



COLLABORATIVE LEARNING AS A PEDAGOGICAL TOOL: A STUDY ON POST-GRADUATE STUDENTS IN B-SCHOOLS IN KARNATAKA

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ABSTRACT

Collaborative Learning has been recognized a well-established management education methodology, worldwide, which essentially focusses on the cooperative efforts among the students, as a valued supplement to the learning process. It is found to be especially relevant for management education. It is envisaged that, collaborative learning would increase the learning skills of management students and enable them to face the challenges of work-group based environment, they are likely to be exposed to, in their real- life workplace situations. The authors have made an attempt to investigate the opinion of the post-graduate students in B-Schools in Karnataka, about the concept of collaborative learning. Attention was paid to investigate the four major issues: learning, academic performance, social benefits, and, class administration. A multiple-choice questionnaire was developed and administered. Based on the responses received, data analysis and interpretation has been done. Data revealed that, students found collaborative learning to be beneficial for promoting friendship among students. They also felt that collaborative learning made students more accountable. It has been also opined that, the collaboration makes students more responsible. However, students also felt that, collaborative learning caused deviation from performing the task.

Key words: collaborative learning, leaning, academic performance, social benefits, class administration

INTRODUCTION

Collaborative Learning has been recognized a well-established management education methodology, worldwide, which essentially focusses on the cooperative efforts among the students, as a valued supplement to the learning process. Since 1950s, the group behavior movement resulted from the researches of the Tavistock Institute in the UK and the Kurt Lewin in the USA, especially in relation to management and science education. Collaborative learning has been practiced as an effective pedagogical tool, in different fields of education. It is viewed as a teaching style, which emphasizes co-operative efforts among students, faculty and administrators (Whipple, 1986, Cooper et. al., 1991). It is also conceptualized as the process, which personalizes knowledge by socializing it, providing students with a social context of 'learning peers' with whom they are engaged on conceptual issues (Bruffee, 1981), which results into positive inter-dependence and individual accountability (Slavin, 1988).

Collaborative learning is found to be especially relevant for management education. It is envisaged that, collaborative learning would increase their learning skills and simultaneously enable them to face the challenges of work-group based environment they are likely to be exposed to, in their real- life workplace situations and deal with them effectively. The specific benefits of such learning would be to prepare them adequately to deal with interpersonal relations better and develop higher-level skills of analyzing, synthesizing, evaluating, and conceptualizing, effectively as team players in their work groups / teams, typically found to be in existence in modern day organizations.

The researchers in the present study were interested to investigate the post-graduate students' opinion about the concept of collaborative learning, as a pedagogical tool. To do so, the researchers constructed a questionnaire and circulated the same among post-graduate students in the B-schools in Karnataka.

LITERATURE REVIEW

Elaborating the concept of collaborative learning, Sheridan et al. (1989) identified the following features of collaborative learning:

- Learning is focused on student-based activities rather than being teacher-focused
- Importance is given on students assisting one another to find solutions to areas of common inquiry rather than seeking answers from instructors
- Student groups base their learning by adopting a problem-solving approach on the basis of data gathering, analysis and discussion.

Some of the salient research findings on the implications of collaborative learning have been cited below.

Reviewing 100 studies on group work, Bligh (1972) recorded that students who actively participated in discussion synthesized integrated concepts more effectively than students who passively listened to lectures. It was also found that discussion groups promoted students' problem-solving abilities (Kulik and Kulik, 1979). Researchers, such as, McKeachie et al., (1987,

1988), and, Smith (1977, 1980), found out that student interaction was positively related to critical-thinking skills. Bloom (1976) and Whipple (1986) also supported the view and empathized that group learning developed higher-level skills of analyzing, synthesizing, evaluating, and conceptualizing.

Beckman (1990), Bligh (1972), and, Kulik and Kulik (1979), complimenting the above, stated that collaborative learning enhanced team-skills, satisfaction, and, positive inter-dependence among students. Borresen's (1990) study on small group work in statistics classes also supported the view. Neer (1987) found public speaking anxiety was significantly reduced if students were able to express their ideas initially in small group settings.

Cooper et al (1990) suggested collaborative learning developed active listening, consensus building, leadership, conflict management and empathy. Whipple (1986) found that, a less hierarchical mode of thinking, greater tolerance of diversity and revitalization in areas beyond the classroom were likely to come from collaborative learning. Johnson, Johnson & Smith (1991) stated that, students who studied cooperatively, developed commitment and caring for each other. They also suggested a positive emotional climate would increase social skills, which relate to social support and interpersonal responsibility.

