



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 09, Issue, 02, pp.7472-7476, February, 2018

RESEARCH ARTICLE

AN EXPLORATORY STUDY ON HOW COOPERATIVE LEARNING MOTIVATES STUDENT-LEARNING

***Dr. Sivarajasingam Mahendran**

EdD, cum laude, Atlantic International University, USA

ARTICLE INFO

Article History:

Received 19th November, 2017
Received in revised form
26th December, 2017
Accepted 20th January, 2018
Published online 28th February, 2018

Key words:

Cooperative learning,
Perception, Motivational level,
Focus group, Cohesiveness.

ABSTRACT

The purpose of this study was to examine primarily students' psychosocial perceptions of how cooperative learning affects their motivation level to learn. The study also examines, secondarily, how motivation levels and cooperative learning have changed over time during the length of the course, due to student-student and teacher-student interactions. This mixed-method, qualitative (Qual) integrated with the quantitative (quan) study, qualitative overarching the quantitative, used the *What Is Happening In this Class?* (WIHIC) questionnaire, an educational survey tool used to study learning environments in school classrooms, a focus group open-ended survey questionnaire of an adult learning classroom environment, a closed-ended survey questionnaire on students' opinion on their level of involvement in classroom learning and face to face interview sessions with selected students. A sample of students, 2 males and 2 females was chosen to represent the cohort of 78 (25 males and 53 females) post graduate students in this study. The students were equally divided into two cultural groups - Chinese and Malay - 1 male and 1 female for each of the cultural groups surveyed. The cohort of students had Indian or other ethnic groups but these were in the minority (13 in number) although they were homogeneously assimilated into the classroom environment, being able to adapt well through the use of the national lingua franca, English, were able to relate well with the majority Chinese and could be represented quite comfortably in the overall study. Generally speaking, overall, students did feel motivated in the cooperative learning environment though other factors like the classroom environment, dominating groups of students in class discussions and the non-uniform arrangement of students in groups (all females or all males, all of the same ethnicity being in one group, students being in an age-specific group - older versus younger, more experienced in teaching versus the less experienced, senior versus junior level teachers, those still in the teaching profession versus those who are not etc) may have also affected the level of cooperation and motivation in the classroom. It should also be noted that there were still other variables affecting the cooperation and motivation of students in class and teacher's classroom involvement, as a facilitator, also mattered although the survey impinged more on students' involvement rather than the teacher's.

Copyright © 2018, Dr. Sivarajasingam Mahendran. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Cooperative learning is a group learning activity where learners exchange information among themselves and in which each learner is accountable for his or her own learning while motivating the learning of others in the group (Olsen and Kagan, 1992:8). Other benefits of cooperative learning include improved academic performance, as well as enhanced social skills development (Magnesio, S. & Davis, B.H. 2010). The Asian context of cooperative learning is different from the Western, more individualistic, open discussion type learning in that Asian learners, being heterogeneous, prefer generally to share "comfortableness" and "responsibilities" (Thanh, P.T.H. and Gillies, R., 2010). A gamut of cooperative learning techniques have been done in various ways to increase the

effectiveness of teacher-student interaction and learning in different countries (Shachar, Sharan, & Jacobs, 2002): in Holland, the United States, United Kingdom, Australia and Israel. However, in Asian and particularly South-East Asian countries (mainly developing ASEAN countries like Malaysia, Thailand, Vietnam, Cambodia, Philippines, Laos, Brunei Darussalam, Indonesia, Myanmar and even in a developed country like Singapore) the research into cooperative learning is still at an infant stage, ongoing, and more studies have to be done to increase the library of knowledge and skills of teachers in implementing the method across the curriculum in education at all levels: primary, secondary, post-secondary, tertiary or adult learning environments; due to the diverse political, social, economic and cultural backgrounds of learners in these countries. Traditional models of learning were teacher-fronted, fostered competition rather than cooperation and usually favoured the majority students resulting in the minority students falling behind higher achieving students in

*Corresponding author: Dr. Sivarajasingam Mahendran,
EdD, cum laude, Atlantic International University, USA.

this kind of learning environment. Cooperative learning aims to do the following: raise the level of achievement of all students, irrespective of their learning ability, aid the teacher in building positive relationships among the students, help students in healthy social, psychological and cognitive development, be less competitive and structurally more organised and team-based to achieve high performance standards of learning (Johnson, Johnson, and Holubec, 1994:2). Thus the resultant effect of cooperative learning should be to elevate the motivation level of students to learn better in a classroom setting.

