Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Nurse Education in Practice 44 (2020) 102775

Contents lists available at ScienceDirect

Nurse Education in Practice

journal homepage: www.elsevier.com/locate/nepr

Review

Blended learning via distance in pre-registration nursing education: A scoping review

Tanisha Jowsey[a,*], Gail Foster[b], Pauline Cooper-Ioelu[c], Stephen Jacobs[d]

[a] Centre for Medical and Health Sciences Education, The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand
[b] School of Nursing, Otago Polytechnic, Private Bag 1910, Dunedin, 9016, New Zealand
[c] Learning Technology Unit, Faculty of Medical and Health Sciences, The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand
[d] School of Nursing, Faculty of Medical and Health Sciences, The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand

ARTICLE INFO

Keywords:
Blended learning
Pre-registration
Learning
Distance learning
Satellite campus
Literature review

ABSTRACT

Prior to the Covid-19 global pandemic, we reviewed literature and identified comprehensive evidence of the efficacy of blended learning for pre-registration nursing students who learn across distances and/or via satellite campuses. Following a methodological framework, a scoping literature review was undertaken. We searched six databases (EBSCOHOST (CINHAL plus; Education research Complete; Australia/New Zealand Reference Centre); Google Scholar; EMBASE (Ovid) [ERIC (Ovid); Medline (Ovid)]; PubMed: ProQuest Education Journals & ProQuest Nursing & Allied Health Source) for the period 2005–December 2015. Critical appraisal for critiquing qualitative and quantitative studies was undertaken, as was a thematic analysis. Twenty-eight articles were included for review, which reported nursing research (n = 23) and student experiences of blended learning in higher education (n = 5). Four key themes were identified in the literature: active learning, technological barriers, support, and communication. The results suggest that when delivered purposefully, blended learning can positively influence and impact on the achievements of students, especially when utilised to manage and support distance education. Further research is needed about satellite campuses with student nurses, to assist with the development of future educational practice.

1. Background

Blended learning is the new educational kid on the block (Bliuc et al., 2007) and in the context of pandemic Covid-19 it is suddenly paramount to education. Internationally, we have seena move towards blended learning in major tertiary institutions, including those offering nursing education. New Zealand's tertiary education pre-registration Bachelor of Nursing (BN) programmes, for example, have been quick to develop blended learning approaches to meet the technological and practical learning needs of students (Meyer et al., 2014). Some tertiary education institutions in New Zealand are accredited to offer nursing programmes at sites that are separate from the main campus and these exist as 'satellite campuses' (Nursing Council of New Zealand, 2015). Covid-19 and resulting global emergency lockdowns have instigated a sudden need for learning to be blended across professions and institutions internationally. At no time in history has there been such a massive sudden transition towards blended learning. Indeed, the proof manuscript of this article was made available to the authors on day one of New Zealand's national emergency lockdown (26 March 2020).

Staker and Horn (2012) define blended learning as "a formal education programme in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path and/or pace; and at least in part at a supervised brick-and-mortar location away from home" (p. 3). Described as a mixture of technology-enhanced learning experiences combined with more traditional learning experiences, blended learning entails integration of both face-to-face interaction and technologically mediated interaction between students, teachers and learning resources (Bliuc et al., 2007; McGarry et al., 2015).

As stakeholders reconsider how to best utilise online learning, educationalists likewise have opportunities to revisit underlying assumptions around how they teach and how students learn. The rapid pace at which it is evolving - particularly in the context of Covid-19 - demands educationalists keep up with changing technology, theories of learning and the changing educational needs of learners (Poon, 2013). Successful approaches to designing blended learning environments

* Corresponding author. Centre for Medical and Health Sciences Education, The University of Auckland, Private Bag 92019, Auckland, 1142, New Zealand.
E-mail addresses: t.jowsey@auckland.ac.nz (T. Jowsey), gail.foster@op.ac.nz (G. Foster), p.cooper-ioelu@auckland.ac.nz (P. Cooper-Ioelu), s.jacobs@auckland.ac.nz (S. Jacobs).

https://doi.org/10.1016/j.nepr.2020.102775
Received 5 October 2018; Received in revised form 15 January 2020; Accepted 16 March 2020

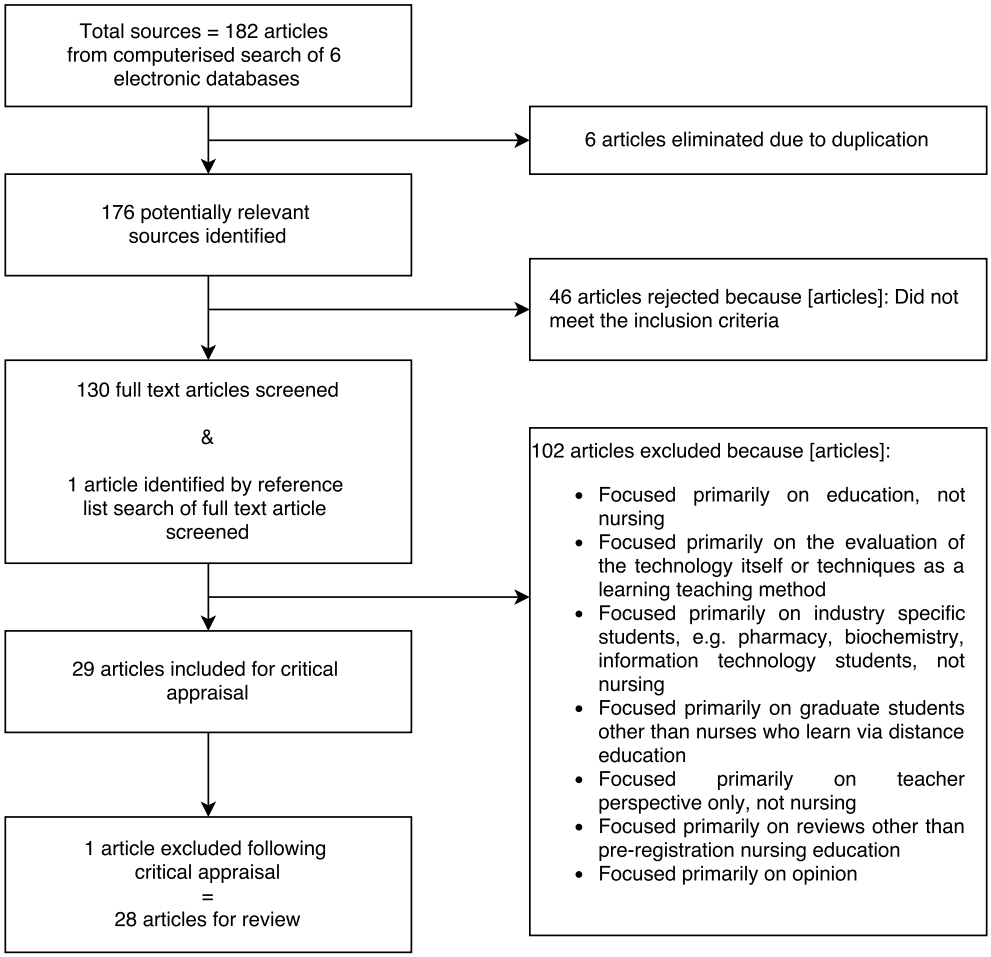

Fig. 1. Article selection process.

focus on providing students with high quality teaching experiences and involve the use of techniques to promote active learning (Herrington and Oliver, 2003).

