

BLENDING PHYSICAL AND VIRTUAL WORLD FOR CLINICAL SKILLS LEARNING

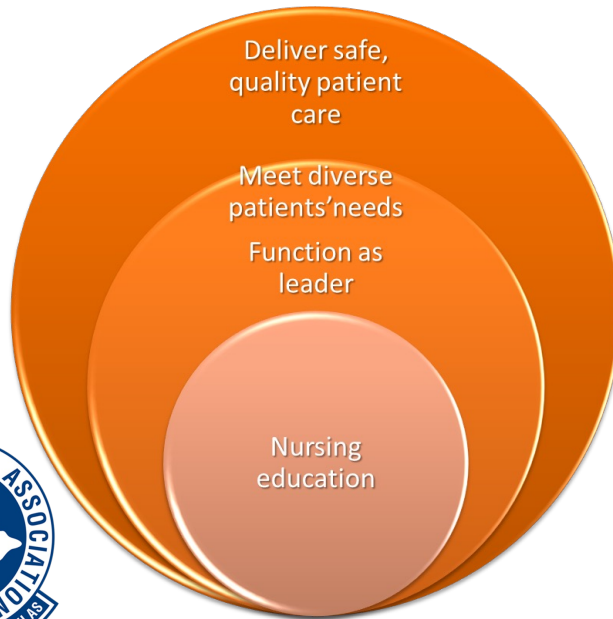
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Alice Lee Centre for Nursing Studies, YYSOM
National University of Singapore

Nursing Education in Singapore

Our mission

Our aim



- Patient Care
- Health Promotion and Education
- Advocacy
- Collaboration and Interdisciplinary Work
- Patient Empowerment
- Research and Evidence-Based Practice
- Leadership and Advocacy for Change

