The Effects of Peer Tutoring on Seventh-grade Students' Learning in Science

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article	

ABSTRACT

Peer tutoring is a common instructional strategy used in classrooms. This study focused on the effects that peer tutoring has on students of the novice group. The effect of peer tutoring was compared based on the score of pretest and posttest to those of the control group. At the end of the tutoring session, the satisfaction of the students was accessed by administering questionnaires. Hence, this is a mix-mode research where survey questionnaire and class tests score has been used. The questionnaires consist of two parts. Part one consisted of nine closed questions using a Likert scale and in addition to the opportunity to provide free text comments and part two consists of five close ended questions using a Likert scale to assess the usefulness of the tutoring session. The posttest result showed that 7 out of 8 participants made significant progress after intervention. The student's perceptions on the action-tutoring strategy were all positive that students were satisfied with tutoring timing, session and had found useful to be recommended with other friends. Hence, it has positive effect in learning science at class seven.

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1. INTRODUCTION

Many educators are constantly striving to improve their student's classroom achievement. Most of elementary school classroom contain students with a variety of levels of achievement. Throughout my teaching experiences in Bhutanese classroom, I have seen the challenges faced by teachers to facilitate the academic achievement of each and every student in the class. It is extremely difficult for one teacher to meet the needs of each student at one time; there is simply not enough time in a school day to spend individual time with each student every single day. There is an assortment of teaching methods that have been used in classrooms to address such issues across the country in the past, and some have proved to result in higher student achievement results than have others.

This method of teaching is called peer tutoring, Peer Tutoring involves the children tutoring each other. Some students are selected to be the tutors by the teacher. They are trained on how and what to tutor. They then tutor their peers. At the end, they assess their peers to see how well they did. Usually, it is one-to-one tutoring or small group tutoring [1]. This method of teaching has increased student achievement in all subjects of the elementary classroom [2]. According to research on peer tutoring, significant gains were made in learners of all backgrounds [3].

However, in Bhutan, peer teaching is still remains as redundant theory. This study has pinned its energy to employ peer teaching in science learning. It is basically to uplift the performance of students in science learning.

2. RECONNAISSANCE

According to Maxwell [4] any action research should begin with a reconnaissance; the reconnaissance produces an overview of the action research context, current practices, participants and concerns. The reconnaissance of research study developed by Maxwell has three parts. They are:

1. Situational Analysis
2. Competences
3. Literature Review

2.1 Tsangkha Middle Secondary School

Tsangkha Middle Secondary School is under Dagana Dzongkhag. It is located on a gentle slope above Tsangkha Village and just opposite of local government and RNR office. It is 17 Kilometers drive from Durjeygang Higher Secondary School and 14 kilometers from the Thimphu-Dagana Highway. It is close to Tsirang than Dzongkhag Headquarter. The climate of the place is ideal with cool winter and warm summer. However, it is windy in the afternoon throughout the day during bright days.

The school was established in 1979 during the tenure of Dasho Namgay, the Dzongdag. The school was formally beginning in 1981; Mr. Lobzang Dorji was the first headmaster of the school. He was supported by the few teaching faculty members. Since then, a series of head master served the school in the following chronological order: Mr. Lobzang Dorji (1981-1982), Mr. SamtenTashi (1983-1984), Mr. R.K. Dhatta (1985-1987), Mr. Gyeltshen (1987-1990), Mr. Dorji Drukpa (2001-2005), and Mr. Rinchen Dorji (2005-2014). Currently, the school is managed by Mr. Tshultrim who joined the school on 11th Nov, 2014.

In 1990, after three months of functioning, the school was closed due to southern political reason. In 2001, the school was reopened under royal decee during the tenure of Dasho Mingbo Dukpa, the Dzongdag. Mr. Dorji Drukpa was the teacher in-charge of the school with 32 children the non-formal instructor, Miss Sangay Dema of Tsangkha Center helped the school judiciously.

Until 2007, the school remained community primary school. In 2008, the school was upgraded into Lower Secondary School. In 2018, the school was again upgraded into Middle Secondary School. At present, school holds up to the grade IX ranging from Preprimary.