However, some authors identified certain limitations of collaborative learning. For example, Sheridan et al (1989) stated that collaborative learning best suited gregarious, extroverted students. Introverted students, who were uncomfortable with a socially oriented learning environment, found collaborative learning methodologies threatening or frightening. Collier and Clarke (1986), and, Owen (1983) argued that, in collaborative learning, the coverage of the study material could be insufficient, or moving off the 'right' areas of study.

Further reviews of collaborative learning techniques showed that a variety of methods that may be employed to make this learning very effective. Barkley et.al. (2004) in their seminal work, have pointed out to a number of examples of collaborative learning techniques which may be summarized as follows:

Think-pair-share: A method in which an instructor poses a question to a class of students. The students write a response and shares the same with a neighbouring student and then they discuss and posit their views about their agreements and disagreements about it, giving reasons for the same thereof. This method can be effectively employed for student engagement in class, and assessment by the teacher about students' metacognition about what they are learning through collective thinking and sharing.

Reciprocal teaching: This involves students, teaching one another in a group. Students jointly read or work on a task and then take turns both as a pupil and a teacher during the learning process in various segments. In their role as teachers, students lead the discussion, ask pertinent questions, summarize and clarify the materials in those segments. This method helps in improving students' ability to engage in specific intellectual activities such as, reading primary sources, interpreting graphs, analysing artwork, etc. The teaching role adoption put students in the position of monitoring their comprehension and re-organizing the material. It also exposes students to look at different ways of interpreting the material.

Think-aloud pair problem solving: Here student alternate their roles as solvers and listeners in a pair. The solver thinks aloud giving reasons for the problems and the listener encourages the other to keep speaking and asks for clarification without intervening to help. This method is useful as it emphasizes the process rather than the product. Reasoning ability is enhanced through this process as students learn to practice idea formulation, rehearse routine skills, attend to sequence and learn to identify gaps and errors in understanding. In this manner, the instructors can observe the reasoning process used by the students in developing their problem-solving skills.

Group Grid: This activity involves analyzing, classifying and organizing various subject matter. The teacher creates a grid or matrix based on a number of criteria or categories. The students use the grid to classify course concepts. After all the groups complete their respective grids, the teacher shows the correct version from which the students are able to compare theirs and revise. This method helps students in processing and re-organizing informative rather than simply re-reading the materials.

METHODOLOGY AND DATA COLLECTION

For the purpose of the present study, the opinion of the post-graduate students in B-Schools in Karnataka, on the collaborative learning pedagogy, was collected. Four major issues were investigated: 'learning' (issues related to learning students have while learning in collaboration), 'academic performance' (issues related to academic performance due to collaborative learning), 'social benefits' (issues related to social benefits the students may get during the collaborative learning), and, 'class administration' (issues related to class administration, the students may face).

The items under the four above-mentioned issues were as follows:

Learning:

1. Collaborative learning helps in obtaining a deeper understanding of the subjects taught in the classes.
2. Using cooperative learning fosters positive student attitudes towards learning.
3. Collaborative learning makes students responsible for learning.

Academic performance :

1. It is easy to evaluate students' performance in collaborative learning.
2. Cooperative learning helps in improving every student's academic performance.
3. Cooperative learning does not cause the students to deviate from tasks.
4. Cooperative learning helps bright students to perform better.
5. Engaging in collaborative learning does not interfere with students' academic progress.

Social benefits:

1. Collaborative learning makes students better team players.
2. Using collaborative learning promotes friendship among students.

Class administration:

1. Using collaborative learning in class makes students more disciplined.
2. Collaborative learning helps students to become accountable.
3. All students have the skills, necessary for effective cooperative group work.

Opinion of the students on the above were collected, by administering a questionnaire consisting of total 13 items, using a 5-point Likert scale (Strongly agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly disagree =1), among 118 students, studying in B-Schools in Karnataka. The respondents were assured of confidentiality of data. Total 57 filled-up questionnaires were received, which in turn, were used for data analysis.

DATA ANALYSIS

To measure the opinion of the students on collective learning, in connection with the four issues, such as, 'learning', 'academic performance', 'social benefits', and 'class administration', the questionnaire has got the required consistency level, in measuring the same (Cronbach's Alpha = .848).

In order to understand the level of importance given to each of the items, related to the 'learning', 'academic performance', 'social benefits', and, 'class administration', the respective averages were computed (Table 1). The authors noted that, that, students felt collaborative learning was beneficial for promoting friendship among students, followed by making students more accountable. Additionally, the students felt that, evaluation of their work was easier, if collaborative learning method was adopted. However, students also felt that, collaborative learning caused deviation from performing the task.

