

## Jigsaw Cooperative Learning Strategy: An Effective Tool for Improving Maternity Nursing Students' Achievement, Retention and Self Confidence

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### Abstract

**Background:** The jigsaw cooperative learning strategy (JCLS) can help Critical thinking is developed in nursing students. As well as talents in problem-solving. In the maternity nursing field, it aims to ensure the safety of both the mother and the new-born. **The study's aim was to assess the impact of** Jigsaw cooperative learning strategy for improving students of maternity nursing achievement, retention and self-confidence. **Design:** A quasi-experimental research design was utilized in this research. **Setting:** The study was carried out at the Maternal and Newborn Health Nursing Department of Fayoum University. (third year students). **Sample:** A convenient sample of 300 students enrolled for the academic years 2020/2021 was recruited. The first term's pupils were assigned to the control group (150), which received traditional teaching methods, whereas students in the second term were assigned to the study group (150), which was subjected to the Jigsaw Cooperative Learning Strategy. **Tools:** Four tools were utilized for data gathering: **Tool I:** A structured interviewing questionnaire used to assess students' Socio-demographic characteristics, **Tool II:** Student achievement tests (midterm and final written exams) are used to assess students' learning levels. **Tool III:** Satisfaction with Learning and Self-confidence in Learning (SCL) to assess a student's satisfaction and confidence in learning. **Tool IV:** Self-administered Students' Nurses' Opinionnaire Questionnaire sheet to assess nurses student' satisfaction with jigsaw strategy application. **Results:** In terms of student achievement, Between the two groups, there was a statistically significant difference. (midterm & final exam). Furthermore, students in the study group displayed greater information retention and self-confidence than students who were subjected to the traditional method. **Conclusions:** Jigsaw's collaborative learning strategy significantly improves student achievement, retention, and confidence in maternity nursing during the labour area in the clinic. **Recommendations:** Academic staff should be trained in how to use the jigsaw technique as an innovative teaching and learning strategy. Training workshops should be held for educators (faculty staff) and course designers to help them Adapt the approach to their students' needs.

**Keywords:** Jigsaw Cooperative Learning Strategy, information retention, Students' achievement, Students' self-confidence, Labour concept.

### Introduction

The enhancement of academic performance, effective training, and inspiring nursing students forward into professional competence are the main goals of teaching strategies in maternal health education that they can discover information for resolving issues in their career **Fadllaha andMckenna2018**. As a result, factors including the types of educational materials and instructional techniques that can improve teamwork and academic success and efficient learning among maternity students influence professional competency in the educational process environment **Hammond et al 2019**.

The behaviour that teachers exhibit in their interactions with students is referred to as

teaching methods. It is significant to numerous facets of teaching. It is applicable to both instructors -cantered and student-cantered spectrum **Bhandari etal2017**.

The development of clinical competency and effective training, qualified graduate students with professional competency are the ultimate aims of teaching in nursing education to enable them to apply understanding on how to solve problems in their career paths **Tekdal andSonmez 2018**.

Cooperative jigsaw learning is a form of group instruction that can be used as an alternative to lecture-based teaching. It has been asserted that using this strategy will reduce competition in the classroom by inspiring pupils to cooperate

cooperatively Wilson et al 2017. Additionally, it is asserted to foster increased student optimism towards their learning; strengthen more constructive relationships among students; foster student unity and self-esteem; and enhance learners' learning abilities Moonaghi and Bagher 2017.

Cooperative learning is one type from a student teacher method. It has been shown to be effective in promoting positive attitudes towards learning in students, as well as hands-on learning skills, effective communication, and knowledge acquisition competency Fremanet al 2014 There have been recent initiatives to incorporate student-centred arrives in an effort to give an engaging approach with students and strive to improve learning outcomes Phillips 2018. The educators use the cooperative jigsaw technique to encourage students to think critically, collaborate with others, and solve problems, also promotes peer learning and encourages students to adopt a positive attitude. as well as integrated students with their course materials, preparation, and presentation.

This technique merely allows students only learn, or at least demonstrate, what they have already learned. Educators, on the other hand, should strive to facilitate students' learning and teach them how to learn. Teachers must apply cutting-edge teaching strategies when planning for teaching in order to accomplish this goal Karimi and Moonaghi 2017.

For undergraduate students, self-confidence has been found to be a crucial factor. High self-confident students do better on tests, perform better in clinical settings, and employ clinical skills more successfully. The self-reported confidence of students is commonly taken to represent their skill because competency and self-confidence are strongly associated Tillery 2019.