2.2 My Class

The classes I choose to do my study were seven section (s) A and C. In both the classes, there was assortment of students from different school with different learning abilities. I used to teach science in both the classes. The class participation was often observed to be poor in both the classes. Only selective students used to response frequently in the class. Hence, it was difficult for teacher to evaluate the understanding of other students. As the time conceded, I have conducted a series of test in weekly basis to observe their weakness and to evaluate their understanding of scientific concept. Their test result of March month revealed that there were
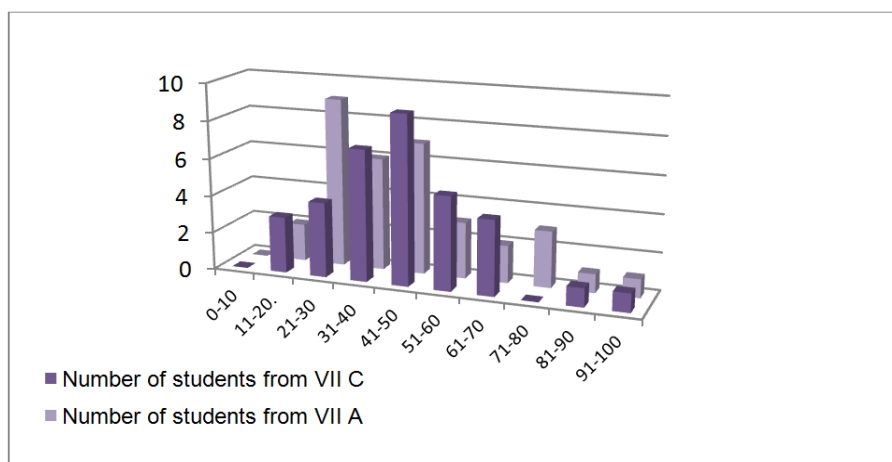
Fig. 1. Performance of seven students in science of March month (Section A& C)

both high and low achievers in both the classes. Besides the language of the students were observed extremely poor. Almost the half of the students could not make a sentence to convey their intended meaning of the questions. Without having good language, it is extremely difficult for students to comprehend scientific concept.

The test result of March month of seven (A & C) showed that the performance of students was exceedingly low. Out of 34 students in both the classes, only one student from both the classes got in assortment (91-100%). Majority of students' performance were below 50% that was 22 from section C and 24 from section A. In section A, 10 students got above 50% and 12 from section C. However, the performance range of both the classes was evidently depicted in (Fig. 1). This data revealed the performance level of class seven students in science subject at Tsangkha Middle Secondary school.

Being aware of students' weaknesses and the requirements for my science class, I knew I had to do more or these students would be set up for failure. In response, I developed this investigation to use peer tutoring to improve the performance in science.

2.3 Competence

All authors are currently researchers in their own capacity with common interest in education. Mr. Lekh raj Ghalley is a biology teacher by profession at Tsangkha Middle Secondary School, Dagana, Bhutan since 2018. He has done numerous research in the field of education, horticulture and botany. He has three years of experiences working as research coordinator in the college. Currently he is the Head of Science Department (HoD) in his school.

Govinda Oli is a language teacher of the Tsangkha Middle Secondary School, Dagana. He served this school for last five years. Currently, he is perusing Master of Science (School Health) at Mahidol University in Bangkok.

Dorji Penjor is a chemistry teacher at Taktse Central School in Trongsa, Bhutan. He has B.Sc in life science from Sherubtse College and Post Graduate Diploma in Education from Samtse College of Education, Bhutan. During his college days, he worked as a researcher in ethno botany. This year, he is also the recipient of Sherig Endowment Fund under Ministry of Education, Bhutan.

Sonam Tenlo is a teacher at Technology and Mathematics at Tsangkha Middle Secondary School, Dagana. He has Master of Education from SRM University, Chennai, India and Bachelor of Education (Secondary) from Paro college of Education. He is a recipient of awards such as outstanding teacher trainee from Paro College of Education in 2008, Outstanding in Teaching Guidance and Counselling 2014-2015 from SRM University. He served in various schools as a teacher and availed numerous professional development programs related to education. He is interested to carryout research related to education for benefit of the educators.