Table 1: Descriptive Statistics (n = 57)

		Mean	Std. Deviation
Learning			
1	Collaborative learning helps in obtaining a deeper understanding of the subjects taught in the classes.	3.82	.57
2	Using cooperative learning fosters positive student attitudes towards learning.	3.81	.77
3	Collaborative learning makes students responsible for learning.	3.96	.38
Academic performance			
4	It is easy to evaluate students' performance in collaborative learning.	3.97	.69
5	Cooperative learning helps in improving every student's academic performance.	3.82	.57
6	Cooperative learning does not cause the students to deviate from tasks.	3.35	.97
7	Cooperative learning helps bright students to perform better.	3.82	.57
8	Engaging in collaborative learning does not interfere with students' academic progress.	3.82	.57
Social benefits			
9	Collaborative learning makes students better team players.	3.82	.57
10	Using collaborative learning promotes friendship among students.	4.58	.50
Class administration			
11	Using collaborative learning in class makes students more disciplined.	3.82	.57
12	Collaborative learning helps students to become accountable.	4.51	.50
13	All students have the skills, necessary for effective cooperative group work.	3.82	.57

Source: From Researchers' analysis

On the basis of the above, the authors also wanted to investigate whether there is a significant difference between the average importance levels given to the items in collaborative learning, as a whole, by the students.

H_{0COL} : There is no significant difference between the average importance levels given by the students, for overall collaborative learning, as a pedagogy.

H_{1COL} : There is no significant difference between the average importance levels given by the students, for overall collaborative learning, as a pedagogy.

(note: COL = Collaborative learning)

Table 2 showed that, the F value is higher than the F Critical value. Hence, we conclude that, there existed significant difference between average importance levels given to the items, under collaborative learning, and, null hypothesis was rejected.

Table 2: Single Factor ANOVA for overall Collaborative Learning

Groups	Count	Sum	Average	Variance		
Collaborative learning helps in obtaining a deeper understanding of the subjects taught in the classes.	57	218	3.824561	0.325815		
Using cooperative learning fosters positive student attitudes towards learning.	57	217	3.807018	0.587093		
Collaborative learning makes students responsible for learning.	57	226	3.964912	0.141604		
It is easy to evaluate students' performance in collaborative learning.	57	209	3.666667	0.47619		
Cooperative learning helps in improving every student's academic performance.	57	218	3.824561	0.325815		
Cooperative learning does not cause the students to deviate from tasks.	57	191	3.350877	0.946115		
Cooperative learning helps bright students to perform better.	57	218	3.824561	0.325815		
Engaging in collaborative learning does not interfere with students' academic progress.	57	218	3.824561	0.325815		
Collaborative learning makes students better team players.	57	218	3.824561	0.325815		
Using collaborative learning promotes friendship among students.	57	261	4.578947	0.24812		
Using collaborative learning in class makes students more disciplined.	57	218	3.824561	0.325815		
Collaborative learning helps students to become accountable.	57	257	4.508772	0.254386		
All students have the skills, necessary for effective cooperative group work.	57	218	3.824561	0.325815		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	70.68286	12	5.890238	15.51881	2.02E-29	1.765469
Within Groups	276.3158	728	0.379555			
Total	346.9987	740				

Source: From Researchers' analysis

The authors also wanted to investigate whether there is a significant difference between the average importance levels given to the items for 'learning', by the students.

H_{0LER} : There is no significant difference between the average importance levels given by the students, for the items under learning.

H_{1LER} : There is significant difference between the average importance levels given by the students, for the items under learning.

(note: LER = Learning)

Table 3 showed that, the F value is lesser than the F Critical value. Hence, we conclude that, there were no significant difference between average importance levels given to the items, under 'learning' and null hypothesis was retained.

Table 3: Single Factor ANOVA for Learning

Groups	Count	Sum	Average	Variance		
Collaborative learning helps in obtaining a deeper understanding of the subjects taught in the classes.	57	218	3.82456	0.325815		
Using cooperative learning fosters positive student attitudes towards learning.	57	217	3.80701	0.587093		
Collaborative learning makes students responsible for learning.	57	226	3.96491	0.141604		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.85380	2	0.42690	1.21449	0.299452	3.049792
Within Groups	59.0526	168	0.35150			
Total	59.9064	170				

Source: From Researchers' analysis

The authors also wanted to investigate whether there is a significant difference between the average importance levels given to the items for academic performance, by the students.

