

Original Article

# ATTITUDE OF STUDENTS ON CONCEPT MAPPING - AN INNOVATIVE TEACHING LEARNING STRATEGY

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**Abstract :**

**Background:** Multiple researches are going on in the field of promotion of critical thinking skills among nurses and one of the well studied teaching strategies is Concept Mapping (CM). Though Concept mapping is proved to be effective in promotion of critical thinking, it is not widely used. So this study aimed to identify the attitude of student nurses in relation to Concept mapping.

**Methods:** Descriptive survey design was used in this study. Thirty nine pre-final year nursing students participated in this study. 5 point Likert scale was used to assess the attitude of the students. Verbal opinion was also collected in relation to Concept mapping.

**Results:** There were 10 positive and 8 negative statements regarding Concept mapping which the student nurses evaluated. The mean attitude score was 74.5% which showed that the students were in favour of concept mapping. 97% of the students had said that they can easily apply it to the nursing process and 77% of them agreed that it can be used for the entire subjects including non nursing subjects like basic sciences. However, 61% of the students had said the preparation of concept mapping as a time consuming task and they would prefer traditional method of writing care plans. They had expressed that concept mapping made their mind fresh, kindled their thinking and improved their critical thinking. Many of them suggested that if concept mapping was being introduced to them from the first, it would have been the best method to write care plans.

**Conclusion:** As there is acceptance from the student to use concept mapping, it is required to prepare the nurse educators to use concept mapping as one of the teaching method.

**Introduction:**

There is a raising need for the nurses to develop their ability to think critically and solve the varieties of problems they face in clinical practice settings.<sup>(1)</sup> The challenge of preparing critical thinking nurses has been taken up by many nurse educators and many researches have been going on in this field.<sup>(2,3)</sup> The critical thinking nurses will be able to take rational decisions on the basis of available scientific knowledge i.e. evidence based practice. This is possible only if the nurses are able to make a connection

between their past knowledge with present knowledge.

Novak and Gowin introduced the CM (CM) in the year 1994 based on the Ausubel's assimilation theory of learning.

Ausubel, in his theory, he had used the term meaningful learning where an individual has to learn to integrate the newly acquired knowledge with the knowledge they already possess. The meaningful learning helps the individual to develop links between the old and new concepts which will promote the lateral thinking among the individuals. The theoretical framework of CM is also based on constructivist theory, cognitive continuum theory, and experiential learning theory.<sup>(2)</sup>

All and Havens defined the CM as a pictorial representation of key concepts that are unique to a specific topic or subject.<sup>(4)</sup> Hsu and Hsieh defined CM as an instructional strategy that requires learners to identify, graphically display and link key concepts by organizing and analyzing the information.<sup>(5)</sup> Another definition say CM is a visual representation of an individual's understanding of a selected phenomena.<sup>(2)</sup> CM can be used to integrate new knowledge with old ones.<sup>(6)</sup>

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In nursing education, the CM is adapted to develop nursing care plans from the assessment data collected from the patients instead of the common column wise prepared care plans.<sup>(7)</sup> Hsu had brought out the use of CM strategy through the research in emphasizing the key concepts, understanding the relationships between the concepts including the cause-effect relationship, reviewing the prepositions, hierarchical order and cross links in logical and scientific way, and connecting the theory and practice.<sup>(8)</sup>

There is a momentum of movement in nursing research towards CT (critical thinking) development among the novice nurses and many researches are being done to identify the strategies to develop CT skills which are suitable for nursing. Among them, CM is one of the strategies studied for its effectiveness in attaining the goal of meaningful learning. Though there are adequate evidences on the use of CM, it not being practiced widely among the nurse educators and the students lack in their ability to develop concept maps.. Hence the attempt is taken to identify the attitude of students towards the use of CM as an innovative teaching learning strategy.

#### Methods:

Descriptive survey design is used to conduct the study. The study group was chosen from the pre-final year undergraduate nursing students. Based on their willingness to participate in the study after their regular college timings, 39 students participated in the study. All thirty nine were female students. The pre final year i.e. the third year students learn four major nursing subjects namely medical surgical nursing, pediatric nursing, psychiatric nursing and maternity nursing. They were posted in the hospitals on around the clock shift duties. They were asked to take up the training in CM between 4-5 pm. The students on the night duty were also willing to participate in the study. They were given one hour lecture cum demonstration on preparation of CM. Following that, they were divided in groups of 4 or 5 and given case scenarios based on the subjects they learn (medical surgical nursing) to analyze and develop nursing care plans

using the technique of CM. The training went on for 4 weeks. After the training, the attitude of the students towards the CM was assessed using a attitude questionnaire and verbal opinions were also collected.

5 point Likert scale was used to frame the attitude questionnaire. Initially thirty statements were prepared in relation to CM and given to final year students who underwent the same training for CM. Among 30 statements, 18 were chosen for the study after the item analysis. The statements which can bring out more than 30 % difference among the students having most favorable and least favorable attitude towards CM were retained for the final attitude questionnaire. Among the 12 deleted statements, the responses for 5 statements showed 100% acceptance among the high and low scorers as shown in the table no 1. Though these statements were removed from the final questionnaire, they brought out the positive points about the CM. Same way, both the groups had the same opinion that they would like to use the traditional method of writing care plans rather than using CM. This was the only negative aspect where both the groups agreed 100% that CM needs more time to complete and they prefer traditional care plans. Excluding the 12 statements, 18 statements related to preparation of concept maps, effect of concept maps on their thinking, mind and future plans and negative points related to CM were included in the final attitude questionnaire.

#### Results:

The attitude scale was administered to 39 nursing students undergoing pre final year undergraduate nursing programme. The score were analyzed and compiled using descriptive statistics. The total attitude score was 90 and all the scores were converted into percentages. The results will be discussed only in percentages.

Among the 39 participants, 26 of them had a most favourable attitude towards CM, 13 of them had a moderately favourable attitude and no one had unfavourable attitude towards CM. (Table 2) One of the participants had scored above 90; two students had scored between 50-60. Nearly 50 % of the participants (15

students) had scored between 80–90 and 12 students had rated between 70–80. Nine of them had scored between 60 -70. (Fig 1) The mean and the standard deviation of the attitude score was 74.5 and 14.66 respectively.

There were 10 positive and 8 negative statements related to CM. Regarding the application of CM in nursing, four statements were included. (Figure 2) Thirty eight (97%) students had agreed that they can easily apply CM to the nursing process. 77% of them had said that it is possible to use CM in all the subjects including non nursing subjects. Thirty six (92%) students had agreed that there is a chance for improvement always while doing CM as they could include new concepts anytime without disturbing the map already made. 95 % of the students were happy that there is neither perfect nor wrong concept maps and each one can justify their own concept maps. 90% of them were able to view the holistic perspective of a patient in the concept map they had made.

The attitude regarding the effect of CM on their thinking and mind were assessed. 36 students (92%) agreed that CM make your mind fresh when it is tired and 82% said that their thinking was kindled while doing mapping. 95% felt that CM makes them a critical thinker as it stimulates lateral thinking.

When assessed for the future use of CM 74% had said they would like to continue using CM to do the nursing care plans and 77% had said they will apply the CM to other subjects too.

Regarding the negative statements, 21% of the students felt that there is no one perfect concept map which they can refer to. Only 18% felt that it is very complicated to make concept maps and 13 % felt tired while making concept maps. 23% of the students felt that it is difficult to read and understand the concept maps prepared by others. 21 % of the students expressed that they find it difficult to apply CM to the nursing process as they are used to the traditional column wise method of doing concept maps and the same 21% had said that it is difficult to evaluate the CM. But majority of the students (62%) had

agreed that CM is time consuming. (Figure 3)

#### Discussion :

There is a growing need for the nurse educators to prepare the future nurses so that they can analyze and solve varied problems and tackle any given situation in the modern era. This calls for a change in the traditional teacher centered lectures to more innovative teaching methods where the students are allowed to discuss and take rational decisions related to their patient care.<sup>(9)</sup> The students need to practice, debating within them, analyzing the given solutions during any problem solving process which will lead to appropriate decision making.

It was found that the novice nurses lack in critical thinking and need to develop the skill of critical thinking. One of the innovative teaching methods used by nurse educators is CM. The effect of CM in developing critical thinking was studied by many researchers whereas the acceptance of the students related to CM as a teaching learning strategy was rarely studied. The attempt to assess the attitude of students towards the CM had brought out a positive feedback about the CM.

While collecting the verbal comments from them, few students expressed that they felt fresh and relaxed and they enjoyed doing the concept maps. As it was interesting, their concentration improved. Another important aspect they expressed is that they could not refer or copy the concept maps prepared by others and they prepared their own concept maps. Pickens CL had supported this by saying, as the students developed their concept maps; they developed a sense of ownership and empowerment of the knowledge.<sup>(10)</sup> Some of them found it difficult initially and soon they learned to make concept maps. They could think in a broader sense and became creative. They had good co operation among the group members. They could see the wholistic view of the patients as also mentioned by Ellermann.<sup>(3)</sup>

They said that it improved their critical thinking and they were able to relate the concepts which they had not seen or done before. Senita J says that concept maps allow

Table1 The Positive and negative Statements On CM Agreed By all the Students On Item analysis

S.No	Statements on CM	Upper third	Lower third	Percent difference	Accept/Reject
1	CM improved my thinking	100	100	0	Rejected
2	I was able to see the relationships between concepts which I have not seen before.	100	100	0	Rejected
3	CM is very creative	100	100	0	Rejected
4	My mind was alert while doing CM	100	100	0	Rejected
5	CM helps to prepare individualized nursing care plans	100	100	0	Rejected
6	I prefer the traditional method of doing care plans than CM.	0	0	0	Rejected

Fig 1 Attitude Scores of Students related to CM

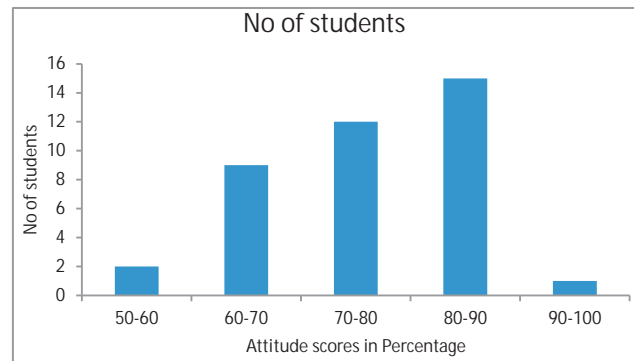


Table 2 The Attitude of Nursing Students Towards CM

n =39

S No	Attitude	Attitude score	No of Students	Percentage
1	Most favourable	75 -100	26	66.7
2	Moderately favourable	50 - 75	13	33.3
3	Unfavourable	<50	0	0

