A COMPARATIVE STUDY OF EFFECTIVENESS OF TWO DIFFERENT TEACHING METHODS - SEMINAR & A MODIFIED FORM OF GROUP DISCUSSION (JIGSAW TECHNIQUE

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ABSTRACT

Seminar and Group discussion are the two commonly employed educational method for small groups. It was identified that no active learning occurs during Seminars as some members do not take active participation .A newer method , Jig saw Technique of Group discussion makes use of the principle of Peer teaching .

Objective : To compare the effectiveness of Seminar and Jigsaw technique of Group Discussion.

Methodology :. In this Quasi experimental study 40 students belonging to IV th semester were divided into two groups. Group I was exposed to Seminar and Group II to a modified group discussion (Jigsaw technique) . In Jigsaw technique topic is divided into subtopics, giving each to a group of students and regrouping them .In the new group, one student each knowing one subtopic teach others. Both were given Pretest &Post test. After that the groups were reversed and a feedback was taken using the questionnaire .Analysis done using SPSS -20.

Results : Difference in the pre and post test scores of Group I was 4.6 (SD 2.78) and that of Group II (GD) was 8.3 (SD 2.27).Independent t-test value was 4.608 and P value <0.001 .The test is highly significant impling Group Discussion helped Group II to obtain more marks.This method was perceived by the students as more lively , interesting ,helped for better understanding of the subject and more retention of points.

Discussion :Jigsaw technique was found to be highly effective as a teaching learning method and can be used instead of seminars where each student teaches his subtopic since “to teach is to learn twice”.

Keywords : Seminar , Jig Saw technique

BACK GROUND

Small group work is one of a variety of educational methods for promoting student learning .The recent trend to small group work is indicative of movement from teacher-centred approach to a more student-centred approach. The organizer of a programme has to be clear about the rationale for using small group work and the outcomes expected of this method.The use of small groups will be influenced by resource availability like rooms, facilitators and resource materials **1**.

Seminar and Group Discussion are the teaching methods used for small groups. Small group means a group with learners upto thirty . **2** Small Group work is characterized by student participation and interaction **3.** The size of a small group is less important than the characteristic of the group. 1

Seminar is a small class of students for discussion and research or to study a pattern in depth . The word 'Seminar' is derived from the Latin word "Semen" which means a seed.Hence Seminar on any topic is the probing to the depth of its centre or root of the subject. Usually a faculty member (teacher)should be the chairman.**4**

Seminar consists of a group of persons engaged in advanced study meet under the general direction of an expert staff member.**2** There is always the danger that some of the members of the class or group will not take active part in the exercise. Thus, if such an exercise is to be fully effective, it is necessary to take steps to ensure that everyone takes part by careful structuring.

Basic objectives of a seminar :

1. It not only initiates but also stimulates the students to probe deeply on the subject.
2. It helps in active participation and scientific distribution of the topic .
3. It helps the students to learn the art of academic discussion leading the examiners to ask a question which he can answer well.
4. It helps the students to overcome the stage phobia.
5. It is also examination oriented which helps the students on theory , clinical and viva voce examination .
6. It tests the students' power of comprehension and evaluation

Selection of the topic : Normally the topic should be selected by the teacher . The topic must have three components.

1. Basic Information
2. Applied aspects

3. Recent advances

Time and duration : generally 2-3 weeks' time is sufficient to prepare a seminar adequately and the duration of presentation should be 45-60 minutes . Enough time should be given for discussion over the topic after the presentation to clarify the doubts of the participants .

Stages of seminar

1. Stage I : Recommmendation of the Text Books by the chairman containing all the aspects of the topic.
2. Stage II : Thorough review of the Literature
3. Stage III: Prepare a brief account of the subject in a presentable form along with handouts. Summarise the whole topic at the end and allow for open discussion and questions
4. Feedback and evaluation about the seminar regarding the contents , goals , effectiveness etcshould be assessed by the observers for future improvement .**4**

Seminars can take a number of forms ,and are generally run on somewhat less restrictedlines than class discussions ,with the group members themselves having much more control over the course and content of the discussion . One common method of running a seminar is to base it on an essay ,paper or prepared talkpresented by one of the students of this group , with the group then discussing the presentation in depth. **5**

Group Discussion may be defined as a face to face interaction between members of a relatively small group (usually 5 to 20 persons). The group interaction has a method and a structure but it can still be informal and democratic. The group members should have a common concern regarding a problem to be solved, a decision to be made or a desire for information on a topic.

OBJECTIVES ATTAINABLE

1.Learning of new facts & relearning of old facts.