Motivational Level

However, the motivation level of students in a classroom environment could also depend on other factors like: class size, the competency standards of teachers to teach, language used in teaching and learning, the difficulty level of lessons been taught and learnt amongst other variables. Thus, the motivation level of students is very subjective and cannot be accurately gauged unless extensive and intensive, as well as, comparative studies are done using other methods besides cooperative learning to give a clearer picture for the academic world to appreciate and adopt for excellence in education. All the studies about the different methods of learning, including cooperative learning are only means to an end which may never be achieved as the world of education is always in flux and the only constant is change. Professionals in education should thus adopt, adapt and become adept to the changes by using cooperative learning and teaching methods besides using technology in the classroom to have a multi-modal approach to teaching and learning so that the classroom is seen as a reservoir of knowledge for students to dip into and enjoy to the brim, so as to prepare them for their future livelihood.

MATERIALS AND METHODS

This exploratory, mixed (Qual + quan) study of a cohort of tertiary level students in a national institution of higher learning, the National Institute of Education, Singapore, aims to show how cooperative learning affects the motivational level of students in a typical classroom environment.

Data Collection and research designs

Altogether a cohort of 78 (25 males and 53 females), multiracial, post-graduate students from diverse backgrounds (primary, secondary, tertiary, etc) in teaching did a pre (at start of lessons) and post (on the last day of lessons) *What Is Happening In This Class?* (WIHIC) survey in class. This *quan* (minority) data supports and conforms the *Qual* (majority), 3 survey items and reports, together, to further elucidate the findings of this study. The WIHIC assessment consists of a set of validated instruments that address the psychosocial dimensions of students in a classroom setting (Fraser, Fisher, & McRobbie, 1996). It consists of seven subscales: student cohesiveness, teacher support, involvement, investigation, task orientation, cooperation and equity. Each subscale contains eight 5-point Likert-type items ranging from 'Almost never' to 'Almost always.' Students were asked to rate each item based on their perception of the classroom learning environment. In this survey research using the WIHIC questionnaire, I had singled out the issue of *cooperation* (basically collaboration among the students) in the classroom environment as the area

of study and how it affected the motivational level of students. A further set of qualitative survey questionnaires on student learning involvement (uses the Likert 5-point scale and consists of 10 questions on student participation and involvement in class), a focus group survey questionnaire which is based on 2 short video clips from the internet of cooperative-group learning and a face to face interview with 2 students (about 10 minutes each) had also being done to further validate the research findings.

Qualitative (Qual) Analysis

1. The focus group open-ended questionnaire was based on two video clips from the YouTube website in the internet (on cooperative learning. Both video clips of about 3 minutes duration each showed groups of adults in a cooperative learning environment. Video clip 1, *Student Groups Divide Work*, showed positive learning taking place where all the students worked together as a team to talk and write up their assignment on a large piece of paper for a class presentation exercise later in the lesson. Video clip 2, *MAA students at River View Middle School work in collaborative groups*, showed a group of students not discussing as much as those in the video clip 1, were more reserved in their comments and worked rather sluggishly in a disinterested manner with one or two individuals dominating the discussions while the rest sat almost passively throughout the short duration of the video clip session. In both the video clips the teacher was non-existent and could have been involved with other groups or may have left the groups of students to work out their projects by themselves without intervening. The 4 respondents of the focus group unanimously agreed that video clip1 showed collaborative teamwork going on (they seemed to have a lot of motivation) whereas video clip 2 showed a lack of teamwork and general disinterest (or motivation) among the students. In the pre-video session, the focus group members had to give their written opinion, without any discussions, and as a warm-up, on what they thought was cooperative learning and its advantages and disadvantages. All of them agreed unanimously that cooperative learning "leads to new knowledge," "teamwork among members," "encourage(s) and support(s) learning" and generally mentioned the advantages more than the disadvantages in their write-ups.

