

Efficacy of Student-Centered Conceptual Teaching Approach (SCCTA) on the Learning Skills of Nursing Students

Rambe C. Ramel Jr., Khandy Lorraine G. Apsay

College of Nursing, Mindanao State University-Iligan Institute of Technology, Iligan City, Philippines

Email: rambe.ramel@g.msuiit.edu.ph, khandylorraine.guerrero@g.msuiit.edu.ph

How to cite this paper: Ramel Jr., R.C. and Apsay, K.L.G. (2017) Efficacy of Student-Centered Conceptual Teaching Approach (SCCTA) on the Learning Skills of Nursing Students. *Open Journal of Nursing*, 7, 1324-1334.

<https://doi.org/10.4236/ojn.2017.711095>

Received: October 5, 2017

Accepted: November 21, 2017

Published: November 27, 2017

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Abstract

Background: The BS-Nursing in the Philippines has an intensive curriculum at par with international standards to cater the learning needs of the students to make them globally competitive suitable for the demands of health care jobs abroad. **Objective:** This study is intended to highlight an innovative student-centered teaching strategy termed as Student-Centered Conceptual Teaching Approach (SCCTA) believed to enhance the retention and critical thinking skills of nursing students compared to traditional teaching approach. **Method:** A Quantitative Methodology specifically Comparison Group Pre-test/Post-test design was employed and both quantitative and qualitative data were gathered. These were analyzed using mean, standard deviation, and t test. Third year BS-Nursing students served as the participants of the study. **Results:** Findings show that the pretest score profile of the participants in the control and experimental group obtained a p value of less than 0.001 $\alpha = 0.05$; thus, indicating that their learning skills are below average. Furthermore, the posttest score profile of the participants in the control group obtained a p value of less than 0.001 at $\alpha = 0.05$ indicating that their skills are still below average. The post-test score profile of the participants in the experimental, conversely, obtained p values of less than 0.001, and 0.11935, respectively at $\alpha = 0.05$, suggesting that the participants made significant improvements in their learning skills. Whereas, the mean gains of both groups obtained p values of less than 0.001 at $\alpha = 0.05$. This means that the participants had considerable learning in the above mentioned skills. However, there is a significant difference in the mean gains between the two groups due to the fact that the p values in all aforementioned skills are less than 0.001 at $\alpha = 0.05$. **Conclusion:** The significantly different responses between the groups show clearly that the participants of the experimental group learned better with the use SCCTA.

Keywords

Participants, Skills, Learning

1. Introduction

Innovations in teaching strategy vary from simple to complex. It can be developed for an application within a course to the method by which the entire course is taught. It can also be developed for whole programs or even whole schools. They can be developed by a single faculty member or by groups of faculty members. The prime objective is that the teaching strategies selected must address what needs to be learned in relation to the learning needs of students (Bradshaw & Lowenstein, 2007).

In the parlance of nursing, it is for certain that learning comes first inside the classroom before the students are exposed in the field and in the different clinical placements. The students as receivers of learning obtain the education and knowledge from the sender, the instructor. Undeniably the classroom performance of students is somehow influenced by how well the students understood the concept being taught in the classroom. One might argue that human understanding varies and that different people are entitled to their own different styles of learning. However, when these people are in the field of nursing discipline, one must not differ from the other and inasmuch as possible they must be mutually equipped with fundamental knowledge and background.

The nursing profession encompasses a variety of learning skills that needs to be developed so that one would not only excel in the field of academe but as well render effective nursing care to clients. These skills include retention and critical thinking, and such skills should be taught first to the students during class discussion. However, usual teaching strategies employed in the classroom like the traditional method, do not encourage such skills to be developed and make the students passive learners during class discussion.

This study is employed to introduce a new teaching strategy believed to enhance the retention and critical thinking skills of nursing students. This strategy encourages active participation and promotes engagement of students during class discussion. Moreover, this study compares the traditional and the modified conceptual method of teaching of nursing concept. More specifically it seeks to determine the effect of traditional teaching strategy and the modified conceptual teaching strategy to the skills mentioned above.

2. Conceptual Framework

The diagram in **Figure 1** is the conceptual framework of the study. It presents the activities that were engaged in the two groups in the experiment, namely, the experimental group that is exposed in the student-centered conceptual teaching approach and the control group that attends the regular class.