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3. LITERATURE REVIEW

3.1 Background on Peer Tutoring

Peer tutoring has been proven effective and is not a "new" concept for assisting learners. Peer tutoring has been a part of society since hunter-gatherer times. As Jenkins and Jenkins [5] explain, "Tutorial instruction (parents teaching their offspring how to make a fire and to hunt and adolescents instructing younger siblings about edible berries and roots) was probably the first pedagogy among primitive societies". Peer tutoring was a part of educational traditions in Greece during the first century A.D. and during the Roman Empire. It was later used in Germany and finally America. Formalized uses of peer tutoring in the United States date back to the 1700's.

3.2 Definitions of Peer Tutoring

Topping [6] discusses the definition of peer tutoring as "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. It involves people from similar social groupings who are not professional teachers helping each other learn and learning themselves by so doing" (p. 631).

However, other definitions of peer tutoring exist, and they are not all consistent. For example, not all peer tutors are "experts." They are sometimes randomly assigned, same-age classmates or same-age lower achievers.

To make matters more confusing, the term "peer tutoring" often subsumes both cross-age and same-age tutoring. As Gaustad explains: "Peer tutoring occurs when tutor and tutee are the same age. In cross-age tutoring, the tutor is older than the tutee. However, sometimes the term peer tutoring is used to include both types" [7].

Why use Peer Tutoring?

Three commonly cited benefits of peer tutoring are as follows:

- To enhance the learning of academic skills
- To develop social behaviors and classroom discipline
- To improve the enhancement of peer relations

Greenwood et al. [8] some writers also cited broader benefits of peer tutoring. Hedin, for example, cites "a more cooperative, pleasant classroom atmosphere" and "[recruiting] promising future teachers into the profession" [9].

4. SIGNIFICANCE OF THE PROBLEM

Students from my class come from different schools with pathetic social issues. Majority of the mare extremely poor in language and they cannot comprehend the text by reading themselves. However, there are handfuls of students who can do well in all the circumstances. Therefore, I need to make sure that the teaching within my classroom fits their learning needs.

As per the Annual Performance Assessment (APA) of Ministry of Education, Bhutan the performance in science has to be 65% and above. In order to meet these standards, I need to research best practices that will assist my students' learning. The purpose of my research was to determine the effects that peer tutoring may have on student's performance in science learning.

Therefore, the learning strategy adopted for learning science to enhance performance is through peer tutoring.

5. PURPOSE OF THE STUDY

The purpose of this study was to examine the effects of peer tutoring on academic achievement. In this study, successful students were selected based on the degree of which they understand new concepts. "Successful" students provide a support system for peers. These students 'served as positive role models and mentors for their classmates. The main objective is to help low achieving students to improve their performance.

This research project has helped to determine the benefit of peer tutoring as an effective teaching strategy. This will, therefore, ideally improve teaching practices in the classroom.

Austin [10] describe best teaching practices as the use of instructional strategies which produce

significant and continuous student learning. Using peer tutoring as a teaching strategy will result in higher achievement for elementary students.

Above all, this project expressly aims to improve the performance of seven grade students in science learning.

6. RESEARCH QUESTION?

Does one-on-one peer tutoring have an effect on science learning?

7. PROCEDURES

This study focused on the effects that peer tutoring has on students of the novice group. The five students being tutored were chosen from the novice group. These students were lower performing in science based on their class test scores. Students from the higher performing group were also chosen based on their past success record to tutor low performing student. These groups worked together to help each other to enhance the performance of students. No students were chosen from the intermediate level. Students to be tutored were known as the experimental group. This group of students was completely selected from section C.

The participants are given freedom to access the help from student-tutors when and where they are free. However, the researcher has constantly reminded the participants to avail an utmost service from student tutors. In order to correctly assess the effects of peer tutoring on students' achievement, I compared the results of the participants' pre and posttest to those of the control group. In order for the control group to be a similar make-up of the participants of the study, it consisted of five students from each novice and proficient levels, who also completed the assessments. These students did not receive tutoring, so their skills in mastering objectives on the pre and posttest were solely based on in class, direct teaching. Students from the control group were randomly chosen from section A. Experimental group and control group were select from different classes.