Active learning can be defined as "any instructional method that engages students in the learning process" (Prince, 2004, p. 223). It is based on the assumption that it is when students actively construct knowledge, through their participation, that learning is most effective. It is precisely when the student 'does' – when for example, they are asked to synthesis, evaluate and create – that opportunities for higher order thinking arise and deep learning and retention is most likely to occur (Biggs and Tang, 2007). Active learning techniques include engaging with learning materials in authentic and simulated environments, group and project work, case-based and problem-based learning, and collaboration with other students (Zepke et al., 2010). Active learning encourages participation, interaction and student engagement but also requires effective teaching practice (Vaughan et al., 2013).

In this review we ask: are some approaches to blended learning via distance/satellite campuses in pre-registration nursing more effective than others? If so, what elements can inform the development of other blended learning environments in nursing? Does the literature cover perspectives and experiences of student nurses who learn via blended learning and distance education?

The literature of core interest comprised any type of study concerning student nurses who engage with blended learning via distance education. These questions are particularly poignant as more schools and institutes rapidly consider the value of developing partial or fully online courses within pre-registration Bachelor of Nursing programmes.

2. Methods

2.1. Design

A methodological framework following Arskey and O'Malley (2005) was used as a technique to map relevant literature. Scoping studies represent an approach to reviewing research evidence to contextualise knowledge in terms of:

- Examining the extent, range, and nature of research activity
- Determining the value for undertaking a full systematic review
- Summarising and disseminating research findings
- Identifying research gaps in the existing literature (Arskey & O'Malley, 2005).

2.2. Search strategy

Computerised searches of six electronic databases EBSCOHOST (CINHAL plus; Education research Complete; Australia/New Zealand Reference Centre); Google (Google Scholar); EMBASE (Ovid); ERIC (Ovid); Medline (Ovid); PubMed: ProQuest Education Journals & ProQuest Nursing & Allied Health Source were carried out in January 2016 of studies published between 2005 and 2015. Specific search terms (and derivatives) were used: Blended learning/education AND student nurse AND digital/online AND experience (distance education, distance learning, e-learning, online learning, digital learning, branch campus, off-site campus, satellite, virtual campus, student engagement, student nurse experience and/or perception).

Limitations applied to: (a) ProQuest Education Journals whereby

the date was limited to 2012 onwards; and (b) Google Scholar, whereby the first page of hits were searched (10 references). These selection methods were applied due to the sheer volume of potentially relevant hits. Reference list scrutiny and hand-searching of key journal articles were also undertaken.

2.3. Inclusion/exclusion criteria

All studies were assessed against the inclusion/exclusion criteria listed below. Studies imported into bibliography software [Endpoint] were systematically stored in groups linked to the database of origin. These studies were screened using a three stage process to determine inclusion or exclusion for review: (1) Initial scan of the title; (2) Abstract viewed; and (3) Full text viewed.

The inclusion criteria incorporated: (a) Publication after 2005; (b) Published in a peer-reviewed journal; and (c) Content related to the topic identified in the search term. Exclusion criteria incorporated: (a) Content unrelated to the topic; (b) Lack of original data; and (c) Text not written in English.

2.4. Search outcome

A total of 182 citations retrieved had their titles and abstracts reviewed using the study eligibility form derived from the inclusion criteria, and resulted in full copies of 29 studies for appraisal and final review (Fig. 1). Literature that focussed on student nurse perspectives related to nursing education in the Australasian context was of particular interest. A range of evidence was found (Table 1), most of the literature was primarily situated within the discipline of nursing education (n = 23). Five studies were from higher education literature (Ballantyne, 2012; Bliuc et al., 2007; Owens et al., 2009; Poon, 2013; Zepke et al., 2010). Three literature reviews were included (Bliuc et al., 2007; Mancuso-Murphy, 2007; McCutcheon et al., 2014). Six studies focused on blended learning approaches for nurses within Australasian settings (Creedy et al., 2007; Dorrian and Wache, 2009; Hylton, 2005; Meyer et al., 2014; O'Flaherty and Timms, 2015; Watt and Pascoe, 2013). However, no studies reported on satellite campuses, distance education and pre-registration Bachelor of Nursing (BN) programmes in New Zealand (Table 2).

2.5. Quality appraisal

All 29 studies identified were appraised for methodological quality using the Crombie Model for critiquing qualitative or quantitative research (Glasper and Rees, 2013). Whilst not essential in a scoping study (Dijkers, 2015), critical appraisal involved the use of a series of questions to act as a process or framework to analytically judge studies for their "trustworthiness, value and relevance in a particular context" and culminated in a critique of the objective/s, method/s, result/s and conclusion of each research article (Glasper and Rees, 2013: 138). Exclusion of one study occurred due to lack of trustworthiness; this left 28 studies to review and summarise.

2.6. Thematic analysis

General purpose thematic analysis of the 28 included articles was undertaken. This process was led by the first and second authors (TJ, GF). We followed Jowsey (2016) in our thematic analysis process; first grouping and checking data, second identifying and synthesising themes, and third member check by other authors (SJ, PC-I). This third step serves to minimise the potential for bias to inform the findings. We acknowledge that all four authors do have teaching experience on blended learning programmes and as such we have inherent biases about blended learning that may have informed the way we interpreted the research findings. Seeking group consensus on the themes was a strategy used to minimise the potential for bias to inform the findings. A consensus on themes was reached between all authors. These methods are in alignment with Savin-Badin and Howell-Major (2013).