Transformative Trends

Waves of change in nursing education

Demographic shift
and learning style

Shortage of Educators

Technological Adaptation
in Healthcare

Professional advancement
aspiration

Changing society needs

New evidence-based
practice

Shift in the disease process

Pre-pandemic undercurrents



Clinical
placement



Opportunities-
based practice



Resource
constraint



Revision in
guidelines/policies



Evolving learning
styles



Technological
integration

Transformation of Nursing Education to Meet Students' Needs

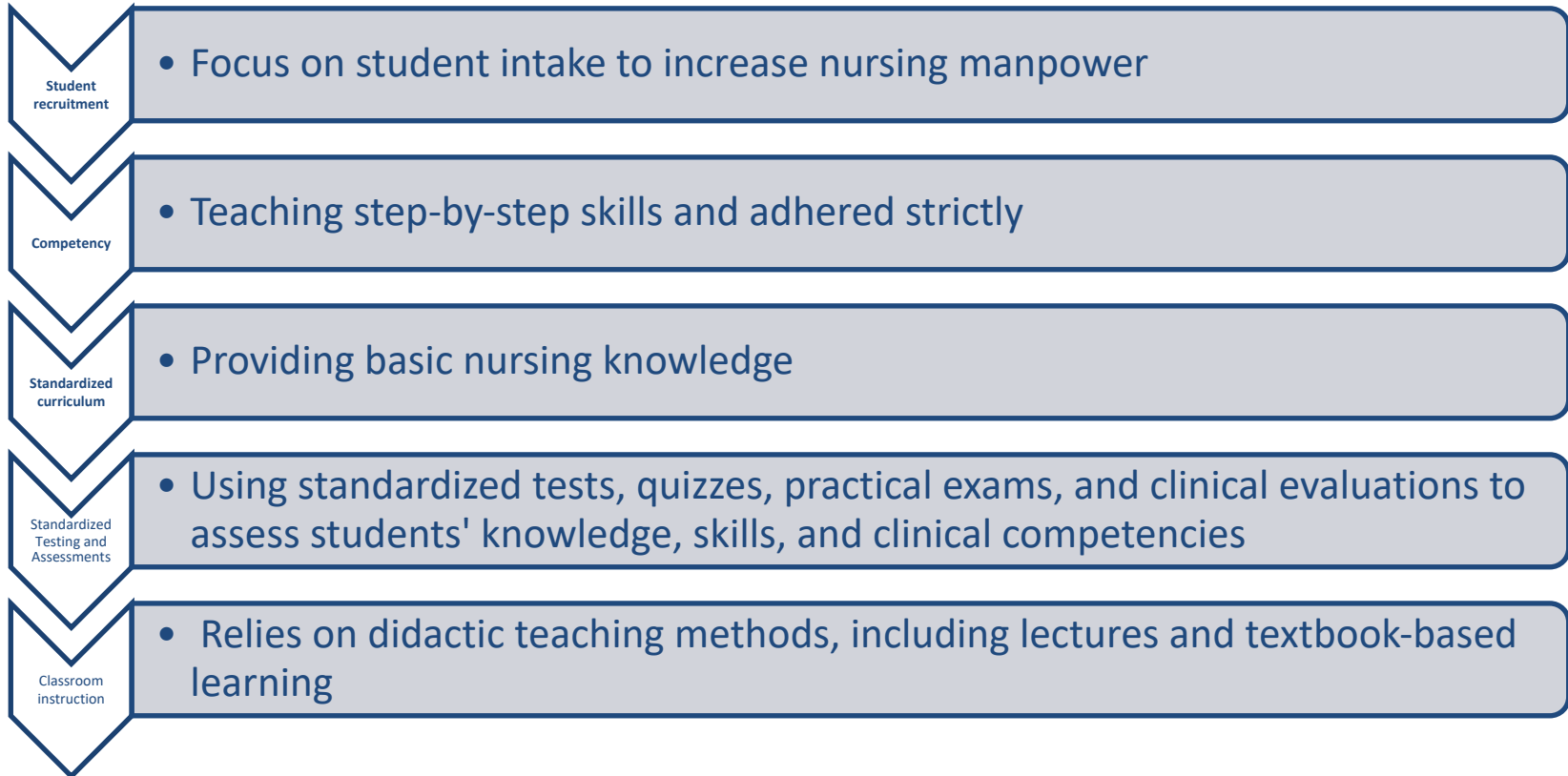
Traditional Teaching

Traditional teaching practice is when a teacher directs students to learn through **memorization and recitation** techniques which restrict the development of critical thinking, approach to problem-solving, and decision-making skills.

Transformed Teaching

Transformed teaching practice embraces innovative methods that cater to diverse learning preferences, and integrate technology to create dynamic, interactive, and student-centered learning environments to foster **critical thinking, clinical competence, adaptability, and lifelong learning skills** among future nurses.

Traditional Focus in Nursing Education Landscape



New Focus in Nursing Education Landscape

Advancements in Healthcare

- Rapid advancements in medical technology and treatments necessitate continuous education for nurses to keep up with the latest

Evolving Curriculum

- Nursing education must adapt to the changing landscape of healthcare, integrating new knowledge, technology, and best practices into the curriculum

Diversity and Inclusivity

- Education programs should reflect diverse patient populations, requiring nurses to have cultural competence and sensitivity to provide effective care.

Interdisciplinary Collaboration

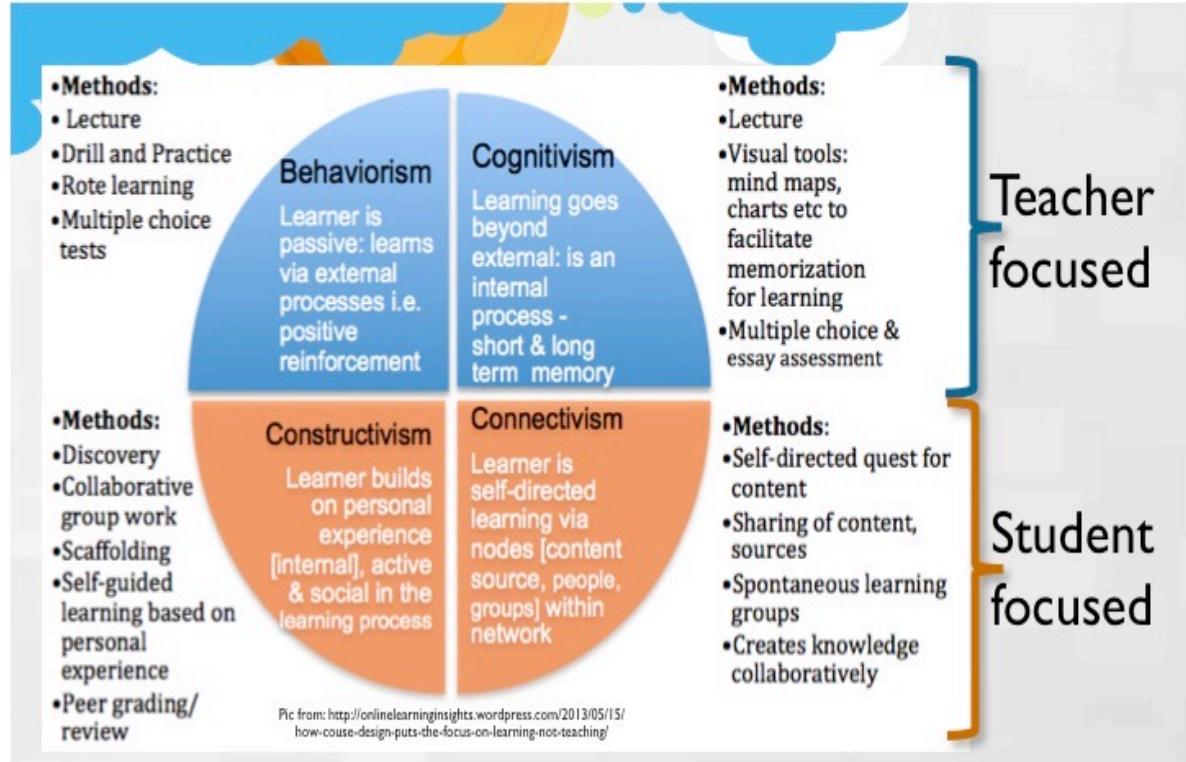
- Nurses need to be trained to work in *multidisciplinary* interprofessional teams, requiring education that fosters collaboration

