

Effect of Joyful Teaching on Grade IV Students' Academic Performance in Science

Sajja Husain Proity¹

¹Asian University of Bangladesh (AUB), School of Education & Training, Sector-7, Road-7, Uttara, Dhaka-1203, Bangladesh

Abstract: *The purpose of the study is to investigate the effect of joyful teaching on students' academic performance in general science at primary level. A quantitative (experimental) research design was used to achieve the purpose of this study. A classroom experiment was conducted where participants were 40 students from grade IV in one school of Dhaka city. The data gathering procedure included a test question. Findings revealed that joyful teaching instructed students had higher scores on the posttest compared to those exposed to conventional (lecture) method of teaching. In addition, this investigation explores some vital teaching techniques and strategies for teachers to make their classes joyful. It was suggested that if science teachers could implement joyful teaching into their teaching methods, there would be an improvement in academic performance of primary school students in science learning. Finally, further implications were presented on joyful teaching to create an easier way to promote excellent performance of students' in general science at primary level. This study can help teachers and other stakeholders in education to develop strategies for supporting school teachers in the effective use of joyful teaching methods.*

Keywords: Joyful teaching, traditional teaching, joyful teaching strategies and techniques, quantitative (experimental) research design.

1. Introduction

Science is certainly a very exciting subject to learn and it explores children's imagination about the environment and whatever happens in everyday life. As children are naturally curious about nature, it is very important to develop their attitudes toward science at the early stages of school for their better understanding of scientific phenomena and scientific concepts (Eshach, 2006). Therefore General science (Poribesh Porichiti Biggan) is introduced in class-III at primary education in Bangladesh to prepare students for their fundamental understanding as well as to make them prepare for the study of core science subjects at the secondary school level which ultimately turns about students' interest in science oriented courses at the tertiary levels. Despite Bangladesh government's efforts to encourage science teaching and learning among students right from the primary level for their enrolment in science, the dropout rate is increasing. Some initiatives were taken in Bangladesh to reduce high dropout rate, such as- The Food for Education (FFE) program (1993-2002). Although this program did raise enrollment and attendance rates, it suffered from high levels of leakage and was poorly targeted. It was natural to fail of FFE program as students find classroom nightmare (Rahman, 2010). This is as a result of students' negative attitude towards science (Chowdhury et al, 2009).

The prevalent problem of education sector of Bangladesh is the poor quality of primary education in its way to attain the educational goals (Ministry of Education, 2010; Maleq & Islam, 2009). Bangladesh is still going slow compare to the other countries as the teaching methods are very old and hence monotonous (Khan, 2010). Lecture method is the most used teaching method among the current teaching methods (Mullick & Sheesh, 2008). Lack of child centered and child friendly teaching learning and entertaining environment are the reasons for increasing drop out (Chowdhury et al, 2009).

Teachers are casual about the use of various methods in their classrooms due to lack of interests and motivation towards teaching. Science teaching is still in the circle of established teacher centered methods in Bangladesh and the reason behind it found that teachers are not tending to teach the contents by student centered methods as they were not used to these process when they had been students (Tapan, 2010).

To cope with the modern world, Bangladesh needs to improve its teaching methods from primary to tertiary level of education (Khan, 2010). With the advent of a competency-based primary school curriculum, teachers in Bangladesh are required to abandon conventional teaching manners and move towards more innovative activity-based, student-centered environments envisages in national policy directions. Although many teachers want to adapt new methods according to new aims and professional development initiatives, many teachers are struggling to implement new methods in their classes (Park, 2009). There is a strong need of train teachers those who can prepare instructions for diverse students considering their abilities, personality, learning techniques, and needs through multiple teaching strategies (Bar-Yam et al, 2002). In this connection joyful teaching has possible significance in ensuring quality learning. Until students are given learning friendly environment they won't feel attraction to come to school. And for this purpose we should implement joyful teaching (Rahman, 2010).

Joyful teaching could change the state of education. It creates a framework where a more effective teaching and learning environment can be provided through student activity than teacher-driven classroom designs (Bogard, 2008). Teachers facilitate students through learning centered strategies to engage them in self learning and creativity (Wei, Hung, Lee & Chen, 2011).

However, it can be clearly stated that joyful teaching method is absent in primary level education. Teachers do not use

child friendly instructional strategies in the classroom. The Baseline study showed that 51% GPS (Government Primary School) and 48% of RNGPS (Registered Non-government Primary School) were provided with teaching aids and learning materials (Chowdhury et al. 2009). It is very noticeable that existing traditional school teaching disappoints to present the satisfactory environment of modern science practice. However, this problem requires to be solved through either reassemble the school curriculum to better represent this practice, or to expose students the work of science experts (Tytler, 2007).

One proposed solution to afore mentioned problem is to make students practice to learn the different features of study in science, including their own discovery. There are also many approaches to Practical work and various activities should be in practice to understand the concepts of science in primary school (Tytler, 2008). There is a wide agreement in literature that "joyful teaching" also focuses on participatory nature of teaching and learning that foster a sense of well-being (Zutshi, 2004).

