Literature Search results

Research question or topic:
A refresh of a previous search on blended/ online and flexible learning with a focus on nursing
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Completed by: HEE Knowledge Management Team
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Contents

Complete numbered list of results with links

	Citation	Abstract/ key themes	Link
1	The effects of blended learning on knowledge, skills, and satisfaction in nursing students: a meta-analysis August 2019 Nurse Education Today	OBJECTIVE The aim of this meta-analysis is to investigate the effects of blended learning on nursing students' knowledge, skills and satisfaction. METHODS We searched EMBASE, PubMed, CINAHL, Cochrane Library for publications in English up to December 2018. Two researchers independently screened the literature and extracted the data. Meta-analysis was performed with Revman5.0 for the eligible studies. RESULTS A total of 8 studies met the inclusion criteria of meta-analysis, including 574 nursing students. Compared with traditional teaching, blended learning could effectively improve nursing students' knowledge (SMD = 0.70, 95% CI [0.52, 0.87], P < 0.00001) and satisfaction (SMD = 0.72, 95% CI [0.08, 0.59], P = 0.01), and tended to improve the skills although without significant difference (SMD = 0.58, 95% CI [-0.17, 1.32], P = 0.13).CONCLUSIONS Blended learning can effectively improve the knowledge and satisfaction of nursing students. Therefore, blended learning can be used as a teaching method in nursing education.	
2	Digital collaborative learning in nursing education: a systematic review September 2019 Scandinavian Journal of Caring Sciences	OBJECTIVES: The aim of this systematic review was to evaluate the effectiveness of educational interventions in digital collaborative learning implemented in nursing education. DESIGN: A systematic literature review of randomised controlled trials (RCTs) was carried out in accordance with Joanna Briggs Institute (JBI) and Centre for Reviews and Dissemination guidelines and the PRISMA statement. DATA SOURCES: CINAHL (EBSCO), ERIC, MEDLINE (Ovid) and Scopus databases were used to identify original peer-reviewed RCT studies published between 2003 and 2018. REVIEW METHOD: The 'hits' were systematically screened by title, abstract and full text by two authors acting independently. The quality of the selected original studies was	

		evaluated using the quality assessment criteria of the JBI and Cochrane collaboration's tool for assessing risk of bias in randomised trials. The studies were analysed by narrative synthesis. RESULTS: Five peer-reviewed RCT studies were included in the review. All participants in these studies (647 in total) were nursing students exposed to educational interventions in various nursing programme courses. The reviewed studies indicated that digital collaborative learning increased students' knowledge and nursing skills. The results show that collaborative learning in digital learning environments enhanced nursing students' interaction and collaborative skills, problem-solving skills, satisfaction and motivation for learning. CONCLUSION: Collaborative learning in digital learning environments has encouraging effects in enhancing nursing students' knowledge, competence, satisfaction and problem-solving skills. Moreover, evidence-based digital collaborative learning is becoming increasingly effective in nursing education, as available tools and teachers' abilities to use them are improving and providing new learning activities to boost students' learning outcomes in higher education. Thus, its systematic use in digital collaborative learning environments in various nursing courses is recommended.	
3	Effectiveness of Online Cancer Education for Nurses and Allied Health Professionals; a Systematic Review Using Kirkpatrick Evaluation Framework April 2019 Journal of Cancer Education	Embedding online learning within higher education can provide engaging, cost-effective, interactive and flexible education. By evaluating the impact, outcomes and pedagogical influence of online cancer and education, future curricula can be shaped and delivered by higher education providers to better meet learner, health care provider and educational commissioners' requirements for enhanced patient care and service delivery needs. Using the Kirkpatrick's four-level model of educational evaluation, a systematic review of the effectiveness of online cancer education for nurses and allied health professionals was conducted. From 101 articles, 30 papers were included in the review. Educational theory is not always employed. There is an absence of longitudinal studies to examine impact; an absence of reliability and/or validity testing of measures, limited experimental designs taking account of power and few attempts to mitigate bias. There is, however, an emerging innovative use of	Link

		mobile/spaced learning techniques. Evidence for clinical and educational effectiveness is weak offering insights into experiences and participant perceptions rather than concrete quantitative data and patient-reported outcomes. More pedagogical research is merited to inform effective evaluation of online cancer education, which incorporates and demonstrates a longer-term impact.	
4	The effectiveness of a flipped classroom on the development of Chinese nursing students' skill competence: A systematic review and meta-analysis	Objectives Skill competence is essential for nursing students and flipped-classroom teaching has become increasingly popular in China's nursing education. However, no studies have yet specifically examined the effect of a flipped classroom versus a traditional classroom on their skill competence. Design A systematic review and meta-analysis of randomised controlled trials. Data sources The China National Knowledge Infrastructure, Wanfang Data, VIP, Superstar, PubMed, and Web of Science databases were searched from their inception until 9 June 2018. Review methods We screened the studies according to inclusion and exclusion criteria, extracted the data, and assessed the quality. Then, a meta-analysis was conducted. Results Twenty-two studies were eligible after reviewing 484 citations. The flipped classroom increased the students' skills score compared with the traditional teaching method (standardised mean difference = 1.79, 95% confidence interval: 1.32–2.27, $p = 0.000$). Additionally, it improved the cooperative spirit and sense of teamwork (effect size = 1.60, 95% confidence interval: 1.15–2.06), practical ability (effect size = 1.47, 95% confidence interval: 0.93–2.01), enjoyment of the course (effect size = 1.39, 95% confidence interval: 0.81–1.97), expression and communication (effect size = 1.41, 95% confidence interval: 0.69–2.12), the curriculum's effects (effect size = 1.32, 95% confidence interval: 1.00–1.64), interest in participation (effect size = 1.58, 95% confidence interval: 1.28–1.87), ability to think and analyse problems (effect size = 1.62, 95% confidence interval: 1.24–2.00), and resolution and resilience (effect size = 1.62, 95% confidence interval: 1.29–1.94).	