3. Findings

Over one third of the identified literature came from New Zealand and Australia (11/28). Five studies came from North America (Table 1). Several qualitative and quantitative methods are represented in the literature, such as questionnaires (including two longitudinal studies), interviews, focus groups, and case studies. One mixed method systematic review was included (McCutcheon et al., 2014). Literature examined student satisfaction with types of teaching methods utilised (such as podcasts, reading material, online journaling), training support for teachers, barriers and facilitators to student engagement, motivations, lifeworlds, asynchronous learning valued, and student self-efficacy and confidence. Four key themes were identified in the literature (Table 2): (1) Active learning; (2) Technological barriers; (3) Support; and (4) Communication.

3.1. Active learning

Research suggests blended learning pre-registration nursing students find it challenging to engage with "active" teaching methods such as collaboration and online activities. While authors such as Owens et al. (2009) identified the importance of the active learner to the success of their learning programmes, they also noted the challenges to engaging with teaching and learning materials in an online environment. As described earlier, engaging actively in the learning process is a key determinant of success in blended learning environments; how the student chooses to engage with set learning activities impacts on overall experience and perception of a programme (Owens et al., 2009).

Literature reported students lacked confidence with components of blended learning due to being unfamiliar with it as a learning model, often commencing a programme with little or no prior experience of blended learning (Johansen et al., 2012). A further barrier to student active learning was the way programmes explained components of blended learning to students (or did not). For example, Poon found blended learning was not sufficiently explained to students in their module handbook, nor had tutors "explicitly mentioned it" (2013: 279).

Conversely, student confidence in engaging as active learners in blended learning programmes was reportedly increased when students felt valued. Such feelings, fostered through programmes that offered students a sense of 'belonging' to a satellite campus, created confidence (Ballantyne, 2012). Student confidence, satisfaction, and motivation to engage in blended learning programmes increased as students interacted and they became more familiar with their programme (Gagnon et al., 2013; Owens et al., 2009; Smyth et al., 2012). Interactions such as: collaboration with peers, adjustment to the learning role, and comfortableness with the academic learning environment once orientated to learning programmes increased confidence over time (Foronda and Lippincott, 2014; Hylton, 2005; Johansen et al., 2012).

The second significant challenge to student active learning via blended learning programmes was that of distance. Owens et al. (2009) reported students that enrolled at a satellite campus or remote location setting experienced isolation – not from social disengagement but in terms of learning support – which was a barrier to actively engaging with online learning activities (Owens et al., 2009). Owens noted factors that seemed to mitigate the impact of distance on student engagement in active learning included: flexibility of the programme (students could learn when they wanted to), effective communication tools such as phones and internet; online technologies for course delivery and feedback, the level of self-motivation, and student time management in order to achieve work-life balance (Owens et al., 2009).

Table 1
Summary of included studies regarding blended learning, distance education and nurse education.

Author(s) (year) Country	Method and research design	Aim(s) of study	Sample	Relevant/key findings
Australasian context				
[a] Ballantyne (2012) Australia	Focus group interview	To explore the experiences of mostly mature age students at a satellite campus	N = 14 students enrolled at university satellite campus - Faculty of Education (First year)	Perspectives were identified and grouped into themes of; commitment; a desire to engage in dialogue; and a sense of ownership. This was further recognised as; feeling valued with more meaningful relationships and a degree of ownership associated with an attitude of give and take.
[a] Bliuc et al. (2007) Australia	Review of empirical research	To clarify the nature and scope of blended learning and review experiences of blended learning	Higher Education Approximately 300 papers met initial database search, further refined (Final number not identified).	The review found that definitions of blended learning were not agreed upon and that a consensus on definition is needed. Future research needs to focus more holistically on blended learning.
Creedy et al. (2007) Australia	Survey	To examine graduating BN students perceptions of a web-enhanced learning environment, their computer literacy skills, & the use of technology and how these influenced their satisfaction	N = 170 nursing students studying a BN at 3 universities (Third year) 64% response rate	One third of students were competent in computer skills upon entering programme. One quarter of students were competent with basic computer literacy skills. One fifth of students had limited experience/no experience with computer literacy. Conclusion: Greater attention to the assessment and development of students' information literacy skills is required.
Dorrian and Wache (2009) Australia	Course evaluation	To identify areas requiring change in an on-line delivery course for nursing students at two campuses.	N = 1912 nursing and midwifery students studying a BN and Bachelor of Midwifery (First year)	The student nurses actively engaged with learning when motivation and innovation through interpersonal skills of the educators and reliability of the technologies were appropriate. Communication to reduce anxiety and resistance to innovation, and formal/informal evaluation processes included continued system development.
Hylton (2005) New Zealand	Exploratory descriptive focus group interview	To examine the factors that assisted or hindered transition from Enrolled Nurse to Registered Nurse	N = 10 nursing students studying a BN & N = 6 teachers teaching the BN	Relearning how to learn was the main barrier and/or catapult for nurses who transitioned from one scope of practice to another within a rural context.
Meyer et al. (2014) New Zealand	Online survey	To evaluate student experiences with blended learning with the focus on development and delivery across schools	N = 76 Bachelor students studying across an identified tertiary institution from – nursing, business, computing schools (semester 1, n = 34 & semester 2, n = 42) (First year)	Tertiary students including BN determined that blended learning tutors need more training specifically on how to use technology in their teaching practice. Overall, students felt that insufficient orientation to blended learning occurred, they rated their overall learning experience as poor to average stating that it was difficult to study online when library support, tutor experience and the fact that they did not see the tutor were disengaging.
Milne et al. (2014) New Zealand	Descriptive Survey	To gain an understanding of the impact of flexible delivery on student engagement	N = 54 midwifery students studying a Bachelor of Midwifery programme (First year and second year)	Student midwives at both a main city campus and regional learning hubs identified skill with flexible learning, learning experiences, and engagement as important factors that influence their interaction with synchronous learning. Limitations: small study, possibly an underestimation of student's perception?
O'Flaherty and Timms (2015) Australia	Mixed Methodology	To collate the information from course evaluation/student satisfaction/student engagement/student grades/student retention rates and measure whether student engagement is a success with the bioscience course.	N = not identified. Nursing and Midwifery students studying a bioscience course (2006–2013) (First year).	Student satisfaction was correlated with the use of new initiatives such as podcasts, videos, quizzes, and case studies. Further initiatives were introduced to engage students fully with their learning from 2012, e.g., online learning and assessment tool, virtual classroom and peer mentoring. Minimal evidence to support the need for further new initiatives.
[a] Owens et al. (2009) Australia	Interview Descriptive	To investigate the experiences of current and former remote students; To suggest strategies to support remote students and enable them to successfully complete their courses	N = 49 previous undergraduate and post graduate students who had studied through 1 university from remote locations from 2003 to 2007. Response rate 72%	Distance education students were primarily concerned with personal aspects related to studying, and how the use of technology and course delivery enabled them to have contact with staff. This group of students were concerned with