This research aimed to determine the effectiveness of joyful teaching method on primary science students' academic performance and to analyze the output gathered from the experimental treatment for the betterment of the existing teaching-learning process. Although in Bangladesh, this type of research have been employed in order to improve teachers' performance or students' participation in the classroom but "joyful teaching" as a basic fundamental method had never been attempted to measure effectiveness, to establish joyful strategies and improve performance of students. To obtain the goal of this study, the following research questions were addressed— 1) What is the effect of joyful teaching on students' academic performance? 2) Does joyful teaching method have more effective influence on students' academic performance compared to traditional teaching method?

2. Theoretical Framework

Brain research tells us that learning cannot be operated without fun (Willis, 2007). Higher levels of cognition, connection between teacher and student, and good experience is possible when students are engaged with activity and motivated to learn and feel minimal stress. Such learning cannot be possible in a silent atmosphere and teacher centered classroom. It can only be ensued in classrooms with an environment of enthusiastic and active participation (Kohn, 2004). A suitable learning environment with proper learning sequence is also essential for children. Therefore, researchers have emphasized the importance of joyful learning for children in recent years (Heywood, 2005).

According to the Oxford English dictionary joyful is the adjective of joy, which means a kind of feeling or expression of pleasure. According to (Wolk, 2007) joy means, "The emotion of great delight or happiness caused by something good or satisfying" and this „emotion is the first catalyzer in the process of learning" (Duman, 2006). Therefore, in this research, we define the "joyful learning" as a kind of learning

process or experience which could make learners feel pleasure in a learning process. Students' imagination plays a vital role to promote their creativity for learning. Joy enhances their imagination, conjures up energy and creates positive possibilities (Liston, 2001 & Shirah, 2006) and supports their academic excellence (Kohn, 2010). It promotes holistic learning and as an emotion, it involves challenges that foster one's ability for a successful outcome. Teachers encourage the experience of joy in the classroom and develop skill of students and provide challenges. This ultimate achievement can then be recognized as a joyful learning experience. Such education may contribute to positive neural pathways that benefit individuals as well as the society (Heywood, 2005). Various joyful learning strategies and techniques are formed by various researchers based on pedagogical theories and perspective (Wei, Hung, Lee & Chen, 2011).

Strategies and Techniques for Joyful Teaching and Learning

Various teaching strategies helps to reduce students' stress and construct a positive emotional state for their emotional flexibility which ultimately help them to learn more efficiently at higher levels of cognition (Wills, 2007). Although joyful teaching and learning is a new concept, various strategies of joyful teaching as educational tool were already advised by Hellenic Philosophers. Socrates, Pestalozzi, Froebel, Schiller, Spencer and Dewey gave importance on games and activities. Plato, Aristotle, Randel, Morris, Wetzel, Whitehill and Paulo Freire took emphasis on play, music and various tools for science and mathematics classes to support students' motivation and performance during lessons. Plato gave reasons for using games and puzzles for holistic education in his works Republic and Laws. Vygotsky, Piaget and Burner worked on cognitive development of child. They found that consequence of activities helps students to make individuality. It also helps to interact with peers. The task of teacher is to motivate students to such construction (Vankus, 2005).

Story telling is an important and effective way for giving the information to the students (Shank, 1990 & Hayes, 2005). Moreover, speculation, experiments question and answer sessions, debates, games, simulations, music, songs and role playing can be used for students' long term memory (Shank, 1990). Joyful demonstration method is one of the best ways to prompting literacy development. It creates learning confidence, enhances recognition power and helps to reduce fear for reading and writing (Kirk, 2001). Small-group discussions and demonstrations exercise to be most successful when students first work on a task alone and then meet in small groups to discuss their thoughts and give effort to accomplish some agreements within the group (Newman, 1991). Torok, , McMorris & Lin (2004) also mentioned some techniques through demonstrations and using a variety of media which can make lectures interesting. Such as-unexpected occurrence can smooth the teaching progress of students to get enjoyment and remembering skills. Creating humor in classroom is also preferred by students.

Sriprakash (2009) observed joyful teaching method in classroom where learning activities were categorized into four teaching stages: „preparatory“, „instructional“, „reinforcement“ and „evaluation. These activities are explained according to the teaching stages-

Preparatory

1) A series of five songs to create a feeling of joy or a series of six stories, told by the teacher, to create a sense of curiosity and wonder. 2) Craft work involving painting with rubber letters.

Instructional

1) Giving children two sets of cards with individual letters written on them so that they can match cards with identical letters. 2) Using pictures that begin with each letter, telling a story based around the picture to enable the child to associate the word with the picture. 3) Demonstrating the manner in which a letter is written for helping children to arrange pebbles or tamarind seeds along an outline of a letter so that they can learn the shape and direction of movement to write it.

Reinforcement

1) Matching a series of pictures to words that have used combinations of the five letters. 2) Identifying the missing letter from incomplete words on written underneath corresponding pictures. 3) Using picture-cards to recognize the picture and read and write the word below it. 4) Cards consisting simple pictures and two-word phrases for children to read and write 5) A word-game using the letters can be used. The child who can make the largest number of words using the letters wins. This game instills a feeling of competition among the children.

Evaluation

Group game similar to „bingo“ in which the sound of a letter can be read by a student and the others can see if they can locate and identify the corresponding letter on their cards to assess children for their listening and reading skills.