In the post-video- session, the focus group members agreed that there was more interaction going on in video clip 1 than in video clip 2. The interaction according to the group members seemed to be the interest, relevance of the lesson, clarity of the notes, usefulness of the content, sharing of knowledge and in-depth discussions, learning from one another, working towards a common goal, everyone contributing without fear or fervour and bounced ideas off each other. They all agreed unanimously that there was cooperation and teamwork, generally, and that the groups seemed to be motivated as a result in video clip 1. The disadvantages were mainly about 'pushy' leaders, non-participation of group members (especially in the second video clip), lack of time for discussions and generally the inability to communicate well in discussions for various reasons; which pertains mainly to video clip 2. Therefore it can be clearly seen that there were more advantages as mentioned by the focus group members than disadvantages in cooperative learning where lots of

collaboration took place which resulted in motivating the students to learn better overall.

2. The Student Learning Involvement Survey questionnaire, consisting of 10 questions, basically got the same 4 focus group members to tick the Likert-scale (1-5) columns according to what they thought was the amount of student involvement in a typical non-cooperative teacher-fronted classroom environment. The questions were about classroom participation, discussions with the teacher, student's frequency of making presentations in class, using online mode of learning, the amount of preparedness for lessons and general coursework matters. Both the males in the focus group had quite similar scores for class participation and involvement in the range of *sometimes* (3) to *often* (4) for almost all the items whereas the females showed extremes of class participation scores. One of the females, the more vocal and less conservative-type, tended to score between *sometimes* (3) to *always* (5) while for the other female, who was more reserved and less vocal, the scores were spread all through the scales but were more in the range of *never* (1) to *sometimes*(3). Thus it can be ascertained to some extent that a non-cooperative, teacher-fronted class may not have mass participation as much as the teacher would have expected but it would rather be more subdued in discussions or activities compared to a classroom which has lots of cooperative activities going on. The motivation level of a teacher-fronted classroom may also be not as much as one that has cooperative and collaborative work going on. However, the findings should still be taken with a pinch of salt depending on the mood and atmosphere prevailing in the classroom when either type of activities is taking place. There could also be lots of activities and vocalising going on in a teacher-fronted classroom if the teacher is resourceful enough to engage the class actively and enthusiastically.

3. The Individual Independent interview sessions, for 2 of the 4 focus group members involved a male and a female for a more balanced view of their opinions and as a general representation of the class' views on whether or not there was cooperative learning taking place in their classroom and how the class was or was not motivated to learn as a result.

The following questions were asked:

- What is cooperative learning in your opinion? Give some examples.
- What do you feel are the advantages of cooperative learning?
- What do you feel could be some disadvantages of cooperative learning?
- What would interest and motivate you to learn better in the class?
- What would disinterest and de-motivate your learning in the class?

The male interviewed generally felt that cooperative learning is "*when they (students) do things together which means that more ideas are being generated.*" He felt that the classroom which has cooperative learning going on would be more interactive "*with one another*" and so there would be an exchange of "*values and etiquettes on how to deal with one another.*" He was touching on the socio-emotional learning (SEL) in classroom interactions which are the basis of the

Singapore Ministry of Education's promotion of character building and moral development of students in school, starting right from primary school to the tertiary levels. He further comments that cooperative learning and self-directed learning could be linked as better students could teach the lesser ability students in a mixed ability grouping of students and the teacher could facilitate learning better in that way. He asserted that cooperative learning could be a disorienting feature too as students were more used to the lecture-type of learning which is teacher fronted and they could become noisy and not cooperate with the teacher. A de-motivating factor of cooperative learning according to the male interviewee was that it could turn out to be a monologue session where someone did most of the talking while others just listened. He felt that learning has to be interesting first to be motivated to learn. The female interviewee responded similarly that in cooperative learning "*everyone will have the same intention in the class*" to have a "*better insight of whatever that the lecturer is actually teaching.*" She felt that for cooperative learning to work, students must be seated with "*familiar faces*" so that it would be "*easier to share ideas without having to hold back.*" She claimed that for a quieter person like herself, "*it is easier for me to absorb by listening to others rather than actually answering and asking questions*" if she was in a big group. She would be happy to be laid back if someone older were to dominate in a group – a disadvantage of cooperative learning surely as some students like the female respondent may do likewise and be non-participatory, be a passenger, in the group. They may have felt less motivated to talk or give their opinions as she asserted later "*I rather listen to someone who has more...*" and that each person in the group may have "*limited amount of time to discuss.*" The female respondent, unlike the male, seemed to deviate from the idea that cooperative learning is positive and mentioned that "*someone may hawk on that conversation because they have so much to share*" or someone may be "*loud*" and could "*overpower the rest*" so they would agree rather than "*rock the boat.*"