		Conclusions The results suggest that the flipped classroom is more effective for the nursing students' skill competence than traditional teaching in China. However, due to heterogeneity and bias risk, a large sample and high-quality studies are needed in future to confirm its effectiveness.	
5	These may not be the courses you are seeking: a systematic review of open online courses in health professions education September 2019 BMC Medical Education	Introduction Open Online Courses (OOCs) are increasingly presented as a possible solution to the many challenges of higher education. However, there is currently little evidence available to support decisions around the use of OOCs in health professions education. The aim of this systematic review was to summarise the available evidence describing the features of OOCs in health professions education and to analyse their utility for decision-making using a self-developed framework consisting of point scores around effectiveness, learner experiences, feasibility, pedagogy and economics. Methods Electronic searches of PubMed, Medline, Embase, PsychInfo and CINAHL were made up to April 2019 using keywords related to OOC variants and health professions. We accepted any type of full text English publication with no exclusions made on the basis of study quality. Data were extracted using a custom-developed, a priori critical analysis framework comprising themes relating to effectiveness, economics, pedagogy, acceptability and learner experience. Results 54 articles were included in the review and 46 were of the lowest levels of evidence, and most were offered by institutions based in the United States (*n* = 11) and United Kingdom (*n* = 6). Most studies provided insufficient course detail to make any confident claims about participant learning, although studies published from 2016 were more likely to include information around course aims and participant evaluation. In terms of the five categories identified for analysis, few studies provided sufficiently robust evidence to be used in formal decision making in undergraduate or postgraduate curricula. Conclusion	Link

		This review highlights a poor state of evidence to support or refute claims regarding the effectiveness of OOCs in health professions education. Health professions educators interested in developing courses of this nature should adopt a critical and cautious position regarding their adoption.	
6	Undergraduate nursing students' use of video technology in developing confidence in clinical skills for practice: a systematic integrative literature review January 2020 Nurse Education Today	Aims and objectives This review examines the current evidence of the effectiveness of the use of video or video podcast technology produced either commercially or in-house in developing nursing students' confidence in clinical skills for practice. Background The ability of graduates to provide safe, quality, nursing care is the core of any nursing education curriculum. Developing teaching and learning strategies to enhance skills development and confidence is challenging for educators, particularly with contemporary and diverse student populations requiring student-centred, technology-enhanced learning. Design An integrative review framework. Review methods A systematic search was conducted using the following eight databases: CINAHL, MEDLINE, ProQuest, PubMed, ERIC, Scopus, EMBASE, and Google Scholar. Selection criteria included: published in English, involving undergraduate nursing students, measuring confidence in relation to skills development, and using video or video podcasts. Results Four studies met the inclusion criteria, with six themes identified. Four themes emerged: *Pedagogy*; *Skills performance and competency*; *Student satisfaction and confidence in relation to skills development*; *Technical constraints*. Two additional themes related to the impetus for introducing video podcasts: first, *time as an institutional, curricular, and academic/student challenge*; and second, *meeting the generational needs of students*. Conclusion This review demonstrates that video technology teaching methods and traditional teaching methods used in conjunction with each other create the most positive learning environment. Although video technology methods	

		provide a flexible teaching option for the contemporary student population, developing and delivering videos in a clinical skills program need to be conceptualised within an appropriate pedagogical approach to ensure a purposeful and meaningful learning experience. Whilst student confidence was embedded within other evaluations, it is not clearly reviewed or understood; therefore, further research is required in this area.	
7	Incorporating medication administration safety in undergraduate nursing education: A literature review January 2019 Nurse Education Today	OBJECTIVE: The purpose of this review was to identify methods for incorporating medication administration safety in undergraduate nursing education. DESIGN: The Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines directed this review. DATA SOURCES: A search of four electronic databases (Cumulative Index to Nursing and Allied Health Literature, Education Resources Information Center, Google Scholar, and MedLine/PubMed MedLine/PubMed) as well as hand searches were conducted to identify original research published between 2005 and 2018. REVIEW METHODS: Original empirical research describing a method for incorporating medication administration safety concepts in nursing education and examining its effectiveness on undergraduate nursing students' outcomes were selected for review. Articles describing medication safety education for graduate students, students other than those in nursing, and practicing nurses were excluded. RESULTS: Twelve original research articles were included for review. Three methods for incorporating medication administration safety in undergraduate nursing education were identified: simulation experiences, technology aids, and online learning modules. Most studies were conducted in North America. The use of different interventions as well as different outcome measures was noted as a limitation to the collective body of research in this area. Also, there was a lack of information regarding psychometric properties of instruments used among the studies reviewed. CONCLUSION:	