Students' self-confidence is crucial to their success in obstetric clinical training. Nursing students often experience stress at the outset of these courses because babies are more sensitive than adults and smaller in size. Furthermore, physiological changes that take place during labour are typically present during care, which can also be stressful and worrisome

for nursing students. Educating graduated nursing students to prepare them for the complexity of the modern healthcare system is a challenge Phillips 2018.

Healthcare professionals, particularly maternity health graduate students, have a great responsibility to maintain and promote maternal health, and they are the primary individuals in charge of offering maternity planning programmer. Maternity nurses will be able to provide high-quality care and be extremely helpful in protecting mothers' well being and expanding their knowledge if they have access to skilled, competent, cooperative learning techniques. The jigsaw strategy in maternal specialties is a topic covered in very few Egyptian studies. Thereby, this study was done to determine how using a cooperative jigsaw learning technique will effect on the achievement and self-confidence of maternity nursing students Dhage et al 2017.

### Significance of the study

Vision 2030, Egypt's sustainable development plan, will place a greater emphasis on resource mobilization, monitoring and reviewing implementation objectives and cutting-edge treatment procedures, in order to reduce maternal and neonatal mortality by 60%. By applying very simple principles to our daily practices and revisiting the fundamental practices. The majority of maternal and neonatal morbidity can be avoided. Superior knowledge and abilities must be attained during the nursing academic years by gaining a better standard of maternity nursing care and recognizing the mother and neonate safety concept, in which nurses can be incredibly helpful in protecting moms. and improving the outcomes of their labour.

Today's world demands graduates who are able to apply their set of possess the necessary knowledge, abilities, and expertise to gain the advantages of professional problem solving and lifelong learning. Therefore, nurses who experience rapid modifications to the medical and educational systems understand that they are faced with difficult and constantly changing and challenging circumstances. Consequently, the instructional techniques should equip students to handle these difficulties. The complexity and velocity of nursing knowledge

generation are continually rising in keeping with this period of growth. The performance of nursing students in assisting labour women has been impacted by superficial learning and imprecise information, which has resulted in women's complaints about the nurses' lack of expertise. Thus, in order to avoid these issues, nursing educators should adopt innovative teaching strategies that avoid superficial learning, enhance the development of students' critical thinking abilities, encourage problem solving, and boost their self-confidence.

One of the current teachers techniques which can assist nurses who teach in producing graduates who able to solve problems and have confidence is the cooperative jigsaw learning strategy. The learner will have the chance to organize, analyse, examine, and assess a wide range of ideas through this activity. Due to the paucity of Egyptian research that examined the cooperative jigsaw learning technique in the clinic of maternity nursing specialty, This research was done to assess the impact of the collaborative jigsaw learning approach for improving students of maternity nursing achievement and self-confidence.

### **Aim of the study**

The current study aimed to assess the impact of a cooperative jigsaw learning strategy for improving students of maternity nursing achievement, retention, and self-confidence.

### **This goal was met by:**

- (1) Plan and implement the cooperative jigsaw learning strategy as a learning strategy for Students studying maternity nursing related to the labour concept.
- (2) Evaluate the accomplishments of both groups' maternity nursing students regarding labour concept.
- (3) Evaluate the information retention level of maternity nursing students in both groups regarding labour concept.
- (4) Evaluate the self-confidences' of maternity nursing students in both groups in clinical area of labour.

### **Research hypothesis:**

- Maternity nursing students who are taught by jigsaw teaching strategy exhibit higher achievement level regarding labour concept than those who are taught by traditional method.

- Maternity nursing students who are taught by jigsaw teaching strategy exhibit more information retention level regarding labour concept than those who are taught by traditional method.

- Maternity nursing students who are taught by jigsaw teaching strategy exhibit higher self-confidence level in clinical area of labour than those who are taught by traditional method.

### **Subjects and Methods**

#### **Research design**

A quasi-experimental design was utilized in the current study.

#### **Study setting**

The research was carried out at the Maternity and Neonatal Health Nursing Department (third year students) in the Faculty of Nursing, affiliated to Fayoum University.

#### **Subjects**

A convenient sample of 300 nursing students enrolled in the Maternity and Neonatal Health Nursing Department at Faculty of Nursing, Fayoum University's for the academic year 2020-2021 were recruited in the current research.

