Analysis Factor Affecting Continuous Learning Based Transformative Learning Theory and Digitalization to Improve Nurse Competencies: Literature Review

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Abstract

Competent hospital nurses will ensure the quality of services, currently inadequate nursing practice is due to the complexity and lack of clarity of nurse competence. Globally, nursing learning has evolved from the conventional to digitalization approach. The objective of this study to explain the factors that influence transformative and digital learning.

PRISMA Checklist was used for Protocol/registration of title, abstract, full-text and methodology with keyword continuous learning AND Transformative learning AND Digital AND Nursing Competencies. Searched six databases as; Scopus, PubMed, Science Direct, CINAHL, Google Scholar and ProQuest. Studies using a quantitative and qualitative in journals was published since 2015 to 2020. Was used descriptive method in data analysis.

The 25 scientific research articles were selected and divided into 4 major, 8 regarded transformative learning, 3 referred to the nursing competency, 9 on digitalization, and 5 in learning. Most of the factors that contribute are learner characteristics (age, gender, education level, experience), facilitators (mentoring) and learning facilities (infrastructure, finance, learning environment) factor. In qualitative study, quantitative, cross-sectional and action research. was conducted in Europe, Australia and Asia. The average number of the studied participants was 367 peoples as a subject involve in research.

The contributing factors in transformative learning and digitalization are individual characteristics, facilitators factor and learning facilities. Learning process based on transformative learning and digitalization consideration as there has been a shift from conventional to digitalization learning.

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Introduction

Competence is the result of a combination of some one's knowledge, skills and values that support effectively, efficient and professional [1]. The condition of nursing practice in Southeast Asia advanced nurse practice (APN) is not fully functional, poor administrative support, competence of nurse practitioners has not been established and a lack of awareness of clinical responsibility [2]. Nursing practice was poor due to complexity and lack of clarity of competence, lack of competence during college resulted in minimal independent practice [3] so nursing practice is not yet balanced at every level of nursing service[4], lack of knowledge, resisting change is a weakness in providing evidence-based nursing care and evaluation[5]. The minimal use of research results in nursing services[5].

Efforts to improve the quality of nursing services have not been maximal, lack of facilities, funding, management, staff support, inefficiency, and less involving qualified nurses in the hospital management team[6].

Communication / coordination skills between sectors are still lacking[7] so it requires a suitable learning model to ensure service quality[8]. Objective: to explain the factors that influence both the transformative learning theory and digital-based learning.

World Health Organization (2013) reports 16 countries in Africa, nine countries have 56% financial constraints and seven countries 44% have limited material and technical expertise[9]

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and 100 students counting drug conventionally required a time speed of 38,9 minutes the control group and the intervention group use digitally of 5.02 minutes [10]. The ability of nurses to use computers is 30% and 25% of students have no knowledge of using MS Excel and software [11]. Significant communication skills between the group p-0,046 and physical assessment of p=0,00, through learning knowledge of nurses increased from 94,8% to 100% [12] and 62,2% of nurses are competent using digital technology [4] and 30% do not have the skills to use computers for references [3], 46,2% of nurses have not access to computers, 54,2% did not attend nursing training last year and 96,8% of nurses need training [8]. The facts show that the lack of frequency of clinical training, initiative, opportunity, support, consequently affects independent practice and service quality. The development of transformative learning and digitalization models will increase nurses' awareness, hopes, intentions and desires to learn, however, the author is motivated to hold an LR to support the dissertation topic.

Materials and methods

Literature review includes contributing factors to transformative learning theory (TLT) and digital, has used PRISMA checklist strategy and the PICOS framework in November-December 2020. Used database: Scopus, PubMed, Science Direct and Google Scholar; and Keyword; continuous learning AND Transformative learning AND Digital AND Nursing Competency and conditioned by Medical Subject Heading (MeSH) see in annex 1 bellow.

Study selection and quality assessment: was selected of 2398 articles, checked for duplication, filtered by title, abstract, full text, in PRISMA diagram 1 bellow annex. Was compiled 25 studies having scores above 50% and entered them to perform further data synthesis with thematic analysis, extract information and results from each of the included studies.

Results

Study characteristics: Total 25 articles corresponding with inclusion criteria included in the LR which were divided into 4 parts articles as bellow: 7; TLT, 5; competence of nurses, 8; digitization and 5; learning. Most of a modified Delphi study, survey, quantitative, cross-sectional, action research, descriptive – analytical survey, a qualitative, exploratory, descriptive and contextual, sequential explanatory mixed-method, randomized clinical trial (RCT) and poster development. Mostly held in Europe, Australia and Asia with respondents nursing students and nurses who work at hospital and community health center and number minimum 15 and a maximum of 718 peoples.

