

Baccalaureate Nursing Students' Perceived Learning Using the Unfolding Case Study Pedagogy in Prostate Cancer Surgical Care at a Selected University in Central Uganda. A Cross-sectional Study

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ABSTRACT

Background:

The study aimed to describe the baccalaureate nursing students' perceived learning using the UCS pedagogy in prostate cancer surgical care at a selected university in Central Uganda.

Methodology:

A quantitative comparative crossover within-subject design was used among 30 Year Three baccalaureate nursing students at a selected university in Central Uganda, selected through census sampling. Students were taught post-operative prostate cancer surgical care using the UCS pedagogy. Immediately after the intervention, perceived learning was assessed using an adapted 19-item four-point Likert questionnaire. Data were analyzed using SPSS version 26 through means, standard deviations, and frequencies. Ethical approval, informed consent, confidentiality, privacy, and voluntary participation were ensured.

Results:

Thirty baccalaureate nursing students participated, comprising 25 (83%) females and 5 (17%) males. Following the UCS pedagogy, perceived learning had a mean score of 3.50 (SD=0.71). Item-level scores ranged from 3.13 (SD=0.78) to 3.90 (SD=0.31). The highest scores were for promoting active involvement and teamwork (M=3.90, SD=0.31) and practical learning and clinical imagination (M=3.90, SD=0.31), while the lowest was for simplifying summaries of topics and content areas (M=3.13, SD=0.78). Overall, 24 (80%) students had high perceived learning, 5 (17%) had moderate perceived learning, and 1 (3%) had low perceived learning. Additional views showed that 21 (70%) reported being well engaged, 19 (63%) reported improved ability to link theory to practice, and 17 (56%) reported enhanced critical thinking and cognitive abilities. Mean satisfaction was 8.47 (SD=0.72), with 16 (53%) highly satisfied and 14 (47%) moderately satisfied.

Conclusion:

The UCS pedagogy enhanced students' perceived learning of prostate cancer surgical care through active participation, collaboration, communication, and independent learning.

Recommendation:

Nursing educators should incorporate UCS pedagogy into the teaching of prostate cancer surgical care and other relevant nursing courses.

Keywords: Prostate cancer, Surgical care, Nursing students, Case-based learning, Active participation, Clinical decision-making.

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BACKGROUND OF THE STUDY

Contemporary nursing education increasingly emphasizes student-centered learning (SCL) approaches that actively involve learners in constructing, applying, and reflecting on knowledge. SCL pedagogies promote educator–student interaction, critical thinking, reflection, collaboration, and clinical decision-making, thereby creating meaningful learning experiences for nursing students (Gborgblorvor, 2016; Satoh et al., 2020). Evidence from several studies indicates that SCL approaches can enhance active learning, critical thinking, clinical judgment, problem-solving, and knowledge retention among nursing students (Afrasiabifar & Asadolah, 2019; Bijani et al., 2019; Jamshidi et al., 2021; Vizeshfir et al., 2016).

The **Unfolding Case Study (UCS)** is a student-centered pedagogy that simulates clinical experiences by presenting learners with a patient scenario that progressively changes as new information about the patient's condition is introduced (Peele, 2015; Hobbs, 2018). Unlike a static case study, a UCS requires students to continuously assess new information, analyze the patient's changing condition, prioritize nursing needs, make clinical decisions, and justify appropriate interventions. The approach therefore provides opportunities for learners to integrate theoretical knowledge with clinical reasoning and decision-making in a safe learning environment (Carr, 2015; Bryant, 2016).

UCS is particularly relevant to nursing education because it can help bridge the gap between theoretical learning and clinical practice. Students can relate previous knowledge to evolving clinical situations while receiving feedback and participating in faculty-led reflection and debriefing (Bryant, 2016). Studies have demonstrated positive learning outcomes associated with UCS. McCormick et al. (2013) reported higher pre- and post-intervention learning scores among nursing students taught using UCS compared with traditional classroom approaches. Similarly, Herrona et al. (2019) found that video-based UCS improved knowledge acquisition, critical thinking, and motivation to learn among nursing students. UCS may therefore provide an opportunity for students to develop the analytical and clinical reasoning skills needed for complex nursing care.

