequent and effective feedback.

In 2009, Gorsrky & Blau (2009) called teaching effectiveness as the ideal way for a teacher to direct, facilitate, and support students toward achieving and feeling satisfied with their academic goals.

In 2011, Edwards, Perry, and Janzen (2011) carried out a study on the qualities of exemplary online educators. The researchers found that exemplary online educators possess such as being (1) challengers, (2) affirmers, and (3) influencers. Exemplary online educators need to remain enthusiastic and organized during the course and create original and creative activities to be effective.

The functions or abilities necessary to carry out OTE are frequently mentioned in the literature on the competencies required of online educators. Williams (2003) identifies 30 competencies and groups the most significant ones into 13 separate roles after discussing and analyzing the roles and competencies of the online educator. The study recognized several roles and competencies needed in distance education, including “instructional design, course development and delivery, student support, and program administration.” The study also found that the importance of competencies varied depending on the role of the distance educator. Alvarez et al. (2009) and Baran et al. (2011) suggest that educators may share responsibility for online course delivery with other staff members, so they may not always need to be proficient in all the necessary skills. Several studies have assigned specific competencies to certain roles, while others have allocated them to more generalized roles. The literature needs to reach a greater consensus on the competencies related to OTE.

Over time, OTE has been defined in many ways. Identification of OTE has remained vague because there has yet to be a common understanding of what and how effective teachers behave. The literature suggested the necessary skills and competencies allocated to one of the more generalized roles. OTE manifests itself differently, and there is no universal definition of it. This lack of agreement has made it challenging to measure teacher effectiveness, and there is a need for a comprehensive definition of effective teachers. To address the need for a clear definition and description of online teaching effectiveness, an approach could include systematically reviewing and analyzing OTE in nursing education. Such an endeavour could contribute to the establishment of clear criteria and benchmarks for evaluating online teaching effectiveness, thus enhancing the

quality and impact of online educational experiences in nursing and potentially across disciplines.

2. Methodology

The research design of a systematic literature review involves a rigorous methodology that seeks to include all eligible published evidence regarding OTE in nursing education. The review process undergoes five stages namely: framing of questions for review, identifying relevant work, data screening, assessing the quality of studies, and interpretation of findings.

Stage 1 Framing questions for review. The review process, including the selection of the eligibility criteria, the search for studies, the gathering of data from included studies, and the presentation of the findings, is guided by the PICo framework: population, the phenomenon of interest, and context (Lockwood et al., 2015).

1.1 Primary research and idea validation. The researcher conducted primary research and idea validation by looking at (a) studies including nursing students or nursing educators, (b) online teaching effectiveness, (c) higher education institutions with nursing programs, (d) primary studies including quantitative, qualitative, or qualitative–quantitative studies, (e) published in the English language, (f) peer reviewed and available in full and open access, and (g) studies published from 2017 to 2022.

Stage 2 Identifying relevant work

2.1 Secondary research screening and idea validation. The researcher sought the assistance of a peer reviewer from the Nursing discipline. The involvement of a second reviewer during the duration of the study screening process augmented the number of relevant studies identified for use in a systematic review (Stoll et al., 2019).

2.2 Search Strategy. A standard search strategy was used, then later, it was modified according to each specific database to get the best relevant results. The search term included: online teaching effectiveness, nursing AND nursing education, nursing student OR nursing educator. The search term does not use quotes to group words into specific phrases. The search term used Boolean AND OR to return findings with either the term nursing AND nursing education; and nursing student OR nursing educator that also contained the word online teaching effectiveness. Another descriptor was applied, such as higher

education and nursing education, to only return results with the source higher education or nursing education.

2.3 Searching databases. Three (3) databases were searched to produce more accurate and comprehensive results (Shea et al., 2017). Among many databases, EBSCOhost, PubMed, and Education Resources Information Center (ERIC) were included in this study to cover all published articles on online teaching effectiveness in nursing education following the eligibility criteria.