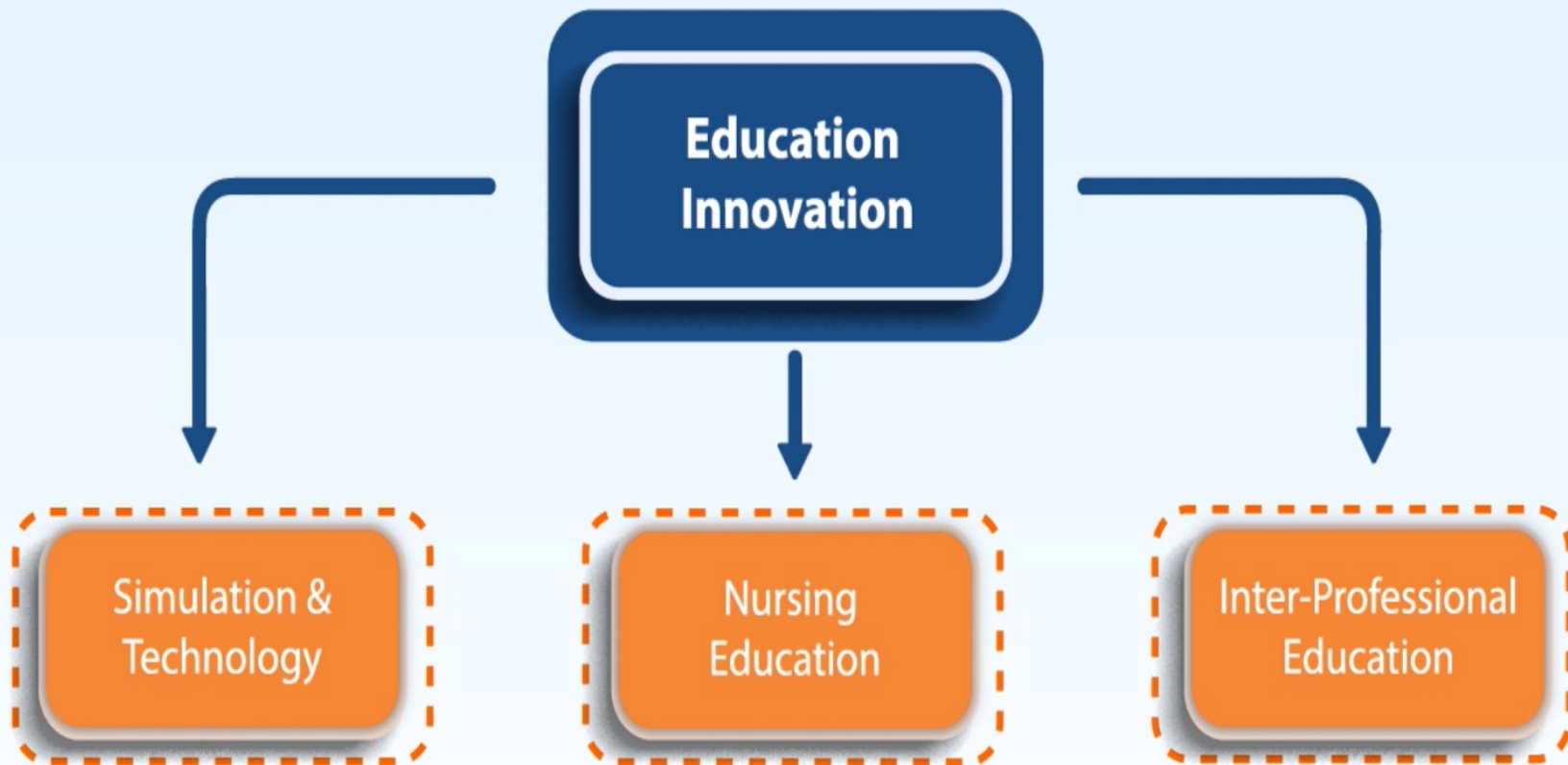
Digitalization and E-Health

- Embracing digital tools and electronic health records requires nurses to be proficient in technology and data management.

Transformed Teaching in Nursing Education

- Blended Learning
- Collaborative Learning
- Simulation Lessons
- Flipped Classroom
- Team-based Learning
- Experiential Learning





Critical Thinking and Problem Solving



Culture of Curiosity and Analytical Thinking





Collaborative
team-based
learning
experiences



Cultural Competence and Diversity

The importance of cultural competence in nursing focuses on health equity through patient-centered care, which requires seeing each patient as a unique person



The use of the community of inquiry survey in blended learning pedagogy for a clinical skill-based module

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Funding information
This work was supported by the National University of Singapore, Teaching Education Grant [WBS C-545-000-078-001, 2018/2019]. Nursing students are able to retain knowledge and translate their understanding into practice using the blended learning approach. The outcomes of the Col survey in this paper suggest the need to support nursing students in terms of expressing individual opinions, group cohesion and collaboration for blended learning.

Abstract

Aim and Objectives: The primary aim of the blended learning pedagogy in a clinical of Inquiry (Col) framework. The secondary aim was to evaluate the efficacy of blended learning in improving the retention of knowledge with this approach.

Background: Blended learning is increasingly used in nursing education. Resources are made available for tutors to improve the reduction in the face-to-face contact, which therefore warrants a need to explore a blended learning approach. The application of Col framework to assist teaching faculty with evidence-based practice.

Design: This study used the quasi-experimental design. The results were presented according to the Trendelenburg (TREND) guideline.

Methods: This study was conducted in a university. The participants were nursing students who completed a clinical-based module.

Results: The results of the Col survey found that learning in a blended learning approach was followed by positive and social learning. The design of the blended learning



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Research article

Nursing students' perceptions of online learning and its impact on knowledge level

Chiew-Jiat Rosalind Siah*, Chi-Ming Huang, Yuan Sheng Ryan Poon, Siew-Lin Serena Koh

National University of Singapore, Alice Lee Centre for Nursing Studies, Singapore

ARTICLE INFO

Keywords:
Online systems
Students, nursing
Education, distance
Knowledge

ABSTRACT

Background: Online learning in nursing education has been demonstrated to exert positive effects on knowledge, skills, learning attitudes, and confidence in performance. However, a noteworthy caveat has been that such benefits could vary depending on the content of pedagogical materials.

Aim: To examine the impact of online-tutorials in place of face-to-face tutorials on knowledge level and understand the perspectives of learners who experience online-tutorials.

Methods: This study adopted a mixed method experimental design in which the perspectives of learners who experience online-tutorials are embedded within the trial. Two cohorts of nursing students enrolled for the module on Psychology for Nurses were recruited to evaluate the impact of online-tutorials compared to face-to-face tutorials in terms of knowledge level. Apart from the dissimilar mode of delivery, both cohorts experienced the same teaching structure, content, and assessments. Examination results from these two cohorts were compared upon completion of the course. For the online group, additional one-to-one interviews were conducted to further understand the impacts exerted by online learning on the level of knowledge among them.

Results: There was a significant difference between the knowledge level of the two cohorts. Responses elicited during the interviews revealed five themes: lack of motivation; limited teamwork; missed learning opportunities; increased interaction; and differences between online and face-to-face learning.

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Efficacy of team-based learning in knowledge integration and attitudes among year-one nursing students: A pre- and post-test study

Chiew-Jiat Siah*, Fui-Ping Lim, Ahn-Ewa Lim, Siew-Tiang Lau, Wilson Tam

Level 2, MD 11, 10 Medical Drive, National University of Singapore, Singapore



and clinical exposure, the fresh year one nursing undergraduates' learning and integrating knowledge and skills into clinical practice. The study aimed to evaluate the efficacy of team-based learning among year one nursing students in terms of knowledge integration and attitudes towards working within a team. The study used a pre-test and post-test design with the intervention of team-based learning. The students first completed a pre-module test before attempting the ungraded iRAT, followed by the iRAT and the post-module test. The results showed that the participants' attitudes towards working within teams in TBL improved significantly after the intervention.

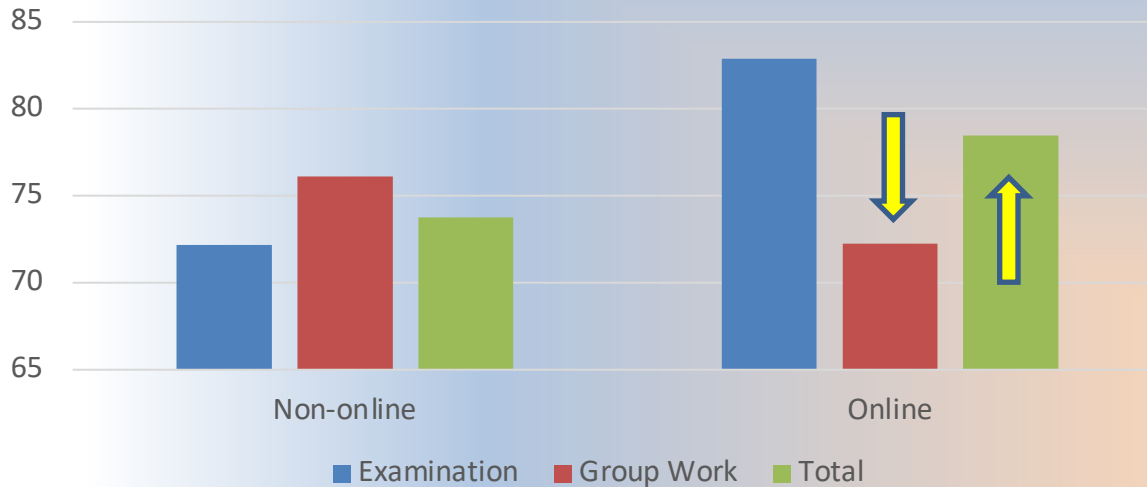
The study also found that there was a significant improvement in their knowledge and application in nursing practice. The use of team-based learning approach enhanced their learning, and they were able to acquire and retain copious content knowledge and also confident to solve problems in their future professional practice. The students were highly satisfied with their experiences working as a team to learn, and they felt respected by other team members.

The study concluded that team-based learning is an effective approach for improving knowledge for fresh year one nursing undergraduates and clinical exposure. The study was funded by Elsevier Ltd on behalf of Australian College of Nursing Ltd.

This Paper Adds
This paper provides evidence on the effectiveness of team-based learning on fresh year one nursing undergraduates, and the application in pedagogy may translate into the clinical practice.

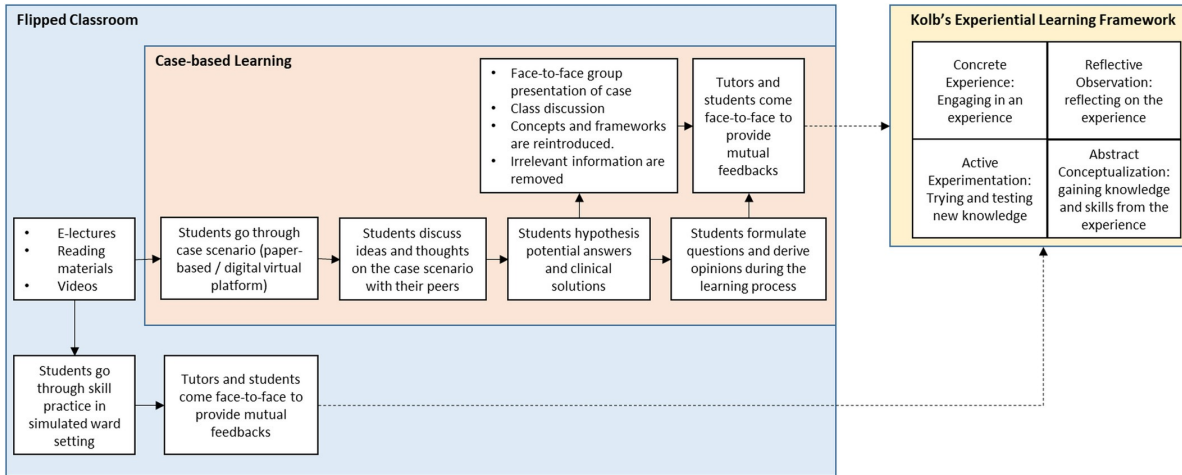
Nursing students' perceptions of online learning and its impact on knowledge level

Online vs non-online



Siah, C. R., Huang, C. M., Poon, Y. S. R., & Koh, S. S. (2022). Nursing students' perceptions of online learning and its impact on knowledge level. *Nurse education today*, 112, 105327. <https://doi-org.libproxy1.nus.edu.sg/10.1016/j.nedt.2022.105327>

Blended learning




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ORIGINAL ARTICLE

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The use of the community of inquiry survey in blended learning pedagogy for a clinical skill-based module

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Funding information
This work was supported by the National University of Singapore, Teaching Education Grant (WBS C-648-000-079-001 2018/2019). Nursing students are able to retain knowledge and translate their understanding into practice using the blended learning approach. The outcomes of the Col survey in this paper suggest the need to support nursing students in terms of expressing individual opinions, group cohesion and collaboration for blended learning.

Abstract

Aim and Objectives: The primary aim of this study was to examine the effectiveness of the blended learning pedagogy in a clinical skill-based module using the Community of Inquiry (Col) framework. The secondary objectives were to assess the effectiveness of blended learning in improving the nursing knowledge, and students' satisfaction with this approach.

Background: Blended learning is increasingly adopted in education as more online resources are made available for tutors to use for the benefit of their students. That implied a reduction in the face-to-face contact time in replacement for online teaching, which therefore warrants a need to examine the effectiveness of blended learning approach. The application of Col framework could evaluate the blended learning approach to assist teaching faculty with evidence-based practices on online teaching.

Design: This study used the quasi-experimental, pretest-posttest design, and results were presented according to the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) guidelines.

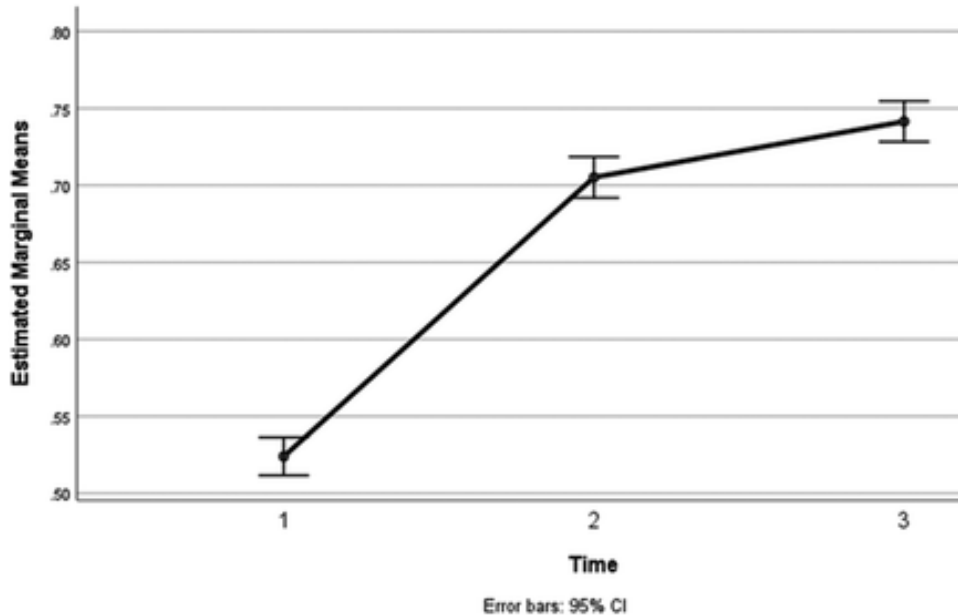
Methods: This study was conducted in a university and recruited 219 Year 1 nursing students who completed a clinical-based module.

Results: The results of the Col survey found that teaching presence scored the highest mean, followed by cognitive and social presence. The design of the blended learning was effective in enhancing students' knowledge but they only expressed a moderate level of satisfaction.

Conclusions: Blended learning is a feasible pedagogical strategy for a clinical skill-based module. However, further investigation is required to explore the factors and

Siah, C. J., Lim, F. P., Lau, S. T., & Tam, W. (2021). The use of the community of inquiry survey in blended learning pedagogy for a clinical skill-based module. *Journal of clinical nursing*, 30(3-4), 454–465. <https://doi-org.libproxy1.nus.edu.sg/10.1111/jocn.15556>

Blended learning



- Promote knowledge application competently through brainstorming and reflective writing
- Uses different modes of teaching strategies to provide deeper learning which enhances the retention of knowledge and the development of critical thinking
- Allows interactions between the students and their nursing tutors to seek clarification and receive feedback on their performance

Siah, C. J., Lim, F. P., Lau, S. T., & Tam, W. (2021). The use of the community of inquiry survey in blended learning pedagogy for a clinical skill-based module. *Journal of clinical nursing*, 30(3-4), 454–465. <https://doi-org.libproxy1.nus.edu.sg/10.1111/jocn.15556>

Immersive Extended Reality (XR)



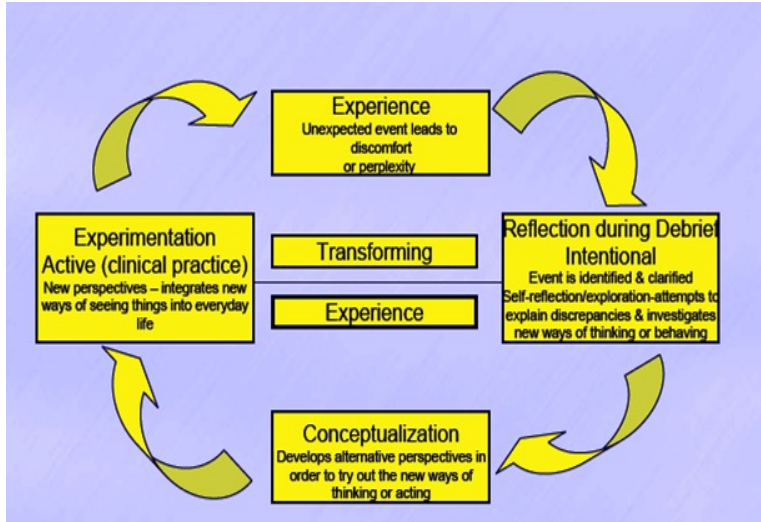
Virtual Reality (VR)

Augmented Reality (AR)

Mixed Reality (MR)

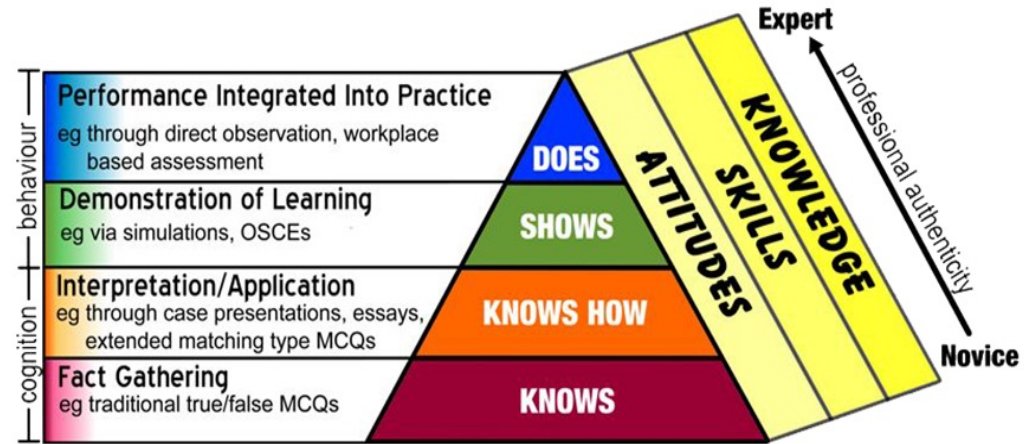
Frameworks

Kolb's Experiential Learning



(Brookfield, 1991)

MILLER'S PRISM OF CLINICAL COMPETENCE (aka Miller's Pyramid)



Based on work by Miller GE. *The Assessment of Clinical Skills/Competence/Performance*; Acad. Med. 1990; 65(9): 63-67
Adapted by Drs. R. Mehay & R. Burns, UK (Jan 2009)



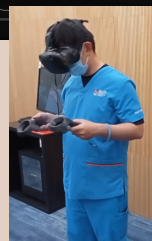
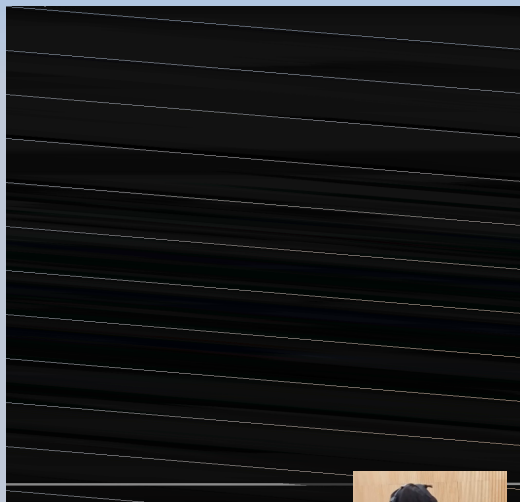
Dreyfus model of skill mastery

Simulation and Virtual Reality (VR) Training

Interprofessional- oriented



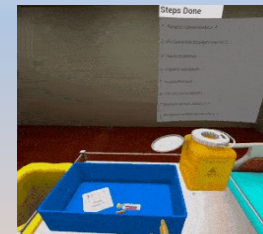
Process-oriented



Procedure-oriented



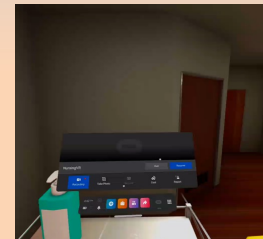
SC Injection



Urine
Catherization



IV Therapy



IM Injection

Research and Innovation in Nursing Education

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DOI: 10.1111/nur.12783

RESEARCH ARTICLE

Evaluation of nursing student confidence level in a per simulation

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Cheang L. Teh RN,



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



Research article

Mid-career switch nursing students' perceptions and experiences of using immersive virtual reality for clinical skills learning: A mixed methods study

MEDICAL EDUCATION ONLINE
2023, VOL. 28, 2232134
<https://doi.org/10.1080/10872981.2023.2232134>



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Lau et al

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ORIGINAL ARTICLE

Journal of
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The use of the community of inquiry survey in blended learning pedagogy for a clinical skill-based module

Chiew-Jiat Siah PhD, MHSc, BSN, Senior Lecturer | Fui-Ping Lim MN, BSN, Senior Lecturer |
Siew-Tiang Lau PhD, MHSc, BSN, Associate Professor |
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Research article

Nursing students' pre knowledge level

Chiew-Jiat Rosalind Siah

National University of Singapore, Alice Lee C

ARTICLE INFO

Keywords:

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KEYWORDS

Clinical competency;
professional; nurses;
procedures; virtual reality;
refresher; head-mounted
display; intravenous therapy;
subcutaneous injection

Knowledge Gained When Planning Training



Enhancement

- **Exercise Critical Thinking:** Develop AI-based chatbots or virtual assistants to provide 24/7 support, answer questions, and guide through complex topics for nursing students – **AI-driven Mentorship and Assistance.**
- **Access Relevant and Up-to-date Information:** Able to analyze and categorize vast amounts of nursing-related texts, articles, and research papers to help students – **Natural Language Processing (NLP) for Learning Resources**
- **Making Critical Decisions:** Develop AI-powered tools that provide evidence-based recommendations and guidance to nursing students during patient care scenarios. These systems could assist in diagnosing, prescribing treatments based on patient data – **Clinical Decision Support Systems.**
- **Enhance Understanding and Retention of Nursing Concepts:** Develop an AI-based platform that personalizes learning for nursing students in clinical settings to assess individual student's strengths, weaknesses, and learning styles, providing tailored study materials, quizzes, and resources – **AI-Powered Adaptive Learning Systems.**
- Many more possibilities and opportunities... ..



Heart



Teaching empathy



Active listening



Communication

Maintaining our focus to connect with patients on a human level to provide compassion and empathy

Sustainability in nursing education involves integrating principles of environmental, social, and economic balance into the curriculum and teaching methods of nursing programs



Stay connected



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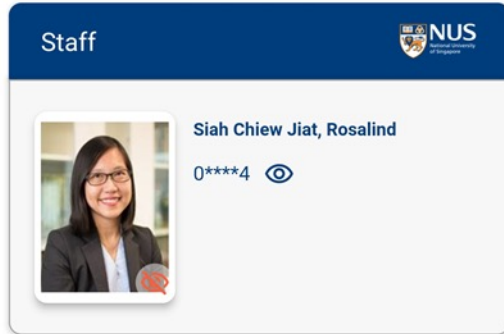


Spotify and Podcast
Health Ageing and
Well-being in
Singapore



Book and e-book

- Singapore NLB
- NUS Med Library
- NUS Central Library



My Business Card

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- Advance Diploma in Nursing (Gerontology), Nanyang Polytechnic, Singapore

Research Interests

Clinical Nursing:

- Non-communicable disease management
- Functional health and caregiving for older adults

Nursing Education:

- Pedagogy and assessment
- Technology in Practice and Education

Thank you

- ALX 2023 Organizing Committee
- NUS Nursing
- NUH Nursing
- Medical Education Technology Enterprise (METE), NUS Medicine
- Application Architecture and Technology, NUS Information Technology
- All our valuable external IT partners and cooperation