The control group was made up of all (150) of nursing pupils registered first trimester, while being subjected to conventional educational methods throughout the clinical area of labour, whereas All of the nursing students in the study group (150) who were enrolled in the second term subjected to cooperative jigsaw learning approach educational methods throughout the clinical region of labour. The study group was subdivided into ten heterogeneous subgroups, each of which has ten students with a variety of academic ability. To prevent confounding effects on the study, the teacher (the researchers) and the texts were the same for both classes.

#### **Tools of data collection**

four tools were utilized for data collection:

**1- A structured interviewing questionnaire:**

It was developed by the researchers and was employed to evaluate students' personal traits, such as age, gender, and prior academic certificates

**2- Student's achievement and retention test:**

Assess the achievement level by midterm and final exam

Assess the retention level by follow up in first week next academic year.

This tool developed by the researcher and the departmental head, it contained inquiries about the labour and its management concept to evaluate knowledge, understanding, application, analysis, synthesis, and assessment as the several cognitive learning levels. Both the control and study groups used it. According to the Egyptian academic setting's operational scoring system, the student's performance in the exam received the following scores:

- (1) Excellent: 85%-100%
- (2) Very good: 75% < 85%
- (3) Good: 65 %-< 75%
- (4) Pass: 60 %-< 65%
- (5) Poor: < 60%

**3- Satisfaction with Learning and Self-confidence in Learning (SCL):**

A 13-item, 5-point Likert scale created by the National League for Nursing was used to assess students' learning satisfaction and self-confidence. **Jeffries, 2005**. Students gave their opinions using a Likert-type scale, with 1 denoting severely disagree, 2 denoting disagree, 3 denoting disagree but are unsure, 4 denoting agree, and 5 denoting definitely agree. The instrument is broken into two subscales that are intended to gauge student satisfaction with learning through simulation (five items) and self-confidence (eight items), respectively. For the satisfaction subscale, scores may range from 5 to 25, and for the self-confidence subscale, scores may range from 8 to 40, with higher values indicating greater satisfaction. Nine clinical professionals determined the instrument's content validity (**Jeffries and Rizzolo, 2006**). According to reports, the pleasure subscale's Cronbach's alpha value was 0.94, while the self-confidence subscale's score

was 0.87. Additionally, the self-confidence subscales' Cronbach's alpha coefficient was 0.97, while the anxiety subscales' was 0.96.

**4- Tool IV. Students' nurses' Opinionnaire sheet (Self-administered Questionnaire):**

This tool was constructed by the researcher and was used to evaluate the nurses' satisfaction level about jig saw strategy application. It included 12 statements, 8 positive (benefits) and 4 negative statements (challenges) of jig saw strategy application. The subject's response to each statement varied based on a 5-point Likert scale - **like scale** the scale adapted from **willisetal2010**, strong agreement to strong disagreement depending on the degree of agreement with the items. The adopted scoring system in favour of statements was:

- Strongly agree = 5
- Agree = 4
- Neutral=3
- Disagree =2
- Strongly disagree =1

This scoring system was reversed for negative statements, where strongly agree was According to the following scale: strongly agree = 1, agree = 2, neutral = 3, dislike = 4, and severely disagree = 5- The total score ranged between (12-60), and was interpreted as the following:

- From (12 to less than 28) had low satisfaction
- From (28 to less than 44) had moderate satisfaction
- From (44 to 60) had high satisfaction

**Pilot study**

To be able to evaluate how feasible the study is, the the sample's accessibility and the tools' clarity, and the amount of time required to answer the questions, A pilot research involving 10% of the total sample size was carried out.. Based on the results of the pilot study, there was no need to modify the data collection instruments. Because they cannot be barred from enrolment for this year, Students

who took part in the pilot study weren't left out of the study's main sample.

### Validity and reliability of the tools

Five professionals in maternity and neonatal nursing reviewed the tools' content validity in order to evaluate it; no significant changes to the material were made as a result of their feedback. The Alpha Cronbach test was used to assess the reliability of the tools, and the outcome was statistically acceptable. Tool I had a value of 0.76, whereas Tools III and IV had a value of 0.83.

### Administrative and ethical considerations

The researcher wrote letters outlining the study's objectives to the Dean of Fayoum University's Faculty of Nursing and the Head of the Department in order to request their approval and assistance in carrying out the in the faculty to study. The investigator gave the students an explanation Regarding the goal of the study, as well as the benefits of idea mapping as a learning tool and how they should be aware of this teaching method.

### Fieldwork

The three stages of planning, carrying out, and evaluating the study were all involved. Those phases make up roughly 14 months of the 2020–2021 academic years. Beginning in early July 2020 and running through the end of August 20210

### Assessment and Planning Phase

It began with gathering all the data pertaining to the idea of the jigsaw strategy, the primary goal, and technique. The study subjects' goals in relation to routine employment were established by the researchers. Then, depending on current textbooks, research articles, websites, references, etc., prepare the study materials and tools. For the control group, the standard teaching method known as "Lectures" was devised. To be distributed to the students is a "hand-out" that researchers developed with theoretical and practical material. The following eight sessions comprised the delivery of lectures created for both groups and taught in accordance with (table 1):

1. At this stage, the researchers also created the evaluation instruments.

2. A self-administered questionnaire was used to initially evaluate each student's personal qualities in the classroom (tool 1).

4. The pupils in both groups were then informed about the time of the test (midterm and final exam).

### Implementation Phase:

For the lecture group, which served as the control, the researchers delivered scientific material in the form of lectures over the course of two teaching sessions for the control group. Each session lasted two hours per day for two days over a period of two weeks, in accordance with the timetable for the community health nursing course. PowerPoint presentations were used to give the lecture to the pupils. For the purpose of elucidating any unclear points of contents, the researchers led a class discussion open to all students. And the lecture's essential ideas were distilled at the conclusion.

For the puzzle-based study group: Eight teaching sessions spread across four weeks made up the implementation phase.

The study group went to a session of orientation. prior to the beginning

### Jigsaw Technique.

Step 1: Samples were broken up into 15 "Expert Groups" with 10 samples in it.

Step 2: A sample member of each group with strong academic performance was chosen to serve as the group leader.

Step 3: The concepts on normal labour were divided into 10 different segments like factors and theories triggering onset of labour, **first stage** physiology and management, **second stage** physiology, labour preparation, mechanism of labour, vaginal delivery and management, **third Stage** and management, recovery period or fourth stage.

**Step 4: Session 2: (Expert groups discussion):** Each expert group member was given a separate topic to study that was relevant to the ideas of regular labour. The groups were given instructions to thoroughly research the

subject, read the materials, take more notes than only textual notes, but also keeping their preparations straightforward enough to teach and speed up the learning of other students. The allocated pupils were supposed to be in charge of adequately preparing that subject.

**Step 5:** The amount of time for students to learn the courses was ample. It was stressed to the students that preparation was more important than memory. It was set aside for the Jigsaw classroom organisation day. The students' home groups held the initial discussions on each topic. Each student discussed and gave a presentation on the assigned topic.

**Step 6: Session 3: (jigsaw groups discussion):** The pupils who had comparable topics then formed groups and spoke about them. Each student imparted what they had learned about their respective subjects. The others added more details to their notes.

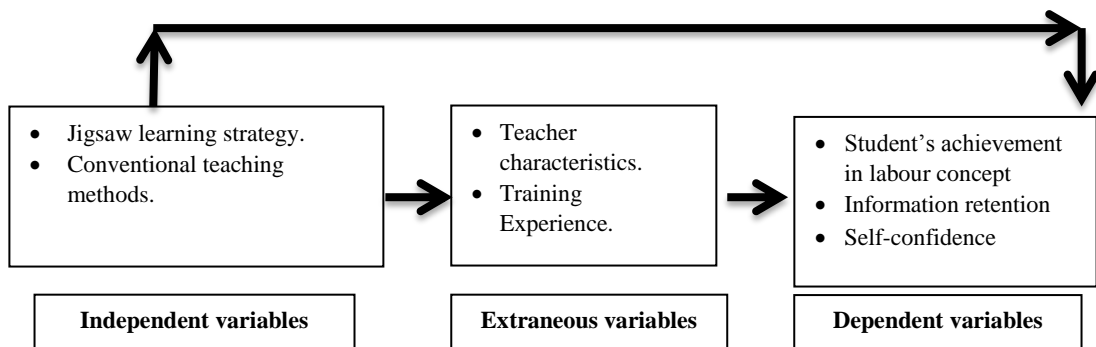
**Step 7: Session4: (cooperative learning):** Students then went back to their

professional groups. and once more discussed their subjects with fresh points. The investigator who was the teacher moved between groups and oversaw the entire process. As the concepts were too much to cover, the Jigsaw classroom ran for three days. After a week, the students were tested with the tool

### Evaluation Phase

Every student in both groups was evaluated for their performance and comprehension of the theoretical component of routine work. and its management lectures through the mid-term and final exams by the end of each term, also the retention level through first week of next academic year by using the tool (II). Then, when the two training methods employed with both groups were finished, evaluate the students' level of self-confidence in the clinical work environment (tool III). Then, in order to test the research hypotheses, a contrast of the two groupings (the lecture group and the jigsaw group) was made to assess the impact of two instructional styles.

### Conceptual framework



### Statistical analysis

The statistical software programme For data input and statistical analysis, the Statistical Package for Social Science (SPSS), version 18.0, was utilised. The results were presented using frequencies and percentages. An independent-samples t-test analysis was used to evaluate the statistical significance of some variables and the effectiveness of the intervention between the two

groups. The p.05. Cut-off was used to determine statistical significance.

### Results

**Table 1:** shows the demographic information about study participants and a control group of students. The table shows that the mean ages the research and control groups were respectively  $20.19 \pm 0.45$  and  $19.85 \pm 0.65$ . Students with technical institute diplomas made up 10% of the control group while they made up

8% of the research group. Conversely, students with secondary school diplomas made up 90% of the control group while they made up 92% of the study group. Regarding their demographic traits, Between the two groups, there were no statistically significant differences.

**Table (2):** shows the performance on the midterm and final exams for the study and control groups. The table demonstrates that the study group did better than the control group. in terms of both midterm exam excellent grade rates (18%) and final exam excellent grade rates (15.3%). (30 percent & 28 percent respectively). On the other hand, the control group's midterm and final exam pass rates (22 percent and 12 percent, respectively) were greater than those of the study group's students (16 percent & 4.7 percent respectively).

**Figure (1):** represents the information retention level among study and control groups. The figure illustrate Moreover, In terms of performance, the study group outperformed the control group of outstanding retention level grade (19.3 percent) (13.3 percent ). However, the control group had a worse grade than the students in the study group (26.7 percent & 7.3 percent respectively). Between the two groups, the P-value was 0.005.

**Table (3):** represents the **comparison of the mean overall performance and retention scores among two groups.** The table showed that, the study group a achieved higher

**M±SD** (25.3±1.25, 29.65±0.21, 22.10±1.21 and 77.05±2.67) more than the control group(21.01±0.36, 22.42±0.61, 19.05±1.23 and 62.48±2.2) in midterm , final exam , follow up(retention level) as well as total achievement score respectively .

**Table (5):** this table pointed to the favourable student feedback about the cooperative jigsaw learning approach is distributed across the jigsaw group, it showed that (100%) of the jigsaw group stated that jigsaw method enhanced teamwork cooperation and everyone in the group shared responsibility. As well as (99.3%) of the study group reported that, the jigsaw

Learning strategy improves Jigsaw learning style was acknowledged as an innovative teaching strategy for developing decision-making and critical thinking abilities by (98.7%) of respondents. Furthermore, 93.3 percent of respondents suggested using the jigsaw style as a method of instruction in additional nursing courses (theory & practice).

**Table (6):** this table showed the he jigsaw group's overall achievement scores were correlated., satisfaction and self-confidence. The results highlight a highly significant statistically positive association (P 0.001) between the jigsaw group's overall achievement scores, total self-confidence, and overall satisfaction with the cooperative jigsaw as a learning approach.

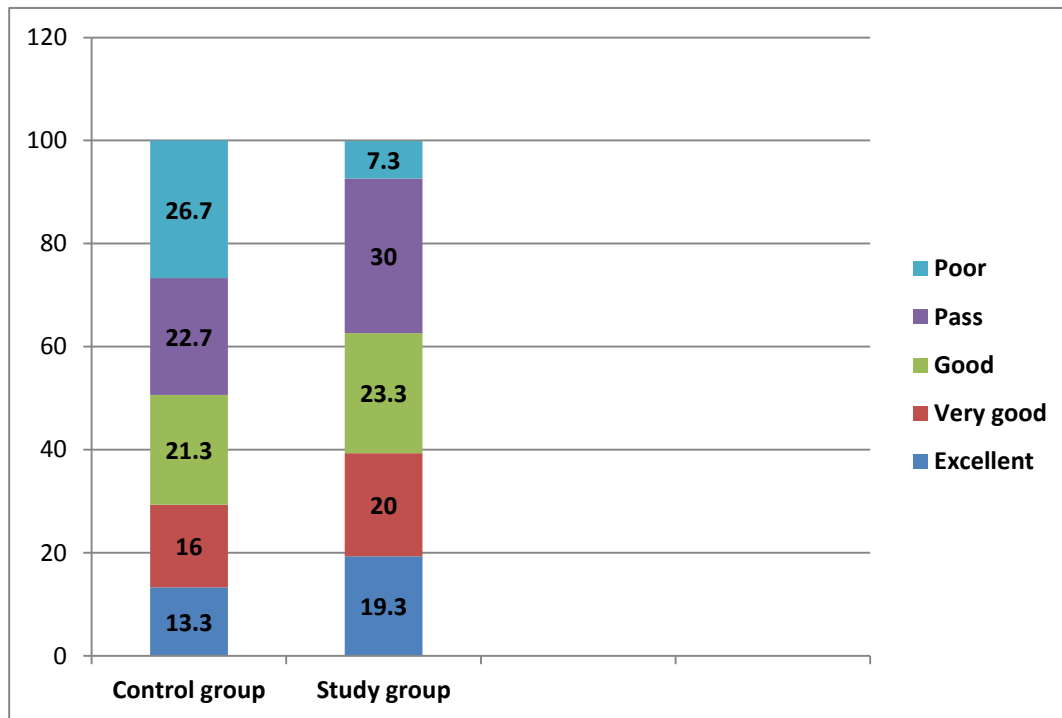
**Table 1:** Shows the demographics of the two groups of students.

Items	Study group n=150	Control group n=150	p-value
Age (in years) SD is what students mean.	20.19±0.45	19.85±0.65	0.74
students who hold a technical institute diploma	12(8%)	15(10%)	0.69
Students having secondary school certificate	138(92%)	135(90%)	0.72
<b>Gender</b>			
Male	52(34.7%)	49(32.7%)	0.66
Female	98(65.3%)	101(67.3%)	

**Table (2):** Study and control groups' achievement in midterm and final exam.

Items	Control group n=150		Study group n=150		p-value
	Midterm exam	Final exam	Midterm exam	Final exam	
	%				
Excellent	15.3	28	18	30	0.001**
Very good	29.3	26	32	28.7	
Good	29.3	32.7	32	35.3	
Pass	22	12	16	4.7	
Poor	4	1.3	2	1.3	

**Figure (1):** Information retention level among Study and control groups.



**Table (3):** Comparison of the average overall achievement and retention scores among both groups (n=300).

Items	Study group n=150	Control group n=150	p-value
<b>M±SD</b>			
Midterm	25.3±1.25	21.01±0.36	0.04
Final exam	29.65±0.21	22.42±0.61	0.001**
Follow up (retention level)	22.10±1.21	19.05±1.23	0.05
Total achievement` scores	77.05±2.67	62.48±2.2	0.001**

**Table (4):** Satisfaction with education and self-assurance in education among study and Control group.

Items	Study group n=150		Control group n=150		Results of the Wilcoxon test
	at time of midterm	At time of final exam	at time of midterm	At time of final exam m	
<b>Satisfaction</b>					Z=1.92 P=0.05
<b>M±SD</b>	3.92±0.77	4.35±0.67	2.10±0.65	2.95±1.23	
<b>Confidence</b>					
<b>M±SD</b>	3.04±0.58	4.03±1.38	1.52±0.69	1.96±1.65	



**Table (5):** Positive student feedback about the cooperative jigsaw learning approach was distributed across the group (n=150).

Items	Study group n=150	
	N	%
It made it simple for us to comprehend the course material.	124	82.7
It made sure that our inaccurate information was corrected.	119	79.3
It improved the way we learned.	114	76
It raised the likelihood that each student would get the teacher's attention.	95	63.3
Less reliance on the teacher was felt by the students.	141	94
It improved confidence and communication skills.	149	99.3
It improved collaboration and teamwork.	150	100
Everyone in the group was accountable to each other.	150	100
It improved the discussion of ideas among the group members.	140	93.3
It enhanced one's capacity for reasoning and making decisions.	149	99.3
It aided in putting knowledge into practise in clinical settings.	128	85.3
It was a cutting-edge teaching and learning strategy.	148	98.7
I'm happy with this teaching approach overall.	142	94.7
Using the jigsaw method as a method of instruction in supplementary nursing courses (theory & practice).	140	93.3

**Table (6):** The Correlation between the total achievement scores for the jigsaw group, satisfaction and self-confidence.

Items	Total satisfaction		Total self-confidence		p-value
	r	p-value	r	p-value	
<b>Total achievement</b>					
Midterm	0.492	0.000**	0.621	0.000**	0.04
Final exam	0.584	0.000**	0.514	0.000**	0.001**

## Discussion

Future nursing graduates will ought to exercise critical thinking capabilities to create, analyse, and solve a variety of problems that may arise in any setting in modern practise where more sophisticated technology are to be applied. In order to prepare these future nurses, nurse educators must substitute more creative teaching techniques for the typical lectures given by the teacher about patient care, where the student nurses are able and eager to correlate and make logical, unbiased decisions based on available scientific knowledge (evidence based practice). Jigsaw is a tried-and-true method for promoting group sharing and subject learning. in the event a lot of material to educate and a lot of students to learn from, this strategy applied as an educational activity works best **White2011**.

The jigsaw technique has more and more academic uses today since it motivates students to listen, work together, and share ideas. It also improves learning outcomes and performances **Bagheri et al 2018**.

Therefore, the current study's objective was to assess how the cooperative jigsaw learning technique affected the achievement, retention, and self-confidence of maternity nursing students. The results of this study generally confirmed the aforementioned hypotheses. 300 students enrolled in the academic year 2020–2021 made up the study sample. 150 students were enrolled in the first term, where they were taught using the traditional approach (control group), and 150 students were enrolled in the second term, when they were taught using the cooperative jigsaw learning strategy.

The two groups' socio-demographic features in terms of the study sample's demographics were relatively similar. The findings revealed that the study group's mean age was 20.19 years, compared to 19.85 years for the control group. In both the control and study groups, the majority of the students had a secondary school diploma. This consistent profile of participants was useful in limiting extraneous factors, which could interfere with

the effect of the intended a knowledge intervention for nurses about labour and its management. It also helped in understanding and securing the reliability and relevance of the forthcoming results of the current study.

The results of the investigation show that the study performed better than the control group on the midterm and final exams for maternity nursing in labour, receiving higher grades (excellent, very good, and good) than the latter. concept and its management. However, a highly significant difference was obviously monitored involving the two groups in relation to knowledge score midterm and final exam. This was clearly demonstrated when the score of nurses' knowledge increased This could be explained by the fact that traditional teaching methods expose students to dualistic, tangible, and surface learning, whereas the cooperative jigsaw learning strategy enhances students' capacity to organise and control knowledge through promoting in-depth information processing for understanding. The preceding result was consistent with by **Kritpracha et al 2018**. About the improvement of master nursing students' self-directed learning behaviours and cooperative learning using jigsaw activities They reported The exposure to learning through traditional schooling may help to explain this. methods results in tangible learning and dualistic thinking, whereas the cooperative jigsaw learning strategy enhances students' capacity to organise and manage knowledge by encouraging them to think deeply about the material for understanding.

Also, the current study agree with **Abd El Aliem et al2019**, who stated that there was proof of a positive association between use of the cooperative jigsaw learning strategy and enhancing pupils' cognitive abilities through nursing education. Cooperative jigsaw learning strategy allows availability to each learner essential part in finishing the assignments set by the teacher. As well as the students can evaluate one another's ideas, monitoring one another's work. The current finding also matches with the study of **Yemi et al. 2018**, titled " jigsaw approach of group instruction 's impact on secondary education pupils' math achievement "where they observed that using the Jigsaw method of instruction was more

effective than using a typical teaching strategy for raising academic achievement.

Regarding the information retention level among study and control groups which assessed at the beginning of next academic year after application the intervention. The present study revealed that a slight decline was observed in knowledge score among the study group after application of jigsaw strategy while, a sharp drop in total score of knowledge was noticed among the control group. There was a significant statistically difference was obviously involving the two groups in relation to retention knowledge level.

The current finding is in harmony with the study carried out by **Van Dat 2019**, who investigated 'Jigsaw Learning's benefits on students' information retention in a Management of Education course in Vietnamese higher education and Administration''. Students in the jigsaw group outperformed those in the lecture group in terms of long-term achievement one month after the experiment, the researchers discovered. Moreover, the study of **Tran and Lewis2019in** Australia, which aimed to determine 80 final-year Vietnamese math students were studied to determine the "effects of jigsaw cooperative learning on the achievement and information retention of those students, as well as reporting their views regarding this type of learning." It was found that When using jigsaw learning, students retained more material than when using lecture-based instruction.

On the other hand, the current finding does not fit with the study of **Maden 2011** in turkey, which aimed he academic success and retrieval of Turkish teacher candidates in the area of written expression, and comparing the effects of the Jigsaw I methodology to those of cooperative learning and traditional teaching methods. It was found that There was a slight difference in the test group students' success and the control group students' success after using the jigsaw technique to teach them.

Regarding the satisfaction of study group and control toward the learning strategy The results of this study showed that the majority of the Jigsaw group had high satisfaction level regarding the strategy application. This result

came in congruence with the study of **El-Said 2019**; he found that students who trained in physical education teaching lesson by means of the Jigsaw cooperative learning strategy more satisfied with the strategy compared to those who received instruction using standard or typical teaching techniques. Also, the present finding is supported by **Shahri et al. 2017**], in their study about Jigsaw approach versus lecture: Which is more effective for teaching physics to medical students, they observed that more than the majority of the participants agreed with each and every evaluation question that measured how satisfied they were with the Jigsaw class material. Moreover, the same result matches with the finding of a previously mentioned study conducted by **Abd El Aliem et al. 2019**, they found that Compared to the students in the lecture group, the students in the jigsaw group showed increased satisfaction with the puzzle strategy.

In addition the current study exhibit that, the students whom subjected to the cooperative jigsaw learning strategy exhibit more self-confidence level than whom subjected to the traditional method. Significant statistical difference was present. was obviously between the two groups in relation to self-confidence level. This finding in the same results with **Thomas C, Mackey E. 2019** who investigated the effects of a jigsaw strategy clinical confidence elective for baccalaureate nursing students. It was found that, Compared to the students in the lecture group, the students in the jigsaw group displayed higher levels of self-assurance.

On the other hand, the results of the study by **Kaddoura, 2019** who investigate the, Jigsaw Technique's impact on new graduate nurses' critical thinking, learning, and self-assurance. On 49 nursing students, there was no discernible difference between those who received paediatric patient care training through simulation and those who received traditional training in terms of self-confidence. The type of study, used tools, and training methodology may be the source of the results' disagreement with the current study.

a majority of the Jigsaw group had, according to the current finding showed that, all the participant of the jigsaw group stated that

jigsaw method enhanced teamwork cooperation and everyone in the group shared responsibility. As well as the majority of the study group reported that, the jigsaw Learning strategy improves decision-making and critical thinking abilities and reported the jigsaw learning strategy was the innovative teaching learning method.

The current results came in congruence with the study of **Tran 2019**, which aimed to determine 'Effects of cooperative learning on 110 first-year primary education students' performance and information retention with regard to the psychologies of instruction at An Giang University'' who explained by way of interaction in jigsaw learning, the learners' attention span was increased and they became more focused on the learned content.

Furthermore, the current finding also matches with the study of **Jadhav 2019** titled Nursing students are using the jigsaw cooperative learning technique.: A systematic review'' they stated that the jigsaw approach improved university students self-concept , motivate them, helped to Create a method that works well for handling integrated subjects., gain high levels of self-confidence and learning became more interesting. On the same line, **Tran and Lewis 2019** mentioned that; majority of the study group igsaw boosted their cooperation and interaction, promoted self-confidence, facilitated permanent information acquisition, increased achievement, made subject content easier, encouraged the pursuit of knowledge, and stimulated learning.

The finding of the present study revealed that a statistically significant difference exists Correlation between the total achievement scores for the jigsaw group, satisfaction and self-confidence. The results emphasize There is an extremely statistically significant association between the total achievement scores of the jigsaw group and their overall self-confidence and happiness with cooperative jigsaw as a learning approach. at midterm and final exam. This was in line with the study of **Tuncel 2019**, in which there is significant relation between learner's knowledge level and their self-confidence and satisfaction level. Moreover the present finding is relatively supported by **Azmin 2016** and it was found

there was a significant relation between achievement grades and The nursing students are content and confident.

### **Conclusion:**

The outcomes of the current investigation allow for the conclusion that jigsaw cooperative learning strategy and traditional teaching method were effective teaching methods. However, student nurses of jigsaw cooperative learning strategy had better knowledge level and information retention than those of the traditional group regarding labour concept and its management. As well as the students subjected to cooperative jigsaw strategy exhibit more satisfaction either learning strategy and confidence level. This means that the hypothesis of the current study was achieved. In addition, Interactive learning environment such as jigsaw cooperative learning strategy facilitated independence and self- directed learning.

### **Recommendation:**

#### **The aforementioned conclusions lead to the following suggestions:**

- Jigsaw cooperative learning strategy should be incorporated in obstetric nursing education.
- Course designers and educators (faculty staff members) should attend training sessions on how to include the jigsaw approach as a cutting-edge teaching and learning strategy.
- To engage more students in learning, nursing programmes need to use a variety of cutting-edge teaching techniques, such as jigsaw puzzles.
- Additional research is required to examine the barriers preventing implementation of jigsaw learning approach in nursing education as well as the impact of the strategy on clinical achievement.

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