Prostate cancer surgical care provides an appropriate context for UCS because patients may experience changing clinical needs throughout the perioperative period. Students can progressively assess patient information, identify priorities, anticipate complications, select appropriate nursing interventions, and evaluate patient outcomes. Furthermore, UCS can be implemented in classroom settings without requiring sophisticated technology, making it potentially suitable for resource-constrained educational environments (Carr, 2015).

The study aimed to describe the baccalaureate nursing students' perceived learning using the UCS pedagogy in prostate cancer surgical care at a selected university in Central Uganda.

METHODOLOGY

Study design.

The study adopted a quantitative comparative crossover within-subject design. The same cohort of baccalaureate nursing students participated in the UCS pedagogical sessions after having participated in the lecture sessions. For this objective, the UCS pedagogy was the pedagogical approach of interest, and students' perceived learning was assessed immediately following completion of the UCS sessions.

Study setting.

The study was conducted at a selected university in Central Uganda, which provided an accessible population and the appropriate academic environment for conducting the UCS pedagogical sessions among Year Three baccalaureate nursing students.

Target population.

The target population consisted of all baccalaureate nursing students in Uganda.

Study population.

The study population consisted of all baccalaureate nursing students in the first semester of Year Three at the selected university in central Uganda.

Study population selection plan.

A census of the accessible class of 30 Year Three Semester One baccalaureate nursing students was undertaken. Census sampling was selected because the population was small, accessible, and manageable.

Inclusion criteria.

Eligible participants were baccalaureate nursing students in their first academic semester of Year Three who were present during the study period and willing to participate.

Exclusion criteria.

Students repeating the course were to be excluded because their previous exposure to the course could affect their baseline learning and perceived learning. There were no repeaters in the accessible class.

Bias.

The use of census sampling minimized selection bias by giving all eligible students an opportunity to participate. Using the same participants for both pedagogical sessions also reduced the influence of differences between participant groups.

Data collection tool.

The same adapted researcher-modified perceived-learning questionnaire was used. Version Two was specifically administered after the UCS pedagogy. The instrument was adapted from Bijani et al. (2019), and permission for its use was obtained from the original author.

Questionnaire.

Version Two contained the 19 perceived-learning items assessing motivation, clinical decision-making, active participation, connection of learning to reality, comprehension, self-confidence, critical thinking, opportunities for questions and answers, facilitation of learning, and applicability to course subjects. The four-point Likert scoring system was used, with scores ranging from 1 to 4 after the undecided response was treated as missing data. Perceived-learning scores were categorized as low, moderate, or high using the same thresholds as Version One:

- Low: <2.50
- Moderate: 2.50-3.24
- High: ≥ 3.25 .

Question 20 assessed satisfaction with the UCS pedagogy using a 0-10 scale, with 0-5 categorized as dissatisfied, 5.1-8.0 as moderately satisfied, and 8.1-10 as highly satisfied.

Validity.

Content validity was addressed using the previously validated perceived-learning questionnaire and additional review by two experienced UCU faculty members. The reviewers assessed whether the adapted instrument adequately captured perceived learning related to prostate cancer surgical care taught using the UCS and lecture pedagogies.

Reliability.

The original instrument had demonstrated acceptable reliability, including a Cronbach's alpha of 0.89. The adapted questionnaire was pretested among three similar baccalaureate nursing students outside the main study population. Test-retest procedures and internal consistency assessment were undertaken, with a Cronbach's alpha of 0.88 reported for the UCS version.

Data collection process.

Following the pre-pedagogical meeting and completion of the lecture sessions, the students participated in four UCS sessions over two days. The UCS sessions covered post-operative prostate cancer surgical care and lasted four hours in total, with two one-hour sessions conducted on each of the two days.

UCS group organization.

The 30 students were divided into two groups of 15 students at the beginning of the UCS sessions. The grouping was

achieved through alternate number allocation, with students assigned to Group One or Group Two. The two groups sat on opposite sides of the same lecture hall. Both groups were exposed to the same four UCS scenarios. The researcher used an interactive facilitative approach. Each group selected a volunteer secretary who presented the group's submissions to the whole class. Constructive feedback, a summary of the UCS, and debriefing were provided by the researcher.

Post-UCS data collection.