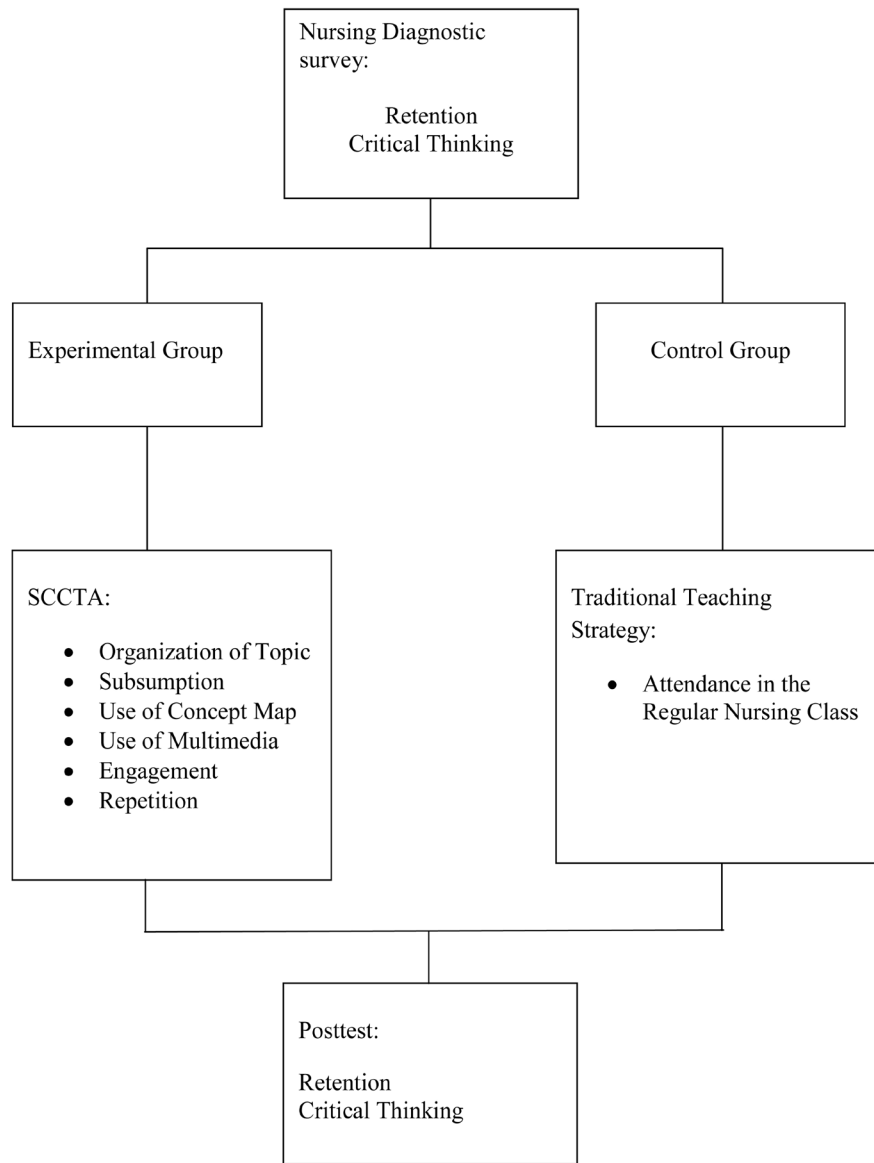


Figure 1. The schematic diagram of the conceptual framework of the study.

3. Methodology

The study made use of a Quantitative Quasi - Experimental, specifically the Comparison Pretest/Posttest design or nonequivalent control group before-after design (Polit and Beck, 2008) [1]. It was conducted at Mindanao State University College of Health Sciences, Marawi City during the School Year 2012-2013. There were a total of 30 students who participated in the conduct of the study. The said participants were equated according to their pretest scores and gender and were evenly distributed to experimental group and control group. 15 participants belong to the experimental group and 15 participants belong to the control group. The experimental group was exposed using SCCTA. The following are the steps on how the strategy was done: First, the students were provided with general information about the concept that includes common terminolo-

gies, assessment parameters, and laboratory procedures. Second, the respondents were assigned to study in advance the anatomy and physiology and the specific diseases or disorder to be discussed the following meeting. Third was the discussion on the anatomy and physiology with integration of signs and symptoms, nursing diagnoses, and nursing intervention which was done through the use of diagram, picture, and audio-visual presentation. Fourth, the disease or disorder was discussed using a map where nursing diagnoses and intervention were also integrated; and fifth was the discussion about medical managements and prognosis. The entire discussion of the concept was made through active interaction between the instructor and the students. Also, the previous topic was reviewed prior to the discussion of the next topic

On the other hand the control group attended the regular class using traditional teaching method. Thus, this group was not exposed to the modified conceptual and had served as the basis for the assessment of the study.