Clearly she could have spoken the female mindset in the class where most females did not assert themselves; save for a few who were the exception rather than the norm. In the rest of the interview, the female respondent seemed to sound a little negative about cooperative learning and whether it would create motivation in the class or not. She put the onus on the teacher to be the motivating factor rather than the students themselves which begs the question whether cooperative learning is actually a positive approach or just another approach to learning that may or may not motivate students like the female respondent. The male respondent's views seemed to be more positive compared to the female respondent's. The former's views involved motivation whereas the latter's did not, as an outcome of cooperative learning in class. Thus, overall, qualitatively speaking, cooperative learning depends on individual perceptions and attitudes as shown in the slightly differing views of the male and the female respondents of the individual interviews. The focus group's open-ended questionnaire also showed some similarities of views whereas the Student Learning Involvement survey questionnaire showed the lower levels of class participation in a teacher-fronted class which is different from a cooperative learning student-face-student classroom environment which could be more fun and motivating as they discuss and learn in groups.

Quantitative (quan) Data Analysis

The WIHIC survey instrument data indicative of the level of cooperation in the cohort of students in the survey is summarised in the Table below:

Table 1. Level of cooperation of cohort of students

Items about <i>cooperation</i> from WIHIC Instrument	Pre-wihic		Post-wihic	
	M	SD	M	SD
1. I would cooperate with other students in the class.	4.61	0.54	4.63	0.54
2. When I work in groups in this class we work as a team.	4.60	0.56	4.66	0.48
3. I would learn from other students in the class.	4.45	0.74	4.53	0.60
4. Students would work with me to achieve class goals.	4.40	0.69	4.38	0.64

Table 2. Level of *motivation* of cohort of students

Items about being <i>motivated</i> from WIHIC Instrument	Pre-wihic		Post-wihic	
	M	SD	M	SD
1. I have friends in this class	4.36	0.82	4.58	0.62
2. I am friendly to other students in this class.	4.51	0.64	4.47	0.60
3. My classmates and I help each other when we have trouble with our work.	4.69	0.52	4.49	0.63
4. Students in this class like me.	3.85	0.80	4.00	0.60
5. The teacher cares about me.	4.10	0.76	4.11	0.72
6. The teacher helps me when I have trouble with my work.	4.45	0.69	4.21	0.80
7. The teacher talks with me.	3.78	0.86	3.84	0.91
8. The teacher's questions helps me to understand.	4.49	0.62	4.21	0.76

The item statements in Table 1 have been selected from the WIHIC instrument as they represent the cooperation levels of the overall student population in the survey. The *mean* scores, overall, have risen marginally, for items 1, 2 and 3, over the two weeks of studies, as a cohort. However there is a slight dip of 0.02 in the *mean* for item 4 from pre to post WIHIC. This could be due to some students feeling the pressure of working in groups a bit overwhelming for them as the group could have become a bit more individualistic over the days of the lessons or they had started to work with their preferred partners rather than in larger groups or as a class more. The *standard deviation* scores have dropped for items 2, 3 and 4; which are more indicative of some improvement in the cooperation levels compared to the *mean* scores among the students as compared to item 1 where there is almost no change in students' perception of being cooperative towards each other. It is quite evident from Table 2 that there has been a marginal increase in motivation levels of students as the *mean* scores for Items 1, 4 and 5 have very slightly increased by 0.01, 0.15 and 0.22 respectively. These items represent the bonds of friendships being created over the two weeks of lessons so the motivation levels may have risen as a result, coupled with the added cooperation levels of the cohort as a whole, as given in Table 1. The mean score for item 7 increased somewhat marginally as students had warmed up to the teachers as they interacted more with them during the tutorials after the lectures. However, the *mean* scores for the other items: 2, 3, 6 and 8 have marginally decreased too. Items 2 and 3 represent student interactions in helping each other which may have dropped marginally as they gravitated from one student to another or preferred to have some quiet time for themselves to ponder about the course work or readings for the assignments for every lesson. Items 6 and 8 could represent the impending fear or unease felt being asked questions especially during the tutorials, the project work or the class tests. The students and the teachers may have had issues about some answers being correct when they got them wrong, when the teacher disclosed the answers.

