

ORIGINAL RESEARCH

Best of both worlds: Learner perspectives of inclusivity in a blended course

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ABSTRACT

Objective: Neurodiversity among learners and related learning needs requires educators to move beyond existing dominant forms of traditional didactic lecturing and rigid assessment methods to inclusive practices. To support neurodiverse learners, a first-year undergraduate nursing course adopted a blended delivery model in the Fall 2022 and 2023 semesters, integrating Universal Design for Learning (UDL) principles through synchronous and asynchronous instructional strategies.

Methods: In this convergent mixed methods descriptive case study, researchers explored how students rated and described their experiences with the UDL-based course design, using surveys (n = 39) and focus groups (n = 12).

Results: While survey and focus group interview findings generally aligned, some learners found the asynchronous weekly units less effective. Thematic analysis revealed five key themes: instructor accessibility and feedback; flexibility and choice; engagement and collaboration; relevant and relatable content; and the impact of stress and anxiety on learning. Although course modifications scored lowest in surveys, focus group participants appreciated instructor flexibility.

Conclusions: Overall, the blended UDL approach supported diverse learning needs. Future recommendations include balancing delivery formats and incorporating ongoing student feedback to enhance inclusivity and better support neurodiverse learner needs.

Key Words: Blended course format, Inclusive curriculum, Nursing education, Universal Design for Learning

1. INTRODUCTION

Enrollment in nursing education continues to rise substantially, resulting in larger cohorts with more diversity among learners and learning needs.^[1] Despite these obvious variations, many learners are still being educated in traditional, inflexible, passive, and uniform methods, which must be supplemented with academic accommodations for those who require any learning support.^[2] To compound the problem, some learners avoid using these resources and others may not qualify for assistance.^[3] Thus, there is a need for educators to integrate inclusive instructional strategies into the course curriculum that support this classroom diversity.

Traditional instructional methods lack elements of flexibility, engagement, and inclusion of various learning needs. A blended course delivery approach that is based on Universal Design for Learning (UDL) principles can create a more inclusive environment. The blended model integrates the advantages of both asynchronous and synchronous instructional components into the course curriculum design, creating a more equitable setting for learners.^[4,5]

In 2022 and 2023, a blended instructional model grounded in UDL was implemented in a first-year Bachelor of Science in Nursing (BScN) course. This model combined asynchronous

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and synchronous methods to promote inclusive pedagogical practices. In this study, researchers aim to evaluate how effectively this UDL-based blended approach supports inclusivity in nursing education. It draws on instructional strategies and theoretical foundations from blended learning, inclusive education, and UDL.

1.1 Instructional strategies

To support a diversity of learning needs, a combination of synchronous and asynchronous methods of instruction were used in the course design. According to UDL principles, a course curriculum consists of four facets: goals, materials,

methods, and assessments.^[4] Each have been highlighted and connected to every instructional strategy for context (see Table 1).

1.2 Blended learning

Blended course delivery thoughtfully integrates synchronous instruction with asynchronous learning experiences.^[6] In this course, the unfolding case study discussed during lecture time (synchronous) and corresponding online weekly units (asynchronous) housed in the learning management system were the primary aspects used to deliver the content in a blended format.