Immediately after completion of the UCS pedagogy on Day Four, Version Two of the questionnaire was administered to all participants from 12:00 noon to 12:30 pm. The sealed envelopes bearing the participants' unique identification codes from the lecture assessment were returned to the participants. Each participant identified their envelope, retrieved the unique code, and completed Version Two without writing their name on the questionnaire. The completed questionnaires were collected and securely stored.

Data analysis.

Data were entered into Excel and imported into SPSS version 26. A codebook was used to guide coding and analysis. For Specific Objective Two, perceived learning using the UCS pedagogy was analyzed using the same descriptive procedures applied to Version One. The mean and standard deviation for each of the 19 perceived-learning items were calculated. The overall group means and standard deviation were established. The frequency distribution of participants within the low, moderate, and high perceived-learning categories was also determined. The highest- and lowest-scoring perceived-learning items were identified. The overall satisfaction score for the UCS pedagogy was also calculated and categorized using the 0-10 satisfaction scale.

Ethical considerations.

The same ethical procedures applied to Specific Objective One were maintained for the UCS assessment. Ethical approval and administrative permission were obtained before data collection. Participants provided informed consent and were informed that participation was voluntary and unrelated to academic grading. Unique identification codes were used to link participants' lecture and UCS questionnaires while maintaining privacy. Completed questionnaires were securely stored, and electronic data were password-protected. The pedagogical sessions also provided participants with an opportunity to increase their knowledge of prostate cancer surgical care and experience the UCS approach to learning.

RESULTS

Baccalaureate nursing students' socio-demographic characteristics

The first section of data presentation outlines the socio-demographics of the baccalaureate nursing students. This includes the baccalaureate nursing students' age, gender, and year of study. Thirty

baccalaureate nursing students participated in this study. The results of the demographic characteristics of the baccalaureate nursing students are presented in Table 1. The ages of the thirty baccalaureate nursing students ranged from 19-26 years old. The majority (83.3%) of the baccalaureate nursing students were female. All thirty (100%) baccalaureate nursing students were in their third year of study.

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Table 1: Socio-Demographic Characteristics of the Baccalaureate Nursing Students

Category	Frequency (f)	Percentage (%)
Age (Years)		
19-26	30	100
Gender		
Male	5	17
Female	25	83
Years of Study		
Year Three	30	100

Baccalaureate nursing students' perceived learning using the UCS pedagogy

This section presents findings of the baccalaureate nursing students' perceived learning on post-operative prostate cancer surgical care using the UCS pedagogy.

Detailed descriptive findings of the baccalaureate nursing students' perception of learning based on the characteristics of the UCS pedagogy, students' additional views of the UCS pedagogy, categories of perception, and the baccalaureate nursing students' perceived satisfaction with the UCS pedagogy are presented in Tables 6, 7, 8, and 9, respectively. The detailed baccalaureate nursing students' individual scores of perceived learning are presented in Appendix P.

The mean for perceived learning after the UCS pedagogy was 3.50 (SD=0.71).

Table 2 shows that the perception item about the UCS pedagogy promoting active involvement and teamwork with colleagues in the learning process had the highest score, with a mean of 3.90 (SD=0.31). This was followed by the characteristic that UCS pedagogy possesses a more practical learning approach that fosters clinical imagination, with a mean of 3.90 (SD =0.31). The lowest mean was 3.13 (SD=0.78), where the baccalaureate nursing students disagreed with the characteristic of the UCS having the ability to sum up all the topics and content areas in the subject.

Table 2: Baccalaureate nursing students' perceived learning using the UCS pedagogy.

Characteristics Items	SD	D	A	SA	M	SD
1. Enables students to attain all objectives effectively	0	3	7	20	3.57	0.68
2. Students find the pedagogy more interesting	0	2	5	23	3.70	0.60
3. Enhances comprehension of the concepts of the topic	0	4	11	15	3.37	0.72
4. Encourages collaboration and teamwork in learning	0	0	3	27	3.90	0.31
5. Helps students develop clinical decision-making skills	0	1	9	20	3.63	0.56
6. Boosts students' motivation to learn and engage in class activities	0	2	9	19	3.57	0.63

7. Enhances students' clinical reasoning skills	0	1	12	17	3.53	0.57
8. Helps students learn, share knowledge, and clinical experiences	0	2	7	21	3.63	0.61
9. Promotes neat, organized information	0	5	11	13	3.17	0.95
10. Promotes better practical learning and clinical imagination	0	0	3	27	3.90	0.31
11. Enhances long- term retention of learned material	0	4	8	18	3.47	0.73

Table 2 Continued
Baccalaureate nursing students' perceived learning using the UCS pedagogy

Characteristics Items	SD	D	A	SA	M	SD
12. Applicable to most nursing topics and subjects	0	2	13	15	3.43	0.63
13. Boosts students' self-confidence in learning	0	4	11	15	3.37	0.72
14. Reduces classroom monotony and makes learning enjoyable	1	1	7	21	3.60	0.72
15. Encourages students' in-depth thinking and knowledge integration	0	3	8	19	3.53	0.68
16. Provides more opportunities for questions and discussions	2	0	12	16	3.40	0.81
17. Better preparation for patient care planning in the clinical environment	1	1	12	16	3.43	0.73
18. Allows more objective evaluation of learning outcomes	0	6	9	14	3.17	0.99
19. Simplifies summary of all topics and subject content areas	1	4	15	10	3.13	0.78

Table 3: Baccalaureate Nursing Students' Perceived Learning of the UCS Pedagogy by Category

Category	Frequency (f)	Percent (%)
High: $\geq$ 3.25	24	80
Moderate: 2.50 – 3.24	5	17
Low: < 2.50	1	3

Table 3 shows that 80% of the baccalaureate nursing students had a high perception of learning using UCS pedagogy.

Additional baccalaureate nursing students' perceived learning data using the UCS pedagogy

Other than the general characteristics of the UCS pedagogy, the baccalaureate nursing students viewed learning using the UCS pedagogy as being engaging (70%), having the ability to link theory to practice (63%), and enhancing critical thinking and cognitive abilities (56%). Details are shown in Table 4.

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Table 4: Baccalaureate nursing students' additional views on perception of learning using the UCS pedagogy

Characteristics Items	Frequency (f)	Percentage (%)
Well engaged using the UCS pedagogy	21	70
Increased students' ability to link theory to practice and appreciate real-world learning	19	63
Enhanced critical thinking and cognitive abilities	17	56
Preferred use of UCS in the learning sessions	4	13
Learning was more enjoyable using UCS	4	13
Consumption of much more time using UCS	3	10

Baccalaureate nursing students' perceived satisfaction of learning using the UCS pedagogy

The baccalaureate nursing students' individual scores of perceived satisfaction of learning using UCS were established. The mean for perceived satisfaction of learning using UCS pedagogy was 8.47 (SD=0.72).

Table 5 shows the categories of satisfaction of learning using UCS pedagogy. Most of the baccalaureate nursing students (53%) were highly satisfied with the UCS pedagogy.

Table 5: Baccalaureate nursing students' perceived satisfaction of learning using the UCS pedagogy

Category	Frequency (f)	Percentage (%)
Highly Satisfied: 8.1-10	16	53
Moderately Satisfied: 5.1 - 8.0	14	47

DISCUSSION

Demographics

The study disclosed that the majority of the baccalaureate nursing students were female.

This finding is in line with historical trends which show that women predominate in the nursing profession (Berkery et al., 2014; Prosen, 2022). Additionally, the above finding is consistent with the evidence of Lalam and Oketcho (2022), where the majority of the study respondents in Ugandan nursing institutions were female.

This study disclosed that all the baccalaureate nursing students were aged between 19 and 26 years old. This finding is consistent with the evidence of Kempango and

Atuhaire (2024), where the majority (80%) of the respondents were below 28 years, which is the right age bracket for tertiary and university students in Uganda. The study further indicated that all thirty baccalaureate nursing students were in their third year of study. This finding is consistent with evidence from a study by Neumbe, Ssenyonga, Soita, Iramiot, and Nekaka (2023), which shows that the majority of the baccalaureate nursing students in the above age bracket were in the third year of study after successful progression in their studies.