2.Development of attitudes like critical enquiry.

3.Acquisition of skill in interpersonal relationship.

Advantages :

1.It is democratic and demands activity on the part of the learner

2.Learner discovers his strength and weakness in comparison to fellow learners and gains new insight.

3.Provides opportunity for synthesis of varied Teaching Learning Experience and data .

Disadvantages :

1. Necessity of an optimum teacher –student ratio
2. Poorly prepared or inexperienced group is ineffective in providing meaningful instructions
3. Since learner aptitude varies widely , some may find the proceedings too fast or too slow.
4. A subject may not be adequately covered to the satisfaction of the group , especially if the time is prefixed and short.

LIMITATIONS OF GD

1. Only a few members participate; others are silent observers
2. No order in which opinions are expressed
3. Some points discussed, others left out **2**

One modified form of group discussion (Jigsaw technique) is an interesting technique to engage students in active learning. As the name indicates, it involves breaking the subject matter into pieces, giving each piece to a group of students and regrouping them. In this method, each student is required to teach others and has to be an active learner. Unlike traditional group discussion where only one or two students are active, here everyone is learning. And as is said, "to teach is to learn twice", the quality of learning is also better than passive listening to a lecture.**6**

It was designed by social psychologist Elliot Aronson to help weaken racial cliques in forcibly integrated schools.**7**

Jigsaw technique: Divide the class into 5 groups of 4 students each. Let us call them A, B, C and D.E Each group will further have A1, A2, A3 and A4 . Now divide the subject matter into into 4 distinct portions. Give the material related to each part to each group of students. Ask the students to assemble in their groups and discuss the matter for 20-30 minutes. Now mix the groups so that the new group -1 will have A1, B1, C1 and D1and E1. This new group has one student from

each of the groups that we formed earlier. Over the next 40 minutes, A1 will teach his topic to the new group and B1 will teach his topic. At the end of 40 minutes, there will be a general discussion to sort out issues which need clarifications.**6**

With all group learning methods ,there is always the danger that some of the members of the class or group will not take an active part in the exercise, leaving all the thinking or speaking to others.Thus , if such an exercise to be fully effective , it is necessary to take steps to ensure that everyone takes part –either by careful structuring or control .**5**

Academic performance of the two groups exposed to traditional lecture methods and the Jigsaw technique were assessed.Clear difference emerged in the learning experience ,but not in the academic performances .Jig saws showed higher achievement in their "expert" areas ,but the other group scored better on areas that jigsaws learned from their peers.Jigsaws had a more favourable view of the learning experience ,strong intrinsic motivation,greater interest in the topic and more cognitive activation and involvement.They were seen to be more competent ,more socially related to other students and more autonomous .Indirect effects on performance were implied because students viewed themselves as more competent,but without direct impact on achievement.**8**

Students perceived the Jigsaw procedure as being very positive especially as an alternative learning experience .Jigsaws rated the technique as more useful for practical purposes than for interpersonal purposes such as working with others or giving/getting help.Students appreciated the technique as a time saver and viewed it is a change of pace .**9**

The study examined the impact of implementing a rotation dissection schedule on the attitude and performance of first year dental students in gross anatomy laboratory at the university of Kentucky.In 2002-2003,half of the students assigned to each cadaver dissected the assigned objectives during the past 90 minutes of the laboratory session .During the last 30 minutes ,the non dissecting group members came into the laboratory and had the day's dissection demonstrated and explained to them via peer instruction . Dissection responsibilities rotated with each laboratory session.Eighty eight percentage of the student oarticipants were satisfied with the rotating dissection approach according to the mid term survey .Students' perception of the quality of peer presentations varied ,with only 44% rating them as good or better.80% of students perceived it as impeding their performance and this was confirmed by the analysis of grade data.**10**

The present research assessed the potential effects of expecting to teach on learning.In two experiments ,participants studied passages either in preparation for a later test or in preparation for teaching the passage to another student who would then be tested.In reality , all the participants were tested,and no one actually engaged in teaching.Participants expecting to teach produced more complete

and better organized free recall of the passageand in general,correctly answered more questions about the passage than did participants expecting a test,consistent with their having engaged in more effective learning strategies .Instilling an expectation to teach thus seems to be simple ,inexpensive intervention with the potential to increase learning efficiency .**11**

Reciprocal Peer Teaching experience (RPT) illustrates circumstances where students alternate roles as teacher and student. By assuming the responsibility of teaching their peers, students not only improve their understanding of course content, but also develop communication skills, teamwork, leadership, confidence and respect for peers that are vital to developing professionalism early in their medical careers..In a study conducted by Aaron J Krych et al 97% of the students agreed it increased their retention of information they taught to their peers. In addition, 92% agreed that RPT improved their communication skills .**12**

Aims & Objectives

To compare the effectiveness of seminar and a modified form of group discussion (Jigsaw technique).