Table 1. Instructional strategies embedded into blended course

Universal Design for Learning Curriculum	Instructional Strategies
Goals	<ul style="list-style-type: none"> • Detailed syllabus with weekly schedule, key dates, assignments, and policies- before semester starts • Weekly Units on learning management system (e.g., introductions, objectives, graphic organizers, readings, highlights, activities, and summaries) • Lecture objectives and presentation posted before class • Audio/video prep checklist • Note taking and online resources • Announcements
Materials	<ul style="list-style-type: none"> • Hard copy and e-book options; library access • Resource links (Academic Skills, articles, images, content, and videos) • Weekly lecture recordings and slides posted in advance • Experiential seminar activities • Support resources (due dates calendar, manuals, peer support, accessibility services, academic skills - assignment video, library resources)
Methods	<p><i>Weekly Units (Asynchronous, Learning Management System)</i></p> <ul style="list-style-type: none"> • Consistent multimedia layout (e.g. videos, audio, text, music, activities, weekly summaries, resources) <p><i>Lecture (Synchronous)</i></p> <ul style="list-style-type: none"> • Relatable Unfolding Case Study with in-class activities (participation-based) • Engaging presentations with interaction every 15-20 minutes to reinforce concepts (e.g., think and share, meditation, smudging) • Guest speakers <p><i>Seminars (25 learners, Synchronous)</i></p> <ul style="list-style-type: none"> • Formative feedback; peer support • Hands on, role play, activities, group project • Scaffolded content, authentic case studies <p><i>Instructor Support</i></p> <ul style="list-style-type: none"> • Co-instructed (two styles, attended all lectures) • Approachable, available, accessible, responsive, and caring (e.g., prompt responses, grading within two weeks, shared personal stories, role models) • Instructor not lecturing - sat in class with learners weekly, to welcome/interact before, during breaks and after class
Assessment	<ul style="list-style-type: none"> • Staggered assignment timelines and flexible submission options • Inclusive language • Guidelines and rubrics posted • Even assignment weighting • Adaptive textbook linked quizzes with multiple attempts • Varied in class activities using Unfolding Case Study (e.g., written responses, reflections, peer feedback) and application activities (e.g., meditation) • Scholarly essay with interactive interview component • Online formative review with diverse question formats and instructor support • Choice of higher of two assignment grades • Participation points for seminar activities encouraging peer interaction • Group Project: Learners worked collaboratively with peers in seminar using an authentic case study to create a care plan. Choice of topic, behaviour change approach, and submission format • Learner group process reflection, comparing own work and another group assignment

1.3 Inclusive education

An inclusive learning environment involves offering equitable opportunities for all learners to succeed.^[7] It is defined as a “process of strengthening the capacity of the education system to reach out to all learners (p. 8).” Accessibility to course resources and comprehension of this material by individuals is required. In this study, inclusive education was offered to learners by integrating UDL principles into the course design.

1.4 Universal design for learning

Universal Design for Learning is an inclusive pedagogical framework aimed at improving accessibility and reducing curricular barriers for learners of varied backgrounds and abilities.^[4,8] In this study, UDL guided the blended course design through its core principles: multiple means of engagement, representation, and action/expression, fostering an inclusive learning environment and equal opportunities for success.

2. METHODOLOGY

A convergent mixed methods descriptive case study was conducted to answer the research question: How do learners’ rate and describe their experiences with this UDL based blended course design on various dimensions of inclusivity^[9,10]? The case, a large first-year nursing course, was led by co-instructors who facilitated large classroom lectures and smaller seminar groups weekly. The course emphasized foundational nursing concepts such as the metaparadigm of nursing, critical relational inquiry, communication, stress and coping, health behavior change, and cultural sensitivity. The units of analysis are the learners registered in the offerings of this course, which enrolled 245 students in 2022 and 219 learners in 2023.

2.1 Participant recruitment and data collection

Research Ethics Board approval was obtained prior to data collection. To minimize instructor bias, a research assistant managed recruitment, questionnaire distribution, obtaining informed consent, focus group facilitation, transcription, and data de-identification prior to sharing with the researchers. Survey distribution and focus groups occurred after submission of final grades. Participation was voluntary, allowing students to engage in the survey, focus group, or both.

Data were collected through an electronic Qualtrics[©] survey following the completion of each semester. The survey, distributed via email in January–February (Fall 2022 cohort) and December 2023 (Fall 2023 cohort), captured demographic information and ITSI-S measures, with responses from 17 (2022 cohort) and 22 students (2023 cohort). Focus groups

followed each survey period, involving 12 participants across five sessions.