Factors influence TLT

Capacity building, barriers and self-reflection: was mentioned that, in the end of the education process had gained 6 domains of graduate competence: evidence-based practice, complex decisions, professionalism, communication and cooperation, education and leadership development [1], in addition, analysis of 100 surveys and four focus group (n=33) of Haitian nurses who wish to continue with consistent and standardized nursing education to enhance competency in providing quality nursing care. It appears that there are obstacles experienced by nurses to participate in opportunities to continue education [8]. The education level of nurses struggles in developing awareness in self-reflection to determine better and more successful learning was mentioned bay [13] and the results of research on the competency of advanced practice nurse training at health centers was 45.7% of trainers have doctoral degrees [4].

Experience and insight:, we identified the experiences that are focused on the work of the main theorist [14], it have facilitated a broader view/experience and contribute to changing lives and are committed to providing health services [15].

Learning facilities: It is said that transformative is main concept model in nursing education, academic practice partnerships, regulation, competent graduates and nursing staff as sub-concepts, through the main strategies of curriculum reform, regulation, transformative learning, provision of infrastructure and resources and capacity building [16]. Clinical competency assessment activities for nursing students explained that the availability of assessment tools and criteria plays an important role in ensuring the quality of clinical learning to support feedback activities in assessing objectives and reliability were mentioned in [17], confirmed that pre-designed modules based on needs analysis have been

showed effective in improving the clinical competence of nursing graduates at the[3] is study.

Quality Assurance: The quality assurance of education/training is mandated by accreditation, where almost all countries in the study 15.94% have accredited nursing education, but there are nine countries 5% experiencing financial constraints, which hinder the increase in accreditation activities and seven countries 44% noted limited materials and expertise technical was reported by [18].

Group work and learning environment: The students who worked in pairs with each other showed stronger associations with theory and practice than working individually. On the other hand, it is explained that Mezirow's level of reflection is useful in evaluating student reflection and shows that the seven levels of reflection can be used to challenge students [19] and the learning environment also provides important support for guiding students in practice has also been discussed by [17].

Perspective, self-reflection, experience and transformative action: confirmatory factor analysis confirmed the EFA results due to the high model fit index, while the Cronbach's alpha internal consistency coefficient of the scale was obtained as 0,94; the coefficients of these 4 factors were obtained respectively 0,94 (F1: meaning perspective), 0,91 (F2: critical reflection), 0,85 (F3: use of experience), 0,79 (F4: transformative action). Finally, it can obtain the information needed about the level of individual transformative learning in information and communication technology with this scale and become a data collection instrument to measure the level of individual transformative learning [20] was mentioned.

Facilitator/ teacher: students as the main body of learning and teachers as learning guides. However, the combination of the theoretical performance of health information collection, physical assessment, scenario simulation, and communication in the experimental group was significantly higher than control group (P<0.05) founded [21].

Factors that influence digitalization

Perception: On LR identified that the perception of female nurses was more positive about learning and using technology in the practice of patient-centered nursing care P<0.05[22], the results showed that the nurses' thoughts on the use of technology were based on

the average age of the participants: 32.97 + 6.52 (min: 20, max: 60); 78% female, 76.5% undergraduate, 27.5 1-4 years' work experience and 74% work in health services. It was stated that 17% of nurses attended technology training; 34.5% thought that technology was used adequately in nursing practice and 6.5% thought that nurses had not been able to use technology [23]. The results showed differences perceptions using technology in nursing practice and interfering with patient and nurse communication (P<0.05), which was more frequently conveyed by nurses age 25-34 years compared to the older group[22].

Education: In the article was found that, the students considered the digital teaching and promotion efforts have a positive impact on their nursing education and professional development [24]. International TIGER framework was recommended core competencies in the field of health informatics 2.0 to contribute to how to shape health informatics education to improve the quality and safety of services with useful and successful health information system [25].

Mentoring: nursing teacher mentoring is considered an important part of evaluation where it integrates theoretical and practical, understanding student roles and emotional support, is enhanced by digital technology for successful clinical practice, in enhancing the learning experience and is integrated into clinical learning setting also we found in [26] study.

Attitude: students' attitudes towards using computers to support the learning process: 2.99 (0,73) or a 1-5 scale average of close to 3 (neutral), a significant positive correlation of nursing student's attitudes of computer uses and reporting self-efficacy (r=0,60, p< 0,001). More positive students' attitudes towards computer and their use, the more competent they feel to use them to support their teaching and learning process found in [11]..

Support: The optimal situation for the implementation of e-learning on employment, financial support, technical tools, strategic planning, content writing and internet access, to information sources and digital libraries was poor, lacked the necessary manpower and infrastructure at hospital. Some parties who doubt the suitability of e-learning for clinical training. As part of the dimension of knowledge, nurses are reported to have levels much higher than the average in other research dimensions [27].