Stage 3 Data Screening. This study plots out the number of records identified, included, and excluded and the reasons for exclusion through a depicted flow of information through different stages of the systematic review. This study adhered to the most recent revision of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidelines (Page et al., 2021).

3.1 Title and Abstract Screening. In order to eliminate duplications, all articles are compiled into a single Endnote library. There are no duplicated references upon organizing and running all the references in the EndNote library. References are exported to an Excel file with essential information for screening that contains the authors' names, publication years, and titles.

3.2 Full-text downloading and screening. The databases provided the links for free-to-access full-text articles. The four articles that were chosen for in-depth review were transferred to an Excel file with key screening data, including the names of the authors, publication year, title, journal, uniform resource locators (URL), and abstracts. The researcher and peer reviewer evaluated the data and decided on the inclusion of full texts based on the eligibility criteria for selecting the articles for review. The reviewers independently read the entire text of the articles during full-blown screening.

Stage 4 Assessing the quality of studies

4.1 Data extraction and quality assessment. During the selection and screening of articles, the researcher and the first peer reviewer perform data extraction and quality assessment. An additional peer reviewer joined the team to increase scrutiny, lower the likelihood of error, and guarantee proper conduct. During the quality assessment, the quality of the three reviewers was considered in the decision-making, making the third opinion crucial. Utilizing the Johns Hopkins Nursing Evidence-Based Practice Individual Evidence Summary Tool, the articles were evaluated critically and categorized into the following categories:

article number, author(s) name, date of publication; evidence type, sample, size and setting, findings that contribute to answering the research question, observable measures, limitations, evidence level, and quality.

Stage 5: Interpreting the findings

All of the study's articles and findings were analyzed and compiled using an inductive thematic approach. The first part of the analysis consisted of the researcher's familiarization with the articles in order to get accustomed to the structure and content of the text. The researcher used the data to create the initial codes, aiming to represent text features that were thought to be pertinent to the research question accurately and sparingly. The third part of the analysis, involved grouping the codes into themes that were chosen to adequately summarize significant portions of the data. The themes were then combined and arranged into an initial, developed, and final thematic map.

3. Results and Discussion

Stage 1 Framing questions for review

The research question "What is the online teaching effectiveness used by nursing instructors in nursing education?" was created using the PICo framework (Lockwood et al., 2015). Table 1 shows the report's characteristics of PICo in determining the research scope and eligibility criteria for the related literature under review.

Table 1

Article Characteristics based on PICo

Report Characteristics	Inclusion Criteria
Population	Nursing students Nursing educators
Phenomenon of Interest	Online teaching effectiveness
Context	- Higher education institutions with a nursing program - Primary studies: quantitative, qualitative, or qualitative-quantitative studies - Published in the English language - Peer reviewed and available in full and open access - Published between 2017 - 2022

Stage 2 Identifying relevant work

The screening and validation were facilitated by a peer reviewer in the same discipline by doing the search strategy following the keywords: online teaching

