

Perception of head teachers of primary schools about quality primary science teaching- learning (TL) practice in Bangladesh

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Abstract

The quality teaching and learning play an important role in achieving overall quality education. According to the record most of the PEC examination, the quality of science was the below among other subjects. Even internal examination results also showed the same picture. The purpose of this study was that, to investigate and describe perception of Head teachers of Primary schools about Quality Primary Science Teaching Learning practice in government primary schools of Bangladesh. For this study, data collected from a sample of 40 Head teachers from 40 government primary schools of Dhaka and Gazipur district of Bangladesh. Data were collected using structured questionnaires and structured interview schedule. Both qualitative and quantitative methods were used for analysis of data. The findings of the study revealed that student-teacher ratio was high and also there were lack of subject based teaching and effective use of teaching aids. Maximal school has multimedia but they do not use. Maximum school has not modern class room, library and science equipment. Utmost of the teachers never used teaching aids. Near about fifty five percent of head teachers did not have science subject training. The study recommended that student teacher ratio should be reduced, quality based supervision should be improved. Science subject training are much needed for all teacher. Science class time should be increase. Teacher should be taking class with the lesson plan and striking.

Keywords: Head Teachers; Perception; Primary Science; Quality Education; Teaching- Learning Practice.

1. Introduction

Education researchers have long sought to define education quality, from Horace Mann's efforts. Several factors at the education system, school, and classroom levels shape education quality. Measuring access and achievement at the student level provides information about outcomes, but relatively little information about what processes led to those outcomes and as such, limited information with which to improve instruction. Primary Education is one of the most important sectors in Bangladesh. After independence in 1971, there were various efforts undertaken to achieve universal primary education. The primary education compulsory act passed in 1990 made primary education free and compulsory for all children up to grade five. The ministry of primary and mass education (MOPME) controls more than 64% of total primary schools that enrolls 77% of total children despite many achievements during the past era, major improvements is still needed in order for all children to obtain the benefits of quality education. In order to guarantee quality primary education for all children, it is important to change curriculum, re-write textbooks and enhance quality of teaching and learning in the classroom (UNICEF & JICA, 2009). Bangladeshi primary curriculum is competency-based, but there are lot of gaps in curriculum, textbooks and its' implementation system (JICA, 2009). With a view to improve the quality of primary education, the government of Bangladesh has undertaken an integrated sub-sector wide program known as PEDP-3 since 2005-2011 in assistance with development partners. The major key objectives of the PEDP-3 are "To improve the quality of primary education in Bangladesh through the introduction of Primary Schools Quality Level (PSQL) standards". With a view to improving the quality of education a competency based curriculum developed by NCTB in 1988 has been implemented in the primary schools afterwards the curriculum was further renewed and modified several times. It was expected in the curriculum that after completing 5-year cycle a student will achieve all the competencies. Science is one of the subjects through which these competencies will be achieved. In case of science different diagram and information have been newly added in scientific terms. For the huge development of information technology the world has been a global village or a universe village. Science has contributed a lot under this progress and has been expressed logical thinking and creativity. From own environment in order to solve creating scientific problems in daily life, subject matters have to present to achieve competency in making eager and assist in logical thinking expression of which method is easy to difficult and known to unknown. Science learning will be very interesting for the children and science mentality will be grown up among them so that they would be interested in learning science and they would be able to keep important role in the activities of building the nation which will be the best policy of loving the country (Curriculum2012, NCTB). The traditional and dominant way of teaching in most schools tends to focus on memorizing facts. There is little emphasis on developing analytical, practical or vocational skills (UNICEF, 2009). Also teachers rely too heavily on the textbooks to present the content on teacher-centered way without

sufficient explanation using life-like examples and materials or problem solving strategies and diagnosis error patterns (Uddin, 2005). So, poor quality of teaching is recognized as one of the key variables contributing to the low level of learning achievement in primary schools (Bangladesh Education Sector Review, 2002). So the researcher was interested to conduct a study on perception of head teachers of primary schools about quality primary science teaching learning practice in Bangladesh.