H_{0ACAD} : There is no significant difference between the average importance levels given by the students, for the items under academic performance.

H_{1ACAD} : There is significant difference between the average importance levels given by the students, for the items under academic performance.

(note: ACAD = Academic performance)

Table 4 showed that, the F value is greater than the F Critical value. Hence, we conclude that, there existed significant difference between average importance levels given to the items, under 'academic performance', and, null hypothesis was rejected.

Table 4: Single Factor ANOVA for Academic Performance

Groups	Count	Sum	Average	Variance		
It is easy to evaluate students' performance in collaborative learning.	57	209	3.666667	0.47619		
Cooperative learning helps in improving every student's academic performance.	57	218	3.824561	0.325815		
Cooperative learning does not cause the students to deviate from tasks.	57	191	3.350877	0.946115		
Cooperative learning helps bright students to perform better.	57	218	3.824561	0.325815		
Engaging in collaborative learning does not interfere with students' academic progress	57	218	3.824561	0.325815		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	9.663158	4	2.415789	5.03342	0.000623	2.403885
Within Groups	134.386	280	0.47995			
Total	144.0491	284				

Source: From Researchers' analysis

The authors also wanted to investigate whether there is a significant difference between the average importance levels given to the items for Social Benefits, by the students.

$H_{0SOCIAL}$: There is no significant difference between the average importance levels given by the students, for the items under social benefits.

$H_{1SOCIAL}$: There is significant difference between the average importance levels given by the students, for the items under social benefits.

(note: SOCIAL = social benefits)

Table 5 showed that, the F value is greater than the F Critical value. Hence, we conclude that, there existed significant difference between average importance levels given to the items, under ‘social benefits’, and, null hypothesis was rejected.

Table 5: Single Factor ANOVA for Social Benefits

Groups	Count	Sum	Average	Variance
Collaborative learning makes students better team players.	57	218	3.824561	0.325815
Using collaborative learning promotes friendship among students.	57	261	4.578947	0.24812

ANOVA	Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	16.2193	1	16.2193	56.51965	11	1.48E-11	3.925834
Within Groups	32.14035	112	0.286967				
Total	48.35965	113					

Source: From Researchers' analysis

Finally, the authors wanted to investigate whether there is a significant difference between the average importance levels given to the items for Class Administration, by the students.

$H_{0\ CLADM}$: There is no significant difference between the average importance levels given by the students, for the items under class administration.

$H_{1\ CLADM}$: There is significant difference between the average importance levels given by the students, for the items under class administration.

(note: CLADM = class administration)

Table 6 showed that, the F value is greater than the F Critical value. Hence, we conclude that, there existed significant difference between average importance levels given to the items, under ‘class administration’, and, null hypothesis was rejected.

Table 6: Single Factor ANOVA for Class Administration

Groups	Count	Sum	Average	Variance
Using collaborative learning in class makes students more disciplined.	57	218	3.824561	0.325815
Collaborative learning helps students to become accountable.	57	257	4.508772	0.254386
All students have the skills, necessary for effective cooperative group work.	57	218	3.824561	0.325815

ANOVA	Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	17.78947	2	8.894737	29.45228	11	1.08E-11	3.049792
Within Groups	50.75684	168	0.302005				
Total	68.52632	170					

Source: From Researchers' analysis

DISCUSSION

Data revealed that, students felt collaborative learning was beneficial for promoting friendship among students, followed by making students more accountable. Additionally, the students felt

that, evaluation of their work was easier, if collaborative learning method was adopted. This was due to the reason that, collaborative learning promoted teamwork, and students needed to communicate more with each other, during the learning process, which in turn, helped in developing more affinity towards each other. The finding also indicated that, perhaps, due to the distribution of the workload in collaborative learning, students perceived the evaluation process easier. However, students also felt that, collaborative learning caused deviation from performing the task. This perhaps related to the consumption of time, due to conducting meetings, debate on differences of opinion, and, managing social loafers or free riders (who avoid accountability for the job assigned to them).

Significant difference existed between average importance levels given to the items, for the three issues, namely, academic performance, social benefits, and, class administration. Therefore, students had significantly different opinion about the role of collaborative learning in their academic performance, social benefits, and class administration. One might assume that, this was due to certain factors, such as, the varying nature and scopes of subjects, taught in the B-Schools, varying personalities of the individual students, involved in the learning process, the varying style of individual faculty members in class management, and, varying communication styles of the individual students. However, there was no significant difference between average importance levels given to the items for learning. This indicated that, students felt more or less the similar way about the benefit of collaboration in the learning process.

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