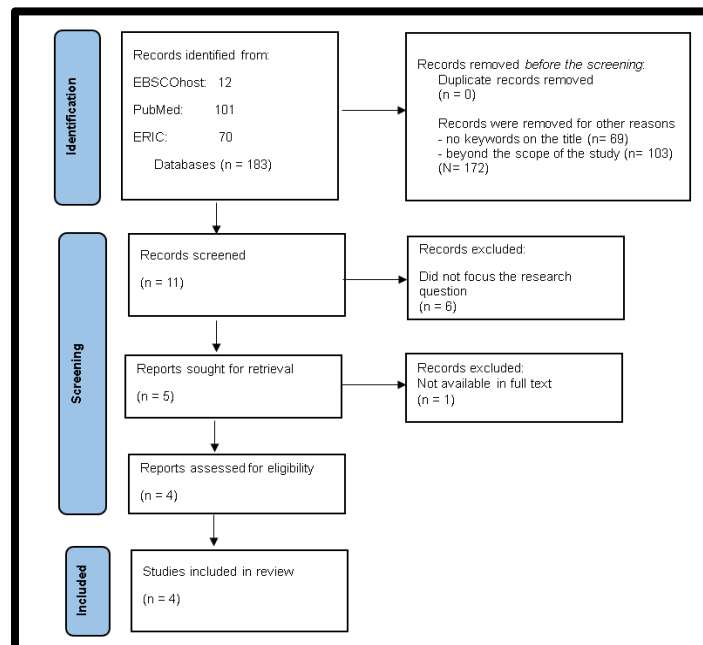
effectiveness, nursing AND nursing education, nursing student OR nursing educator. The search strategy used Boolean AND and OR, and the descriptor higher education and nursing education to only return results following the search filters. The search strategy was applied to each of the three electronic databases: EBSCOhost, PubMed, and ERIC.

Stage 3 Data Screening

The process of data screening is shown schematically as a flow diagram in Figure 1 that conforms to the most recent revision of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidelines.

Figure 1

Flow diagram for Systematic Review



Note. Flow diagram for new systematic reviews. Adapted from PRISMA. <https://www.prisma-statement.org//PRISMAStatement/FlowDiagram>

A total of 183 articles, without duplicates, were retrieved from three databases: 12 from EBSCOhost, 101 from PubMed, and 70 from ERIC. The title’s first strategy resulted in the rejection of 172 reports after reading the title and abstract alone (n= 69), reports that were beyond the scope of the study (n= 103). Requiring a review of eleven reports, wherein (6) articles are excluded because the report did not answer the research question. Five reports were sought for retrieval, wherein one (1) article does not have full text and therefore is excluded.

As a result, four (4) studies reporting and identifying the online teaching effectiveness of nurse instructors were included in this review.

Stage 4 Assessing the quality of studies

The four reports were extracted and assessed for quality; this was done by three reviewers, including the researcher. Table 2 shows the Evidence Summary of the articles.

Table 2

Evidence Summary of the Articles

Article No.	Author(s) and Date of Publication	Evidence type	Sample, Sample Size, Setting	Findings that help answer the research question	Observable measures	Limitations	Evidence Level, Quality
1	Al-Rawajfah, O.; Al Hadid, L.; Madhavanprabhakaran, G.; Francis, F.; Khalaf, A. (2022)	Quantitative	127 Nurse Educators Oman	The professional qualities of nurse educators are critical in creating a role model for students. Educators' readiness to use electronic platforms and methods of education	Multiple linear regression of demographic profile and Effective Clinical Instructor Characteristics Inventory.	Data collection at the peak of the pandemic led to survey fatigue. Low response rates limit the generalizability of the findings.	II - C
2	Baker, Micah, Richardson, Stephanie, Rubio, Fernando (2020)	A qualitatively driven, mixed-methods design	26 nursing students, 1 nursing instructor, 3 nursing graduate assistants United States of America	Helping students navigate the learning management system and the course. Elicit higher levels of participation through the interaction between the instructor and students. Challenger: refocusing or redirecting the student's reasoning (asking probing questions or encouraging deeper analysis). Affirmer: Valuing and respecting learners (respect diverse talents and ways of learning and provides clarity and relevance through course structure and presentation) Influencer: teachers being content experts and having a strong online presence. Teaching presence: initiating and sustaining connections and interaction	Used cases, context, opinions, experiences, and thoughts to represent the phenomenon of study.	Limit the transferability of our results to other settings and arguably to other disciplines.	III - B
3	Frazer, Christine; Henline, Sullivan, Debrah; Weatherspoon, Deborah; Hussey, Leslie (2017)	Qualitative-Focus Group Discussion	11 nursing educators United States of America	Facilitates student learning Aims to feel connected with students in the classroom Shares experiences Approachable Establishes mutual comfort, Responsive to students' needs	Used cases, context, opinions, experiences, and thoughts to represent the phenomenon of study.	Limit the generalizability of the findings. the researchers who led the focus groups were faculty at the same institution as the participants, which could have resulted in some bias.	III - B
4	Kraglund-Gauthier, Wendy, Moseley, Jane (2019)	Qualitative-Participatory Action Research	11 nursing educators Canada	Content mastery, subject matter experts	Field notes, group discussions, and personal logs.	Researcher bias because the researcher is involved.	III - B