Learning experience: more than half of the participating group had previous experience with science 66%, but only 24% had experience creating digital media. After completing the assessment task, 1/3 students more strongly agreed to learn science and a few said it was boring. If we conferee with the qualitative finding confirmed the existence of learning about science and four themes were identified: learning about science, connecting knowledge with practice, using technology, and making it real (Meedya, Moroney, et al, 2019).

Requirement: The need to promote a digital approach is said to have a strong impact on students and their views on digital teaching. students with a very /large enough need for digital teaching to promote impactful experiences do better than students who need less. Student appreciation and participation in promoting digital endeavors did not show a statistically significant difference in perceived impact [24].

| Criteria	Inclusive	Exclusive
Population	Nurses	Others
Intervention	Transformative & Digital Learning	Non transformative & digital learning
Comparators	No comparator	No comparator
Outcomes	Nursing competencies	No nursing competencies
Study Design & Publication Type	Cross sectional, Literature review, qualitative research	No exclusion
Publication years	Post-2016	Pre-2016
Language	English	Not English

Table1. The Format of PICOS framework.

Discussion

The result show that various influence factor of transformative learning and digital, about 14 factors illustrate the many factors that influence and contribute factors to the success of learning for nurses are very important for both the trainers and the participants to learn. To prepare a more complete and detailed learning plan or strategy. Thus, the trainers and participants can enrich themselves to better support the teaching and learning process. These reason according to the [23] was mentioned the gender, education level, experience and age affect the use of health technology by nurses and their thoughts about technology. It will support the sustainable nurse learning process based on transformative and digital learning.

We need to know and be able to categorize the two types of factors in detail so that they can be prepared properly and comprehensively, such as contributing factors and influencing factors. Internal supporting factors for learner can be seen from the follow factors, where the results of

the study in the LR article clearly state and can be admitted that all of these factors can have a positive impact in the learning process because all of these arise from within a person, including the attitude factor, development of insight, insight, group work, perspective/perception, self-reflection, experience, action, transformative, age and gender.
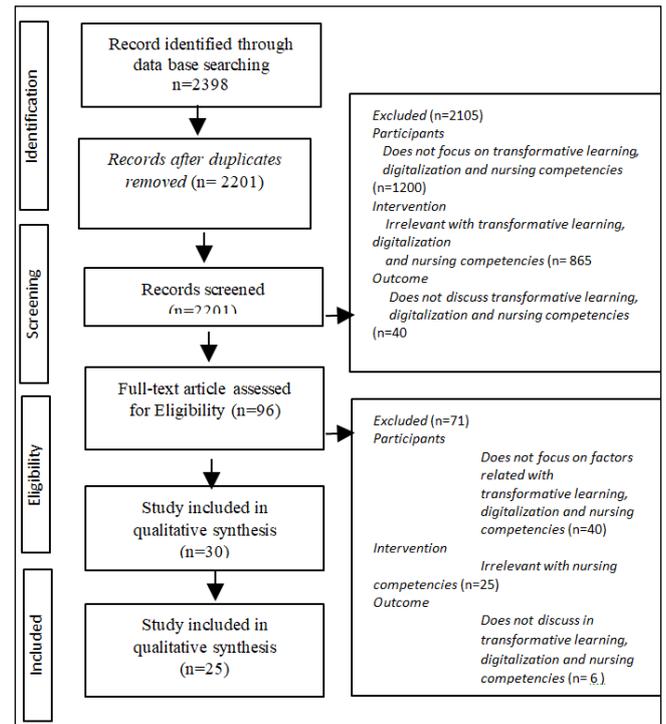
Figure 1. Diagram Flow LR Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) [14].

Meanwhile, there are also factors that can influence the transformative learning and digital learning process depending on education / qualification, mentoring, requirement/needs, learning facilities included teacher, support, learning environment, barriers and quality assurance. Because if the availability is inadequate or the application process is so minimal it will affect the development of existing learning. So the two categories of factors above need to be deepened and detailed in future studies, to obtain complete information on how to succeed in the clinical nursing learning process related to continuous learning so that the competence of the nurse itself can be improved and developed even better. This is very relevant to the opinion of the researchers in all the articles

that have been selected to be included in this review literature.

Conclusions

The literature review for article selection uses the PRISMA diagram and PICOS framework method. Produced 25 articles showing that transformative learning and digitalization are influenced by factors: education, experience, insight, facilities, modules/materials, finance, group work, learning environment, perspective, self-reflection, gender, age, mentoring, attitudes, support, and learning needs. of the present literature review.

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Declaration of Interest

The authors report no conflicts of interest pertaining to any individual/group discussed in study.

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