A structured diagnostic test composed of 90 items multiple choice questions which had undergone pilot testing and item analysis was used in data gathering. The questionnaire was composed of 90 items multiple choice questions with four choices: a, b, c, d. Items 1 to 30 measured the retention skills of the participants. Items 31 to 60 measured the critical thinking skills of the participants; and items 61 to 90 were composed of questions pertaining to the care of clients with communicable diseases. The study was then analysed using mean, standard deviation, and t-test statistical tools.

3.1. Ethical Approval

The study was reviewed and approved by the College of Health Sciences Ethics Committee. Consent to conduct the study was approved by the Dean of the institution before informed consent was thoroughly explained and disseminated to the participants.

3.2. Participants of the Study

Table 1 above describes the demographic profile of the respondents, where

Table 1. Frequency distribution of the demographic profile.

Demographic Profile	Number of Respondents	Percentage
Gender		
Male	2	6.67%
Female	28	93.33%
Age		
16	4	13.33%
17	19	63.33%
18	7	23.33%
Ethnicity		
Maranao	26	86.67%
Cebuano	3	10%
Tausug	1	3.33%

only 6.67% are male and 93.33% are female. As to age, majority of them are 17 years old. Furthermore, most of them are Maranaos accounting to 86.67%.

There were three sections of third year level during the second semester of S.Y 2012-2013. One section was selected for the study using simple random sampling. The participants from the selected section were given a pretest on communicable disease concept, after which, they were equated and selected according to their pretest scores ranked from highest to lowest and according to their gender. The participants were then evenly distributed between the experimental group and control group. Fifteen participants were selected and assigned to the experimental group and another fifteen to the control group.

3.3. Scope and Limitation

The study aimed to evaluate the effectiveness of SCCTA compared to traditional lecture method of teaching. Although it has reached its aims, it has the following limitations: the study was tested to a single nursing concept and to a single year level of nursing students. Therefore, to further generalize its result, the study should be tested to different nursing concepts for each year level of nursing students.

4. Findings

As demonstrated in **Table 2**, the participants in the control group obtained a score profile of below average in the learning skills of retention and critical thinking. This is because the hypothetical means are greater than the actual mean. When tested for its significance, the p values are less than 0.05 level of significance.

As demonstrated in **Table 3**, the participants in the control group obtained a score profile of below average in the learning skills of retention and critical

Table 2. Pretest score profile of the participants in the control group.

Skills	Number of Items	Hypothetical mean	Actual mean	SD	t-test	p value	Description
Retention	30	22.5	12.13	5.49	-7.30	<0.001	Below average
Critical thinking	30	22.5	13.00	2.88	-12.84	<0.001	Below average

Note: If p value is less than 0.05, then the mean score is not equal to 22.5, otherwise equal.

Table 3. Posttest score profile of the participants in the control group.

Skills	Number of Items	Hypothetical mean	Actual mean	SD	t-test	P value	Description
Retention	30	22.5	19.00	3.16	-4.27	<0.001	Below average
Critical thinking	30	22.5	17.67	4.77	-3.93	<0.001	Below average

Note: If p value is less than 0.05, then the mean score is not equal to 22.5, otherwise equal.

thinking. This is because the hypothetical means are greater than the actual mean. When tested for its significance, the p values are less than 0.05 level of significance.

As demonstrated in **Table 4**, the participants in the control group obtained a score profile of below average in the learning skills of retention and critical thinking. This is because the hypothetical means are greater than the actual mean. When tested for its significance, the p values are less than 0.05 level of significance.

As demonstrated in **Table 5**, the participants in the experimental group obtained a score profile of above average in the retention skill with t-test value of < 0.001 , and average in the critical thinking skill with t-test value of -0.73 . This is because the actual mean are not equal to the hypothetical mean.

As can be gleamed in **Table 6**, the participants made significant improvements or mean gains in the learning skills of retention and critical thinking with t-test values of 3.44 and 3.34; and p values of < 0.001 and 0.0012 which are less than the 0.05 value of significance.

As reflected in **Table 7**, the participants in the experimental group made significant improvements or mean gains in the learning skills of retention and critical thinking with t-test values of 3.78 and 3.77 respectively; p values of $<$

Table 4. Pretest score of the participants in the experimental group.

Skills	Number of Items	Hypothetical mean	Actual mean	SD	t-test	P value	Description
Retention	30	22.5	13.73	3.45	-9.85	<0.001	Below average
Critical thinking	30	22.5	12.40	3.42	-11.48	<0.001	Below average

Note: If p value is less than 0.05, then the mean score is not equal to 22.5, otherwise equal.

Table 5. Posttest score profile of the participants in the experimental group.

Skills	Number of Items	Hypothetical mean	Actual mean	SD	t-test	P value	Description
Retention	30	22.5	26.20	2.20	6.49	<0.001	Above average
Critical thinking	30	22.5	22.20	1.60	-0.73	0.11935	Average

Note: If p value is less than 0.05, then the mean score is not equal to 22.5, otherwise equal.

Table 6. Mean gains of the participants in the control group.

Skills	Mean		Mean Gains	SD	t-test	P value	Interpretation
	Pretest	Posttest					
Retention	12.13	19.00	6.87	7.76	3.44	<0.001	Significant Mean Gains
Critical thinking	13.00	17.67	4.67	5.40	3.34	0.0012	Significant Mean Gains

Note: If p value is less than 0.05, then there is a significant difference, otherwise not significant.

0.001 which are less than the 0.05 value of significance.

Table 8 shows that there is a significant difference in the retention and critical thinking skills of learning between the Experimental and Control group with t-test values of 5.62 and 7.02; p values of less than 0.001 at 0.05 level of significance. The result then proves that SCCTA is an effective tool in enhancing the learning of nursing concept as compared to traditional teaching. This further suggests SCCTA improves the learning skills of nursing students in terms of retention and critical thinking.

Based on the data gathered, the following major findings arrived at:

- 1) The pretest score profile of the participants in the control group on skills of retention and critical thinking is below average.
- 2) The posttest score profile of the participants in the control group on the skills of retention and critical thinking is below average.
- 3) The pretest score profile of the participants in the experimental group on the skills of retention and critical thinking is below average.
- 4) The posttest score profile of the participants in the experimental group on retention is above average.
- 5) The posttest score of the participants in the experimental group on critical thinking is average.
- 6) There are significant mean gains from the pretest score to the posttest score on the sub-skills of learning on retention and critical thinking among the participants in the control group.
- 7) There are greater significant mean gains from the pretest score to the posttest score on the sub-skills of learning on retention and critical thinking among the participants in the experimental group.
- 8) There are significant differences in the mean gains in the sub-skills of learning on retention and critical thinking between the experimental group and

Table 7. Mean gains of the participants in the experimental group.

Skills	Mean		Mean Gains	SD	t-test	P value	Interpretation
	Pretest	Posttest					
Retention	13.73	26.20	12.47	12.76	3.78	<0.001	Significant Mean Gains
Critical thinking	12.40	22.20	10.13	10.40	3.77	<0.001	Significant Mean Gains

Note: If p value is less than 0.05, then there is a significant difference, otherwise not significant.

Table 8. Difference between the mean gains in the control and experimental group.

Experimental Group	Control Group	t-test	P value	Interpretation
Retention		5.62	<0.001	Significant difference
Critical thinking		7.02	<0.001	Significant difference

Note: If p value is less than 0.05, then there is a significant difference, otherwise not significant.

control group.

9) SCCTA is effective in improving the retention and critical thinking skills of the participants in the learning of a nursing concept.

5. Discussion

The findings of the study revealed that both participants in the control and experimental group obtained a pretest score of below average. These could be attributed to the fact that the students have no sufficient background about the concept; hence, they are expected to obtain such low scores. There are no existing cognitive pegs on which to hang the ideas which were definitely new and unfamiliar to the respondents. Ausubel's concept of meaningful learning and subsumption theory explain the poor performance of the respondents in the pretest [2]. Bartlett's Schema Theory (1932) should also shed light on the difficulty encountered by the respondents [3]. According to this theory, schema which consists of the prior knowledge or experiences of the learners, is a determining or underlying factor of comprehension. Obviously, the respondents found the concepts or items alien.

Moreover, the posttest score of the participants in the control group still obtained a score of below average. These results could be credited to the fact that the learning of nursing concept needs to be organized, reviewed, and participated both by the instructor and the students. Subsumption of idea must be coupled by engagement, use of visual aid and map. In traditional teaching the above mentioned strategies were not utilized, hence the result of the posttest. Lectures is very instructor centered and does not provide for much stimulation or engagement of learners (Bastable, 2008) [4]. According to Cross and colleagues (1997), lectures result in "surface learning", meaning the students may just memorize the given information and failing to truly comprehend or tie new information to existing cognitive schemata [5].