(*continued on next page*)

Table 1 (*continued*)

Author(s) (year) Country	Method and research design	Aim(s) of study	Sample	Relevant/key findings
				infrastructure, support and course content and how this influenced their learning. They made suggestions for studying as a remote student to make it a successful experience.
Watt and Pascoe (2013) Australia	Interpretive descriptive interview	To explore graduate nurses perceptions of their preparedness for practice after undertaking the final year of their BN in the same hospital where their BN programme was situated.	N = 10 new-graduate registered nurses	The new-graduate registered nurses found value in being situated in a clinical school within the hospital, they described it as the university away from the university. This assisted them with their engagement with nursing practice and preparedness for nursing practice.
[a] Zepke et al. (2010) New Zealand	Case study Questionnaire	What is student engagement? How do teachers, external factors & student motivation influence it? Overview paper	N = 1246 responses from students at 9 different types of tertiary institutions offering Higher Education Response rate 14.5%	Student Engagement – a complex construct whereby tertiary students identified major influences such as the teachers, the students own motivation and external factors. Many students viewed motivation as second to the influence of teachers with student engagement. Limitations: Not representative of national sample.
Other – United Kingdom, European, North American, American & African context				
Bruce et al. (2010) Sweden	Longitudinal study Questionnaire	To examine whether student engagement is an important indicator for the successful handling of stressors in everyday academic life	N = 1334 nursing students studying BN across 24 Universities (Second year)	Student nurses report being more actively engaged during their education, but differences in levels of engagement within subgroups of students depended on the type of institution, age and gender of student, previous training, and student's self-rated health were identified. Low levels of student engagement may lead to unhealthy student behaviour and the need to nurture student engagement was reported. Limitation: Inconclusive about the interaction effect between stress experienced by nursing students and their level of engagement.
Coose (2010) Alaska	Longitudinal study Mixed survey	To explore the benefits, problems associated with, and the effectiveness of educational delivery methods used in a nursing programme.	N = 165 (n = 94 distance & n = 71 on campus) nursing students studying an Associate degree nursing programme (Final year) Response rate 90%	Distance student nurses perceptions of the benefits associated with their educational delivery methods were significantly different from that of their peers on campus. Location was perceived as a major benefit, as was the benefits related to technology and/or increased competence with the use of technology.
Dacanay et al. (2015) Unites States of America	Descriptive study Survey	To identify factors that contributed to student success at the nursing distance education program at one American university	N = 47 registered nurses studying a BN (Second year)	The responses from student nurses yielded extrinsic and intrinsic factors related to attrition and persistence. Factors such as personal goals, professional goals, role stress related to the rigor of academic requirements, work demands, and time demands were identified as challenges to promote optimal student success.
Davies et al. (2015) Ghana (West Africa)	Questionnaire self-administered	To find out what nurses thought was distance learning education, their views on its effect & its role in contemporary nursing	Convenient N = 162 nursing students studying a BN (First year) Response rate 84%	Two-thirds of participants had never experienced an online or blended approach to course delivery. Participants responded that online courses had easier course workload; and that, convenience of coordinating schedule of work, family & school activities occurred. Factors related to the success of online course delivery were computer, information technology skills and learning preferences.
Foronda and Lippincott (2014) Unites States of America	Qualitative Narrative	To explore the experience of nurse education certificate students who use the *Collaborate* platform for interactive synchronous video conference within online courses	N = 43 registered nurses enrolled on a Master's programme Response rate 80%	The post-graduate nurses perceived enjoyment, flexibility/ convenience, interaction, comparable or better than face-to-face, and technological problems as key categories that affected their experience with videoconferencing.
Gagnon et al. (2013) Canada	Two-group RCT	To assess the effectiveness of a blended learning strategy in an introductory research course on three outcomes: students' knowledge, satisfaction and self –directed learning.	N = 112 nursing students (First year)	Nursing students perceived that blended learning had no direct impact on knowledge acquisition, satisfaction, and self-directed learning. However, motivation and the teaching method had an interaction effect on knowledge acquisition. Motivation was also positively associated with satisfaction.

(*continued on next page*)

Table 1 (*continued*)

Author(s) (year) Country	Method and research design	Aim(s) of study	Sample	Relevant/key findings
Hyde and Murray (2005) Ireland	Qualitative Interview	To examine nurses experiences of undertaking distance education programmes	Purposive N = 15 registered nurses who had completed distance education in nursing	Lifeworld lamented, lifeworld experiences, lifeworld ceded, and learning within a bounded system were identified as important concepts for Irish registered nurses when undertaking distance education.
Johansen et al. (2012) Norway	Descriptive design Semi-structured questions Focus group	To reveal those factors which either challenged or facilitated participants learning. To address the gap in qualitative research by investigating the experience of a cohort of Norwegian registered nurses and blended learning	N = 6 registered nurses undertaking post graduate course in wound management through blended learning	Post-graduate nurses identified: a) Personal challenges or facilitators, and b) Academic challenges or facilitators as two overarching themes that required strategies to enable their success. Being overwhelmed, academic demands, feeling powerless to institute change, getting to grips with technology and academic demands, information technology help at home, and academic milieu were concepts identified within the two main themes and students expected to better informed about the necessary computer requirements and the academic and literacy skills to enable their success with learning.
Lyons and Evans (2013) United States of America	Case study	To investigate if using the blended learning strategy of discussion boards enhanced the learning experience	Convenient N = 46 nursing students (semester 1 n = 20 & semester 2 n = 26) Each group had different teacher	Value with asynchronous online learning, especially for adult learners working full-time jobs.
Mampunge and Seekoe (2014) South Africa	Explorative descriptive Focus group Interview	To describe the experiences of final year students at a public college of nursing, regarding their preparedness to become registered nurse	Purposive N = 27 nursing students studying a comprehensive course leading to registration (Fourth year/Final year)	Student nurses were concerned with their competency and preparedness to become a registered nurse due to: a) Inadequate theoretical preparedness for the professional nurses role related to curriculum related aspects, communication problems, library, equipment, and b) Adequate preparedness to assume the professional nurses role such as role competency.
Mancuso-Murphy (2007) United States of America	Integrative review	To ascertain the student perspective of distance education	N = 12 research studies & 2 doctoral dissertations 2001–2006 Nursing literature	The review identified a general consensus by nursing students who cited convenience, accessibility, and flexibility as positive aspects of distance education, whereas technology can be an issue. Students identified communication, interaction, faculty, and feedback as important for success, this included professional socialisation and the need to be motivated, self-directed, and active participants in the learning process.
McCutcheon et al. (2014) United Kingdom	Mixed method Systematic Review	To determine whether the impact of online or blended learning paradigm has the potential to enhance teaching of clinical skills in undergraduate nursing	N = 19 research studies 1995–2013 Nursing literature	The review synthesised qualitative and quantitative studies, four outcomes or categories surfaced: a) Performance/clinical skills b) Knowledge c) Self-efficacy/clinical confidence d) User experience/attitudes/satisfaction The available evidence suggested that blended learning for teaching clinical skills was no less effective than traditional means with the exception of 3 studies. The review identified a lack of international data on blended learning to teach clinical skills and that further research with robust methodology to close the gap in the evidence of online learning and clinical skill development is required.
Moule et al. (2010) United Kingdom	Focus Group & Interview	To capture student experiences of e-learning at multiple sites	Purposive N = 41 nursing students & N = 35 higher education staff were interviewed	The nursing students and educationalists were concerned with the pedagogic use of e-learning and described factors that inhibited use, and factors that facilitated use when striving to attain a constructivist learning approach.
Munich (2014) Canada	Case study	To identify supports beyond the educator that contributed to undergraduate and graduate nursing students ability and motivation to learn online	N = 29 students (Case study 1: n = 6 undergraduate nursing students; Case study 2: n = 13 graduate students in a pharmacology course; Case study 3: n = 10 graduate students enrolled in a philosophy nursing course).	Students perceived that several types of support occurred at once and these often overlapped in different components when learning online. Different types of social support from family and colleagues that benefitted students were: a) Informational (advice or information to assist decision-making).