Note. Evidence Summary Tool. Adapted from Johns Hopkins Nursing Evidence-Based Practice https://hsl.upstate.edu/uploads/20200214-jhneb/2017_Appendix-G_Individual-Evidence-Tool.pdf

The extracted data contained one quantitative study and three qualitative studies. With relation to the sample, sample size, and setting, the reports are addressed to either nursing students or nursing educators as prescribed in the inclusion criteria. The setting was distributed to North America (USA and Canada) and Western Asia (Oman), particularly in a nursing school. The reviewers concluded that the reports included in this review were mostly qualitative (Level

III) and graded as good quality (B), with the inclusion of one quantitative (Level II), graded as low quality (C).

The inter-rater reliability has also been computed to determine the agreement between the reviewer. A measure of percentage agreement was used to determine the level of agreement between raters, with a range between 0 and 1. A score of 0 indicates no agreement between raters, while a score of 1 indicates perfect agreement between raters. Table 4 shows the inter-rater reliability of articles was assessed, yielding a percentage of agreement between raters of 83%.

Table 3

Inter-rater reliability result

Research No.	Reviewer 1	Reviewer 2	Reviewer 3	Total Agreement
1	1	1	1	3
2	2	2	2	3
3	2	2	2	3
4	2	2	1	1
Total				10
Possible no. of agreement				12
Inter-rater reliability				83%

Note. 1 –Low quality 2– Good quality 3– High quality

The reviewers determined that there is no available valid instrument for online teaching effectiveness in nursing up to this time. The review garnered a very limited number of reports with different methods, techniques, and limitations. After considering the article’s limitations and quality rating, the four articles were reduced to three. The article with a quality rating of C was automatically disqualified due to its major flaws that raised serious questions about the credibility of the findings, therefore automatically eliminated from consideration.

Stage 5 Interpreting the findings

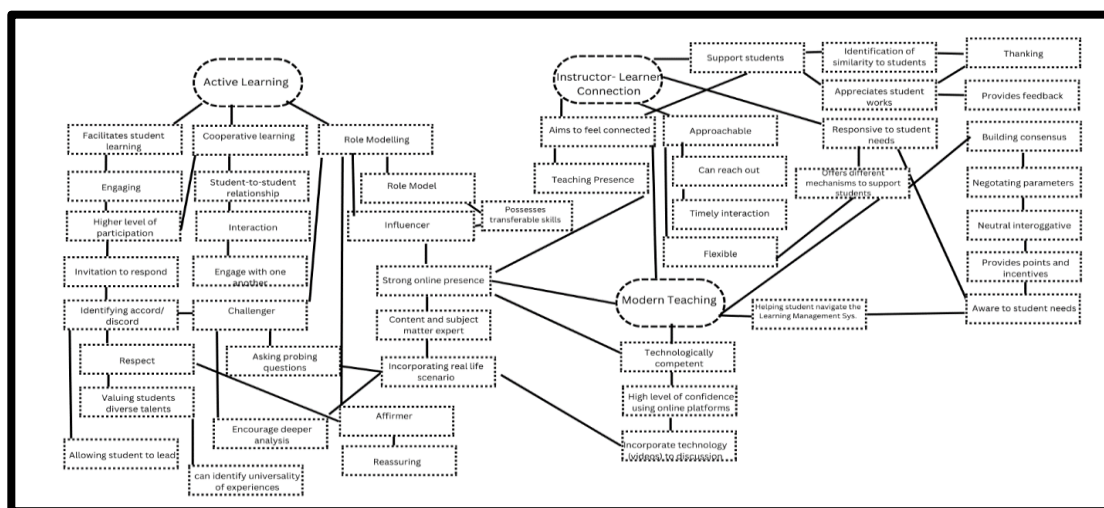
In the first part of the thematic analysis, the researcher engaged in the repeated reading of the data in an active way, searching for meanings and patterns to become familiar with and immersed in the data. In the second part of the thematic analysis, the researcher produced initial codes from the data. During coding, the researcher identified important sections of text and attached labels to index them as they relate to a theme in the data. The researcher used open coding, which involves developing and modifying codes as they work through the coding process. This method does not have pre-set