One of the weakness or disadvantage of traditional lecture method is that by nature it lends itself to the teaching of facts, however, it gives little emphasis on problem solving, decision making, analytical thinking, or transfer of learning (Black 1993; Cross, Tilson, Tanenbaum, & Rodgers, 1997) [5] [6]. There is also a likelihood of learner distortion and unable to develop complex cognitive and creative skills (Clark, 2008) [7]. Also, it does little to stimulate thinking (Bradshaw & Lowenstein, 2007) [8]. The outcome could also be attributed to the following statements of the participants: "*The strategy is just an ordinary way of teaching. It does not help participants retain the information into memory. Honestly, not all information from our instructor was retained even if I have tried my best to review it*". Another student claimed: "*After the discussion I was able to retain some information but then forgot it. I needed to study harder to retain it. There was no active participation among us*".

On the other hand, the posttest score profile of the participants in the experimental group obtained an average and above average rating on skills of retention

and critical thinking. The result could be attributed to the fact that the strategy employed made use of repetition, concept mapping, active participation, and engagement of students during class discussion. Learning is enhanced by repetition and it should be presented in multiple number of ways and much more important when the information is completely new and complex. Furthermore, topics need to be organized so that each class session would be enjoyable and smooth running (McKeachie, 1999) [9].

Mapping is also suitable for undergraduate and graduate students. It helps the students integrate the interrelatedness of new information through the use of critical thinking (Bradshaw and Lowenstein, 2007) [8].

Furthermore, when participants are not spoon-fed during class discussion and session, they develop their critical thinking habits using the provided strategy (Walsh & Seldomridge, 2006) [10].

The above results are then supported by the following statements: One participant said, *“Through this type of teaching, I can easily understand the lecture in a simplest way. The use of diagrams, arrows, pictures and maps help the students not only in understanding the concept but in retaining the information because it made the memorization and comprehension easier.”* Another student said, *“I am used to having lectures that used plain discussions, power points, and others. On the other hand, map is quite a unique teaching strategy and I find it nice. We are free to make any forms of map and I find it creative and thus, less boring to study.”* The other student said *“I don’t frequently read books and study my lesson unless it is interesting. However, the strategy made me retain more information through review, repetition and active interaction with the instructor and co-students.”*

Looking into the mean gains of both groups, the participants in the control group made significant improvements or means gains on the skills of retention and critical thinking. The result could be credited to the fact that the use of traditional has been long utilized in the parlance of teaching and also it does pave way to the learning of subject being taught in the classroom. Lectures can also be an efficient method of introducing learners to new topics. The teacher can use the lecture to set the stage for a new area of learning and place the topic into the perspective of what is already known (DeYoung, 2009) [11]. Nevertheless, if a lecture is well organized and delivered effectively, it can be a very useful method of instruction (Bain, 2004; Bartlett, 2003) [12] [13].

The participants in the experimental group also made significant improvements in aforementioned skills. However the means gains of the experimental group on the skills of retention and critical thinking are greater compared to the control group. In a study conducted by Kaddoura (2011) states that in today's technologically advanced healthcare world, nursing students need to be active learners and have to think critically to provide safe patient care [14]. The study compared traditional lecture-based education and a strategy that promotes students' active learning termed as case-based learning (CBL). The study revealed

that the students in a CBL program performed better and are more likely to learn to think critically than those in a traditional lecture-based education program.

6. Conclusions

The significantly different responses between the Experimental group and Control group show clearly that the participants of the Experimental group learned better with the use of Student-Centred Conceptual Teaching Approach compared to the participants of the Control group using Traditional teaching.

In all areas of learning measured in this study, a significant difference existed between the Experimental group and Control group. This indicates that the retention and critical thinking skills of the participants were greatly improved. Therefore, the practice of Traditional teaching and SCCTA is effective, however, SCCTA was found to be more implicit in enhancing the retention and critical thinking learning skills of nursing students.

7. Recommendations

1) A similar study must be conducted and to ensure greater validity of results, the procedure must be reversed. After the exposing the Experimental group to the treatment (SCCTA), in the second round, the roles must be reversed: the Experimental group becomes the Control group, and the Control group becomes the Experimental group.

2) School administrators should encourage the nurse educators to use innovative teaching strategies that would enhance the learning of nursing concept.

3) In teaching any nursing concept, a nurse educator must consider the engagement of students in the learning process. Active participation of students during discussion must be considered.

4) The students should be motivated to enhance their retention and critical thinking skills as these are essential components of becoming an effective nurse in the future.

5) A similar study should be conducted and applied to a different nursing concept in order to further test its effectiveness.

6) SCCTA must be tried in other nursing institutions to further prove its effectiveness in the learning of nursing concept.

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