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2 **A COMPARATIVE STUDY OF EFFECTIVENESS OF TWO DIFFERENT**  
3 **TEACHING METHODS -**

4 **SEMINAR &**

5 **A MODIFIED FORM OF GROUP DISCUSSION (JIGSAW TECHNIQUE**  
6

7 **ABSTRACT**

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

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

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

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

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

27 **Keywords** : Seminar , Jig Saw technique  
28  
29

## BACK GROUND

30

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

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

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

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

48 Basic objectives of a seminar :

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

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

- 60 1. Basic Information
- 61 2. Applied aspects

62 3. Recent advances

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

66 Stages of seminar

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

74  
75 Seminars can take a number of forms ,and are generally run on somewhat less restricted lines  
76 than class discussions ,with the group members themselves having much more control over  
77 the course and content of the discussion . One common method of running a seminar is to  
78 base it on an essay ,paper or prepared talk presented by one of the students of this group ,  
79 with the group then discussing the presentation in depth. 5

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

84 **OBJECTIVES ATTAINABLE**

- 85 1.Learning of new facts & relearning of old facts.
- 86 2.Development of attitudes like critical enquiry.
- 87 3.Acquisition of skill in interpersonal relationship.

88 Advantages :

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

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

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

94 Disadvantages :

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

#### 100 **LIMITATIONS OF GD**

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

104

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

112

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

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

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

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

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

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

140 The study examined the impact of implementing a rotation dissection schedule on the attitude and  
141 performance of first year dental students in gross anatomy laboratory at the university of Kentucky.In 2002-  
142 2003, half of the students assigned to each cadaver dissected the assigned objectives during the past 90  
143 minutes of the laboratory session .During the last 30 minutes ,the non dissecting group members came  
144 into the laboratory and had the day’s dissection demonstrated and explained to them via peer instruction .  
145 Dissection responsibilities rotated with each laboratory session.Eighty eight percentage of the student  
146 oarticipants were satisfied with the rotating dissection approach according to the mid term survey  
147 .Students’ perception of the quality of peer presentations varied ,with only 44% rating them as good or  
148 better.80% of students perceived it as impeding their performance and this was confirmed by the analysis  
149 of grade data. **10**

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

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

158

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

### 165 **Aims & Objectives**

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

### 167 **Material & Methods**

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

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

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

184 Results were analysed using SPSS-20.

185 **Type of study:** Quasi Experimental

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### RESULTS

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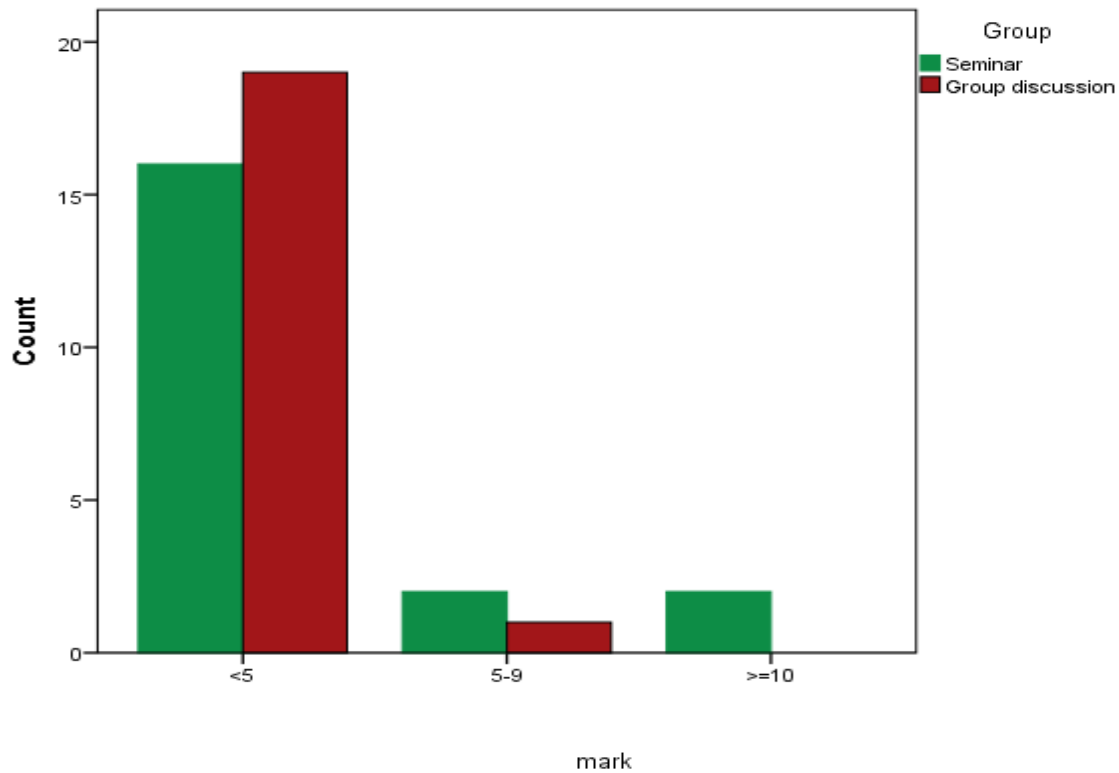
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Table 1. Distribution of marks obtained in the pre test

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

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190 Figure 1



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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

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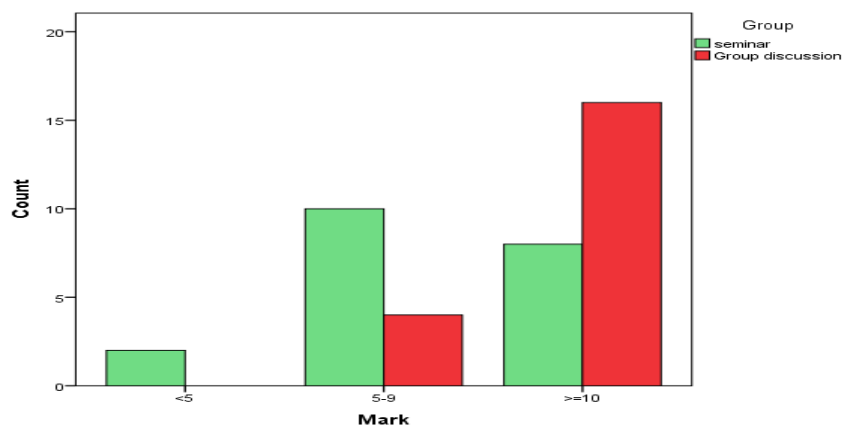
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Figure 2

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



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

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209 **Table 3. Mean pretest mark of two groups**

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

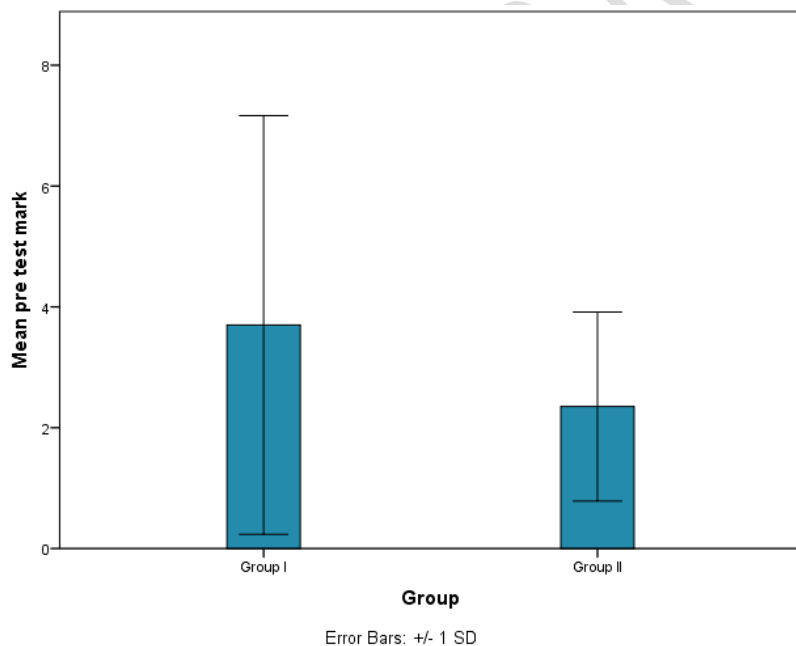
211 t-value=1.588; d.f=38; p-value =0.121.

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

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

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216 **Figure 3**



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

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

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

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

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

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

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

228

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

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

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

235

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

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

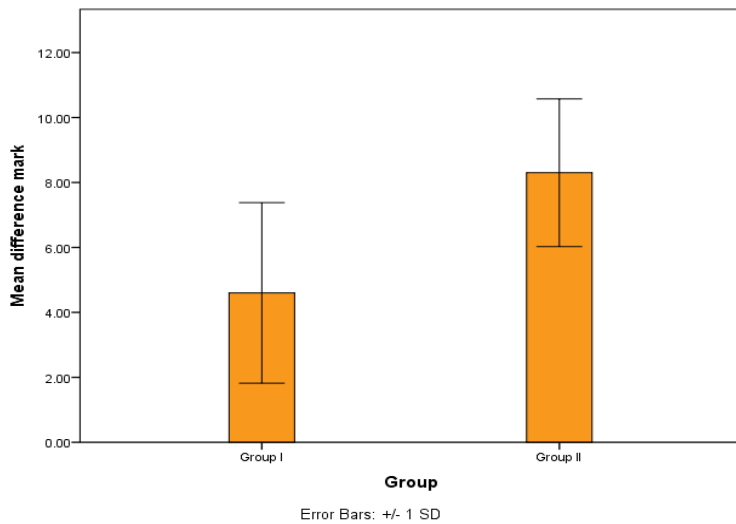


Figure 4

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240 The table.6 shows the mean of the difference between the marks obtained in the pre and post tests.  
 241 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  
 242 SD of 2.27. To test whether group discussion helped group II to secure more mark Independent t-  
 243 test is used , t-value = 4.608; d.f=38; p-value < 0.001. Since the test is highly significant there is  
 244 significant difference between the mean marks of the two groups. That means Group discussion  
 245 helped group II to obtain more mark.

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**Table 7 : Distribution of Student Feed Back**

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255 Five point Likert scale

256 1-Strongly disagree 2-Disagree 3-neutral 4-Agree 5-Strongly agree

257

SI no	Item	Number percentage with scores				
		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

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

262

### **DISCUSSION**

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### **CONCLUSION**

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

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

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

### **Implications**

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273 1. Jigsaw technique can be used as a very effective teaching learning method compared to  
 274 seminars.

275 2 Need for more resources like resource materials, time and experts .

276

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