Baccalaureate nursing students' perceived learning using the unfolding case study pedagogy (UCS)

The findings of the current study showed that the use of the UCS created a high perception of learning in teaching post-operative prostate cancer surgical care to the baccalaureate nursing students. This high perception likely results from UCS's interactive, scenario-based approach. By simulating real-world clinical situations, UCS engages students in active problem-solving, critical thinking, and decision-making, which align closely with the practical demands of nursing practice. Secondly, the collaborative nature of UCS, often involving group discussions, may have fostered peer learning and confidence in applying knowledge. Thirdly, the relevance of the prostate cancer care context, with its focus on patient-centered outcomes, may have made UCS particularly impactful, as students could directly connect theoretical knowledge to practice. Alternatively, the novelty of UCS compared to lectures may have increased enthusiasm. This is consistent with findings of previous researchers such as Berghoff (2015), Bryant (2016), and Peele (2015) who reported positive baccalaureate nursing students' perception of learning after using UCS pedagogy. The area where perception of learning scored the highest was the "ability of the pedagogy to promote active involvement and teamwork with colleagues in the learning process". This is in line with findings in a study done by Shohani et al. (2023) that showed that the majority of the nursing students agreed that the case study promoted more cooperation and allowed students to discuss concepts. Additionally, the baccalaureate nursing students appreciated that the UCS possesses a more practical learning approach that fosters clinical imagination. The findings of this study showed some consistency with the study done by Bryant (2016), in which the baccalaureate nursing students appreciated the UCS pedagogy's ability to improve their practical imagination using the information received in a UCS of oxygenation transfer and promoted potential utilization of this knowledge in different contexts. A similar study by Shohani et al. (2023) also showed that the majority of the nursing students appreciated the case study's ability to be closer to reality.

The lowest score of the baccalaureate nursing students' perception of learning using the UCS method was in the area of "UCS's ability to sum up all the topics and content areas in the subject". Unlike lecture pedagogy, which systematically covers a broad range of topics through structured outlines, UCS focuses on specific clinical scenarios. This targeted approach may have left the nursing students feeling that certain theoretical aspects are not fully addressed. The dynamic, unfolding nature of UCS, while engaging, may have also created a perception of fragmentation, as students navigated evolving case details rather than receiving a cohesive summary of all content. Additionally, the novelty of UCS may have challenged

students accustomed to traditional linear pedagogies, leading to uncertainty about whether all subject areas were adequately covered. Alternatively, the researcher's case design may have emphasized specific skills such as clinical decision-making over comprehensive content review, further contributing to this perception. However, UCS's ability to sum up all the topics and content areas varies from findings of similar studies, which reported relatively higher student scores in summarizing subject content (Bijani et al., 2019; Shohani et al., 2023).

CONCLUSION

The study demonstrated that baccalaureate nursing students reported improved perceived learning when prostate cancer surgical care was taught using the UCS pedagogy at a selected university in Central Uganda. The UCS approach provided students with opportunities to actively participate in the learning process, collaborate with peers, communicate, organize their learning, and apply knowledge to clinical situations. The findings therefore suggest that UCS can support deeper understanding and development of competencies relevant to prostate cancer surgical care.

RECOMMENDATION

Nursing educators should incorporate UCS pedagogy into the teaching of prostate cancer surgical care and other relevant nursing courses.

Nursing institutions should provide faculty with training on the design, development, and implementation of UCS scenarios.

Nursing educators should use UCS to promote students' teamwork, communication, problem-solving, independent learning, adaptability, and application of theoretical knowledge to clinical practice.

Nursing institutions should consider UCS as a relatively inexpensive, low-fidelity teaching strategy that can be implemented in settings with limited simulation resources.

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discussions throughout this journey. Above all, to God be the glory.

List of abbreviations

UCS – Unfolding Case Study

UCU – Uganda Christian University

SPSS – Statistical Package for the Social Sciences

M – Mean

SD – Standard Deviation

f – Frequency

SA – Strongly Agree

A – Agree

D – Disagree

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Conflict of interest

The authors declare no conflict of interest.

Data availability

Data are available upon request from the authors.

Author contributions

IPN: Conceptualisation, methodology, investigation, original draft writing.

EA: writing review and editing.

HN: writing review and editing.

ENK: data curation, formal analysis, visualization.

KBD: supervision, validation, writing review and editing

All authors: approved the final version of the manuscript and agreed to be accountable for the work

Informed consent

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

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