2. Statement of the problem

The intent of the investigation is to explore the causes why student cannot achieve the relevant competency of science [1-5]. Despite many achievements during the past era, major improvements are still needed in order for all children to obtain the benefits of quality education [6-10]. Bangladeshi primary curriculum is competency-based, but there are lot of gaps in curriculum, textbooks and its' implementation system (JICA, 2009) [11-15]. According to the research findings the impacts of competency-based curriculum in science and mathematics in Bangladesh are far below the level of expectation [16-20]. So, there is a gap among intended, implemented and attained curriculum [21-25]. In the process of rendering education and implemented curriculum (transferred by teacher) being situated in the middle position plays a vital role for materializing the intended curriculum and enabling the students acquire the attained curriculum (Uddin, 2005). Research work has done by perception of head teachers of primary schools about quality primary science practice in Bangladesh [26-30]. It was concerned that, the deficiency of quality teaching- learning exists in science in primary schools in our country because the percentage of pass rate of science is average development among the subjects of primary education completion examination (PECE) from 20015 to 2019 [31-35]. Besides, trainer and supervisor have observed that, teacher always faced students' beliefs that, science is more difficult than other subjects. On the other hand only 69% students achieved relevant competencies in the class five by the end of the year (NAPE, Bangladesh research report 2014). Head teachers play the role as a local supervisor of the primary schools [36-38]. So, these needs to be analyzed by an academic research that, what is perception of head teachers of primary schools about quality primary science practice in Bangladesh.

3. Objective

To investigate the perception of head teachers of primary schools about quality primary science teaching learning practice in Bangladesh.

4. Methodology

It has undertaken different formal methods to complete the research work. The research work was qualitative and quantitative in nature. It was decided to select samples from Dhaka and Gazipur district under the Dhaka division of Bangladesh. Total 40 government primary schools selected from the selective area. Of them twenty were urban government primary schools and twenty were rural government primary schools. Purposively selected primary schools of Bangladesh were the population of this study. Head Teachers selected from the selected schools. Questionnaire was developed by considering the respondent. Data collected from phase to phase interview method in this study. Different types of data collection tools were used in the study- Document Analysis, Questionnaire, Literature review, personal experience gained from school visit, Purposive sampling technique was used to select the school.

5. Result and discussion

These tools were administered to head teachers (HT). According to the sampling design of the study it was planned to collect data from 40 respondents. Responses to each question were analyzed both in quantitative and qualitative terms as per suitability.

5.1. Personal information of head teachers

Table 1: Academic Qualification of HT

Academic Qualifications	Frequency (N)	Percentage (%)
SSC	1	2.5
HSC	4	10
Graduation	18	45
Masters	17	42.5
Total	40	100

Table 2: Professional Basic Training of HT

Professional Basic Training	Frequency (N)	Percentage (%)
C in Ed	22	55.0
DipEd.	8	20.0
BEd/MEd	8	20.0
No professional training	2	5.0
Total	40	100

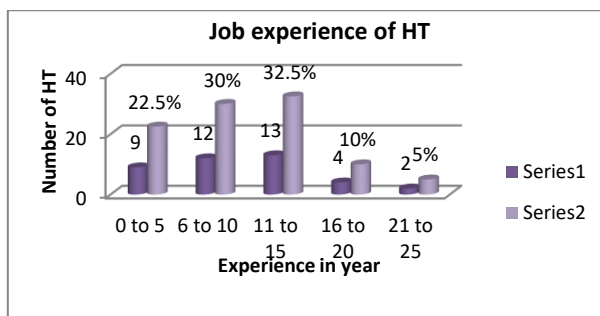


Fig. 1: Job Experience of HT.

Figure 1 shows the Job experiences of head teachers describes that, 32.5% of the head teachers have 11-15 years of work experience, 30% are 6-10 years, 22.5% are 0-5 years, 10% are 16-20years and 5% head teachers are 21-25 years Job experience. The data focuses that maximum head teachers have 11-15years Job experience and they take science class in the school, so they know how to enhance quality teaching. Another think table 4.2 showed that, most of the head teachers is Graduate and they have 11-15years job experience are sufficient for science of primary school level.

5.2. Situation analysis of the subject based training of head teachers

Head teachers are the very important part of this study. Their subject base training as a primary head teachers are given on below figure 2

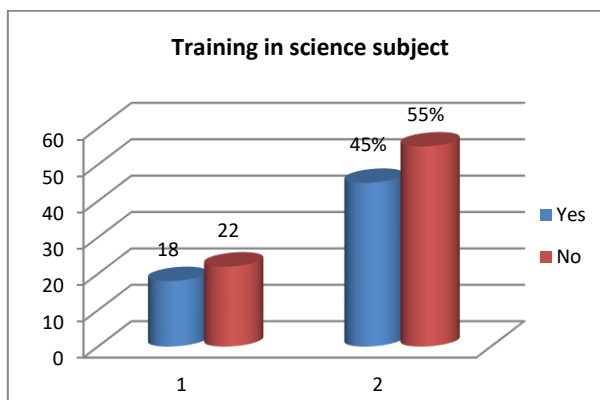


Fig. 2: Training in Science Subject of HT.