However, overall, generally, the motivation level had risen marginally throughout the cohort which could have been due to greater levels of cooperation seen in Table 1. The *standard deviation* for 4 items: 1,2,4 and 5 have decreased slightly and got closer to the mean scores of those items, probably

signalling a slight improvement in motivation levels whereas for the rest of the items: 3,6,7 and 8, in Table 2, the *standard deviation* scores have moved away marginally higher, which could mean students were more in awe about the impending assignments and tests and so there could have been some trepidation among them mainly in their interaction with the teachers and some of their fellow student friends who may have been anxious to get on with their assignments without being interrupted.

Limitations of the study

These are some limitations of the study namely: some students may not have attempted the WIHIC survey or may have keyed in duplicate scores, the gender of the student was not considered in the overall ranking of the scores as the scores were taken in this study to be of homogeneous content and last but not the least, the very short duration of only two weeks between the pre and post scores for the study to be done would not give a more accurate level of mean or standard deviation scores.

Conclusion

The results of the study may seem negligible but due to the short time span of the study, the small number of heterogeneous students from different teaching backgrounds and tenures in the education service, varying age groups (twenties through to even some in their fifties) as well as the different genders, the mean and standard deviation scores were still quite respectable figures that mattered in evaluating the twin questions of cooperative learning influencing the motivation of the cohort of students as well as the student to student and teacher to student interaction on the level of cooperation and motivation to learn. It is hoped that small scale study can still be useful for researchers from educational establishments to consider for further and more in depth study of cooperative and other learning methods to motivate learners

even more and interact with each other and the faculty to greater heights in the field of education.

REFERENCES

- Fraser, B. J., Fisher, D. L., and McRobbie, C. J. 1996. Development, validation and use of personal and class forms of a new classroom environment instrument. Paper presented at the Annual Meeting of the American Educational Research Association, New York.
- <http://www.youtube.com>. MAA students at River View Middle School work in collaborative groups.
- <http://www.youtube.com>. Manchester Cooperative Learning Project
- Kagan, S. & Kagan, M. 2009. Kagan cooperative learning. San Clemente, CA: Kagan Publishing.
- Kagan, S. 1994. Cooperative learning. San Clemente, CA: Resources for Teachers.
- Magnesio, S. & Davis, B.H. 2010. A Novice Teacher Fosters Social Competence with Cooperative Learning. *ProQuest Journals*. Texas State University. San Marcos.
- Olsen, R., and S.Kagan. 1992. About cooperative learning. In C. Kessler (ed.), *Cooperative Language Learning: A Teacher's Resource Book*. New York: Prentice Hall. 1-30.
- Sharan, H., Sharan, S., & Jacobs, G. 2002. Cooperative learning: Editorial introduction. *Asia Pacific Journal of Education*, 22(1), 1-2.
- Siegel, C. 2005. Implementing a research-based model of cooperative learning. *The Journal of Educational Research*, 98(6), 339-349.
- Slavin, R.E. 1996. Research on cooperative learning and achievement: What we know, *Contemporary Educational Psychology*, 21(1), 43-69.
- Thanh, P.T.H. and Gillies, R. 2010. Group Composition of Cooperative Learning: Does Heterogeneous Grouping Work in Asian Classrooms? *ProQuest Education Journals. Canadian Centre of Science and Education, Toronto, Canada*.