The posttest was administered after the intervention session. Posttest also consists of a set of questions. A well-structured question set was designed and verified by the critical friends. It encompassed all the levels of questions from Bloom's Taxonomy

At the end of the tutoring session, the satisfaction of the students was accessed by administering questionnaires. The questionnaires consist of two parts. Part one consisted of nine closed questions, using a Liker scale and in addition to the opportunity to provide free text comments. Part two also consists of five close ended questions using a Likert scale. The questions aimed to assess whether student-learners felt the session ran smoothly, their ability to contribute to discussions and whether they felt they benefited from peer tutoring session. The free text comments box was provided to allow student-learners the opportunity to provide comments (positive and negative) if they chose to.

7.1 Assessment Tools

I established a baseline assessment in science by administering class test. The questions on this baseline (also known as pretest). Taking ideas from the study conducted by Austin (2008), test question was prepared. The questions were a mix of multiple choice and open response. This teacher-created baseline assessment was given to all students involved in the study. The baseline assessment determined the students' performance levels by the score obtained in the test.

However, the post test was administered after the intervention session. Question pattern would be similar to that of pretest. The result of posttest would be considered as post line data. These pre and post data will compare to conclude the effectiveness of peer tutoring in science class.

Third source of data was gathered by administering questionnaires at an end of tutoring session. These data indicated the usefulness of peer tutoring session.

7.2 Data Analysis

The data and observation collected were analyzed using SPSS version 21 and MS Excel for data cleaning and table generation.

7.3 Limitation of the Study

1. Study was conducted in a small scale and the finding may not represent the whole population. However, the manipulation of the data was strictly prohibited.
2. The quality of the research may not be good due to the limited time and resources.

3. Finding may not be good enough due to the poor written language of some respondents.

7.4 Baseline Data

The baseline data was gathered from pretest conducted in the month of March, 2018. The tests were administered on the weekly basis and average score were used as baseline data. The top eight low performing students were selected for tutoring session from section C and high achievers were considered as student tutors. This group of students are called experimental group. However, the control group was selected from section A to compare the effectiveness of the tutoring session.

The performance of students who were undergoing tutoring session was given in the (Fig. 2). This data was compared with post data to determine the effectiveness of peer tutoring. The lowest score of student was (11.3%) and the highest was (35%).

The average scores of controls group were randomly selected to see the differences. Their performance was given in graph (Fig. 3).

7.5 Pre and Post Data of the Experimental Group

Post data were collected by conducting three subsequent tests in the weekly basis after the intervention. The average scores of the posttest were compared with pretest score. Baseline data are used as a comparative, benchmark for data collected during and after the intervention. (Fig. 4) showed the comparison between baseline and post intervention data of the experimental group.

Result disclosed that peer tutoring has positive effect in learning science. Out of eight sampled students, seven students' showed positive result after intervention and only one student showed negative result. Student P scored highest in posttest (68.3) however, he was lowest in pretest that was 11.3%. All 7 students out of eight made significant progress after intervention. Unfortunately, student AC failed to show any improvement after improvement. AC got 27.5% in pretest and 21.67% in posttest.

7.6 Pretest and Posttest Data of Control Group

Over the course of study, pretest and posttest of the control group was also compared to see the differences made after intervention. It indicates the effectiveness of peer tutoring in learning science. The result showed the differences between per test and posttest of control group was almost same. Only two students made significant differences but others, the differences were negligible.

7.7 Comparison of the Experimental and the Control Group-Pretest/Posttest

Comparing the mean scores of the experimental and control groups in Table 1 data illustrated that both groups increased from the pretest to the posttest. The experimental group had a difference in test scores of 20.34%. However the control group seemed to have a difference of 8.11% between the pretest and posttest. The result evidently indicated the effectiveness of peer tutoring in learning seven grade sciences.