(*continued on next page*)

Table 1 (*continued*)

Author(s) (year) Country	Method and research design	Aim(s) of study	Sample	Relevant/key findings
				b) Instrumental (the act of providing practical help and resources). c) Emotional (concern or compassion either online from their peers or offline from their families). d) Affirmational (positive feedback about the persons behaviours and decisions).
[a]Poon, J (2013) United Kingdom	Case study Semi-structured interview & questionnaire survey	To examine the benefits that blended learning provides to learning experiences at an institution	N = 260 undergraduate students (questionnaire) & N = 9 academic staff (interview).	The beneficial factors identified for learning experiences involving blended learning included detail related to the availability of resources and involved clear communication and guidance.
Smyth et al. (2012) Ireland	Interpretive descriptive Focus group Semi structured interview	To describe post graduate nursing students experiences of participating on blended learning programmes in an Irish University	N = 51 registered nurses Response rate 35%	Registered nurses expressed many benefits and challenges with blended learning; identifying accessibility and flexibility, sense of autonomy and responsibility, and valued adult learning approaches, and application to practice as it enhanced and benefitted their learning. They also expressed challenges – such as the need to fit in time for learning around family and work commitments and technological problems. The invasiveness of the online study in everyday life was also reported as a challenge (this has not been previously identified in other research findings).
Zolfaghari et al. (2013) Iran	Participatory action research	To assess the outcomes of the blended learning program.	N = 181 nursing and midwifery students & N = 17 instructors (excluded were students who were in semester 1&2 of their BN).	Students of nursing and midwifery have high regard for blended learning but some technological aspects influenced their learning. Increased grade point average (GPA) and participation was significantly higher in blended learning rather than face-to-face method.

BN = Bachelor of Nursing.

Note.

[a] Higher education [not specifically nursing] research.

Table 2
Themes and Subthemes identified from the reviewed studies.

Theme	Subtheme
Active learning	Familiarity and confidence with blended learning
	Challenges posed by distance education
Technological barriers	Challenges with information technology
Support	Stress
	Motivation
Communication	Student peer, role of

3.2. Technological barriers

Challenges with information technology were reported. Barriers, such as inadequate infrastructure to support effective use of computers and tablets, were challenges experienced by users, along with low confidence and satisfaction when learning online when their internet and computer skills were weak (Dacanay et al., 2015; Davies et al., 2015; Hyde and Murray, 2005; Mancuso-Murphy, 2007; McCutcheon et al., 2014; Milne et al., 2014; Zolfaghari et al., 2013). Comfortableness with technology, such as videoconferencing or Learning Management Systems (LMS) [for example, Moodle, Canvas or Blackboard], was also a key issue, as the learning experiences required full orientation to the technology platform for synchronous and asynchronous learning (Dacanay et al., 2015; Foronda and Lippincott, 2014; McCutcheon et al., 2014; Milne et al., 2014; O'Flaherty and Timms, 2015).

Literature also detailed student expectations in relation to their teacher and the technology used for teaching. Teachers were expected to be competent with technology and keep the infrastructure, such as facilitation of discussion boards, functioning purposely and effectively (Coose, 2010; Dorrian and Wache, 2009; Meyer et al., 2014). When technical issues arose, students believed that it was the prime responsibility and role of the teacher to find a timely solution to these issues (Meyer et al., 2014). Student ability to find their own way with technology influenced performance, motivation, and their ability to engage with self-directed learning tasks (Smyth et al., 2012).

3.3. Support

Student support was frequently noted in literature as being crucial for student success. When self-regulation was not well-managed or controlled, blended learning negatively impacted everyday life (Smyth et al., 2012). Given the rigor of academic requirements and high occurrences of issues such as anxiety, dissatisfaction, stress, resistance to innovation, isolation, and attitudes related to transitional changes - support was reported as an indicator of student achievement (Bruce et al., 2010; Dacanay et al., 2015; Dorrian and Wache, 2009; Poon, 2013). External mechanism of support and other forms of socialisation influenced student focus and completion. Family support, for instance, was reported as having an effect on reducing learner stress, as did the role of supportive peers and colleagues (Lyons and Evans, 2013; Munich, 2014; Zepke et al., 2010). Learners who maintained multiple roles in addition to their studies (such as breadwinner or primary informal caregiver) reported high levels of stress and personal pressure (Dacanay et al., 2015). This stress increased learner pressure to achieve particularly when participating in clinical learning experiences and preparing for a professional nursing role (Mampunge and Seekoe, 2014; Watt and Pascoe, 2013).

The second significant factor influencing support was motivation, which strongly correlated with the roles of the facilitators and other students throughout the duration of a course or programme. Students have been shown to take responsibility for their own learning and engage with active learning when their motivation for success is supported with actions such as face-to-face or online interaction such as discussion board activities, online conferencing, and group work (Gagnon et al., 2013; Owens et al., 2009; Zepke et al., 2010; Zolfaghari et al., 2013). Students also reported that they felt supported and motivated when the teacher took the time to provide regular constructive feedback and gave the impression that they were invested in the overall quality of learning (Zepke et al., 2010).