		Simulation experiences, use of technology aids, and online learning modules helped increase medication safety competence of nursing students. However, simulation equipment, select technology aids, and online learning may not be available for all nursing programs; therefore, educators should consider developing and testing classroom-based educational interventions. Moreover, future researchers should use or develop psychometrically sound instruments to measure nursing students' outcomes including competencies about medication administration safety.	
8	Developing and evaluating an online learning tool to improve midwives' accuracy of visual estimation of blood loss during waterbirth: An experimental study January 2019 Midwifery	Objective:the principal objective was to test the effectiveness of an online learning tool to improve midwives' accuracy of blood loss estimations in a birthing pool environment. The secondary objective was to assess the acceptability of the online learning tool to the midwives using it. Design:a one group pre-test post-test experiment with immediate and six weeks follow-up to test ability together with an online questionnaire to assess perceived usefulness of an online learning tool. Setting:a large NHS maternity hospital comprising an acute care obstetric unit, a small district unit labour ward, one alongside midwifery-led unit and three freestanding midwifery-led units. Participants:volunteer NHS employed midwives who had experience in caring for women labouring and giving birth in water (n=24).Intervention: an online learning tool comprising six randomly ordered short video simulations of blood loss in a birthing pool in real time, and a tutorial giving verbal and pictorial guidance on making accurate blood loss estimations in water was developed then piloted. Midwives' accuracy scores for estimating blood loss in each of the videos were calculated at three timepoints; pre and immediately post the learning component, and six weeks later. The estimated blood loss volume was subtracted from the actual blood loss volume, to give the difference between estimated and real blood loss in millilitres(ml) which was then converted to percentage difference to standardise comparison across the six volumes. The differences between pre- and post-learning for each of the six blood volumes was analysed using a repeated measures ANOVA. Statistical significance was set at $p<0.05$. An online questionnaire incorporated questions using Likert scales to gauge	Link

		confidence and competence and free text. Free text responses were analysed using a modified form of inductive content analysis. Findings: 22 midwives completed the online learning and immediate post-test, 14 completed a post-test after six weeks, and 15 responded to the online questionnaire.Pre-test results showed under-estimation of all blood loss volumes and particularly for the two largest volumes (1,000 and 1,100 ml). Across all volumes, accuracy of estimation was significantly improved at post-test 1. Accuracy diminished slightly, but overall improvement remained, at post-test 2. Participants rated the online tool positively and made suggestions for refining it.Key conclusions and implications for practice: This is the first study measuring the accuracy of midwives' blood loss estimations in a birthing pool using real-time simulations and testing the effectiveness of an online learning tool to improve this important skill. Our findings indicate a need to develop interventions to improve midwives' accuracy at visually estimating blood loss in water, and the potential of an online approach. Most women who labour and/or give birth in water do so in midwifery-led settings without immediate access to medical support. Accuracy in blood loss estimations is an essential core skill	
9	Interprofessional education telephone simulation for campus-based pharmacy students and distance-learning family nurse practitioner students March 2019 Currents in Pharmacy Teaching & Learning	Background Interprofessional education (IPE) is an essential component of healthcare professions' curriculum but is often difficult to provide due to scheduling issues, cost, different learning formats, and lack of access to other health care professions. To meet the school of pharmacy's need to have IPE with prescribers and the school of nursing's need to provide IPE to distance-learning students, a telephone-based IPE activity was created. The goals of the simulation activity were to provide students a forum to practice communication skills, work to maintain a climate of mutual respect, and forge interdependent relationships with another profession. Interprofessional activity Each student in a team completed a survey rating the other professional students and qualitative data was collected. Individual care plans were evaluated for appropriateness of therapy, monitoring, and follow-up recommendations. Achievement of the effective communication outcome was	

		evaluated through student survey data, qualitative comments, and concordance of care plans among team members. Concordance was determined based on whether the team was in complete agreement. Discussion Qualitative data revealed the goals of mutual respect and interdependent relationships between professions were achieved. The majority of students agreed that effective communication was achieved; however, discordance of the patient care plans between team members suggested ineffective communication. Implications The simulation activity met IPE accreditation needs of both pharmacy and nursing profession in a creative method to address barriers of location, cost, scheduling, and lack of access to other healthcare professions.	
10	Innovative strategies: Increased engagement and synthesis in online advanced practice nursing education May 2019 Nurse Education Today	INTRODUCTION: The struggle to maintain quality education in the online environment has brought about the redesign for the family nurse practitioner courses. BACKGROUND: The family nurse practitioner program uses graduate Health Education Systems Incorporated examination as a quality indicator and program benchmark. A downward trend in Health Education Systems Incorporated examination scores stimulated a need for change. Two strategies were implemented to enhance engagement and improve synthesis of clinical information. Case-based learning and gamification involves the use of game thinking and game mechanics in non-game contexts to engage users in solving problems while the case-based discussions act as formative assessment tool, providing information on student's progress and development. OBJECTIVES: To assess the implementation of innovative strategies on the Health Education Systems Incorporated examination scores and to enhance students engagement and synthesis of clinical information. METHOD: Case presentations were created in the Learning Management System an online program, for every module. Interwoven throughout the module are	

		various game elements. The game elements include voluntary participation with immediate feedback that can be both positive and negative and provides a social connection. The student has the freedom to fail and the freedom to choose without significant repercussions. RESULTS: The results showed examination scores increased significantly. Using a one-way analysis of variance to compare Health Education Systems Incorporated examination scores between semester cohorts of students, followed by a post hoc pairwise comparison a statistically significant difference ($p < .001$) between previous semesters was identified. CONCLUSION: Although there are many approaches for online learning, using case presentations can mirror different social and cultural situations to challenge the learner. Case-based discussion and gamification strategies are effective in engaging students in a challenging environment. Student responded positively to case-base presentation with game elements. Using this approach is designed to challenge and add value to the learning experience.	
11	Effects of a patient safety course using a flipped classroom approach among undergraduate nursing students: A quasi-experimental study August 2019 Nurse Education Today	Background The nursing education system has changed with the increased emphasis on patient safety in healthcare settings. Early education in patient safety is crucial to preparing nurses to be competent in patient care. Therefore, providing undergraduate patient safety education courses using an innovative approach is essential to enhancing patient safety and quality in nursing care. Objectives This study aimed to examine the effects of a patient safety course using a flipped classroom approach on patient safety competency among undergraduate nursing students in South Korea. Design A pre- and post-test quasi-experimental design with a non-equivalent control group was adopted. Settings This study was conducted in the college of nursing at a university in Seoul, South Korea.	

		Participants A total of 75 undergraduate nursing students participated. All students enrolled in the patient safety course comprised the experimental group (n = 32); those with similar characteristics to the experimental group (age, gender, and year) but did not take the course comprised the control group (n = 43). Methods A total of 14 sessions (28 h) addressing the topics from the World Health Organization patient safety curriculum guide were delivered using a flipped classroom approach. The teaching methods included online learning and quizzes, case studies, small and large discussions, incident report tasks, and group projects including the development of strategies for patient safety. A survey including a demographic questionnaire and the Patient Safety Competency Self-Evaluation tool was administered at the beginning and end of the fall semester. Results Pre- and post-test results demonstrated a significant increase in students' patient safety competency including attitude, skills, and knowledge. Mean scores of patient safety competency in the experimental group were significantly higher than in the control group. Conclusions The flipped-classroom patient safety course was shown to be effective in improving patient safety competency in terms of attitude, skills, and knowledge among undergraduate nursing students.	
12	Using blackboard collaborate, a digital web conference tool, to support nursing students placement learning: A pilot study exploring its impact July 2019 Nurse Education in Practice	Ensuring student nurses, when in clinical placement areas, receive good quality Higher Education Institution (HEI) lecturer support is challenging. This is because conventional HEI placement support, is resource intensive and arguably infeasible with growing student numbers. Evidence suggests, however, that online collaborative learning solutions (e.g., virtual classrooms, web conferencing tools) have the potential to ameliorate resource pressures. To test this idea, an online learning solution called Blackboard Collaborate was piloted. It virtually connected, students and their preceptors to a university lecturer.	

		Its usefulness was explored by obtaining qualitative, focus group data, from the students and preceptor participants. The findings were thematically analysed. Collaborate ensured all three parties were connected. It was a time efficient, easy to use technology. Despite technical glitches, i.e. occasional time delay and audio echo, participants concluded Collaborate was an efficient medium when placement needs were routine. Face-to-face was preferable when more intensive support was required. In today's busy times, HEI's must explore time effective methods of placement collaboration. Online collaborative tools are one solution. Students will, however, need to develop their digital literacy in using this technology. The benefit being when qualified they are more likely to embrace this form of technology to promote their efficiency.	
13	Interprofessional "on-call" e-learning for family nurse practitioner students: Preparing for primary care across the life span February 2019 Journal of the American Association of Nurse Practitioners	BACKGROUND AND PURPOSE: Nurse practitioners (NPs) are expected to fill gaps in providing primary care in the United States and need vital skills to meet the growing need for primary care providers. One necessary skill is managing "on-call" clinical questions/concerns by patients across the life span. To date, there are no published studies that address "on-call" simulations for family NP (FNP) students across the life span. METHODS: This quasi-experimental, mixed-methods design used a confidence scale and Krippendorff's method for content analysis of discussion pages to determine the effectiveness and confidence of simulated "on-call" scenarios for FNP students during each of their clinical courses. CONCLUSIONS: There was a significant increase in the confidence level of students as measured by the confidence questionnaire ($t = 3.07$ [33]; $p < .001$), at the end of the FNP didactic and clinical courses. Krippendorff content analysis revealed three themes: self-reliance; thinking on your feet; and uncertainty of management. IMPLICATIONS FOR PRACTICE:	

		"On-call" processing is a skill that is needed in graduate FNP programs so that these providers are fully prepared to meet any challenge they may encounter.	
14	Experiences of undergraduate nursing students on an authentic mobile learning enactment at a higher education institution in South Africa March 2019 Nurse Education Today	BACKGROUND: Mobile technology has infiltrated our day to day existence through provision of inexhaustible access to communication and information. In education, mobile devices are not only used as tools to reinforce information, motivate and accentuate engagement, but it additionally enables the delivery of course content. The adoption of authentic technological innovations using the variety of distinguishing attributes available on mobile devices could potentially promote a mobile learning enactment. OBJECTIVE: The purpose of the study was to explore the experiences of undergraduate nursing students who participated in an authentic mobile learning enactment aimed at enhancing their learning experiences. DESIGN: This study used a qualitative contextual design. SETTING AND PARTICIPANTS: Undergraduate nursing students, of a School of Nursing in a Faculty of Community and Health Sciences at a university in South Africa, were the study participants. All students (n = 101) registered for the primary care and clinical skills module were invited to submit reflections based on their experiences on an authentic mobile learning enactment using WhatsApp Messenger. METHOD: Students submitted electronic reflections after every two-week cycle of the enactment. The data collected was categorised into emerging themes as analysed by the researcher guided by Tesch's (1990) systematic process. An independent coder reviewed the data and, through consensus, themes identified were confirmed. RESULTS: One hundred and one participants (n = 101; 100%) submitted online reflections on their experiences during the authentic mobile learning enactment. Seven themes were identified which included: mobile devices afforded a learning platform; mobile learning enactment enhanced engagement; learning within a	