7.8 Satisfaction of Students

At the beginning of the four weeks period, the students engaged in peer tutoring often questioned the investigators when coming across a concept they were unfamiliar with. As the weeks progressed, the students became much more dependent on each other to assist with unknown words and seldom questioned the investigator. This showed how peer tutoring can improve students' abilities in cooperating effectively with their peers, as supported by Fitz-Gibbon [11].

Table 1. Comparison of the experimental and the control group-pretest/posttest

	No of student (N)	Pretest mean score (%)	Posttest mean score (%)	Difference (%)
Experimental	N=8	24.01	44.35	20.34
Control	N=8	51.24	59.35	8.11
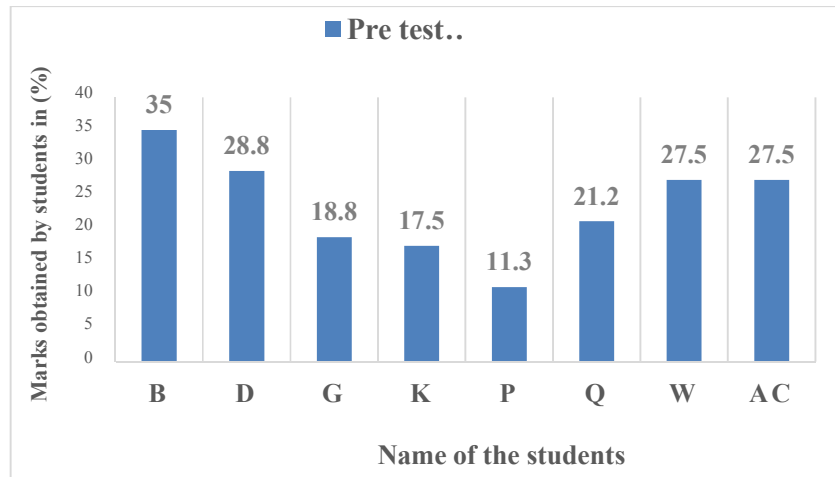
Fig. 2. Baseline data of students to be tutored (Section C)
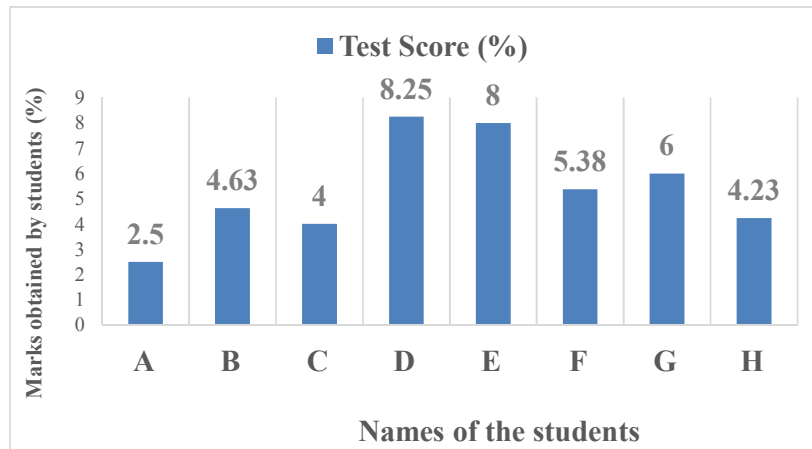
Fig. 3. Baseline data of control group (Section A)

	B	D	G	K	P	Q	W	AC
Pre test score (%)	35	28.8	18.8	17.5	11.3	21.2	27.5	27.5
Post test score (%)	46.6	31.6	61.6	25	68.3	48.3	51.7	21.67
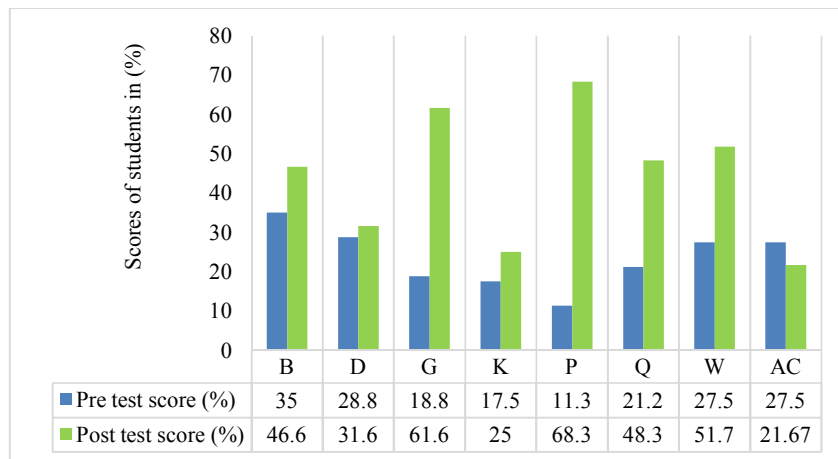
Fig. 4. Posttest result of experimental group