Figure 2 shows the, 55% of head teachers do not have science subjective training. The data indicates that, maximum head teachers do not have science subjective training. As a result science subjective training needs to be increased like another subject. All head teachers have C in Ed training but no science training, it is seemed that the lack of quality education.

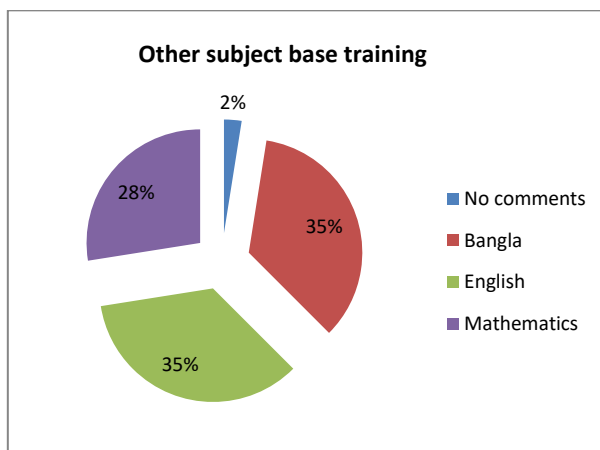


Fig. 3: Other Subject Based Training.

Figure 3 shows the different subject based training describes that, 35% teacher trained in English subject, 35% teacher trained in Bangla subject, 28% teacher trained in Mathematics subject. The data indicates that maximum head teachers have trained in Bangla and English subject. most of the head teachers has different subject like Bangla, English Training. It is look like the lack of quality science education.

5.3. Number of classes and Subject per teacher analysis

Number of student in per science classes are the important of success classes. About this collected information are given on below table 3&4.

Table 3: Numbers of Classes More Per Day Per Teacher

Number of classes taking more	Frequency (N)	Percentage (%)
No	10	25.0
Yes	30	75.0
Total	40	100

Table 4: Taking Different Subjects by the Same Teacher

Taking different subject by the same teacher	Frequency (N)	Percentage (%)
No	18	45.0
Yes	22	55.0
Total	40	100

Table 4 shows the, 75% science teacher’s opinion number of class more and 25% science teacher’s opinion number of class not more. Take different subject by the same teacher shows that, 55% science teacher take different subject and 45% science teacher no take different subject by the same teacher. The data indicates that maximum head teachers take different subject. Above data focus that many of the head teachers cannot take different subject, teacher feel shuffle. So, it is the main reason of lack of quality education.

5.4. Number of student in per science class analysis

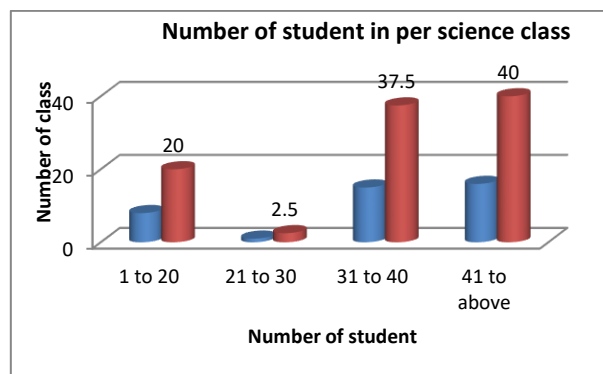


Fig. 4: Number of Student in Per Science Class.

Figure 4 shows the 40% head teachers opinion 41&above, 37.5% teachers opinion (31 to 40), 20% teachers opinion(1 to 20) and 2.5% teachers opinion(21 to 30) students in per science classes. The data indicates that, 41 & above student in maximum science classes. The data also indicates that many of head teachers take more classes per day and more students in class; teacher cannot take proper preparation and delivered to every student, so it is the scenery of lack of quality education.

5.5. Expected class per day per teacher

Number of class of per day per teacher is the important for head teachers and of this study. Opinion of head teachers about expected class per day per teacher is given in below table 5

Table 5: Expected Class Per Day Per Teacher

Expected class per day per teacher	Frequency (N)	Percentage (%)
1-2	3	7.5
3-5	36	90.0
6-above	1	2.5
Total	40	100

Table 5 shows the 90%science teacher’s opinion 3-5 class per day, 7.5% science teacher’s opinion 1-2 class per day, 2.5% science teacher’s opinion 1-2 class per day per teacher appropriate for quality education. This information expresses that, 3-5 class per day per teacher appropriate for quality education. So it was help for quality science education.

5.6. Duration of Science classes

Duration of Science classes and satisfaction of science teacher are the important for head teachers and of this study. Opinion of head teachers about satisfaction as science teacher, Duration of Science classes are given in below table 6.

Table 6: Duration of Science Classes Is Enough

Duration of science class is enough	Frequency (N)	Percentage (%)
Yes	17	42.5
No	23	57.5
Total	40	100

Table 6 shows that opinions of science teacher about duration of science class are, 57.5% science teacher says duration of science class is not enough and 42.5% science teacher says class time is enough.

5.7. Satisfaction of science teacher

Table 7: Satisfaction of Science Teacher

Satisfaction as science teacher	Frequency (N)	Percentage (%)
Less satisfied	14	35.0
Satisfied	23	57.5
More satisfied	3	7.5
Total	40	100

Table 7 shows the, 57.5% science teacher is satisfied, 35% less satisfied, 7.5% are more satisfied. Maximum head teachers satisfied as a science teacher and they think science class duration is enough for quality science education.

5.8. Whiteboard availability in the classroom

Whiteboard is the important for science class. Opinion of HT about whiteboard availability is given in below table 8.

Table 8: Availability of Whiteboard

Availability of whiteboard	Percentage (%)
Yes	65
No	35
Total	100

From the table 8 results found that 65% head teacher's opinion is whiteboard available in the school. The data indicates that maximum respondent gives opinion whiteboard available in the school, so it would be helpful for quality science education.

5.9. Multimedia availability and use in the classroom

Multimedia availability and use is the important for this study. Opinion of science teacher's about that materials is describes in below table 9.

Table 9: Multimedia Availability and Use in the Science Class

Multimedia availability and use	Percentage (%)
Yes	40
No	60
Total	100

From the table 9 results was found that, 35%head teachers opinion multimedia use in science class. The data describe that, most of the respondent gives opinion multimedia not use in science class which is the lack of quality science education.

5.10. Availability of internet in the school

Internet availability in the school is the important of this study. Stakeholder's opinion is given below table 10.

Table 10: Availability of Internet in the School

Availability of internet	Percentage (%)
Yes	35
No	65
Total	100

From the table 10 results found that, 65% opinion of HT is internet not available in the school. The data indicates that, most of the respondent gives opinion internet not available in the school which is the lack of quality science education.

5.11. Availability of learning material room

Availability of learning material room in the school is the important of this study. Stakeholder's opinion is given below Figure 5.

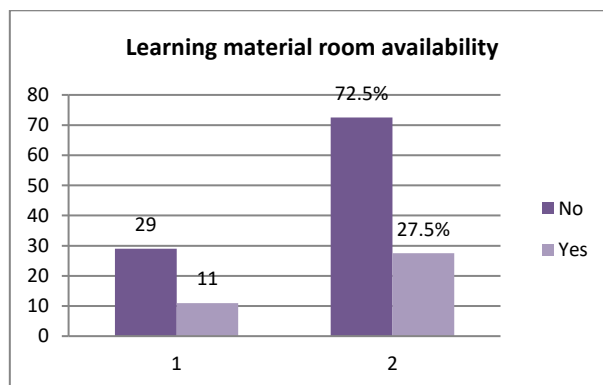
**Fig. 5:** Learning Material Room Availability.

Figure 5 shows the, 72.5% school has taught material room not available, 27.5% school has available learning material room. The data indicates that, most of school has not available learning material room. This type of situation means, there are huge gape for quality science education.

5.12. Availability of modern classroom in the school

Modern classroom is the important for science teaching-learning and of this study. Opinion of HT about modern classroom availability in the school is given in below table 11

Table 11: Availability of Modern Classroom in the School

Availability of modern classroom	Percentage (%)
Yes	40
No	60
Total	100

From the table 11 results was found that 60% HT opinion is modern classroom not available in the school. From the above stated data refers that, most of the school has no modern classroom. So it is the shortage of quality science education.

5.13. Use of the teachers guide by the science teacher

Teachers guide use is the important for head teachers and of this study. Opinion of head teachers about teachers guide use is given in below table12

Table 12: Use of Teachers Guide

Use of teachers guide	Frequency (N)	Percentage (%)
Yes	37	92.5
No	3	7.5
Total	40	100.0

Table 12 shows the, 92.5% science teacher use teacher's guide. The data indicates that maximum science teacher use teacher's guide. It is the helpful for quality science education.

5.14. Science teacher use learning materials

Teacher use learning materials is the important for student and of this study. Opinion of students about use learning materials is given in below table 13.

Table 13: Teacher Use Learning Materials

Use learning materials	Frequency (N)	Percentage (%)
Never do	13	32.5
Some time do	27	67.5
Total	40	100

Table 13 Teacher use learning materials describe that 67.5% HT opinion science teacher some time use learning materials. The data indicates that most of the students' opinion science teacher some time use learning materials. It is big gap of quality science education.

5.15. Finish the class within stipulated time

"Teacher finish the class within the duration" this data is the important for this research work. Opinion of students about that is stated in below table 14.

Table 14: Finish the Class Within Duration

Item	Frequency (N)	Percentage (%)
Never do	2	5.0
Some time do	18	45.0
Always do	20	50.0
Total	40	100

Table 14 finish the class within duration find that, 50% opinion teacher always finish the class within duration, 45% teacher some time finish the class within duration, 5% teacher never finish the class within duration. The data indicates that, most of teacher always finishes the class within duration. It is very much helpful for quality science education.

5.16. Teacher shortage

Table 15: Teacher Shortage

Teacher shortage	Frequency (N)	Percentage (%)
0	2	5
1	25	62.5
2	6	15.0

3	6	15.0
4 & above	1	2.5
Total	40	100

Table 15 shows the, number of teacher shortage describes that, 62.5% school 1 teachers shortage, 15% school 2 teachers shortage, 15% school 3 teachers shortage, 5% school no shortage, 2.5% school 4&above teachers shortage. The data indicates that, most of the school serving with 2 teacher shortage.

5.17. Teachers & student ratio

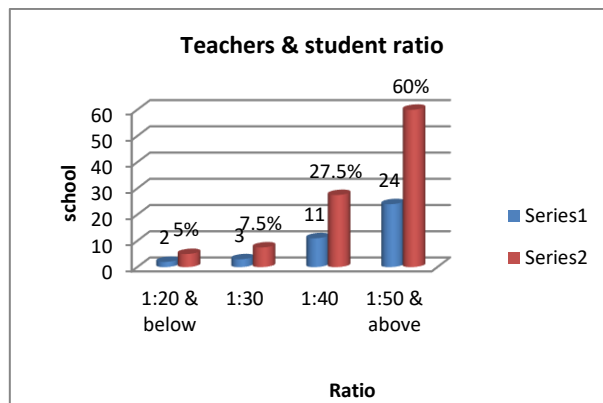


Fig. 6: Teachers & Student Ratio.

Figure 6 shows the Teachers & Student ratio focuses that, 60% opinion teachers & student ratio is 1:50 & above. The data indicates that, most of school teachers & student ratio is 1:50 & above. It is sign of lack of the quality science education.

5.18. Number of visit by supervisor (AUEO) in 2018 of the school

Number of visit by AUEO in 2018 is the important for this research works. Opinion of that is described in below table 16.

Table 16: Number of Visit by AUEO in 2018

Number of Visit by AUEO	Frequency (N)	Percentage (%)
No visit	3	7.5
0-2	5	12.5
3-5	21	52.5
6 & above	11	27.5
Total	40	100

Table 16 describes that, 52.5% school 3-5 times visited by AUEO in 2018, 7.5% school no visit by AUEO in 2018. The data indicates that, most of school 3-5 times visited by AUEO in 2018. It is very much helpful for quality science education. But some school found no visit, so it is the threat for quality education.

5.19. Available facilities about science book in the library in the school

Available science book in library, learning material room available is the important for this research works. Opinion of head teacher about available of these materials is given in below table 17.

Table 17: Available Science Book in the Library

Available science book in the library	Frequency (N)	Percentage (%)
No	37	92.5
Yes	3	7.5
Total	40	100

Table 17 describes that, 92.5% school has not available science book in library, 7.5% school has available science book in library. The data focuses the situation like that, most of the school has not available science book in library.

5.20. Inspection of science class by the supervisors

Inspection of science class is the important for this experiment. Opinion of stakeholders about this matter is prescribes in below table 18.

Table 18: Inspection of Science Class by the Supervisors

Inspection of science class	Percentage (%)
Yes	30
No	70
Total	100

Table 18: focuses that, 30% said AUEO inspected of science classes. 70% express AUEO not inspected of science class. The data prescribes that, most of the AUEO not inspected of science class. It is the scenery of quality science education.

5.21. Teachers guide use

Teachers guide use is the important for science teacher and this learning. Teachers guide use data is focuses in below figure 7.

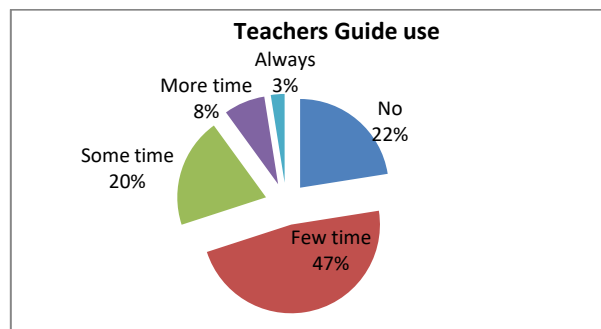


Fig. 7: Teachers Guide Use.

Figure 7 describes that, science teacher 47% few time use teachers guide, 20% some time, 8% more time and 3% always, 22% no use teacher's guide. The data express that, most of science teacher few time use teachers guide. It is the real lack of quality science education.

6. Findings

Majority school has teachers & student ratio is 1:50 & above. So, teacher cannot manage the class properly. Consequently, supervisor few time observed the science class activities at visit time. It is difficult to ensure quality science education. Maximum assistant upazila education officer (AUEO) visited 3 to 5 School in the year of 2018. But supervisor few time observed the science class activities at visit time. There are trends to observe administrative information instead of class activities. That's why, for ensure quality science education teacher does not found academic advice from the supervisor. In the most of the school (72.5%) has not science tools and learning material store room not also. So teacher cannot use proper materials when it necessary. It is one of the obstacles of quality science education. Utmost school has not science book in library. So, student fails to more study and grow interest about science subject. It is the cause of the lack of quality science education. Also most of the head teachers give opinion is that, every teacher took more class per day and number of students is more in class. So, teacher cannot take proper preparation and delivered to information to the each student. Also they cannot take care to the weak students. As a result, they cannot ensure quality science education. Majority supervisor gives opinion that, various subject is conducted by the science teacher. It is the deficiency of quality science education. Maximal head teachers express opinion is that, observation and experiment method little time use in science class. That is the one kind of lack of quality science education.

7. Recommendations

- 1) Student teacher ratio should be reduced by appointing new teacher. Because one of the important measurement of quality education is that, student teacher ratio. Target of Bangladesh government is forty students per teacher. In contrast of the one teacher the average student teacher ratio in the developed countries is 13.7, in southern Asia (37.8), in western Asia (17.8) and the global average is 24.6, (Friedrich Huebler, 2008).
- 2) Subject based specialist teacher should be appointed. Otherwise at least subject based training should be available for all science teacher. One person cannot be expert in different subjects. It is very difficult to teach different subjects even after subject based training.
- 3) Quality based supervision should be improved by head teacher, URCI, UEO and AUEO. A proper supervision can help to implement and maintain quality in teaching-learning. For this quality training is needed for supervisors.
- 4) Chapter wise attractive and quality teaching aids can be supplied centrally. Because attractive and appropriate teaching aids can improve and prepare by experienced and expert resource persons, which is the difficult for primary teachers.
- 5) To encourage head teachers can be categorized and introduced prizes and certificates according to their performance.
- 6) The facilities of modern technologies should be available. Digital content can be prepared and supplied centrally.
- 7) Science class time is short, so science class time should be 50 minutes.
- 8) Teacher should be taking class with the lesson plan.

8. Conclusions

After the above discussion regarding the improvement of quality primary science education, it can be concluded that, quality of science teaching learning are being affected by several issues. The most affected issues are student-teacher high ratio, inadequate subject based training of teachers, lack of teaching aids and the use of these teaching aids effectively. The study also concludes that inadequate supervision, dissatisfaction of job as primary teacher, weakness of the basic training. Because of the weakness of the training, teacher cannot define characteristics of quality teaching. Lack of proper teaching practice of the classroom like using of lesson plan. To draw a conclusion, it can be said that, Bangladesh needs a balance of all these existing ideas and suggestions. The picture of actual science teaching learning has been made in the light of the reports provided by head teachers, observations and document study. A proper combination of the use of interactive teaching-learning methods, increase of physical facilities and the use of technology can bring about the required progress in the classroom, practice in the primary schools of Bangladesh. Definitely this study can play a vital role to perform better in the quality primary science education.

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