codes, and the themes were initially generated inductively from the raw data. The third part of the thematic analysis involves sorting and collating all the potentially relevant coded data extracts into themes.

Figure 2 displays the initial thematic map generated, which shows that the codes identified are strongly linked to the data found in the articles. It was labeled with a short phrase that reflects what it stands for. At this step, it was evident that several initial codes were shared or common to more than one theme.

Figure 2

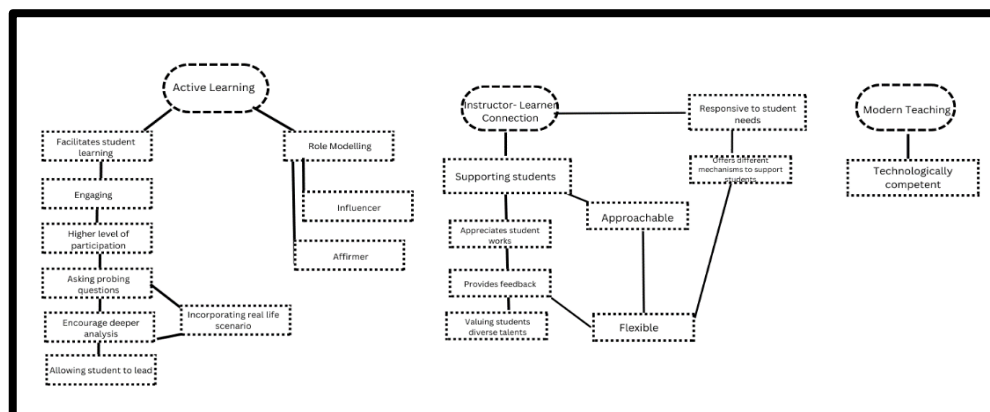
Initial thematic map of STRAT OF OTE



By doing repeated analysis the researcher found out that the overarching codes substantially overlap with other codes and were deleted and narrowed down the codes. Figure 3 shows the developing thematic map of STRAT OF OTE.

Figure 3

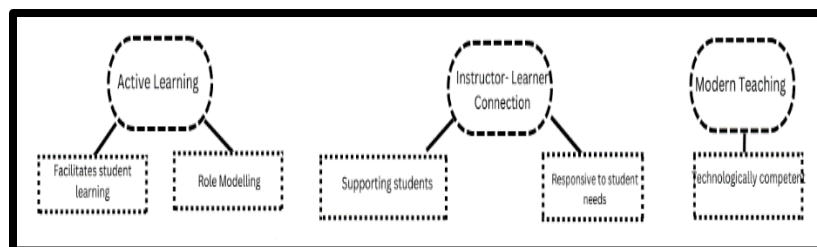
The Developing Thematic Map of STRAT OF OTE



The researcher along with the two peer reviewers carefully reviewed the overall focus of the reports. In the final step of thematic analysis, the themes were defined and named to correspond to the essential meaning of each theme. Figure 6 shows the final thematic map of STRAT OF OTE where all the themes were refined and appropriate names were assigned to the theme.