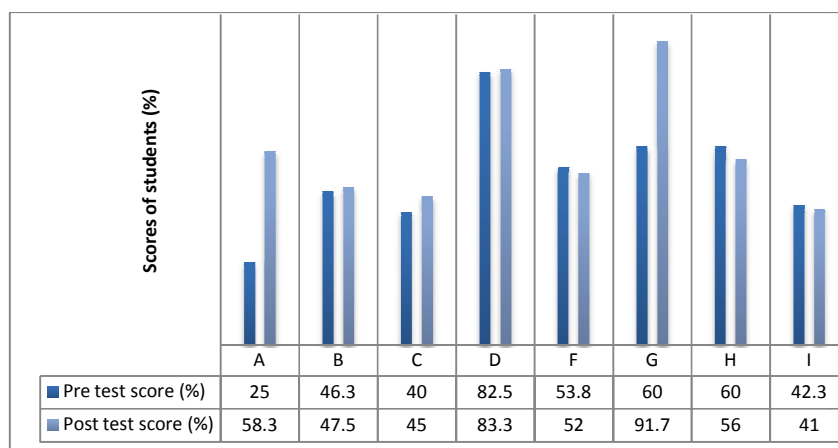|	A	B	C	D	F	G	H	I
Pre test score (%)	25	46.3	40	82.5	53.8	60	60	42.3
Post test score (%)	58.3	47.5	45	83.3	52	91.7	56	41

Fig. 5. Post test result of the control group

Table 2. Responses to the questionnaire of assessment student's perceptions on the action-tutoring strategy. Descriptive statistics

Item no.		N	Minimum	Maximum	Mean	Std. deviation
1	I had the opportunity to clear my doubt	8	3.00	5.00	4.1250	.64087
2	It is convenient for me to express my doubt. I feel more comfortable with my friend.	8	3.00	5.00	4.3750	.74402
3	Tutoring times are convenient for my schedule.	8	2.00	5.00	3.6250	.91613
	I found the session useful.	8	3.00	5.00	4.1250	.83452
4	My tutor(s) improved my overall understanding of the subject material.	8	2.00	5.00	3.8750	.99103
5	My tutor(s) helped my study skills (e.g., test taking, time management, and study habits).	8	4.00	5.00	4.5000	.53452
6	It was easy to find information from tutor than teacher tutor	8	3.00	5.00	4.1250	.64087
7	Overall, how would you rate your experience with peer tutoring	8	3.00	5.00	4.0000	.92582
8	I would recommend tutoring to other friends.	8	3.00	5.00	4.1250	.64087

Table 3. Learning approach perceived by the students

		N	Minimum	Maximum	Mean	Std. deviation
1	My aim is to do well in exam	8	3.00	5.00	3.8750	.83452
2	I seek tutoring to help me understand vague concept of the text and improve reading comprehension of scientific text.	8	1.00	5.00	3.3750	1.18773
3	I seek tutoring to complete my homework, assignment and project work.	8	2.00	5.00	3.6250	.91613
4	I seek guidance and explanation from my tutor.	8	3.00	5.00	4.2500	.88641
5	I let him/her to do my work.	8	1.00	4.00	2.0000	1.30931

The response of students during study was very positive, with respect to their suitability, timing, and program effectiveness, i.e., perceived improvements. The most students appreciated the help they received from tutors to overcome educational difficulties, to focus better on study techniques, or to take advantage of and use the tutoring resource more. In an open question, students commented as follows:

Student (S) 1: *I found peer tutoring session was more useful to clear out doubts. I understand more when I tutored face to face with my friend.*

S5. *I felt more content to express my doubts with friends than teacher. So, I recommend my friends to arrange peer tutoring.*

S8, 3 & 2. *It is more comfortable to sit with friend for study. I understand more when we study cooperatively during our free time.*

St4& 7. *I don't understand when teacher taught in the class. I always feel sleepy in the class. So, this tutoring session with friend help me a lot to understand science.*

The satisfaction level of students during the course of study was analyzed using descriptive analysis. The increased scores of mean values indicated the positive response from the students that they were satisfied with the tutoring timing, sustainability and program effectiveness. All respondents have used the learning session positively.

8. DISCUSSION

The main asset of this study is that the effectiveness of an original tutoring session has been evaluated using a randomized experimental design [11]. The pre-test and posttest of the students were equated to analyze to display the improvement perceived by the students. Besides the satisfaction of the students were also congregated to access usefulness of the study and the perception of students and the approaches they sought to avail resources from their friends.

The first hypothesis of this study "does one-on-one peer tutoring have an effect on science learning?" has been validated by administering the test among selected students. The posttest result showed 7 among 8 participants made significant progress after intervention except one

but the difference was negligible. This firmly buttressed that this study has lots of impact on learning science. Similar research done by Horvath [12] Fitz-Gibbon [11] also found that peer tutoring has positive impact on academic achievement. [13] also gives support for integrating peer tutoring into teachers' pre-service training in stating, "Guiding pre-service teachers in structuring peer tutoring, providing appropriate training, and monitoring and evaluating their progress will ultimately increase the likelihood of their continued use of such strategies throughout their teaching career" (p. 106).

However, the tutoring program, had been very positive, highlighting its relevance and its effectiveness, although they would have wanted to improve the focus on study skills. Among the students' perceptions, tutor's help towards the students were positive that students were satisfied with tutoring timing, session and had found useful to be recommended with other friends [11].

To sum up, from findings of our study we could consider that the tutoring program means by one-one tutoring have had positive influences on the students' learning process, and completion of students' studies [14,11,15,16]. Stressed the importance of support and care to students to enable them to complete their studies, while considering regular meetings for achieving academic success as critical. In our work, each student had the freedom to fix their tutoring session with their peer whenever they were convenient.

9. RECOMMENDATION AND CONCLUSION

After implementing peer tutoring in my classroom for almost a year, I noticed a great change in my students of concern. Their science grades improved. The level of performance increased from these students. I was able to assess their knowledge from the increase in their performance in the consecutive tests.

The classroom became more manageable with peer tutoring in place. I observed that the trained tutors were expanding their focuses to their entire classroom. Not only did they assist the students of concern but at a broader range. The students within the group would turn to the tutor before they would turn to me for questions. They would solve problem together. The classroom

became more learner-centered with peer tutors in the classroom.

Peer relations benefited from this study as well. They broadened their peer group. I was pleased with their ability to take risks and feel this is important in a middle school setting. We, as educators, sometimes forget that the sole purpose of school isn't academics, but socialization as well.

Overall, I feel as though peer tutoring was effective. All the students benefited from this study. I learned a lot about my teaching and my students. This study proved that students do learn from their peers.

Therefore, having analyzed the effect of peer tutoring I would like to suggest all educators to incorporate peer tutoring as one study strategy to boost the performance of students. It has found positive effect in learning science at class seven.