There are many organizations that are trying to use the innovative methods in joyful manner. The Primary Connections 5Es teaching and learning model is made to help students make the connections between what they already know and new information, each Primary Connections unit uses five phases: 1) Engage: To grow interest, 2) Explore: Hands-on activities 3) Explain: Science explanation for conceptual understanding 4) Elaborate: To apply what they have learned to new situations or greater use of the skill 5) Evaluate: For students“ understanding, beliefs and skills (Hackling, Peers & Prain, 2007).

Prasad (2006) described about implementation of innovative teaching methods including activity-based joyful learning in school that has made children desire to go to school. This learning is individual, cooperative, peer supported and teacher assisted. Project-oriented activities, poster sized story charts, art work and play materials are emphasized depending upon the level of learning. As a result the child can learn at its own learning pace. Oczkus (2004) established six essential reading comprehension strategies named “Super

Six” for teachers“ improvement of comprehension and rediscovering the joy and fun of teaching. These are- 1) Making Connections Predicting and inferring Questioning Monitoring and clarifying Summarizing and synthesizing Evaluating.

Hong Kong Art Development Council (2001) suggested shadow puppet sessions (Co-operative Approaches) in classrooms for students“ imagination as well as communication. They also recommended talk method, writing dialogues, craft making, face painting, mimicking birdcalls (for environmental studies), poetry (for moral values), visiting to the museum (for critical thinking) and handmade teaching-learning materials by the teachers.

Wei, Hung, Lee and Chen (2011) established three application modes of JCLS (Joyful Classroom Learning System): (a) Instruction- which enables all learners to have an “equal opportunity” to participate in the classroom learning activities guided by the instructor (b) Collaborative learning- Learners can be grouped into several teams for carrying out collaborative learning activities (c) Self learning- to preview or review learning contents and makes the learning process more effective for the individual learners.

Traditional teaching method is a one way process where teacher is the only speaker and it is expected that students must learn some particular idea of knowledge based on their course structure (Wei, Hung, Lee & Chen, 2011). In current classroom of Bangladesh, teachers use to make available all materials for students and there is hardly any scope for students to present their own thoughts, creativity, or share their opinions with other students (Sinha & Idris, 2013). On the other hand, in joyful setting, teachers introduce students in the process of making meaning of the spiritual, emotional, intellectual, physical dimensions of life. Moreover, this method ensures strong teaching-learning environment where teachers and students both participate as inventors. During this teaching learning process, students become stimulated and they feel passionate to form their own ideas and share their experience with others (Liston, 2001). As a result, this method enhances individual development as well as self-confidence (Schutz, 1969). Teachers also get focused, internal strength and artful passion through joyful teaching (Shirah, 2006). Joy can supply teachers“ energy to be courageous (Palmer, 1998).

Ajibade and Ndububa (2006) who conducted an experimental research to find out the effects of word games, culturally relevant songs and stories on students“ motivation in a Nigerian English language class and their study revealed that the use of word games and culturally relevant instructional activities was beneficial for these students. Similarly, Catterall, Chapleau, Iwanaga (1999) supports a strong emphasis on student involvement in music increases their academic achievement. This Research showed that students who learned music, performed higher than other students. It is evident that they are better equipped to comprehend mathematical and scientific concepts. Therefore, musical environment created positive influence on teaching of elementary math and science. Supporting this finding,

Lucas (2004) explained brain-based learning theory which focuses on the opportunity to maximize attainment and learner centered environment which is creates fun, personal inspiration. Supporting this view, Austin (2011) established a set of „joyful dialogue“ so that students can get collaborative classroom environment for their better achievement. An experimental research was carried out by Xue-Hong, Hui, (2007) to see the effect of joyful teaching. It was applied to the experimental group while traditional teaching to the comparison group. At the end of the course, the teaching quality was surveyed and evaluated through a manipulation exam between both groups. The experimental group did much better than that of the comparison group. The students in the experimental group were satisfactory to the teaching method, and 96% students thought it worthwhile to introduce joyful teaching to the class which can support better interaction between teachers and students, enhance the students' innovation ability and advance their manipulation and problem-solving ability. Another researcher Sriprakash (2009) conducted an investigation with a view to promote the scopes of child-centered pedagogy in rural Indian context. Innovative joyful method (shown in the section of „Strategies and Techniques for Joyful Teaching and Learning“) was used in rural Karnataka school to justify the teachers' adjustment with a new method. She found that joyful learning enhances remarkable individual development. Wei, Hung, Lee and Chen (2011) conducted an experimental research on Joyful Classroom Learning System (JCLS) with robot learning companion for children's mathematical multiplication learning. The result of this experiment suggested that the JCLS support hands-on exercises of learners with better prospect and intensify their understanding about the learning contents. On the other hand, teachers also can gain instantaneous idea of learning statuses of students to regulate further teaching strategy. Greig and Kestell (2009) found some strong neurological evidences of having fun in teaching to help cognitive process. They also suggested that fun also can create the ability to preserve and recover knowledge. Furthermore, they conducted a research and analyzed it from students' perspective though which they found the positive impacts of joyful teaching method.

Research Hypothesis- H₁: There is no significant difference in students' performance in science between students who were taught using joyful method and traditional method.

3. Research Methodology

The nature of the study is followed in quantitative approach. In this research, specific questions were asked and quantifiable data was collected from participants, data was analyzed by using statistics, and the inquiry was unbiased and it was conducted in a objective manner. As it is mentioned prior that the study was conducted to find out the effect of joyful teaching method on students' academic performance thus the source of data, tools construction, and sample selection analytical procedures was adopted through an experimental design which enables the researcher to test the hypothesis by reaching valid conclusions (Creswell, 2008).

Data Collection and Sampling

40 students were identified for two equivalent groups among 60 students of the class according to their academic results of previous class, age, parents' occupation, educational status, socio-economic condition. Both groups were made considering these criteria (Best & Kahn 2005; Creswell 2008). School administration helped to get this information from their official documents of student profile. The two equivalent groups consisted of 20 students each. One group was treated as control group and another was treated as experimental group. These two groups were taught in separate classroom. Control group was taught in traditional method and experimental group was taught in joyful teaching method. Random assignment was prepared to create perfect distribution between two groups (Creswell, 2008).

To avoid the problem of individual extreme scores, among 60 students of the entire class, the first seven meritorious students and the last seven weaker students were eliminated before the formation of samples. The selection of individual was done by random number table. Although the sample size of each group was 20, there was preparation for including extra participants if necessary (due to lack of participation of other participants, illness of participants, etc).

Descriptions of the tool

Evaluation sheet was prepared to take pretests and posttests. For equal evaluation of two groups, same evaluation sheet was used in both the pre-test and post-test. Time and all other necessary requirements were also same in both tests. The chapter „Sound“ was selected for the experiment. This chapter was selected for the experiment to avoid the external validity because it was totally unknown to the students. The question paper was prepared according to the topics of the chapter. It consisted with three types of items such as- ten multiple choice questions (MCQ), five fill in the blanks and five matching type questions. Total marks of the test were 20. All the items were formulated according to the topics of the selected chapter for teaching to find out the students test results. The evaluation sheet was developed in Bengali since it is the medium of instruction of the respective school. The instrument was piloted upon the other section of class IV of the same school. Expert's opinion was also taken before piloting.

Design of Experiment

The study employed two groups pretest-posttest equivalent design to find out the effect. At first, both groups were taught a chapter in traditional method. The duration of teaching was five days. Then pretest was taken to both groups at sixth day. Then 15 days later, the same chapter was taught to control group in traditional method and experimental group was taught through joyful teaching method. This treatment period was 5 days. At the end of the treatment period a post-test was administered to both the groups. Then pretests and posttests results were measured. From their scores mean scores were found of each groups. The mean scores of pretests and post tests were calculated. From the difference gain score was found. To determine whether the difference is significant or not, t- test was applied for hypothesis testing. The total duration of the experiment and data collection is seventeen days. To maintain a perfect procedure the experiment did not

held during any vacation and classes was taken in Friday. It was conducted during the regular class hour. The duration of teaching on both groups was same.

The data gathered through the experiment was analyzed by statistical analysis. This statistical analysis was done by the use of SPSS 16 through which mean, standard deviation, variance was found.

Intervention

To determine the effect of the intervention, the control group receives the traditional teaching and the treatment group receives the intervention (joyful teaching).

Traditional Method

The class was started with some simple and general examples of sound. All 5 classes were conducted with the use of question-answer session. The experiments of sound were explained to the students through lecture. A group discussion session was conducted while sound pollution was taught. A sequence of the topics from the chapter was properly maintained.

Conduction of New Method

The whole intervention process is adopted from Prakash (2009). Lesson plans had made for five classes to conduct the treatment.

At the starting day of the treatment, firstly the students were shown some musical instrument such as a flute and mouth organ. Students were asked about their functions to motivate them and increase their curiosity. They were taught „how sound is created“ and „how sound can reach to our ears“ and „use of vocal cord“. That is why, one of the students was asked to sing a song for the class. A big art paper were also used which consisted some clear pictures of vocal cord, system of hearing, reflection of sound, use of a tuning fork and use of a hammer. The pictures created clearer view to the students. Moreover, this attractive teaching aid made a silent environment in the class and students became more attentive about listening to the topics.

On second day, a practical work was done to know the „Experiment of sound frequency by tuning fork“. It was firstly operated for the students and after that students participated on the practical work. Students were given a large jar and told to put some water in it. After that, they were told to hit the tuning fork on the table and put it under the water immediately. As a result, water from the jar swelled out with great force which helped to understand the frequency of sound. End of the class they were asked two puzzles through two poems. They were told to think about it and the answers will be discussed next day. They were also told that the student who will give the answer first, he or she will be rewarded.

On the third day, firstly, the previous topics of the chapter were reviewed by question-answer session and then participants were asked the solution of the puzzles. Many hands were raised. But one student, whose participation was less than the others, was told to solve the puzzles among the

students. Many more hands rose to answer the puzzles and after solving the puzzles participants clapped for a while. The puzzle and poem were made by the researcher. The intention was not only to enhance the thinking skills through puzzles but also to help the students to remember some important facts and information related to sound through poems. Such as-students knew one new thing from the poem that, there is no sound at moon. „The system of eco“ or „reflection of sound“ represented a puzzle. Another puzzle was about „the characteristics of sound“. After solving the puzzles „various use of sounds“ was discussed. Such as-„use of musical instruments and their functions“ and „sound in technology“ were discussed through pictures and real life examples. Students came to know about some ancient instrument as well as some modern instruments. The topic „sound in technology“ was taught by the general examples of electronics like-television, radio, mobile phone, etc. They were shown a radio as a real electronic object in the classroom.

At the fourth day, students were taught about the „use of sound in Medical Science“. To make the topic easier and clearer to them, a stethoscope was shown to them. A student was told to use the machine upon another student. In this way they understood the use of sound for curing disease.

At the fifth day, pictures of „sound pollution in environment“ were shown in the classroom. Then they were asked to draw a picture of sound pollution and any other use of sound from their own idea and interest. They were also influenced by the Meena cartoon. The students were given various pictures. Some were related to „use of sound“ and some were not. Students had to identify and explain that which one was related to sound and what kind of use were there and why.

4. Results and Discussion

The students of control group and experimental group were given an achievement test on the selected chapter „Sound“ during the experimentation period. Pre-test was taken before the joyful teaching treatment for both groups. That means, each group had given one pre-test. Similarly, after the joyful teaching, for both groups two post-tests were taken.

Pre-test

Table 1: Data on pre-test scores of control group and experimental group

Pre-test	Mean	S.D	Variance	df=(n+n-2)	t	p-value
Control group	11.35	2.54	6.450	38	0.3319	0.7418
Experimental group	11.6	2.21	4.884			

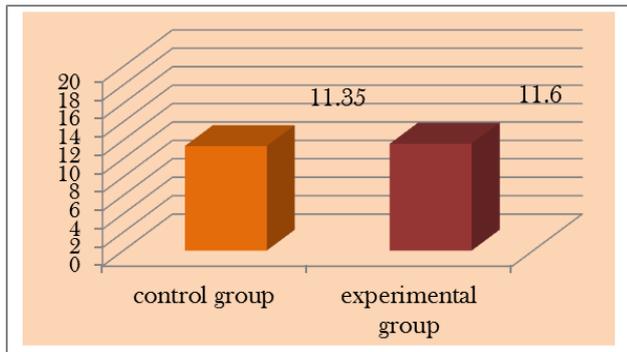


Figure 2: Mean of Control Group and Experimental Group in Pre- test

In pre-test the mean scores of the students were low for both control group and experimental group. Standard deviations of both groups indicate the differences of scores among students. Uniformity among the students of both groups was almost similar considering their scores. The calculated t-value was 0.3319 and the table value of t_{α} at 0.05 level of significance with 38 degrees of freedom is 2.204. So the result of this test of significance indicates that this difference is considered to be not statistically significant. This suggests that the two groups were not significantly different in their achievement levels before the commencement of the treatment.

Post-Test

After 7 days, treatment was given by using joyful teaching method for experimental group and the traditional method for control group, post-test was administered to measure their performance.

Table 2: Data on post-test scores of control group and experimental group

Post-test	Mean	S.D	Variance	df=(n+n-2)	t	p-value
Control group	13.05	1.82	3.3113	38	5.319	< 0.0001
Experimental group	16.8	2.238	5.011			

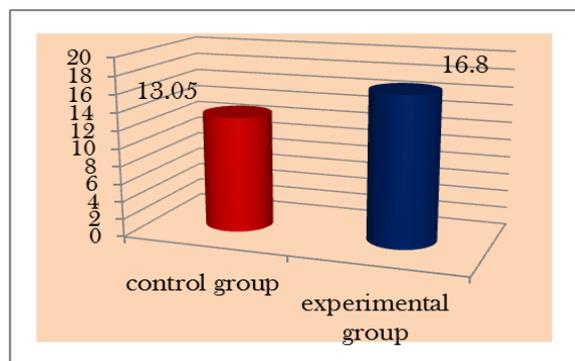


Figure 3: Mean of Control Group and Experimental Group in Post- test

In posttest, performance of students of both groups showed dissimilarities. Standard deviation of control group was lower than experimental group. It indicates that control group gave poor performance in a uniform way than experimental group. The calculated t- value was 5.319 and the table value of t_{α} at 0.05 level of significance with 38 degrees of freedom is

2.204. So the result of this test of significance indicates that this difference is considered to be extremely statistically significant.

For the control group the mean scores in the pre-test and the post-test were 11.35 and 13.05 respectively. For the experimental group the mean scores in the pre-test and the post-test were 11.60 and 16.80 respectively. This comparison shows that both the groups improve in respect of their achievement in the chapter during the period of treatment. But, the difference between the two groups after post test reveals that the experimental group has done better than the control group.

Gain Score

Gain score was found by difference between the post-test score and the pre-test score. The difference between the mean gain of the experimental group and control group was found.

Table 3: Data on Mean of pretest and posttest

Mean	Control group	Experimental group
Pre-test	11.35	11.60
Post test	13.05	16.80
Gain score	1.7	5.2

Table 4: Data showing the mean gain scores of control group and experimental group

Mean gain score	Mean	S.D	Variance	df=(n+n2)	t	p-value
Control group	1.7	1.976	3.137	38	5.403	< 0.0001
Experimental group	5.2	2.1176	0.127			

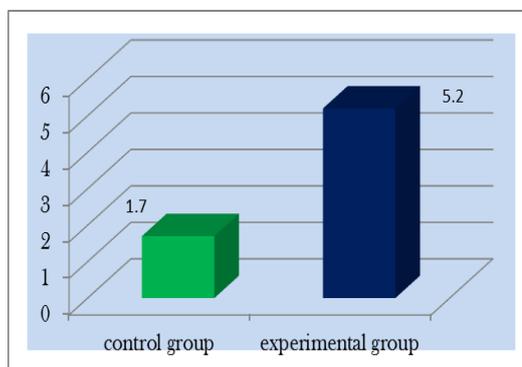


Figure 4: Mean Gain of Control Group and Experimental Group in Pre-test and Post- test

Considering their scores students of both groups showed dissimilarities. Standard deviation of control group was lower than experimental group. The difference between the two means gain in achievement was found 3.5 which is a very remarkable difference. The calculated t_{α} value was 5.403 and the table value of t_{α} at the 0.05 level of significance with 38 degrees of freedom is 2.204. Here it is noticeable that the computed value was greater than table value. So the result of this test of significance indicates that there was significant difference between the two groups of students in respect of their performance of result on the content studied.

The mean score of both groups in pretest shows that students did not acquire enough knowledge on the subject matter prior to the experimentation. The traditional teaching method has almost same impact on their academic result. On the other hand, the posttest result indicated that the group of joyful teaching method made better result. Although control group made better result in posttest than pretest, the improvement was not remarkable like experimental group.

The performance of the control group both in pretest and posttest shows that traditional method of teaching slightly improved their performance. It proves that, no major change has been found on students' performance in traditional method. The performance of the experimental group both in pretest and posttest shows that joyful method of teaching

significantly improved their performance and it was more effective than traditional method of teaching science at primary level. Therefore, the other major findings against this research question revealed that joyful teaching method has more positive impact on experimental group's academic performance. These findings are analogous to Ajibade and Ndububa (2006), Xue-Hong, Hui (2007), Catterall, Chapleau, Iwanaga (1999), Lucas (2004), Greig & Kestell (2009), Sriprakash (2009), Wei, Hung, Lee and Chen (2011), and Austin (2011).

Conceptual Framework

The conceptual framework of this research is drawn below:

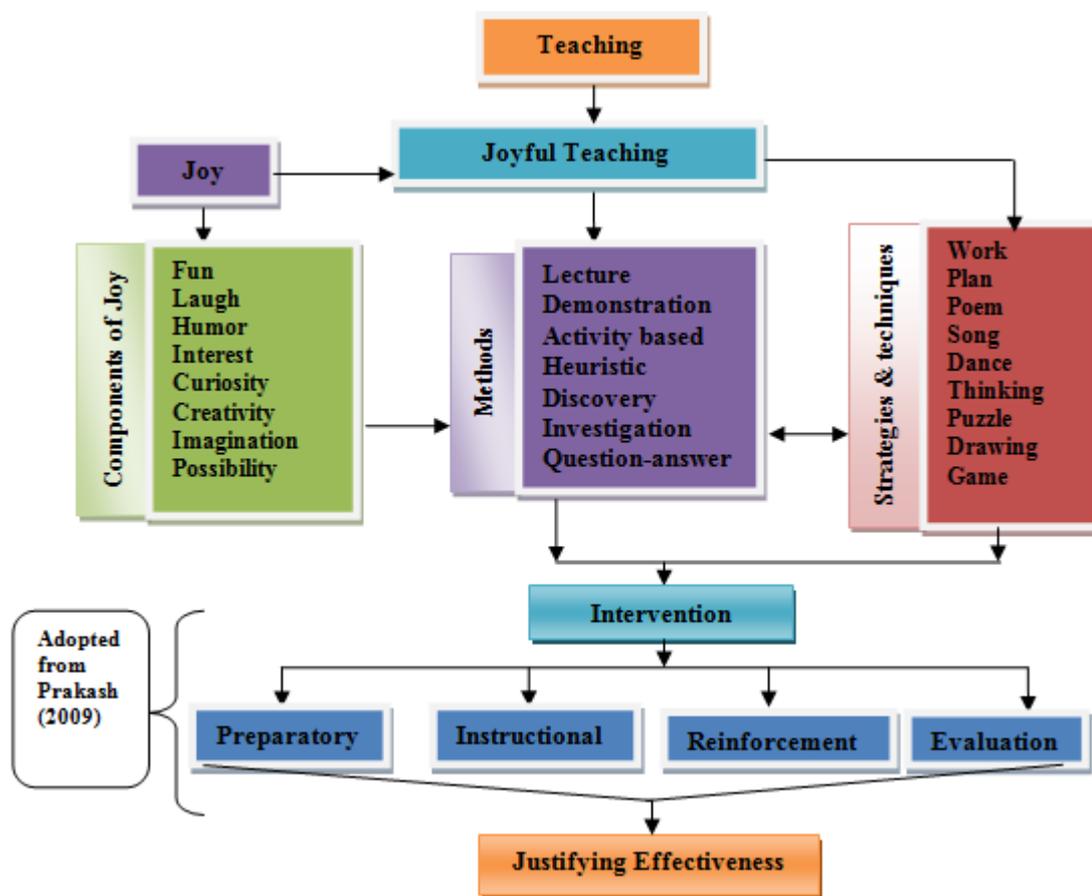


Figure 1: Conceptual framework

5. Recommendations

If joyful teaching method could be used by science teachers in Bangladesh, there will be improvement in academic performance of primary school students in science, hence they will develop positive interest in the core science subjects at the Secondary School level which will eventually to students' interest in science oriented courses at the tertiary education level. In view of this, science teachers should incorporate joyful teaching methods into their teaching. The sample in this study showed a lack of representation in gender. Hence, additional research is needed to determine if there is a difference between how male and female students in primary schools of Bangladesh respond to joyful and conventional lecture teaching methods. Studies may be

undertaken to show the comparison between rural and urban, government and non-government school students through the joyful teaching method and traditional methods.

6. Conclusion

In spite of some limitations the present study provides some empirical facts and insights about the effect of joyful teaching method in science at primary level. From the study it is quite evident that joyful teaching method has a significant effect on students' learning and overall academic performance.

References

- [1] A. Greig, C. Kestell, "A Student's Perspective of Engagement through Innovative Teaching Techniques", 20th Australasian Association for Engineering Education Conference University of Adelaide, p. 6-9, 2009.
- [2] A. Kohn, "Feel-bad education", Education Week, XXIV (3), p. 44-45, 2004.
- [3] A. Kohn, "Turning Children into Data: A Skeptic's Guide to Assessment Programs", Education Week, XXX (1), p. 29-32, 2010.
- [4] A. Maleq & F. Islam, "Child Bangladesh: An Analysis on The Global Perspective", Teacher's World, XXXIII-XXXIV, pp. 121-130, 2009.
- [5] A. Sriprakash, "Joyful Learning' in rural Indian primary schools: an analysis of social control in the context of child-centered discourses", Compare: A Journal of Comparative and International Education, XXXIX (5), pp. 629- 641, 2009.
- [6] B. Duman, "The effect of brain-based instruction to improve on students' academic achievement in social studies instruction", 9th International Conference on Engineering Education, p. 17-25, 2006.
- [7] B.S. Shirah, "An Auto ethnographical Inquiry into Joyful Teaching: Explorations with National Teachers of the Year" <http://digitalcommons.georgiasouthern.edu/etd/513/>, Dec, 2006. [Online]. Available: <http://digitalcommons.georgiasouthern.edu/cgi/viewcontent.cgi?article=1513&context=etd>. [Accessed: Oct. 05, 2015].
- [8] B. S. Sinha & N. Idris, "Shifting Teachers' Role in the English Language Classroom in Bangladesh", The English Teacher, XLII (2), pp. 89-103, 2013.
- [9] B. Zutshi, "Seeking to Bridge the Divide: Linking Formal and Non-Formal Education in Uttar Pradesh", IBE Collaborative Projects: Strengthening Capacities through Action, UNESCO International Bureau of Education, India, 2004.
- [10] C.W. Wei, I.C. Hung, L. Lee & N. S. Chen, "A Joyful Classroom Learning System with Robot Learning Companion for Children to Learn Mathematics Multiplication", The Turkish Online Journal of Educational Technology, X (2), p. 11-23, 2011.
- [11] D. Austin, "Joyful teaching- Video", para.1, Nov. 4, 2011. [Online]. Available: <http://blogs.unb.ca/perspectives/2011/04/11/joyful-teaching/>. [Accessed: Oct. 2, 2015].
- [12] D.L. Liston, JOY as a metaphor of convergence: A phenomenological and aesthetic investigation of social and educational change, Hampton Press Inc, Cresskill, 2001.
- [13] E. Bogard, "The Joyful Teacher Creates Utopia in your Classroom", 2008. [Online]. Available: www.thejoyfulteacher.com. [Accessed: May. 12, 2013].
- [14] H. Eshach, "Science Literacy in Primary Schools and Pre-schools", in Moment, J. Eurasia (eds.), Springer-Dordrecht, Netherlands, 2006.
- [15] H. Khan, "Teaching methods", The Daily Star, para 2, November 7, 2010. [Online]. Available: <http://archive.thedailystar.net/newDesign/news-details.php?nid=161608>. [Accessed: Oct 5, 2015].
- [16] Hong Kong Arts Development Council, "Joyful Learning: The Arts-in-Education Programme", summary report of 2001/02 and 2002/03 school projects, the Hong Kong Institute of Education, Hong Kong 2001.
- [17] J. Chowdhury, D. Chowdhury, M. S. Hoque, S. Ahmad, & T. Sultana, "Participatory evaluation: Causes of primary school drop-out", Directorate of Primary Education, Dhaka, Bangladesh, 2009.
- [18] J. Hayes, "Brain-Based Learning Tips", Learning, Teaching & Innovative Technologies Centre, Middle Tennessee State University, para.3, 2005. [Online]. Available: http://www.mtsu.edu/ltanditc/docs/brain-based_learning.pdf. [Accessed: Oct. 1, 2015].
- [19] J. I. Mullick & S. Sheesh, Teachers' quality and teacher education at primary education sub-sector in Bangladesh, BRAC University Journal, V (1), p. 77-84, 2008.
- [20] J. Willis, "The Neuroscience of Joyful Education", Engaging the Whole Child, LXIV, 2007.
- [21] J. Park, "A Discourse on Teacher Development in Bangladesh: Insights into How and Teachers' Interpretation and Use of Progressive Teaching Methods", 53rd Annual Conference of the Comparative and International Education Society, 2009.
- [22] J. S. Catterall, R. Chapleau, J. Iwanaga, "Involvement in the Arts and Human Development: General Involvement and Intensive Involvement In Music and Theatre Arts" The Imagination Project at UCLA Graduate School of Education & Information Studies, University of California, Los Angeles, USA, 1999.
- [23] J. W. Best & J. V. Kahn, Research in Education, New Delhi: Pearl offset press, New Dehli, 2005.
- [24] L. D. Oczkus, Super six comprehension strategies: 35 lessons and more for reading success. Christopher-Gordon, 2004.
- [25] L. R. Krik, "Learning to read: Painful mystery or joyful success? International Reading Association", Journal of Adolescent & Adult Literacy, XLIV(5), pp. 420-431, 2001.
- [26] M. Bar-Yam, K. Rhoades, L. B. Sweeney, J. Kaput & Y. Bar-Yam, "Complex Systems Perspectives on Education and the Education System", para. 12, 2002. [Online]. Available: <http://necsi.edu/research/management/education/teachandlearn.html>. [Accessed: Oct. 2, 2015].
- [27] M. D. Newman, Overcoming Academic Cynicism: Some Suggestions for a Joyful Teaching Experience Teaching Sociology, American Sociological Association, XIX (1), p. 48-53, 1991.
- [28] Ministry of Education, "National Education Policy", Government of Bangladesh, Dhaka, Bangladesh, 2010.
- [29] M. Hackling, S. Peers, & V. Prain, "Primary Connections: Reforming science teaching in Australian Primary schools", Teaching Science, LIII (3), p.12-16, 2007.
- [30] M. S. M. Tapan, "Science Education in Bangladesh", in Handbook of Research in Science Education Research in Asia, J. Lee (eds.), Sense Publishers, 2010.

- [31] P. Heywood, "Learning Joyfully: An Emotional and Transformative Experience", *Melbourne Studies in Education*, XLVI (1), p. 33-44, 2005.
- [32] P. Palmer, *The courage to teach*, Jossey-Bass, San Francisco, 1998.
- [33] P. Vankus, "History and present of didactical games as a method of mathematics" teaching", *Acta Didactica Universitatis Comenianae-Mathematics*, V, p. 52-68, 2005.
- [34] R.C. Shank, *Tell Me a Story: A New Look at Real and Artificial Memory*, Charles Scribner & Sons, New York, 1990.
- [35] R. Tytler, *Australian Education Review Re-imagining Science Education: Engaging students in science for Australia's future*, Australian Council for Education Research (ACER) press, Victoria, 2007.
- [36] R. Tytler, "Ways forward for Primary Science Education", *The Swedish National Agency for Education*, Deakin University, Melbourne, Victoria, Australia, 2010.
- [37] R. W. Lucas, *The creative training idea book: Inspired tips and techniques for engaging and effective learning*, Amacom, New York, 2004.
- [38] S. E. Torok, R. F. McMorris & W.C. Lin, "Is humor an appreciated teaching tool? Perceptions of professors" teaching styles and use of humor", *College Teaching*, LII (1), 2004.
- [39] S. Prasad, "Making learning a joyful experience", *The Hindu*, para. 3, Dec. 12, 2006. [Online]. Available: <http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/article3032706.ece>. [Accessed: Oct. 5, 2015].
- [40] S. Rahman, "Quality of Education in Bangladesh", *British Broadcasting Corporation (BBC) Radio*, 2010.
- [41] S. Wolk, "Why go to school?" *Phi Delta Kappan*, LXXXVIII (9), pp. 648-658, 2007.
- [42] W. Creswell, *Educational Research Planning, Conducting and Evaluating Quantitative and Qualitative Research*, U.S.A: Inc Upper Saddle River, New Jersey, 2008.
- [43] W. C. Schutz, *Joy*, Grove Press, Inc, New York, 1969.
- [44] W. Xue-Hong, X. Hui, "Joyful teaching in experiment class of Nursing Science Foundation", *Journal of Bengbu Medical College*, XXXV (7), pp. 724-726, 2010.
- [45] Y. Ajibade & K. Ndububa, "Effects of Word Games, Culturally Relevant Songs and Stories on Students" Motivation in a Nigerian English Language Class", *European Journal of Social Sciences*, II (2), p. 57-251, 2006.

Author Profile



Sajia Husain Proity received the B. Ed. and M. Ed. degrees in Education from Institute of Education and Research (IER), Dhaka University in 2010 and 2011, respectively. She is a lecturer at School of Education, Asian University of Bangladesh (AUB).