3.4. Communication

Positive communication was reported in literature in terms of interactions with the academic institution, peer-to-peer interaction, and in face-to-face contact with teaching staff during learning experiences. From the student perspective, communication was least effective when communication between teaching staff and students was restricted to an online setting (Poon, 2013). Literature reported a need for open and prompt communication to reduce anxiety and minimise resistance to online learning, and the importance of communication when implementing innovative teaching strategies (Dorrian and Wache, 2009). Furthermore, if a student perceived a lack of direct contact and communication with staff, it affected their interaction, orientation and focus to studies, which, in turn, impacted negatively on assessment and feedback (Owens et al., 2009). On the whole, literature positively reported on communication strategies that promoted support mechanisms for learning, such as online discussion boards, forums and interactive videos and responses to course evaluation (Dorrian and Wache, 2009; Lyons and Evans, 2013; Meyer et al., 2014; O'Flaherty and Timms, 2015).

The role of peer support between students and the use of effective communication when engaging in active learning were identified as important (Coose, 2010). Reliably reported were factors associated to a lack of consistent feedback, or lack of immediate response from the academic institution. Students counteracted these difficulties by taking initiative and responsibility for their own learning, primarily by seeking encouragement or comments from their peers (Lyons and Evans, 2013). Similarly reported was the value associated with engaging in dialogue, especially when having difficulty engaging with particular parts of a course (Ballantyne, 2012; O'Flaherty and Timms, 2015).

4. Discussion

The wide variation of language used to describe educational constructs, such as 'blended learning', 'distance education' and 'distance learning' speak to the continued evolution of this area of education. As a relatively young specialisation – particularly as applied in nursing studies – terminology, theoretical constructs, and methodologies continue to be developed and revised. As ideas around what constitutes effective online learning have changed, so too has the focus of research. With Covid-19, enormous online platforms such as Canvas, Zoom and Google Drive (with over a billion users) are currently critical to supporting variously engaged blended learning. Teachers and students alike are dependant on strong stable internet connections and the continued successful running of such platforms.

The data explored in this scoping study highlighted the lack of available evidence about student nurses who learn at a site known as a 'satellite campus' via distance and blended learning approaches. Much of the research examined student nurse perceptions of learning through specific flexible delivery modes.

Research parameters have evolved largely due to the development of new models of online learning, which, in turn, have influenced research agendas (Anderson, 2008; Herrington and Oliver, 2003; Sims, 2015). For example, older studies focussed on 'principles for good practice' in undergraduate education (Chickering and Gamson, 1987), and have tended to obsess over whether there was a significant difference between online learning and face-to-face learning (Russell, 1999). Recent studies are more nuanced, and have explored learning from a 'micro' perspective focusing on elements that have fostered and inhibited learning. Therefore these studies emphasize 'interaction' and 'engagement' in an online setting (Vaughan et al., 2013). Literature also

showcases exponential development of blended learning in nursing education over the past 20 years.

Many factors contribute to effective learning in an online setting, including the design of learning activities, technical issues, support mechanisms and communication strategies (student-teacher and student-to-student). The construction of any learning environment needs also to be purposeful and well designed to effectively stimulate learning and adequately prepare undergraduate nurses for clinical practice. The role of communication (also called teaching presence) to effectively promote or inhibit learning is well documented (Anderson, 2008; Hollingshead, 1998; Chant et al., 2002; Schaefer et al., 2003). In an online setting effective communication strategies must be 'built in' to the design and cannot be assumed as in face-to-face settings. When communication strategies are not well-defined nor appropriately utilised, restrictions to synchronous and asynchronous learning occur. Conversely, when communication is effective, relationships between the student and the staff are optimised and student satisfaction is increased.

The findings indicate that student achievement improves when students are confident, and have support with information technology. This aspect of the learning experience is of particular importance to the success of any blended learning experience as it reduces other barriers for students, particularly around accessibility and flexibility. With adequate support, students are able to learn at a time and place which is convenient to them and benefit from online collaboration with teachers and peers. The findings suggest also that students who learn at a site other than the main education campus favour learning by distance when the location for learning helps them to achieve a work/life balance (Owens et al., 2009).

Reducing face-to-face class time in favour of online learning has its disadvantages. The literature reported that flexibility and lack of structure can cause tensions – other commitments around family and work have been shown to produce high stress levels and correlate with non-completion (Bennett, 2003). Purposeful design of learning environments offers a solution as it enables educators to ensure that they are not unnecessarily overloading students with content that is not focused on achieving the outcomes of the course. Moreover, utilising techniques such as avoiding cognitive (over)load and calculating task completion times can influence how students engage with content in an online setting. There is a further need to examine in more detail innovative strategies to support students – especially those with external constraining circumstances – to engage effectively with blended approaches while achieving work/life balance (Foster, 2016).

Clearer definitions of what constitutes effective blended approaches to learning are necessary. This becomes clear in the case of online learning environments, for example, which need to be approached differently to face-to-face settings. The literature calls for educationalists to approach their teaching and learning materials differently than they do in face-to-face settings; educators need to scaffold students through learning activities, build in teacher presence and collaboration, and make transparent teaching and learning strategies (Vaughan et al., 2013). Online courses are ineffective when viewed simply as repositories of course materials. As this is a new and emerging field of education, educators also need to be willing to contribute to the scholarship of teaching and learning by documenting and researching their innovations. In other words, effective learning in an online setting requires that teachers take advantage of the unique opportunity technology offers, exploit these aspects, and measure and disseminate their impact (Richlin, 2001).

Implicit in these results is the observation that nurse educators will need to be significantly upskilled so that they are adequately prepared to teach effectively in an online setting. This will require time and resources not just for study and reflection but to implement, evaluate, and refine courses offered as part of any undergraduate nursing studies curriculum. While this may be a difficult feat with current pressures to build research profiles and engage in other university work, it will likely have a significant impact on the quality of online courses and blended learning programmes. This upskilling could also push the development of effective nursing pedagogies, as well as theoretical and methodological aspects of online teaching.

4.1. Review limitations

No research was found about the effects on learning when the main education campus, in its physical sense, is not readily accessible to student nurses. Minimal evidence explored the student nurse experience of learning from their perspective. Birks et al. (2011: 25) explain stating: "many universities have evaluated course curricula and these results remain unpublished." The included articles of this review come from many regions of the world, and multiple methods are represented therein. The findings are highly generalizable.

5. Conclusions

In this scoping review the evidence suggests that when blended learning is delivered purposefully and effectively in terms of managing and supporting student active learning, it positively influences the achievements of students. We conclude that educationalists need awareness of these positive effects as much as of the challenges that blended learning students face. It is likely that with the construction and development of online theories of learning, that the quantity and quality of research around blended learning in nursing studies will increase also. There is an absolute need for strong definitions, scholarship of teaching, and reflection on blended learning to make sure a robust body of literature is available to support effective future courses for students in nursing and other professions.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.nepr.2020.102775.

References

Anderson, T., 2008. Chapter 2: towards a theory of online learning. In: Anderson, T. (Ed.), The Theory and Practice of Online Learning. Athabasca University Press, Athabasca, pp. 33–60.

Arskey, H., O'Malley, L., 2005. Scoping studies: towards a methodological framework. Int. J. Soc. Res. Methodol. 8 (1), 19–32. https://doi.org/10.1080/1364557032000119616.

Ballantyne, J., 2012. Valuing students' voices: experiences of first year students at a new campus. International Journal of Pedagogies and Learning 7 (1), 41–50. https://doi.org/10.5172/ijpl.2012.7.1.41.

Bennett, R., 2003. Determinants of undergraduate student dropout rates in a university business studies department. J. Furth. High. Educ. 27 (2), 123–141. https://doi.org/10.1080/030987703200065154.

Biggs, J., Tang, C., 2007. Teaching for Quality Learning at University, third ed. Open University Press, Berkshire, England ISBN: 10 0 335 22126 2.

Birks, M., Cant, R., Al-Motlaq, M., Jones, J., 2011. "I don't want to become a scientist": undergraduate nursing students' perceived value of course content. Aust. J. Adv. Nurs. 28 (4), 20–27.

Bliuc, A.-M., Goodyear, P., Ellis, R.A., 2007. Research focus and methodological choices in studies into students' experiences of blended learning in higher education. Internet High Educ. 10 (4), 231–244. https://doi.org/10.1016/j.iheduc.2007.08.001.

Bruce, M., Omne-Pontén, M., Gustavsson, P.J., 2010. Active and emotional student engagement: a nationwide, prospective, longitudinal study of Swedish nursing students. Int. J. Nurs. Educ. Scholarsh. 7 (1). https://doi.org/10.2202/1548-923X.1886.

Chant, S., Jenkinson, T.I.M., Randle, J., Russell, G., 2002. Communication skills: some

problems in nursing education and practice. J. Clin. Nurs. 11 (1), 12–21. https://doi.org/10.1046/j.1365-2702.2002.00553.x.
Chickering, A.W., Gamson, Z.F., 1987. Seven principles for good practice in undergraduate education. AAHE bulletin 3, 7.
Coose, C.S., 2010. Distance nursing education in Alaska: a longitudinal study. Nurs. Educ. Perspect. 31 (2), 93–96. Retrieved from. http://ezproxy.auckland.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=50992217&site=ehost-live&scope=site.
Creedy, D.K., Mitchell, M., Seaton-Sykes, P., Cooke, M., Patterson, E., Purcell, C., Weeks, P., 2007. Evaluating a web-enhanced bachelor of nursing curriculum: perspectives of third-year students. J. Nurs. Educ. 46 (10), 460–467. Retrieved from. http://ezproxy.auckland.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=26801852&site=ehost-live&scope=site.
Dacanay, A.P., Vaughn, S., Orr, M., Andre, J., Mort, K., 2015. Factors contributing to nursing distance education student success. J. Nurs. Educ. Pract. 5 (2), 34–39. https://doi.org/10.5430/jnep.v5n2p34.
Davies, A.E., Amewonye, F., Gross, J., 2015. The role of distance learning in BSc. nursing education. W. Afr. J. Nurs. 26 (1), 36–51.
Dijkers, M., 2015. What is a scoping review? KT Update 4 (1) Retrieved from. http://ktdrr.org/products/update/v4n1/dijkers_ktupdate_v4n1_12-15.pdf.
Dorrian, J., Wache, D., 2009. Introduction of an online approach to flexible learning for on-campus and distance education students: lessons learned and ways forward. Nurse Educ. Today 29 (2), 157–167. https://doi.org/10.1016/j.nedt.2008.08.010.
Foronda, C., Lippincott, C., 2014. Graduate nursing students' experience with synchronous, interactive videoconferencing within online courses. Q. Rev. Dist. Educ. 15 (2), 18. Retrieved from. http://ezproxy.auckland.ac.nz/login?url=https://search.proquest.com/docview/1625397159?accountid=8424.
Foster, G.D., 2016. Pre-registration Nursing Students and Learning via a Satellite Campus in New Zealand: the Lived Experience. MClinEd (thesis). University of Auckland Retrieved from. https://researchspace.auckland.ac.nz/handle/2292/31954.
Gagnon, M.P., Gagnon, J., Desmartis, M., Njoya, M., 2013. The impact of blended teaching on knowledge, satisfaction, and self-directed learning in nursing undergraduates: a randomized, controlled trial. Nurse Education Perspectives 34 (6), 377–382. https://doi.org/10.5480/10-459.
Glasper, A., Rees, C. (Eds.), 2013. How to Write Your Nursing Dissertation. Wiley-Blackwell, Oxford, United Kingdom.
Hollingshead, A.B., 1998. Communication, learning, and retrieval in transactive memory systems. J. Exp. Soc. Psychol. 34, 423–442. https://doi.org/10.1006/jesp.1998.1358. 5.
Hyde, A., Murray, M., 2005. Nurses' experiences of distance education programmes. J. Adv. Nurs. 49 (1), 87–95. https://doi.org/10.1111/j.1365-2648.2004.03267.x.
Hylton, J.A., 2005. Relearning how to learn: enrolled nurse transition to degree at a New Zealand rural satellite campus. Nurse Educ. Today 25 (7), 519–526. Retrieved from. http://www.nurseeducationtoday.com/article/S0260-6917(05)00092-4/abstract.
Johansen, E., Harding, T., Ljosaa, T.M., 2012. Norwegian nurses' experiences with blended learning: an evaluation study. 2-2. Seminar.Net: Media, Technology & Life-Long Learning 8 (1) Retrieved from. http://ezproxy.auckland.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=91689714&site=ehost-live&scope=site.
Jowsey, T., 2016. General Purpose Thematic Analysis Made Easy. Centre for Medical and Health Sciences Education, University of Auckland, Auckland Retrieved from. https://www.fmhs.auckland.ac.nz/assets/fmhs/som/cmhse/docs/Generic%20thematic%20data%20analysis%20made%20easy%20TJowsey2016.pdf.
Lyons, T., Evans, M.E., 2013. Blended learning to increase student satisfaction: an exploratory study. Internet Ref. Serv. Q. 18, 43–53. https://doi.org/10.1080/10875301.2013.800626.
McCutcheon, K., Lohan, M., Traynor, M., Martin, D., 2014. A systematic review evaluating the impact of online or blended learning vs. face-to-face learning of clinical skills in undergraduate nurse education. J. Adv. Nurs. 71 (2), 255–270. Retrieved from. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emed13&AN=25134985.
McGarry, B.J., Theobald, K., Lewis, P.A., Coyer, F., 2015. Flexible learning design in curriculum delivery promotes student engagement and develops metacognitive learners: an integrated review. Nurse Educ. Today 35 (9), 966–973. https://doi.org/10.1016/j.nedt.2015.06.009.
Mampunge, F., Seekoe, E., 2014. Experiences of final-year nursing students at a public college of nursing regarding their preparedness to become registered nurses. S. Afr. J. High Educ. 28 (6), 1929–1942. Retrieved from. http://ezproxy.auckland.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=110022474&site=ehost-live&scope=site.
Mancuso-Murphy, J., 2007. Distance education in nursing: an integrated review of online nursing students' experiences with technology-delivered instruction. J. Nurs. Educ. 46 (6). https://doi.org/10.3928/01484834-20070601-04. Retrieved from.
Meyer, S., Wohlers, S., Marshall, B., 2014. Blended learning: student experiences. In: Hegarty, B., McDonald, J., Loke, S.-K. (Eds.), Rhetoric and Reality: Critical Perspectives on Educational Technology. Proceedings Ascilite Dunedin, pp. 89–98 2014.
Milne, T., Skinner, J., Baird, K., 2014. Survey results of first and second year New Zealand midwifery students' level of engagement in a flexible delivery programme. New Zealand College of Midwives Journal (50), 5–10. https://doi.org/10.12784/nzcomjn150.2014.1.5-10.
Moule, P., Ward, R., Lockyer, L., 2010. Nursing and healthcare students' experiences and use of e-learning in higher education. J. Adv. Nurs. 66 (12), 2785–2795. Retrieved from. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=emed9&AN=20946565.
Munich, K., 2014. Social support for online learning: perspectives of nursing students. International Journal of E-Learning & Distance Education 29 (2).
Nursing Council of New Zealand, 2015. Educational programme standards for registered nurse scope of practice. Wellington, New Zealand. Retrieved from. https://www.nursingcouncil.org.nz/Public/Education/Standards_for_programmes/NCNZ/Education-section/Standards_for_programmes.aspx?hkey=52a51787-905a-481b-a4f7-4007742cbdbe.
O'Flaherty, J., Timms, H., 2015. The implementation of innovative initiatives to enhance distance learning for Australian undergraduate nursing and midwifery students. J. Nurs. Educ. Pract. 5 (1), 107. https://doi.org/10.5430/jnep.v5n1p107.
Oliver, R., Herrington, J., 2003. Exploring technology-mediated learning from a pedagogical perspective. Journal of Interactive Learning Environments 11 (2), 111–126. https://doi.org/10.1076/ilee.11.2.111.14136. Retrieved from.
Owens, J., Hardcastle, L., Richardson, B., 2009. Learning from a distance: the experience of remote students [Electronic version]. J. Distance Educ. 23 (3), 53. Retrieved from. http://hdl.handle.net/10536/DRO/DU:30021696.
Poon, J., 2013. Blended learning: an institutional approach for enhancing students' learning experiences. J. Online Learn. Teach. 9 (2), 271–289. Retrieved from. http://ezproxy.auckland.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=90241779&site=ehost-live&scope=site.
Prince, M., 2004. Does active learning work? A review of the research. J. Eng. Educ. 93 (3), 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x. Retrieved from.
Richlin, L., 2001. Scholarly teaching and the scholarship of teaching. N. Dir. Teach. Learn. (86), 57–68. https://doi.org/10.1002/tl.16. Retrieved from.
Russell, T.L., 1999. The No Significant Difference Phenomenon: A Comparative Research Annotated Bibliography on Technology for Distance Education: as Reported in 355 Research Reports, Summaries and Papers. North Carolina State University.
Savin-Badin, M., Howell-Major, C., 2013. Qualitative Research: the Essential Guide to Theory and Practice. Routledge, Oxford.
Schaefer, M., Moore, K., Zygmont, D., 2003. Analyzing the teaching style of nursing faculty: does it promote a student-centered or teacher-centered learning environment? 24.5 (2003). Nurs. Educ. Perspect. 238–245. Retrieved from. https://journals.lww.com/neponline/Abstract/2003/09000/Analyzing_the_Teaching_Style_of_Nursing_Faculty_.7.aspx.
Sims, R., 2015. Revisiting “Beyond instructional design”. J. Learn. Des. 8 (3), 29–41. Retrieved from ERIC on. https://eric.ed.gov/?id=EJ1083712.
Smyth, S., Houghton, C., Cooney, A., Casey, D., 2012. Students' experiences of blended learning across a range of postgraduate programmes. Nurse Educ. Today 32 (4), 464–468. https://doi.org/10.1016/j.nedt.2011.05.014.
Staker, H., Horn, M.B., 2012. Classifying K-12 Blended Learning. Innosight Institute Retrieved from ERIC on. http://www.ed.gov/fulltext/ED535180.pdf.
Vaughan, N.D., Garrison, D.R., Cleveland-Innes, M., 2013. Teaching in Blended Learning Environments: Creating and Sustaining Communities of Inquiry. AU Press, Edmonton, Canada.
Watt, E., Pascoe, E., 2013. An exploration of graduate nurses' perceptions of their preparedness for practice after undertaking the final year of their bachelor of nursing degree in a university-based clinical school of nursing. International Journal Nurse Practice 19 (1), 23–30. https://doi.org/10.1111/ijn.12032.
Zepke, N., Leach, L., Butler, P., 2010. Student engagement: what is it and what influences it. Retrieved from the Teaching and Learning Research Initiative website. https://www.trli.org.nz.
Zolfaghari, M., Negarandeh, R., Eybpoosh, S., 2013. Developing a blended learning program for nursing and midwifery students in Iran: process and preliminary outcomes. Iran. J. Nurs. Midwifery Res. 18 (1), 20–26. Retrieved from. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3748550/.