2.2 Measures

An adapted version of the Inclusive Teaching Strategies Inventory - Student survey (ITSI-S)^[11] was used to assess the students’ (a) belief about UDL and inclusivity (BUI) (33 items), and (b) experience of instructor actions in the classroom (EIA) (33 items) resulting in a total of 66 items. The BUI and EIA scales are further classified into six constructs: accommodations, accessible course materials, course modifications, inclusive lecture strategies, inclusive classroom, and inclusive assessment. Item responses in the BUI scale used a five-point Likert scale (1 = strongly disagree, 5=strongly agree); and EIA scale used a five-point Likert scale (1 = I don’t know, 5 = always). The accommodations construct (8 items) addressed instructor flexibility for students with documented disabilities, including technology use, note-sharing, and extended timelines. Accessible course materials (4 items) focused on the use of websites, electronic handouts, and flexible submission formats. Course modification (4 items) examined activities like extra credit and reduced reading loads. Inclusive lecture strategies (4 items) assessed practices such as outlining key topics and connecting content to course objectives. Inclusive classroom (9 items) explored the use of varied content formats, visual aids, and interactive technologies to support engagement. Inclusive assessment (4 items) evaluated alternative methods for demonstrating knowledge beyond traditional tests.

2.2.1 Experience in the classroom

In addition to the ITSI-S questions, 14 items were included related to participants’ experience of UDL in the classroom, referred to as the Experience in the Classroom (EIC) and used a five-point Likert scale (1 = I don’t know, 5 = always). These fourteen questions were added to the tool to align with focus group questions.

2.2.2 Focus group interviews

The following questions guided the focus groups.

- 1) What was your overall experience of UDL instructional strategies in the course?
- 2) Which UDL components did you find most helpful? Least helpful?
- 3) What are your thoughts about the weekly unfolding case study and blended classroom format of the course delivery versus a typical instructor-based lecture?
- 4) The assignments in this course were formatted using elements of UDL. Which of these elements did you find helpful? Is there anything in any of these approaches that you would say was not helpful?
- 5) Can you name any specific technology that was of particu-

lar value to you within the course?

6) In this course, how did you know that you understood a concept or idea? How did you know that your teacher was aware of your knowledge?

7) Have you ever had the opportunity to decide how you want to present what you have learned?

8) In this course, how did your classmates influence or affect your academic performance?

2.3 Data analysis

Quantitative and qualitative data were analyzed separately, prior to merging to compare the convergence and divergence of the data. Both results were prioritized equally. Questionnaires were analyzed using the Statistical Package for Social Sciences (SPSS) version 29, to generate the mean (M) and standard deviation (SD) for each question construct of the ITSI-S tool. Missing question responses were left blank and not imputed into the results.

Focus group transcripts underwent thematic analysis using a codebook aligned with the ITSI-S segments and six constructs. This framework guided the classification of qualitative data and its connection to inclusivity. Each researcher independently reviewed the data to identify themes and ensure alignment with the ITSI-S survey. An iterative, consensus-driven approach was used to finalize findings.

3. RESULTS

A total of 39 participants completed the questionnaire. From the questionnaire responses obtained, the average age of participants was 26 years old (ranging from 17 to 43 years). Five participants identified as male and 34 as female. Self-reported ethnicity of participants included: Asian and South Asian ($n = 6$), Caucasian/Non-Hispanic ($n = 22$), African descent ($n = 7$), multi-ethnicity ($n = 3$), and Hispanic/Latino ($n = 1$). Nine of the participants, approximately 23% of the sample, reported having a disability in alignment with the Ontario legislation. Of these participants, seven reported using the University's Student Accommodation Services (SAS), and two did not.

3.1 Study variables

For each ITSI-S subscale and each construct, a mean and standard deviation were calculated. Each construct finding is described in relation to responses from focus group participants ($n = 12$).

3.1.1 Accommodation

The BUI ($M = 4.32$, $SD = 0.56$) accommodation construct mean was significantly higher than the EIA subscale ($M = 3.03$, $SD = 1.37$), indicating that learners agreed to strongly agreed that accommodations are important to inclusion but

experienced similar instructor actions only sometimes to most of the time in the course.

Comments from the focus group were overwhelmingly positive for this construct, and one suggestion was received. For example, Participant 10 described the video recording of class as very helpful "... if someone's not able to come to class for some reason they still have like an opportunity to learn." Participant 8 "... really appreciated the weekly classes being recorded." It was particularly helpful when this learner became ill for a few classes as it saved "... a lot of stress."