ETHICAL APPROVAL

Authors have sought approval from school administration and action research committee of the school.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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APPENDICES

Appendix (A)

SI/No	Names	Seven C Week 1	Week 2	Week 3	Week 4	Average	Names	Seven A Week 1	Week 2	Week 3	Week 4	Average
1	A	5.5	2	4	5	4.13	A	2	4	3	1	2.50
2	B	5.5	6.5	0	2	3.50	B	4	5	1	8.5	4.63
3	C	4.5	6	6.5	3	5.00	C	3	2	4	7	4.00
4	D	1.5	0	6	4	2.88	D	7	8	8	10	8.25
5	E	0	6	7	5	4.50	E	7	9	6	10	8.00
6	F	4.5	6	6.5	4	5.25	F	6	5	4	6.5	5.38
7	G	1	2	1.5	3	1.88	G	7	6	4	7	6.00
8	H	1.5	1	7	4	3.38	H	3	5	8	1.5	4.23
9	I	5	0.5	2.5	6	3.50	I	5	6	9	10	7.50
10	J	1.5	3	5.5	4	3.50	J	5	7	7	8	6.75
11	K		6	0	1	1.75	K	2	4	3	8	4.25
12	L	8	3	7.5	3	5.38	L	3	5	2.5	5.5	4.00
13	M	4.5	10	6	5	6.38	M	1.5	2	0.5	3	1.75
14	N	2.5	5	5	23	8.88	N	3	4	2.5	8	4.38
15	O	5.5	3.5	5	2	4.00	O	1	4	3	5.5	3.38
16	P	0	3	1.5	0	1.13	P	1	3	2	3	2.25
17	Q		2.5	1	3	2.12	Q	3	6	3	7.5	4.88
18	R	10	1	10	10	10.00	R	3	1	3	2	2.25
19	S	3	6	6	5	5.00	S	4	2	5.5	6.5	4.50
20	T	7.5	4.5	5.5	5	5.63	T	5	6	4	3	4.50
21	U	8.5	1	7.5	8.5	6.38	U	1	3	4	1	2.25
22	V	8.5	3	10	6	6.88	V	2		4	0.5	2.17
23	W	3	2	4	2	2.75	W	1	3	2	3	2.25
24	X	3	2	4.5	4	3.38	X	3	2.5	4	4.5	3.50
25	Y	7	0.5	5.5	5	4.50	Y	5	3.5	3	2	3.38
26	Z	4	2	7.5	6	4.88	Z	4	9	10	7	7.50
27	AA	5.5	2	7.5	3	4.50	AA	2	1.5	4	0.5	2.00
28	AB	8.5	5	7.5	5	6.50	AB	3.5	3.5	3.5	5	3.88
29	AC	2	3	4	2	2.75	AC	4	5.5	4	5.5	4.75
30	AD	5	6	7.5	3	5.38	AD	3.5	3	4	2.5	3.25
31	AE	5.5	4	6	5	5.13	AE	7	5	3	6	5.25
32	AF	2.5	3	5	6	4.13	AF	2	2.5	4	2	2.63
33	AG	5.5	7	5.5	1	4.75	AG	9	10	8	10	9.25
34	AH	3	7	3	2	3.75	AH	8.5	6	7	6	6.88

Appendix (B)

Part 1: Satisfaction

1. I had the opportunity to clear my doubt. Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
2. It is convenient for me to express my doubt. I feel more comfortable with my friend. Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
3. Tutoring times are convenient for my schedule. Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
4. I found the session useful. Strongly disagree (1); Disagree (2); Neutral (3); Agree (4); Strongly agree (5)
5. My tutor(s) improved my overall understanding of the subject material. Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
6. My tutor(s) helped my study skills (e.g., test taking, time management, and study habits). Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
7. It was easy to find information from tutor than teacher tutor. Strongly disagree (1); Disagree (2); neutral (3); Agree (4); Strongly agree (5)
8. Overall, how would you rate your experience with peer tutoring?
   Very negative (1); Negative (2); Neutral (3); Positive (4); Very positive (5)
9. I would recommend tutoring to other friends.
   Strongly disagree (1); Disagree (2); neutral (3); Agree (4); strongly agree (5)

Part two: Learning approach

State whether you agree or disagree with the following statements.

Note: All questions below used the response scale: Strongly disagree (1); Disagree (2); Neutral (3); Agree (4); strongly agree (5)

1. My aim is to do well in exam
2. I seek tutoring to help me understand vague concept of the text and improve reading comprehension of scientific text.
3. I seek tutoring to complete my homework, assignment and project work.
4. I seek guidance and explanation from my tutor.
5. I let him/her to do my work.

Any comments regarding tutoring session: