

EFFECTIVENESS OF JIGSAW TECHNIQUE IN ADDITION TO LECTURE FOR TEACHING MEDICAL UNDER GRADUATES

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ABSTRACT

Background: it is One of the best innovative methods of interactive teaching. It breaks classes into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle. Students will be able to learn the concept by analyzing the difficult tasks with group discussion. **Objectives:** to understand and analyze the topics through that motivating them towards self-directed and peer assisted learning. **Methodology:** study was conducted for 25 students, with division into A, B, C, D, E groups each comprising 5 members. We choose five difficult topics from weekly test and was assigned to groups. Initially discussion within the group as A1, A2, A3, A4 and A5 and later in between the groups as A1, B1, C1, D1 and E1. Here, teacher being a facilitator to interpret the information and its application. Similarly, four other faculty involving in the study making the input as 100. **Results:** pre-jigsaw failure rate was 45% and post-jigsaw it is reduced to 10%. 75 % of students showed more than 20% improvement in the performance in the form of scoring marks. **Conclusions:** Students will be able to correct their mistakes from self-evaluation and learning from others. It improves the positive attitude in students by introspecting themselves which reflects in the improvement of academic performance. Jigsaw helps in understanding the non-core topics with self-evaluation and correction which leads them in abstract thinking making them as self-directed learners reflects in doing research projects.

KEY WORDS: self-evaluation, group, self-directed learning, academic performance, facilitator, abstract thinking

INTRODUCTION

One of the best innovative methods of teaching and learning which involves both individual and group activity. The jigsaw technique is a method of organizing classroom activity to create an environment where the students dependent on each other to succeed (1). It basically like a group task begins with dividing the students into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle (2). Students are split into groups with one member assigned to discuss the topic and its sub-topics.

Working individually, each student learns about his or her topic and presents it to their group members. Next, students gather into different groups divided by sub-topic. Each member presents again to the topic to different group members. Through this process of presentation and discussion on same topic with different groups, students reconcile points of view and synthesize information (3,4,5). They create a final report. Finally, the original groups reconvene and listen to presentations from each member. The final presentations provide all group members with

an understanding of their own material, as well as the findings that have emerged from topic-specific group discussion. This technique promotes both self-directed learning and peer-assisted learning in students through in-depth understanding the subject matters, motivating the students to participate in discussion and problem-solving approach (6,7,8).

OBJECTIVES

Through this jigsaw method of teaching, we are anticipating that, it is helpful for the students

1. To learn the concept, synthesis of coherent thoughts by analysing the difficult tasks with group discussion,
2. To adopt communication skills by sharing and discussion,
3. Motivating the students towards self-directed learning.

It is going to boost up the confidence by in-depth understanding. In this way this method is acting as remedy to understand and analyze the difficult topics through self-motivation and discussion, ultimately making them as self-directed learners.

METHODOLOGY

Type of study- quasi experimental study,

Sample size- 100 (picked by using simple random sampling by chit method, Study period-1st June-31st March,

Inclusion criterion- students having attendance more than 75%,

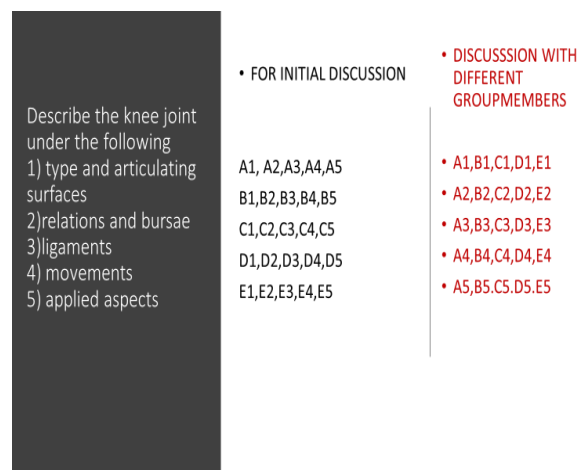
Exclusion criterion- students not appeared for weekly test

A total no of 100 students was observed to study the effectiveness of jigsaw by dividing them into four groups, each containing 25 members. 50 students were observed from 1st professional year and the remaining were 50 students from 2nd professional year. Among the 50 students 25 students were experimented with jigsaw and the remaining were not exposed, treated as controls.

Initially all students were exposed to weekly test of anatomy/microbiology exam, which was consisting of one essay (10 marks), two short notes (each one carrying four marks), two very brief questions (each one carrying two marks) and eight MCQ'S (each carrying one mark) with total marks for thirty.

Then 25 Students were exposed to jigsaw after the completion of weekly test on the same day. Jigsaw

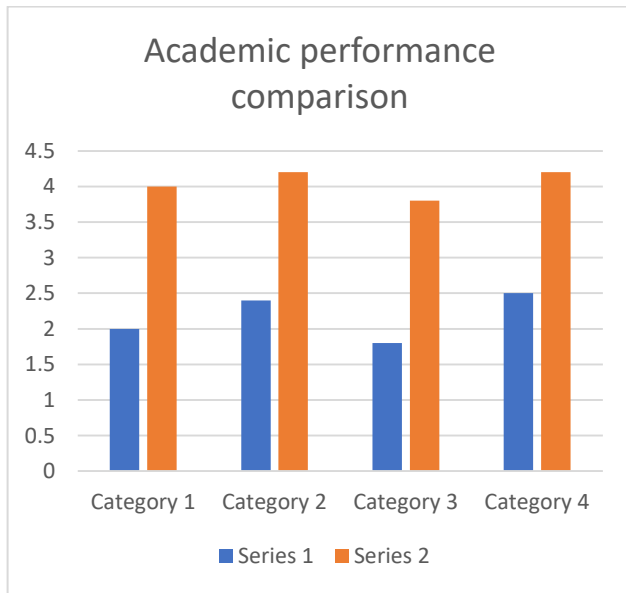
Topics were selected from weekly test of anatomy/microbiology exam, those topics the students were unable to comprehend, un-answered and scored less marks. Those 25 members were subdivided into five sub- groups, each containing five members. The structured essay or short answer or clinical aspects was subdivided into five components for five members of each group. All the five members of group were assigned to one component, he must discuss and present it to the same group members. Then again formation of different groups was planned with one member from each group with the sub-topic assigned to them earlier but with different members. The same component of that same essay was studied, with all additions or modifications. So, with the help of forming a different group, students have gathered more information from other students. Then each subcomponent was presented by one member to the large group.



The teacher, in this method of teaching, acted as a facilitator or mentor, to clear the disparity of understand the subject among the students and analyse the problems through correlation and case discussion. Finally, feedback was taken from students. The performance was improved in subsequent exams.

RESULTS

Post jigsaw, 90 % of the students were showed promising improvement in exams. 75% of students were shown up to 20% increase in the performance. 15 % of students showed more than 20% improvement in exams. 10 % of students showed no improvement. Majority of students showed active participation in seminars and group activities.



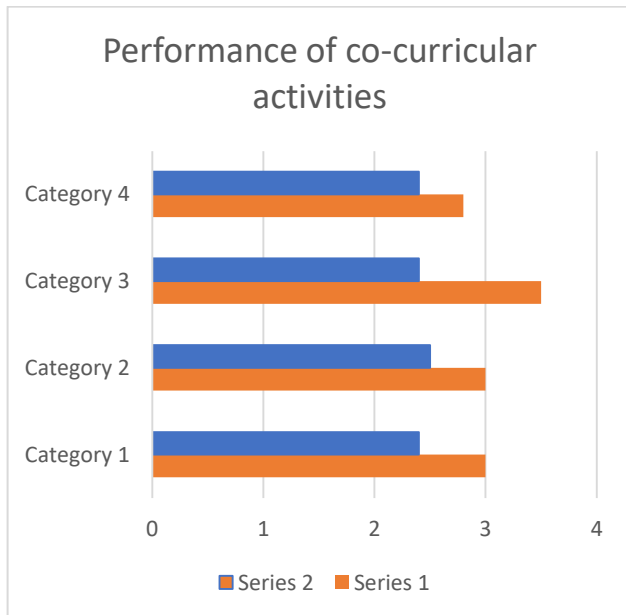
Blue- pre jigsaw, orange- post jigsaw

Category 1 - scoring in Theory with increase of at least 20%,

Category 2 - scoring in MCQ'S,

Category 3 - answering for non-core topics

Category 4 - attendance



Blue- pre jigsaw, orange- post jigsaw

Category 1 (bottom) - participation in seminars

Category 2- research projects

Category 3- communication skills

Category 4 (top)- leadership qualities

Table1 - comparison of academic performance (in percentages)

	Pre jigsaw	Post jigsaw
Secured marks between 50-65%	40	30
Secured marks between 65-75%	15	50
Secured marks between 75% & above	0	10
Secured marks below 50%	45	10
		Post jigsaw
No of Students showed 20% More than 20% improvement		75
No improvement		15
		10

Table 2-comparison of academic performance (in marks)

	Mean ± SD	T Value	P-value
For 1st professional year Pre jigsaw	15.0±5.416	7.1619	0.0001(highly significant)
Post jigsaw	21.0±2.4		
For 2nd professional; year Pre jigsaw	16.0±6.12	6.4243	0.0001(highly significant)
Post jigsaw	23.0±3.6		

DISCUSSION

This study suggests that, if designed properly, the jigsaw is an effective teaching strategy which allows adult students to learn through interaction and as opposed traditional learning. In this study, the teacher's role had changed to a facilitator contrast to traditional one. In this method, the instructor was no longer the primary source of learning, instead learning was no longer a one-way transmission of

information from the instructor to the student. Students took on an active role and created new concepts by active discussion.

As Alejandro Garcia explained (2017) the instructor should take on new roles such that of an instructional coach rather than the dispenser of knowledge. The students in this study preferred non-traditional methods over traditional lectures. Because, the role of the teacher changed and was moved to a different role, students took more of a responsibility in their own learning. Students were able to become invested in their work by taking pride or having a sense of ownership in their learning and Learning also became more student centered (Knowles, 1980, p. 47). Additionally, the students were more attentive when they were actively involved in the process of the jigsaw method. With all this in mind, learning can become more enjoyable and meaningful for adult students. Most students have shown promising results.

Limitations and Recommendations

Few issues related with interpersonal relations of students were resolved with involvement, interpretation and guidelines of a teacher,

CONCLUSIONS

Students able to correct their mistakes from self-evaluation and learning from others. It leads them towards to SDL by learning the concept and coherent thoughts which helps to teach others.

Short term- lead to improvement in the positive attitude by introspecting themselves which reflects in the improvement of academic performance.

Intermediate- helps to improve the communication skills by sharing the correct information and correcting the mistakes.

Long term- ultimately making the students as a lifelong learner with better communication and positive attitude by introspecting themselves.

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