Figure 4

The Final Thematic Map of STRAT OF OTE



Three themes emerged from the thematic analysis of the systematic literature review: (1) active learning, (2) instructor–learner connection, and (3) modern teaching.

Active Learning (AL)

AL involves online instructors playing an active and engaging role in sharing their expertise during virtual classes. This approach contrasts passive listening with interactive participation, encouraging students to construct knowledge, recognize patterns, and establish connections (Frazer et al., 2017). Effective online educators foster student ownership of learning by promoting in–depth analysis and critical thinking opportunities (Baker et al., 2020).

One key aspect is facilitating student learning. Instructors serve as learning facilitators by employing interactive methods like small group case discussions within an efficient learning management system. By incorporating real–world problems, instructors demonstrate practical applications of skills in authentic scenarios.

Another important role is that of a role modelling. Online educators can inspire students by exemplifying the value of education and lifelong learning (Frazer et al., 2017). Sharing personalized success strategies, success strategies, and mentorship can guide students toward academic excellence. These interactions also establish credibility and build trust, helping students perceive instructors as knowledgeable and dependable resources (Baker et al., 2020).

Instructor–Learner Connection (ILC)

ILC denotes the quality of interactions and relationships during the teaching and learning process between instructors and students. To foster connection and support,

online instructors must actively engage, express concern, and remain attentive to students' needs.

Supporting students involves establishing a secure, inclusive learning environment, building positive relationships, offering academic and emotional support, promoting student engagement, and providing timely feedback. Creating a welcoming and respectful atmosphere that values diversity is crucial (Kraglund–Gauthier & Moseley, 2019), while positive relationships foster trust and effective communication (Baker et al., 2020). Attentive listening, supportive guidance, and constructive feedback contribute to improved learning outcomes and academic achievement. Emotional support aids students in overcoming challenges and thriving academically (Frazer et al., 2017).

Being responsive to individual student needs is pivotal. This entails addressing unique circumstances and accommodating diverse learning styles or abilities. Adapting teaching methods ensures all students can access course materials and achieve academic goals (Baker et al., 2020).

Modern Teaching (MT)

MT within effective online instruction refers to the utilization of innovative teaching methods and technologies to enrich the learning encounter for students in digital learning environments.

A prerequisite for proficient online teaching is a comprehensive grasp of the technology employed in the course, encompassing the learning management system, video conferencing tools, and other platforms employed by students (Kraglund–Gauthier & Moseley, 2019). This understanding empowers instructors to troubleshoot technical glitches and aid students in navigating the online learning environment.

Technological competence embodies an instructor's possession of the essential knowledge, skills, and proficiencies required to adeptly integrate technology within online learning settings. Such competence involves seamlessly integrating technology into engaging, interactive, and personalized learning experiences for students (Kraglund–Gauthier & Moseley, 2019). Additionally, a technologically competent instructor should be able to troubleshoot any technical issues that arise during the online learning process. It allows for the creation of engaging and interactive learning experiences that effectively meet the needs of diverse learners (Baker et al., 2020).

Conclusions

Throughout the systematic literature review, one crucial aspect is identifying and selecting relevant studies that can provide valid and reliable answers to the research question. Despite the efforts of the peer reviewers to identify relevant studies and instruments, the systematic literature review reveals

that there is no valid instrument available to measure the online teaching effectiveness of nurse instructors. This could be due to several reasons, such as the lack of studies or research in the area of interest or the instruments that have been developed that need to be rigorously tested or validated. Because no valid instrument is found, developing one specifically tailored to the research question and context may be necessary. It is important to note that the absence of a valid instrument does not automatically mean that the research question is not important or relevant. Further research is needed to develop a suitable instrument that can effectively measure the online teaching effectiveness of nurse instructors validly and reliably.

The articles were thematically analyzed and yielded three primary themes: active learning, instructor–learner connection, and modern teaching, reflecting the predominant areas of focus and inquiry within the discourse on online teaching effectiveness.

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