Material&Methods

It was a Quasi experimental study conducted in the II professional MBBS students of a Private Medical Institition of South Kerala . Institutional Ethics Committee Clearance was obtained before the commencement of the study. A participant information sheet was given to all the students and asked to read it thoroughly .The batch of forty students were divided in two groups by convenient sampling. Group I was assigned with seminar and Group II with Modified Group discussion.

Topics were allotted two weeks earlier.Reading materials were suggested as per the Curriculum. .The students were asked to make preparation before the class. Both the groups were given Pre test. For Group discussion, students were grouped and then regrouped in the following manner.Post tests were given to both the groups .After that the groups were reversed and the same procedures were repeated during the next session.Student feedback forms regarding the newer technique were given.

Eg:- Topic: Corrosives- divided into 5 subdivisions (Introduction, Signs & symptoms, Treatment, PM findings, Medicolegal importance). (5 groups with 4 members are formed). One group has to discuss one subtopic alone. After 10-15 minutes regrouping done (4 groups with 5 members). Each group has one person each knowing one subtopic. Each one will teach his topic to that new group and listen to other four persons for the rest of the subtopics. The same process takes place simultaneously in all the four new groups for about 45-60 minutes.

Results were analysed using SPSS-20.

Type of study: Quasi Experimental

RESULTS

Table 1. Distribution of marks obtained in the pre test

Group	Mark							
	<5		5-9		>=10		Total	
	Number	%	Number	%	Number	%	Number	%
Group I	16	80	2	10	2	10	20	50
Group II	19	95	1	5	0	0	20	50
Total	35	87.5	3	7.5	2	5	40	100

Figure 1

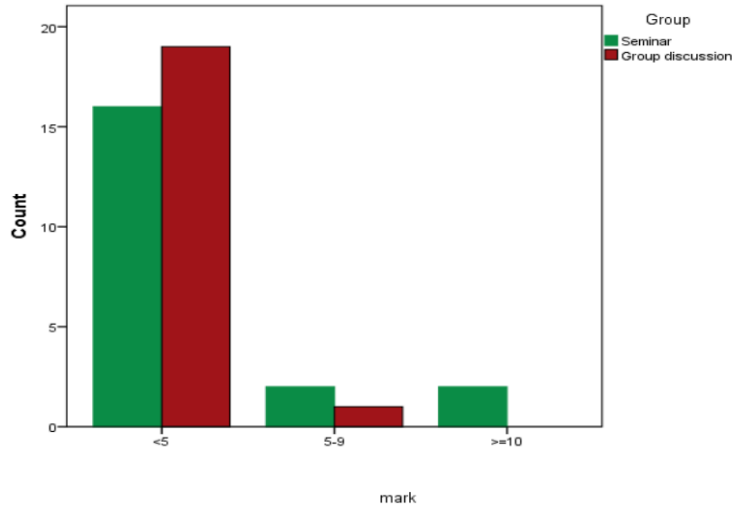
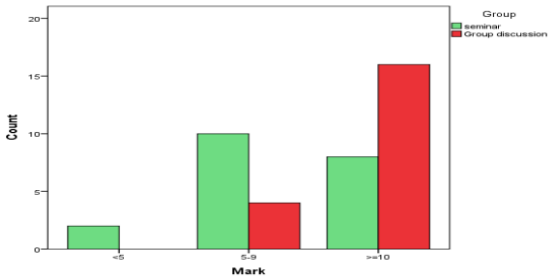


Table 2. Distribution of marks obtained in the post test

Group	Mark							
	<5		5-9		>=10		Total	
	Number	%	Number	%	Number	%	Number	%
Group I	2	10	10	50	8	40	20	50
Group II	0	0	4	20	16	80	20	50
Total	2	5	14	35	24	60	40	100

Figure 2



Paired t test for Group I Showed t value 7.401 and p value <0.001. So a seminar is significant in improving knowledge.For Group II T value was 16.327 and p value <0.001. For Group II the test is highly significant and Group Discussion is found to be effective.

From Table 1 and 2 it is seen that only 10% from the Group I got more than 10 mark in the pre test. But in the post test 40% from the Group I and 80% from group II secured more than 10 marks.

Table 3. Mean pretest mark of two groups

Group		N	Mean	Std. Deviation
	Group I	20	3.70	3.466
	Group II	20	2.35	1.565

t-value=1.588; d.f=38; p-value =0.121.

Student t- test is used to compare the two groups regarding their pretest knowledge.

Since p-value is > 0.05 the test is not significant, i.e there is no significant difference between the two groups with respect to their pretest marks.

Figure 3

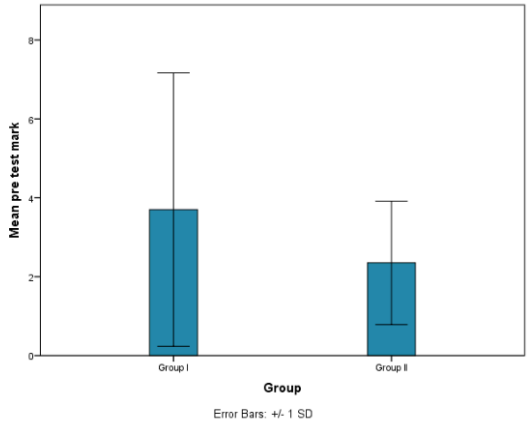


Table 4. Mean pre and post test mark of Group I

	N	Mean	Std. Deviation
Pre test	20	3.70	3.466
Post test	20	8.30	2.904

To see whether seminar helps Group I to get more mark, paired t test is used.

t-value= 7.401; d.f=19; p-value < 0.001

Since p-value is less than 0.001, the test is significant , So Seminar is helpful to improve their knowledge.

Table 5. Mean pre and post test mark of Group II

	N	Mean	Std. Deviation
Pre test	20	2.35	1.565
Post test	20	10.65	2.007

Paired t test is used to see whether group discussion helped them to achieve more marks

t-value = 16.327; d.f=19; p-value < 0.001. Since the test is highly significant, group discussion is effective in improving the mark.

To see whether group discussion or seminar is more helpful the difference between the marks obtained in the pre and post test for each student were considered and the independent 't' test was done.

Table 6. Mean of the difference between the pre and post test marks

Group	N	Mean	Std. Deviation
Group I	20	4.6000	2.77963
Group II	20	8.3000	2.27342

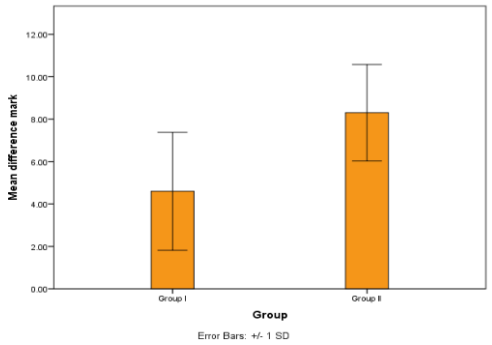


Figure 4

The table.6 shows the mean of the difference between the marks obtained in the pre and post tests. Group I has a mean mark of 4.6 with a SD of 2.78, where as Group II has a mean mark of 8.3 with SD of 2.27. To test whether group discussion helped group II to secure more mark Independent t-test is used , t-value = 4.608; d.f=38; p-value < 0.001. Since the test is highly significant there is significant difference between the mean marks of the two groups. That means Group discussion helped group II to obtain more mark.

Table 7 : Distribution of Student Feed Back

Five point Likert scale

1-Strongly disagree 2-Disagree 3-neutral 4-Agree 5-Strongly agree

		Number percentage with scores				
Sl no	**Item**	**5**	**4**	**3**	**2**	**1**
1	Lively and more interesting	70	24	6	0	0
2	Time consuming	75	20	5	0	0
3	Better understanding of the subject	62.5	25	5	5	2.5

4	Points more retained	72.5	20	7.5	0	0
5	Individual involvement more	80	15	0	5	0

Majority of the students found the new technique more lively and interesting (70%),Better understanding of the subject (62.5%),more retention of points (72.5%) and more involvement by individuals (80%).75% of the students opined that it was more time consuming than seminar .

DISCUSSION

CONCLUSION

1.Modified form of Group discussion (Jig saw technique)was found to be highly effective as a teaching learning method compared to seminar.

2. This method was perceived by the students as more lively and interesting ,better understanding of the subject and more retention of points .

3. Increase in knowledge occur with seminar too. It cannot be completely avoided as the presentation skills are more highlighted with seminars .

Implications

1. Jigsaw technique can be used as a very effective teaching learning method compared to seminars.
2. Need for more resources like resource materials, time and experts .

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