3.1.2 Accessible course material

Next, the learner BUI accessible material construct ($M = 4.49$, $SD = 0.40$) was marginally above the EIA construct ($M = 4.23$, $SD = 0.64$), suggesting that learners agreed to strongly agreed that accessibility is valuable to inclusion and that the instructors' actions aligned with this most of the time to always in the course.

Focus group feedback supported the survey findings. Participant 9 identified as typically using academic accommodations and liked that flexible submission timelines were offered to all learners, as it did not make them feel "... different from the class..." Similarly, Participant 12, who identified as an individual with a disability described having flexible timelines integrated into the course as helpful and expanded that, "... it helps everybody else too." This learner described the opportunity to still approach professors and ask for further extensions as "... really, really helpful." Additionally, this participant appreciated the recorded lectures as a way of studying to, "... go back later and check out whatever you missed."

3.1.3 Course modification

In this study, the BUI course modification construct ($M = 3.59$, $SD = 0.86$) was much higher than the EIA subscale ($M = 2.14$, $SD = 1.27$), implying learners agreed to strongly agreed that course modifications were important; however, students rated the instructors' actions in the course as never or only sometimes supporting these strategies.

Focus group feedback included both positive aspects and areas of improvement. For instance, Participant 3 appreciated having the content online, but "... found that the expectation to review all of that before class while still having full class time to attend... wasn't really offering you the option to learn in one way or the other, it was just like giving you more work to do." A suggestion was made to minimize the readings, content online, and supplement video references with "... more quiz-type questions that you could do voluntarily prior to class to prepare."

3.1.4 Inclusive lecture

A review of the BUI inclusive lecture construct results ($M = 4.58$, $SD = 0.51$) indicated that it was slightly higher than the EIA construct mean ($M = 4.36$, $SD = 0.63$). Learners agreed to strongly agreed about the importance of these activities during lecture time and the instructor actions were perceived as being evident most of the time to always by learners in the classroom.

Participant input from the focus group seemed representative of survey results. Participant 8 described the unfolding case study as "... a good way for us to be able to apply course concepts to like a fictional person..." and "... made some things like easier to understand." Another learner agreed with this comment, further adding that the unfolding case study "... made it also easier to stay focused in class..." (Participant 9).

3.1.5 Inclusive classroom

The BUI inclusive classroom construct ($M = 4.35$, $SD = 0.51$) was higher than the EIA construct ($M = 3.88$, $SD = 0.71$), indicating learners agreed to strongly agreed that these elements were significant to inclusivity. Whereas their experiences of the instructor actions were rated lower and as occurring sometimes to most of the time by participants.

Input from the focus group diverged slightly from the survey findings. For example, Participant 2 appreciated the use of in class discussions and questions, as it encouraged them to "... engage... rather than just hearing the instructor talk," and "... had a positive influence" on their learning. Participant 8 described appreciating being able to collaborate with group members in smaller seminar groups on the project when off ill as they could meet "... together on (video)" and work on it. Participant 11 described the seminars as, "... a perfect medium to understand," or apply the content from lectures as, "everyone was given an opportunity to speak at some point... it was really engaging, and no one was left out."

3.1.6 Inclusive assessment

When compared, the BUI inclusive assessment construct ($M = 4.35$, $SD = 0.60$) was higher than the EIA construct ($M = 3.90$, $SD = 0.94$). This suggests that learners agreed to strongly agreed about the importance of these instructional methods to inclusivity, yet described that these strategies were only being used by instructors sometimes to most of the time in the classroom.

Highlights from the focus group data were mixed and representative of these findings. For example, Participant 1 agreed that the group assignment instructions were very simple and beneficial. However, because it permitted so much flexibil-

ity and individualization, the lack of guidelines, "... almost like overwhelms you... so there's no clear way." Participant 2 added that the assignment rubric "... wasn't really a chart" type rubric that "I'm used to... so kind of vague". Similar concerns were expressed by Participant 12 about the unfamiliar rubric format.

Participant 12 appreciated the unfolding case study with weekly in class activities and the time given during class in helping to "... get more points," and "... build the grade." However, this learner did not enjoy the adaptive quizzing modules that aligned with the textbook readings as it was, "... really time-consuming," and frustrating.

Participant 7, "... liked how like the formative review was set up." The instructors, "... want to know that you know the concept, not that you can regurgitate everything." The format permitted learners "... the ability to choose what you know better and see that grade breakdown. I don't know it as well as I could, but I know this better than this." Another learner described the increased number of smaller weighted assignments in the course to complete as "... really helpful," (Participant 9) because you "... do more because you're actually more engaged."

3.1.7 Experience in the classroom

The mean scores for each item in the EIC measure were compared with highlights from the focus group data to establish any divergence and convergence of evidence, found in Table 2. All the mean scores for each question fell within the 4 = most of the time to 5 = always ratings. Each are highlighted in descending order of mean (M) score for each question and standard deviation (SD).

Five themes emerged from these findings including: 1) instructor presence, accessibility, approachability, and feedback; 2) choice, option, and flexibility; 3) engagement and collaboration; 4) relatable, realistic, and relevant content; and 5) impact of stress and anxiety on learning. Each theme is discussed and linked to the EIC findings, instructional strategy used, and supporting evidence in the next section.

4. DISCUSSION

Analysis revealed both convergence and divergence between quantitative and qualitative data. Focus group themes largely reinforced the ITSI-S survey results. While survey participants rated attitudes (BUI) highly, focus groups emphasized instructors' actions—particularly in lectures, the highest-rated subscale in both BUI and EIA constructs—highlighting strategies like previewing topics, clarifying questions, and connecting content to objectives as fostering inclusion.

Table 2. EIC measure and related focus group response

Experience In-Classroom (EIC)			
Response Range (1 = I don't know; 2 = never, 3 = sometimes; 4 = most of the time; 5 = always)			
M = 4.38			
Survey Item	M	SD	Supporting Quote from Focus Group Participant
Instructor is highly approachable and available	4.66	.78	P9: "...I didn't feel intimidated to ask questions."
Instructor supports and respects learner diversity	4.61	.89	P9: "...helpful to kind of have that variety of having options but also being responsible for your own success." P11: "... very grateful for the way (the course) was structured ... every student was given recognition for their efforts."
Instructor explains real world importance of topics	4.55	.76	P1: case studies helped me in "...carrying on that specific example towards all of the concepts that we learn. ... really helpful to like, see what that concept practically looks like."
Instructor offers contact outside class in flex formats	4.54	1.02	P8: described co-instructors as, "...so approachable and ... answer their emails." P12: thought the mindfulness guest lecture was "... very effective because I was struggling and trying to just gain balance at that time. ... giving us techniques on how to manage the challenge...gaining insight from other people."
Information multiple formats	4.54	.69	P1: "... great that it offered...different methods of teaching, but ... kind of confusing, and maybe overwhelming, because there was just so much available."
Course syllabus clear with expectations	4.51	.84	P9: perceived the course communication from instructors as "... clear."
Instructor explanation consistent with objectives	4.49	.96	P4: described unfolding case study as a means used to connect the content, "...to the concept that we're learning that week," as "really helpful," in putting this knowledge into practice.
Prompt and instructive feedback on all assignments	4.43	.87	P8: assignments "... were returned to us relatively quickly ... there wasn't much like waiting and wondering."
Able to grasp key points from instructional videos	4.35	.72	P6: "...videos...showed what was actually happening in an example of what we were learning. So that helped a lot."
Course supplements lecture/readings with visual aids	4.24	1.15	P7: liked how the textbook was interactive and online because it was "...set up so you can highlight and add notes and you can make flashcards in the column on the side..."
Course materials accessible, clearly organized, easy use	4.24	.96	P5: appreciated the seminars "...profs, are there. If you have any questions, ... they are there to answer... so you don't have to email them back and fourth." P12: found, "the rubric wasn't that easy to follow ... the instructions are not always straightforward."
Interested and motivated to learn	4.14	.89	P2: appreciated unfolding case study as "...motivates you to get into class every week. The grading criteria is not like that harsh, so you could just freely write whatever you learned and not like, really think about what kind of mark you're gonna get."
Express comprehension besides tests and exams	4.03	1.26	P1: identified the unfolding case study in lecture as, "... a good way to apply whatever it was that we learned ... also not like super-graded...pass or fail which was helpful."
Challenged with meaningful assignments	4.00	1.00	P2: found group project case study to be a "... good way to assess (learner understanding and whether) and apply the assessments that we learned in class for holistic care." P12: the Fran Tastico unfolding case study, "...helped to solidify the subject we were learning, ... resonated with me because I was going through a lot of her situation ... just moving to (city) starting school."

4.1 Themes

The course modifications subscale had the lowest mean scores for each section of the survey. Questions within the subscale attempted to capture participant perceptions of the instructor's flexibility in reducing course readings and allowing for the completion of extra credit when requested by students with and without documented disabilities. Despite the lower means of the subscale, the focus group participants described appreciating the flexibility of co-instructors and course assignments.

The accommodations subscale in the EIA scale, was rated second lowest by participants in the survey and included questions related to allowing the use of assistive technology in class, providing copies of course notes, inclusion of extended timelines, and integration of various response options for assignments. This mean finding also did not align with the focus group participants appreciation for flexibility in submission timelines and variety of methods to express understanding of the content learned. Finally, the EIC section of the survey aligned with focus group themes.

4.2 Discussion of themes

4.2.1 Instructor accessibility, approachability, presence, and feedback

Offering multiple means of contacting instructors such as through office hours, email, lecture, and seminar time, was appreciated by learners. Engaging in open communication and developing rapport with learners by responding promptly to concerns has been shown to foster a supportive environment for learning that is accessible.^[12,13] Faculty who display empathy, caring, remembered names, and shared personal stories can help humanize instructors and positively impact student success.^[14,15]

Instructor presence during synchronous lectures and seminars was viewed positively, enabling real-time questions and feedback—an approach shown to benefit learners.^[14] Case study discussions and formative seminar feedback helped shape learner expectations and fostered trust through informal support.^[15] Some respondents appreciated theme-related music breaks, which allowed time for personal needs and brief instructor interactions. Frequent lecture breaks have been described as helpful to learners during class time.^[16]

Learners believed that instructor presence in smaller seminars was very helpful to applying the concepts, obtaining feedback, and completing the group project. By providing feedback in a timely manner, students were able to learn from their mistakes and improve on future work. Offering detailed, frequent, and prompt feedback has been identified as helpful by learners.^[12,15-17]

Furthermore, learners described the helpfulness of offering clear and accessible course instructions with rubrics for activities and assignments. Organized schedules, detailed guidance, and transparent expectations are essential for effective teaching.^[14] While the format provided the weighting of content elements in the assignment, a more familiar format or clearer instructions may have addressed this issue.

4.2.2 Flexibility, options, and choice

Learners appreciated flexible deadlines and varied methods for demonstrating understanding, reflecting similar inclusive practices in higher education.^[16,18,19] The option to complete missed case study activities via lecture recordings was especially valued, allowing students to earn participation points and stay engaged. Such recordings support positive study habits, promote balance between personal and academic responsibilities, and foster equitable learning opportunities.^[12] Both flexible assignment timelines and use of lecture recordings have been identified as positive and as increasing accessibility to content for all learners.^[16,18,19]

Assignment options such as the one-week flex time offered to all learners completing the academic paper was consistently described as beneficial. Options like video-recorded lectures for missed activities and one-week flex time for essays allowed students to balance personal and academic responsibilities without disclosing accommodation status.^[17,20,21]

In addition to this appreciation, learners described the flexible timelines set to complete practice-based activity quiz modules (AQMs) that aligned with the course textbook as both useful and time consuming. Several students valued the independence to complete these modules at their own pace and choice to select chapters that were relevant to their interests and needs. The use of participation-based activities in post secondary settings have been described as beneficial by learners as it minimized risk taking and associated grading stressors.^[14]

Many students described these practice-based activities as easy marks and helped to solidify the knowledge in class by selecting topics that were of most interest to them. Whereas a couple of learners voiced concerns with the AQMs as they felt these were time consuming and too specific. Considering these questions were adaptive in nature, some learners may have completed more than peers to reach the achievement level set by the instructors in the software. A couple learners described leaving these until the last few weeks to complete, which would have increased the amount of work to finish in a shorter time frame. Evidence from the literature indicates the importance of supporting individual learner pace by purposefully scaffolding the content over time.^[19]

Some learners expressed an appreciation for the usefulness of the instructor generated asynchronous weekly units for providing course objectives, content highlights, and learning activities that were helpful to understand key concepts and focus study efforts. In a similar study, learners described a preference for instructor created course content such as lecture notes and PowerPoint over third party material such as the AQMs in our research.^[22] Other students voiced not needing or using the resources provided in the weekly units. Offering multiple formats of the content helps learners develop a deeper understanding by actual learning versus memorization of the content.^[22,23] It is clear that an overabundance of information can create barriers for some learners. Thus, having an appropriate balance, and not overwhelming the learners with content is necessary.

Offering a variety of assessment options to earn a grade was also described as valuable to learners. Integrating multiple assignments with lower weighting are identified as helpful to post secondary learners.^[24] Learners appreciated having an opportunity to improve and select their best work towards the final grade. The option to choose the higher grade between the academic paper and midterm was highly valued, reinforcing the importance of choice in higher education.^[15] Unnecessary disappointment was avoided by permitting learners to select the higher of two main assignments in the course.

The group project was described by learners as both beneficial and challenging. Having a choice in project presentation format was appreciated by some participants. Similar to other research findings, learners described this choice as making the assignment easier to navigate.^[17] Challenges related to conflicting group choices and project ideas were experienced by some group members. It is interesting to note that the use of unfamiliar instructional strategies such as choosing course content were not perceived as especially valuable by learners in some literature reviewed.^[12] Suggestions to offer an option to select group members or complete the project individually were offered. Research evidence aligns with similar group struggles.^[17,25]

4.2.3 Engagement and collaboration

Instructor engagement with learners in lecture, seminars, and during time allocated for the group project, were some of the synchronous UDL based strategies that were used to promote collaboration in the course. Participants described collaboration with instructors as helpful in understanding course concepts. Learners and instructors perceived each other as allies throughout the collaborative discussions held during lecture, seminar activities, and group work, to support the achievement of course objectives in a non-threatening manner. Fostering collaboration through interactive activi-

ties offered an opportunity to meet classmates and develop essential connections to others in the nursing program.^[19,24] Highly engaged faculty are essential for supporting this environment.^[19]

Engagement in both lecture and seminars, using the unfolding case study and seminar activities were described by learners with varying needs as beneficial to learning. The unfolding case study helped learners understand the course concepts, forced them to be more focused on what was being discussed in class, improved their learning, and solidified what was being taught. Learners found the lecture format fun, interactive, and engaging. For some learners this encouraged lecture attendance, as the in-class activities motivated learners to attend, and stay attentive throughout the lecture time.^[21]

This format was identified as preferred by learners with a documented disability over direct lectures by the instructor. Speaking out or up in class is difficult for some learners as they fear judgement by others, which can be a challenge to learning. The option of contributing in class to the discussion was at the discretion of each learner and appreciated as such. Learners were able to voice opinions without any apprehension of retaliation and embrace the possibility of getting an answer wrong, which aligns with similar evidence.^[26]

Also, the unfolding case study was appreciated by participants for its consistency in format for lecture time. Learners recognized the weekly objectives and promptly answered questions related to the case. Strategies that support predictability and pace, with no surprises when it comes to expectations in the course can be used successfully to communicate, provide feedback, and reassurance to learners.^[15]

Mixed input from participants was received about the helpfulness of the group project. Real-time practice opportunities were identified as helpful in the seminars. Novak and Tucker, describe the importance of real time practice for learning and a UDL approach.^[5] Group norms were established with members and instructor guidance in a seminar activity prior to starting the group project. Building collective agreements into this community of learners can foster and empower both voice and choice, while helping to set the tone for group interactions.^[27] While challenges within groups existed, attempts to minimize and support learners were made.

Finally, the scaffolding of the course content in both class and seminar sessions was beneficial to learners in applying and understanding the connection of concepts. Minimizing the amount of new information each week into smaller chunks or levels of engagement has been identified as helpful to learners in blended courses.^[5,9,20]

4.2.4 Realistic, relatable, and relevant

Participants valued the unfolding case study, interview-based essay, seminar activities, and group project for their realism, relevance, and connection to future nursing practice. The unfolding case study was especially appreciated for helping learners relate course concepts to personal experiences and practice essential nursing skills in a low-pressure environment.^[24,28] Connecting class members to appropriate peer and professional resources is important to support a sense of belonging among learners.^[15]

Learners described the benefits of the academic paper, which included an interview with a registered nurse. The assignment provided a glimpse into what nursing might be like and opportunity for reflection. Evidence indicates that reflexivity, or reversibility, also plays a vital role in effective learning and optimal outcomes for some learners.^[29]

4.2.5 Stress and anxiety

Generally, learners shared that the course format was less stressful than other courses in their first year and minimized anxiety related to assignment grades. Both asynchronous and synchronous instructional strategies were instrumental in reducing stress among learners. Asynchronous methods such as providing lecture recordings, use of weekly units with content, choice of higher grade, integration of participation-based activities worth points, weighting of assignments, and flexible timelines and submission options for assignments were described as reducing related stress among learners. Offering choice and flexible assignment submission timelines have been identified as helpful to promoting balance in a learner's life, while fostering inclusion and minimizing related stress.^[16, 18, 23]

Learners were permitted and encouraged to change their responses to the case study questions following an informal classroom discussion prior to submitting these at the end of lecture for participation-based points. Permitting mistakes while learning has been shown to minimize the stress of once and done type testing typically experienced by learners.^[30] In addition, the learners felt a human connection with the course instructors. The significance of educators getting to know learners personally has also been shown to reduce stress.^[19]

Finally, the group project offered both benefits and stressors: while some learners formed lasting friendships, others struggled with unequal work distribution and interpersonal conflict, echoing challenges noted in the literature.^[29,31] For some, group work raised performance standards; for others, it introduced emotional strain.

4.3 Limitations

Certain limitations may impact the findings potentially limiting the degree of generalizability. The study was conducted in one course, at one institution, during two separate semesters of a BScN program, and minimizes the ability to generalize the findings to other settings or populations. The ITSI-S tool used for this study is lengthy and has inconsistencies in response options that may have contributed to reported differences in instructor attitudes and actions. Furthermore, the survey used self-reported measures that may facilitate an opportunity for bias or dishonest responses.

4.4 Recommendations

Educators must consider using an appropriate balance of UDL based synchronous and asynchronous instructional strategies to support inclusive pedagogical practices in a blended class environment. Gradual implementation and refinement of these methods should involve an ongoing process with input from learners for improvements with the flexibility to offer choices that support learner success. Future research can be used to explore other learner perspectives in various disciplines and levels of academic study.

5. CONCLUSIONS

Both synchronous and asynchronous instructional strategies were appreciated by learners, as these offered choice, option, and flexibility that were described as important to success in the course. Timely instructor feedback, choice, and the use of a variety of feedback methods were described as helpful means for learners to gauge course progress, and reduce anxieties related to grading. To obtain individual academic goals, learners appreciated instructor presence, accessibility, approachability, and feedback provided. Engagement and collaboration with instructors and peers generally helped to interacting with and understanding the content. The integration of relatable, realistic, and relevant content assisted learners in making connections to their own lives and future practice as a nurse.

Overall, the UDL based blended offering of the course format assisted in decreasing the impact of stress and anxiety on learning, making it more enjoyable to learn. A blended course delivery format that is based on UDL principles can support a variety of learning needs by minimizing curricular barriers and expanding opportunities for learning to be inclusive of diverse educational needs.

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AUTHORS CONTRIBUTIONS

Ann Mary Celestini, EdD, RN and Amy Hallaran, PhD, RN were responsible for study design and revising. Kayla Condotta, BScN RN was responsible for data collection. Dr. Celestini drafted the manuscript, and Dr. Hallaran and Kayla Condotta revised it. All authors read and approved the final manuscript.

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DATA SHARING STATEMENT

No additional data are available.

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