Fig 2 Attitude of students on application of CM in nursing

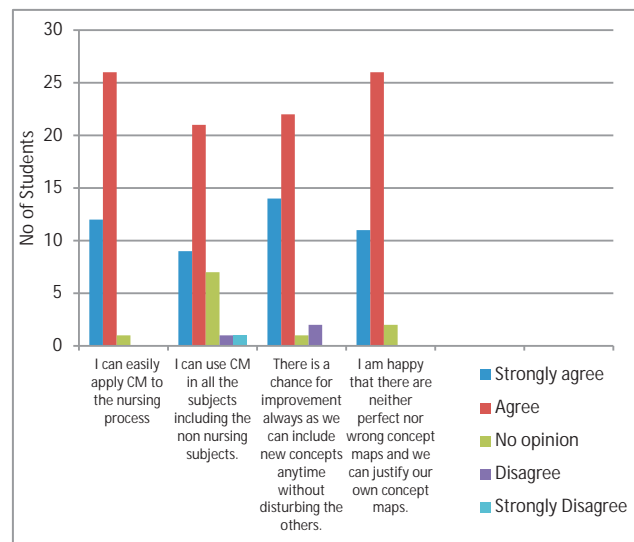
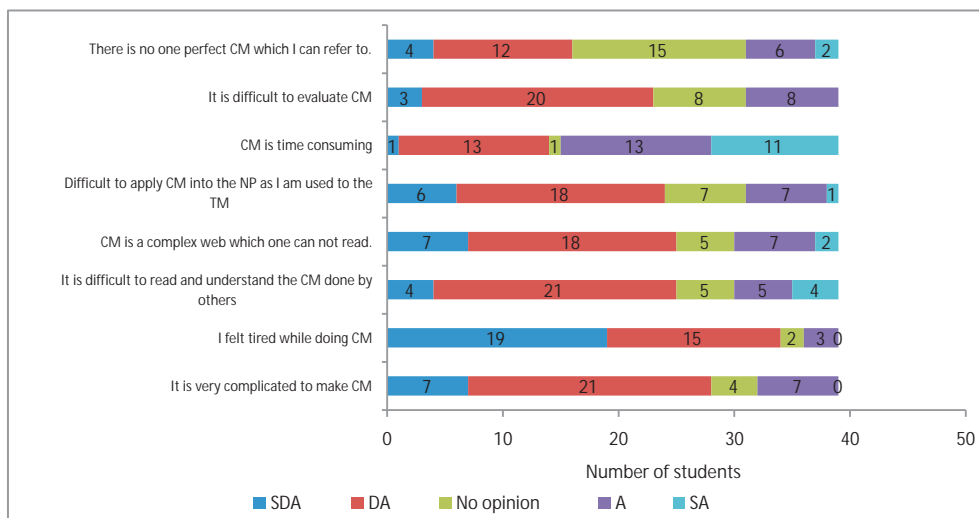


Fig 3 Attitude of students towards negative statements related to CM (Note: CM - CM; TM- Traditional method; SDA-Strongly disagree; DA-Disagree; A-Agree; SA-Strongly agree)



students to see how ideas are connected and organize and group information in a meaningful way.<sup>(11)</sup>

The students were on shift duties and 70-80% of them attended the training programme in the evenings after 8 hours of clinical duty. They expressed that they used to be tired when they started the work and once they were into the concept map, their mind became fresh and alert. At the time, they leave the training programme they were more relaxed.

They expressed that the concept maps reduced the paper work and they could save the time and stationary which was contradicting to the attitude assessment of the students related to time because 62% of them had scored the CM as a time consuming effort. In addition, they had recommended that CM can be adapted in the clinical areas and it will reduce the paper work for the nurses and save time. It was supported by Schuster, where the author has suggested that CM can be completed before providing care to the patients as it takes little time.<sup>(12)</sup>

The attitude of the students related to their preference to use CM to do nursing process revealed that they would

prefer the traditional method as they are used to the practice of writing care plans in column wise traditional method. In another study, 64% of the students had stated that CM can be used in addition to traditional nursing care plans.<sup>(13)</sup>

Though there are many researches going on in relation to critical thinking development and there are available evidences on the effect of CM in developing critical thinking, the CM is not widely used. The effort to identify the attitude of student nurses towards the CM has given a positive opinion and they have expressed that if they are taught to use CM from the first year, it will be one of the best method to learn. Though the students have agreed to use CM, there is a need to identify the skill and attitude of the nursing faculties regarding CM. A special training may be required for the nurse educators to get oriented and acquire skill in adapting CM as an innovative teaching and learning strategy.

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