		group made learning easier; flexibility in time allocated to complete tasks; challenges experienced with data/airtime/Wi-Fi; impaired communication due to poor network access and use of mobile devices in practice perceived as unprofessional. CONCLUSION: The study provided valuable insights into students' experiences of the authentic mobile learning enactment, as well as suggesting ways to enhance the effectiveness of such an enactment.	
15	A Process for Teaching Research Methods in a Virtual Environment 2019 Journal of Interprofessional Nursing	Translating and integrating scholarship into practice is a difficult concept for students to embrace through a passive education model. Therefore, innovative teaching strategies were integrated into a translational science course for online graduate nursing students. The purpose of this project was to increase understanding of the research process and stimulate interest in translating nursing evidence into practice. The result was an effective educational strategy for teaching and learning about the research process in a virtual environment.	
16	Using Twitter to Engage Online RN-to-BSN Students in Health Care Policy February 2019 The Journal of Nursing Education	BACKGROUND: Baccalaureate-prepared nurses have a professional responsibility to influence health care policy. This article describes a learning experience that effectively used Twitter to engage online RN-to-baccalaureate nursing (BSN) students in health care policy initiatives. METHOD: The learning experience included following individuals and groups involved in health care policy in specific categories that aligned with the weekly learning objectives in a 7-week online course. Effectiveness of the experience was evaluated through a final reflection. RESULTS: All 49 students enrolled in the online health care policy course participated in the learning experience and followed a total of 645 policy-related individuals and groups. Analysis of qualitative evaluation data revealed two themes: Staying Up to Date, and Opening My Eyes. CONCLUSION: The findings show that integrating microblogging into an online RN-to-BSN course is an effective approach to engage students in health care policy.	

17	How Nurse Educators Perceive the Transition From the Traditional Classroom to the Online Environment: A Qualitative Inquiry March 2019 Nursing Education Perspectives	AIM: This study was conducted to explore the experiences of nurse educators who transitioned from traditional classroom to an online learning environment, either 100 percent online or in hybrid courses. BACKGROUND: Online education is an effective way to reach students; however, online education requires a different pedagogy than the traditional classroom. METHOD: Nurse educators who transitioned from traditional classroom to online environments (100 percent online or hybrid) were interviewed using 13 guided interview questions designed to explore the challenges experienced during the transition. RESULTS: Challenges nurse educators experienced included a need for professional development for learning a new pedagogy and learning management system, technological support, mentorship in transitioning to the new mode of teaching, and a mind shift in teaching to a different pedagogy. CONCLUSION: The results provide practical information for nurse educators who may be interested teaching online courses.	
18	Preparing Future Nurse Educators to Teach in the Online Environment August 2019 The Journal of Nursing Education	BACKGROUND: With the proliferation of online courses in nursing education and professional staff development, future nurse educators must be prepared to teach online. The purpose of this article is to present an educational innovation created and evaluated to prepare future nurse educators to develop, design, and deliver an online learning module for distance education. METHOD: A combination of instructional scaffolding and applied learning was used to teach nurse educator students how to facilitate learning in an online module. RESULTS:	

		Analyses of student assignment scores, student reflections, and faculty observations demonstrated the instructional strategies were effective to prepare students to develop, design, and deliver education online. CONCLUSION: Instructional scaffolding and applied learning enhances student engagement and effectively prepares nurse educator students to teach online. The strategies are easily adaptable to diverse academic and professional development settings and various learning management systems.	
19	Creation and Online Use of Patient-Centered Videos, Digital Storytelling, and Interactive Self-testing Questions for Teaching Pathophysiology n.d., Nurse Educator	BACKGROUND: Nursing students need to not only understand the pathophysiological basis of disease but also acquire insight into its effects on patients and their families. PURPOSE: Digital storytelling was used to engage students in self-directed, online learning, allowing them to identify with patients dealing with disease and its consequences. METHODS: Scripts were written and videos created that simulated patient experiences with select diseases of the gastrointestinal and respiratory systems as well as diabetes. Videos plus online self-testing questions were provided to nursing students studying pathophysiology and student outcomes on summative examinations compared before and after introduction of the videos. RESULTS: Students had improved outcomes on summative examination questions that targeted diseases addressed in the video modules. CONCLUSIONS: Digital storytelling is an effective way to portray illness from a patient perspective, and the addition of this approach to pathophysiology instruction can benefit student learning.	
20	Effect of education using the virtual social network on the knowledge and attitude of emergency nurses of	BACKGROUND: Nurses play an important role in helping people to cope with disasters. Dealing with disasters requires proper knowledge, attitudes and skills that can be achieved through education. Education through virtual social networks as a	

	disaster preparedness: A quasi-experiment study February 2019 Nurse Education Today	method of distance education can be used due to its accessibility and ease of use. OBJECTIVES: To investigate the effect of education using the virtual social network on the knowledge and attitude of emergency nurses of disaster preparedness. DESIGN: This was a pre-test and post-test quasi-experimental study with a control group. SETTING: The study was conducted in two hospitals in Tehran, Iran. PARTICIPANTS: A total of 60 nurses (n = 30 nurses in each group) participated in this study. Before the study, they signed the informed consent form. METHODS: They were selected using a census method and were divided into two control (n = 30) and intervention groups (n = 30). Data was collected before and after the intervention using the disaster preparedness questionnaire. The intervention group received 34-session education of disaster preparedness via the virtual social network (Telegram application). Data was analyzed using descriptive and inferential statistics via the SPSS v.22 software. RESULTS: No statistically significant difference was reported between the groups regarding the pretest knowledge score, but the posttest knowledge score was significantly higher in the intervention group compared to the control group ($p < 0.001$). In the intervention group, knowledge scores significantly increased at the posttest compared to the pretest ($p < 0.01$). No a similar condition happened in the control group. While the posttest attitude score was higher than the pretest attitude score, it was not statistically significant. CONCLUSIONS: A significant increase in the knowledge score of the intervention group was reported compared to the control group indicating the effectiveness of learning through the virtual social network. Also, the high level of attitude scores before and after education indicated the positive attitude of emergency nurses toward the need for disaster preparedness.	

21	Who can benefit more from massive open online courses? A prospective cohort study May 2019 Nurse Education Today	Background Massive open online courses (MOOCs) are innovative courses that have aroused great interest in the field of nursing education. However, most studies have focused only on the benefits of MOOCs rather than the issues and how to ameliorate them. Objectives To compare the differences between the "blended learners" (who studied at a university and via a MOOC) and "social learners" (MOOC-only learners) in course completion, participation, performance, and online interactions. Design A prospective cohort study. Settings and participants The participants were social and blended learners registered on a 16-week Health Assessment MOOC on a Chinese MOOC platform. Methods The data were collected from the MOOC learning records. The participants were categorized based on their participation: Committed learners (participated in all topic tests and the final exam), Early dropout learners (initially participated but did not finish the course), and Other learners (the remainder). The differences in course completion, participation, performance, and online interactions (in three case discussions and free discussions) between the blended and social learners, and among the three participation types, were assessed. Results At total of 4106 participants registered, comprising 57 blended and 4049 social learners. The completion rates for blended and social learners were 100% and 7.14%, respectively. The blended learners showed stable participation rates over the course ($\chi^2 = 0.190$, $P = 0.663$) while the social learners showed a trend of high to low participation ($\chi^2 = 179.602$, $P < 0.001$). The blended learners had better performance than the social learners (all $P < 0.05$) except among the committed learners. The blended learners also had more online interactions than the social learners ($\chi^2 = 25.107$, $P < 0.001$). The Early dropout and Other learners among the social learners participated more in the free discussions than the case discussions ($P < 0.001$).	

		Conclusion Blended learners benefit more from MOOCs than social learners, and online-to-offline blended approaches are recommended for future nursing education.	
22	E-Learning in Nursing: Tool Development for Evaluating Virtual Patient Learning Systems October 2019 Teaching & Learning in Nursing	Background The growing number of online nursing programs increased the demand to utilize interactive virtual patient learning systems in online nursing courses. Purpose To develop and assess the validity of a tool named "Virtual Patient Learning System Evaluation Tool". Methods This study was conducted in 2015–2017. The tool's validity was determined through the assessment of content validity using an exploratory factor analysis on the data provided by 160 RN-BSN online nursing students. Results Exploratory factor analysis was used to analyze four factors including: (a) communication (19%), (b) nursing care plan application (21%), (c) competency development using a virtual learning system (42%), and performance evaluation (4.5%). These factors explained 86.5% of the total variance, with a correlation coefficient ranging from 0.46 to .921 ($p < .001$). In this study, reliability was demonstrated by a Cronbach's alpha coefficient of 0.973 indicating a reliable measure for this tool. Conclusion Evaluating the effectiveness of virtual learning systems will guide the online teaching pedagogies and the online nursing program development.	
23	An Electronic Medical Record Training Conversion for Onboarding Inpatient Nurses August 2019 CIN: Computers, Informatics, Nursing	In recent times, policies stemming from the American Recovery and Reinvestment Act of 2009 have served as a stimulus for healthcare organizations to adopt an electronic medical record. As a result, nurses are now more knowledgeable of and experienced with an electronic medical record. In August 2016, our facility converted from instructor-led training to electronic learning for inpatient nurse electronic medical record training, hoping to capitalize on previous experience with the clinical information system. However, a complete program evaluation of this transition had yet to be conducted. The	

		purpose of this study was to evaluate electronic learning usability and the return on investment of an electronic medical record training conversion. Evaluations of electronic medical record electronic learning training were collected from 75 newly hired, inpatient nurses from November and December 2017, and compared to our instructor-led program. Results showed that users found it effective and were satisfied with this training method. The electronic learning had superior efficiency, reducing training time by ~50% compared to instructor-led training, while proving to yield effectiveness and satisfaction. The return on investment was $18 540, with a gain of 593.25 hours in nursing time during the study period of two months. These results support the organizational decision to convert to electronic learning, further supporting the conversion for other clinical roles.	
24	How to Flip the Classroom to Improve Learner Engagement July 2019 Journal for Nurses in Professional Development	Providing effective nursing professional development that meets the needs of a variety of learners, promotes critical thinking skills, and results in application in clinical practice is challenging. The flipped classroom was successfully implemented at a large Midwestern teaching hospital to address these challenges. This article explores flipped classroom exemplars including descriptions of prework, active learning strategies, and recommendations for successful implementation of the flipped classroom.	
25	Development and evaluation of a web-based acute pain management education program for Korean registered nurses: A randomized controlled trial July 2019 Nurse Education in Practice	The aim of this randomized controlled trial was to develop a web-based acute pain management education program for nurses and to evaluate its effectiveness. The developed program consisted of a total duration of 400 min with eight modules and 29 topics in pain management. Fifty nurses from the post-anesthesia care unit in two university-affiliated hospitals in Seoul, Korea were randomly assigned to either the experimental group (n = 25) or the control group (n = 25) and a total of 46 nurses, 23 for each group, completed the pre and post-tests. The pre and post-tests were performed to evaluate the changes of the nurses' knowledge, attitude, and self-efficacy regarding acute pain management. The experimental group showed a significant increase in knowledge and in self-efficacy about pain management compared to the control group (u = 389.0, p = .006; u = 360.0, p = .030, respectively). The results support the effective use of these web-based modules as part of a continuing education program on pain management for nurses working in an acute care setting. The	

		findings of this study can be the basis for the development of evidence-based guidelines and training tailored to the Korean culture and similar settings.	
26	Use of simulation in training on violence in nursing practice May 2019 Acta Paulista de Enfermagem	Objective: To evaluate the applicability and results of the use of simulation in nursing students and professionals' training on violence at work.Methods: Integrative review of literature that met methodological guideline to answer the question: can simulation help nursing students and workers understand and deal with workplace violence? It was developed search strategies from Boolean operators and terms related to simulation and violence at work, which were inserted into CINAHL, MEDLINE and ProQuest Central along with the other fi lters. Two independent reviewers selected the studies using criteria and there was an analysis of the level of evidence.Results: Nine studies were selected and showed the fl exibility of the simulation by the possibility of using it with different purposes in training. It was identifi ed in the studies the use of many simulation resources, as well as the approach of different topics of violence. The settings with patients or aggressors and violence starting with the patient were the most frequent. The studies pointed out benefi ts of the simulation, but not all results were consensual. Conclusion: Simulation is a resource capable of helping nursing students and professionals to deal with cases of workplace violence, preventing it to occur or reducing damage. Studies on this topic are recent and several research needs emanate from the alliance between simulation and violence at work, some of which are highlighted in this review and that may guide the gathering of stronger evidence	Link
27	The effectiveness of web-based learning in supporting the development of nursing students' practical skills during clinical placements: A qualitative study May 2019 Nurse Education in Practice	Web-based learning, on its own or in combination with traditional teaching methods, has become a consolidated practice in many countries, and has been described as a valid and effective method that supports practical learning in undergraduate nursing students. 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. A qualitative descriptive study was conducted including online videos in three nursing schools of a university in Northern Italy. The participants were 26 undergraduate nursing students. A dedicated website was built including four videos and the respective checklists of four nursing techniques: insertion of a urinary catheter; insertion of a nasogastric tube; taking a blood sample; and the insertion of a peripheral	

		intravenous line. Three Focus Groups were conducted, one for each nursing school. Thanks to its ease of use and unlimited access, web-based learning effectively supported students' clinical learning process by offering additional virtual visual support. Web-based learning could be effectively used to reduce the gap between theory and practice, and even as an upgrade for already qualified nurses.	
28	Nurses' perceptions about a web-based learning intervention concerning supportive family conversations in home health care April 2019 Journal of Clinical Nursing	Aims and objectives: To describe the perceptions that municipal primary healthcare nurses and municipal registered nurses had about a web-based learning intervention concerning supportive family health conversations in municipal home health care.Background: Even though family health conversations are well grounded in theory with several reported benefits for patients and families, most working nurses have little or no training in practising family systems nursing including family health con-versations. Continued learning is necessary for nurses, where web-based learning may be one answer of updating the professional skills and knowledge of nurses re-garding supporting families.Design: The study used a descriptive design and followed the "Consolidated criteria for reporting qualitative research" (COREQ) checklist.Methods: Twenty-one nurses participated in an educational intervention that con-sisted of web-based learning and two face-to-face seminars about family systems nursing including family health conversations. The nurses were interviewed after completion, and the audio-recorded interviews were transcribed verbatim and ana-lysed using qualitative content analysis.Results: The findings consist of nurses' perceptions regarding the disposition of in-struction, the prerequisites for learning and a changed approach when working with families. The findings are further reflected on through Illeris' theory concerning learning triangle.Conclusions: The findings are encouraging for educating nurses in family health con-versations at their workplace, with the purpose of supporting patients and families. However, it is important to be aware of the different dimensions of learning, in addi-tion to the appraisal of social aspects and organisational circumstances when educat-ing nurses as they influence the utilisation of the knowledge.Relevance to clinical practice: This web-based learning intervention seems to be suitable for educating nurses in family health conversations and could be an appropriate step towards implementing these conversations in home health care with the purpose of supporting families.	Link
29	Using Artificial Intelligence and Gaming to Improve New Nurse Transition April 2019 Nurse Leader	New nurses transitioning to practice must develop clinical reasoning skills enabling safe patient care delivery. Time and exposure necessary to develop expert-situated cognition present a challenge for new nurses. Educational interventions have been proposed as solutions in a complex, cognitively and emotionally demanding environment. Artificial intelligence technology may provide innovative approaches to influence cognitive development. Preliminary pilot study data evaluating virtual reality (VR) simulation education for new	

		nurses recognizing and responding to respiratory decline in hospitalized infants are remarkable. Data suggest that new nurse learners are responsive and receptive to VR education, and VR training may be more effective than traditional teaching modalities in some situations.	
30	Comparison of Mental Health Nursing Student Academic Achievement and Satisfaction: Classroom Versus Online Education in Teaching Therapeutic Crisis Management Techniques March 2019 Issues in Mental Health Nursing	BACKGROUND: Mental health nurse educators use online education in an effort to offer students the ability to practice varying skills in a safe environment. PURPOSE: The purpose of this study was to compare the effectiveness and student satisfaction of live classroom versus online education in delivering therapeutic crisis management skills content to pre-licensure nursing students as measured by overall grade point average (GPA), test scores, class grade, and student satisfaction survey results. METHODS: This quasi-experimental, post-hoc comparative study had a two-group post-test design. The participants were pre-licensure psychiatric mental health nursing students who were presented a 30-min lecture followed by group work with case studies and interventions. RESULTS: There were no statistically significant differences between the live classroom and online education group. CONCLUSIONS: This study indicates that therapeutic crisis management techniques can be taught a variety of ways for academic success and may validate the feasibility of online education within mental health nursing curricula.	
31	Simulation in Advanced Practice Nursing Programs: A North-American Survey January 2019 Clinical Simulation in Nursing	Simulation is an effective pedagogy and is used extensively in prelicensure nursing education. Advanced practice nursing (APN) programs also use simulation as a component of their curriculum even though APN accreditation and certification organizations do not allow students to substitute simulation hours for the minimum 500 clinical hours. There is a lack of rigorous research studies supporting the benefits or describing the outcomes of using simulation in APN programs. This article presents the results of a descriptive survey on the use of simulation in APN programs in the United States and Canada. Data	Link

		obtained from the survey provide a base for current simulation use, so do data on the use of the International Nursing Association for Clinical Simulation and Learning Standards of Best Practice as an organizing framework for the implementation of simulations in APN programs. The results of the survey include courses in which simulation is used, modalities of simulation used, purposes for simulation use, and the number of hours of simulation. Data on barriers to simulation use and faculty educational needs are provided. Key findings include the following: 98%of respondents report using simulation in their APN programs, and 77% of respondents support there placement of a percentage of clinical hours with simulation. The results from this study provide abase to build further rigorous research on how simulation can enhance the education of APN students, improve knowledge transfer, impact behaviors, and improve outcomes. In addition, the outcomes of this study may help educators develop training and support systems that can enhance the quality of APN simulations.	
32	Effectiveness of shifting traditional lecture to interactive lecture to teach nursing students January 2019 Investigacion and educacion en enfermeria	OBJECTIVES: This study was conducted to examine effectiveness of interactive lecture in teaching nursing students compared to traditional lecture. METHODS: This study is a quasi-experimental design in which 29 students participated in eighteen sessions of intensive nursing care in Yasuj University of Medical Sciences, Iran. These sessions were randomly allocated for the interactive lecture and the traditional lecture. The interactive lecture consists in this steps: explaining the learning objectives, taking the pre-test, teaching the subjects of each session, Group discussion with introduction of the clinical cases, answering students' questions and mutual feedbacks, taking the post-test, and introducing students' future activities. The effectiveness of applied teaching method was evaluated through pre-test, post-test of each session, mid-term and final exams. RESULTS: Significant statistical differences were observed in terms of students' mean score (p=0.001) and their satisfaction (p=0.001) in the interactive teaching method compared to traditional lectures. Further preparation, active	

		participation and received immediate feedback were some benefits reported for the interactive teaching method. CONCLUSIONS: The interactive lecture resulted in significant learning and furthers nursing students' active participation in the teaching-learning process.	
33	Evaluating practice of smartphone use among university students in undergraduate nursing education August 2019 Health Professions Education	Background Smartphones are the most popular and intriguing technological gadgets that have changed the face of communication and laid an irreversible impact on psychosocial behavior of consumers. A large number of undergraduate nursing students own smartphones and use it effectively for means of communication and acquiring information. Objective This study was designed to evaluate the practice of smartphone use in undergraduate nursing students for educational purposes. Method A cross-sectional survey was conducted in college of nursing (N = 135) in King Saud bin Abdul Aziz University for Health Sciences following IRB approval using a self administered questionnaire, piloted and pre-tested in 30 participants. Results The study showed that 94.8% students carry their phones consciously at all times whereas 92.6% check their phones as soon as they arise in the morning. A large number of students (77.8%) reported that they document information on their smartphones in the class whereas 24.4% always use them in clinical settings. The most prevalent use of smartphones was to access information on the website (93.3%) which was more frequently reported in group study compared to individual study. A large number of students reported that they participate in WhatsApp study group (89.6%). Accessing social media platforms for academic reasons was reported by 85.2% respondents. Conclusion Undergraduate nursing students rely heavily on their smartphones for acquiring information and communication. They bear tendency of smartphone addiction	

		and appear to be potential recipients for active learning techniques that may fit their educational needs.	
34	Effects of a digital educational intervention on collaborative learning in nursing education: a quasi-experimental study July 2019 Nordic Journal of Nursing Research	Collaborative digital learning is becoming increasingly popular in higher education. However, the use of collaborative digital learning does risk placing too big a responsibility on the learner and reducing face-to-face interaction with the educator. The aim of this quasi-experimental study was to evaluate the effects of a digital educational intervention on collaborative learning in nursing education. The intervention group ($n = 87$) studied using a collaborative digital learning environment and the control group ($n = 38$) studied in the traditional classroom setting. There were no significant differences between the groups in terms of student satisfaction. However, the students' satisfaction of studying decreased in the intervention group after completion of the course. In the intervention group students had higher satisfaction in the area of promoting collaborative group work and received statistically significant higher grades in the final course evaluation. This study emphasizes that collaborative digital learning can be an effective approach in nursing education in terms of learning outcomes. It also shows that more study is needed on the role of the teacher in collaborative digital nursing education.	
35	A call to action: building evidence for use of simulation in nurse practitioner education November 2019 Journal of the American Association of Nurse Practitioners	Leaders from national nursing organizations, nursing schools, and health care simulation vendors convened in early 2019 to discuss simulation in nurse practitioner (NP) education. Nurse practitioner clinical education needs a more standardized, efficient, and sustainable model to prepare NPs to provide quality care in complex health care systems. Currently, a major shortage of clinical sites and preceptors to educate students creates challenges for NP programs and nursing faculty. One strategy used by nursing programs to overcome this challenge is using simulation to provide clinical training for NP students in a safe, controlled environment. There remains, however, a lack of evidence linking these simulation experiences with clinical skills acquisition and program outcomes. Implementing competency-based education through standardized simulations has the potential to demonstrate quality, safety, and accountability across NP education programs. Ultimately, the expansion and acceptance of simulation hours in NP education is dependent on strong and favorable evidence from rigorous, high-quality studies.	

Appendix

Sources and Databases Searched

Healthcare Databases Advanced Search (HDAS) was used to search the following databases: Medline; HMIC and CINAHL.

Google Scholar was used to citation match and find more papers using key references.

Search Strategy

I re-ran the search conducted previously on the effectiveness of blended/ online/ distance and flexible learning (search number 87). I added in nursing as a concept and limited the results to 2019.

Key words included: “flexible learning”; “distance learning”; “online learning”; “blended learning”; “nursing education” and nurs*. The search strategy is below should you wish to replicate the search:

133.%20HDAS%20Strategy%20Blended%

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