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Attitude of Elementary School students and teachers towards Smart Class

• **Noori** • **Moumita Basak** • **Shivangi**
• **Anju**

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Corresponding Author : Anju

Abstract : *Technology as a learning tool can make a significant difference in student's achievements, attitudes and enhance the interaction skills among the teachers and students. Smart Class is the emerging revolution in the history of school education and has been developed to educate the students through animated computer software which helps in easy understanding of the concepts. The purpose of this study is to determine the attitude of Elementary school students and teachers towards Smart Class. Sample for the study includes 180 students and 20 teachers of Elementary level of different CBSE and ICSE schools of Patna. The findings of the study reveal positive attitude of students and teachers towards Smart Class. The study also brings into light the reasons for positive attitude towards Smart Class.*

Key words: Attitude, Elementary school, Smart Class.

Noori
Education, Session: 2014-2015,
Patna Women's College, Patna University, Patna,
Bihar, India

Moumita Basak
Education, Session: 2014-2015,
Patna Women's College, Patna University, Patna,
Bihar, India

Shivangi
Education, Session: 2014-2015,
Patna Women's College, Patna University, Patna,
Bihar, India

Anju
Assistant Professor, Department of Education,
Patna Women's College, Bailey Road,
Patna – 800 001, Bihar, India
E-mail : anjupwcbed@gmail.com

Introduction:

"*We cannot teach the students of the present day in the same manner in which we were taught. We need technology in every classroom and in every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world.*" ***– David Warlick***

In the present scenario, each and every country is sincerely contemplating on heightening the system of education. India is also one of the countries which is progressing towards it. From an educational perspective, learning methods and practices are evolving as well as improving. In the present era of science and technology, a child needs the skill sets, which are beyond the subject

knowledge and require concentration, retention and assimilation power. The explanation including multiple representations(i.e., both visual & verbal messages) are more effective compared to the explanations based solely on visual or verbal representations (Mayer, 2001). As children understand 10% of what is read and 80% of what is experienced, their understanding can be improved by giving them opportunities to work with or experience the reading passage (Glasser, 2001). The findings from various studies have revealed that when students use laptops and other electronic devices in instructor-designed activities that are connected to course learning objectives, they have a positive impact on classroom learning and engagement (Zhu et al., 2011).

Besides this, the present day teachers need to not only be computer literate but they also need to develop skills in integrating computer use into their teaching /learning programmer (Newhouse, 2002). In this regard the role of Smart Class is quite important and can be considered a tool for education which promotes the development of skills and multiple intelligence.

Smart Class was introduced by Educomp in 2004. Educomp is one of the largest education companies in India taking care of the educational life of students. It is rapidly transforming the way teachers teach and students learn in schools with innovative and meaningful use of technology. Smart Class is also known as digitized classroom. Smart Classroom is designed for the efficient and flexible integration of a variety of teaching technologies thereby taking account of numerous teaching styles. It also understands the student's requirement and provides innovative learning solutions using digital instruction material, through the use of projectors, white boards, computers which makes the learning process engaging for the students and at the same time simpler for the teachers. The Smart Classroom is equipped with a board that is Smart Board which is connected to a computer and a projector (Fernandez & Luftglass, 2003) .The Smart Board is capable of projecting image on to a large, touch-sensitive screen. The Smart Board can be operated by using a special pen directly on the screen. It permits a multimodal approach that allows the participants to move beyond language barriers by presenting a variety of integrating elements of text, graphics, sound, videos etc.

The Smart Classrooms are indeed a new generation educational product (Cope & Ward, 2002). E-learning and Smart Classroom aim at developing the students learning ability through digitisations. The studies have shown that the lectures given through Smart Classroom increased academic achievement (Sevindik, 2007).

This new technology provides different learning experiences to the students. In the initial stages, it was introduced in only few selected geographical areas but gradually it gained a phenomenal acceptance amongst private schools worldwide. It was developed with the ideology of inculcating technology as the integral part of day to day teaching and learning practices in the schools where students and teachers spend eighty percent of their time.

Smart Class has now been adopted by a good number of schools across India and is at the threshold of bringing a rapid transformation by introducing technology into the private school's classrooms (Kumar & Karthikeyan, 2014).

According to 2012 Education Outlook report, only twenty percent of India's schools are private, and only ten percent of those private schools currently utilize multimedia classroom teaching. The remaining majority of government schools are reportedly making little or no progress in utilizing information and communication technology. So,

government is funding technology in educational institutions with an aim to widen the teaching resources as well as enhancing the learning experiences for students through Smart Classrooms.

In Bihar, under the scheme of ICT@school in which Smart Classes have been constructed in around 300 schools (until 2009) are operational in both government as well as private schools. The project is managed and maintained by NIIT for three years and the total cost is estimated to be Rs.73 crores. Also some private companies like EDUCOMP, etc. are investing their Smart Class skills in private and government schools.

The present work was undertaken, keeping in view the above statements.

Objectives of the Study:

1. To determine the extent of use of Smart Class in schools at Elementary level.
2. To find out the attitude of Elementary school students towards Smart Class.
3. To find out the attitude of teachers towards Smart Class.
4. To outline the reasons for the attitude of teachers towards Smart Class.

Methodology:

Design of the study : Simple descriptive survey method was employed to study the attitude of Elementary school students and teachers towards Smart Class.

Population of the Study : The Elementary school students studying in VI, VII and VIII standard and teachers of CBSE and ICSE schools of Patna, namely Baldwin's Sophia, Adarsh Vikas Vidhyalaya, Mount Carmel High School and St. Xavier's High School constituted the population of the study.

Sample of the Study :. Due to limited budget and time for the study, only four schools of Patna (two CBSE and two ICSE) were chosen by purposive sampling technique.

Sample Selection : Purposive sampling technique was used for selecting schools under study as only those schools were taken into account where Smart Class is being used. However as far as selection of students is concerned, Incidental sampling technique was adopted to select a representative sample from the above mentioned population.

Sample Size: 180 students and 20 teachers of the four different Elementary schools of Patna where Smart Class is already in use, were taken as the sample of the study. The students were of standard VI, VII and VIII. These students and teachers belong to Adarsh Vikas Vidhyalaya, Baldwin Sophia, Mount Carmel High School and St. Xavier's High School, Patna.

Table 1: Break –up of the sample

S. No.	Name of the School	Sample size (students)			Sample size (teachers)
		VI	VII	VIII	
1.	Adarsh Vikas Vidhalaya	15	15	15	5
2.	Baldwin Sophia	15	15	15	5
3.	Mount Carmel High School	15	15	15	5
4.	St. Xavier's High School, Patna	15	15	15	5
	Total	**60**	**60**	**60**	**20**

Tools for Data Collection: For the collection of relevant data, two questionnaires were constructed and standardized by the researchers and the supervisor. The type of questions used in this study was both closed ended and open ended.

The first questionnaire was administered upon the students. It consisted of two sections, first section was for extracting personal information

about the students and second section included the closed-ended questions to find out their attitude towards Smart Class. The closed-ended questions are the fixed-choice questions. They require the respondent to choose a response from those provided by the researcher.

The second questionnaire was given to the teachers. It consisted of three sections. First section was for extracting personal information about the teachers. Second section included the closed-ended questions to find out their attitude towards Smart Class. Third section consisted of open ended questions related to Smart Class. For Open ended questions, the respondents are free to express themselves. No fixed choice is given for such questions.

Reliability: Reliability of the questionnaires was found by split-half method. The reliability coefficients of the two half tests were found to be 0.48 and 0.46 respectively and the reliability coefficients of the whole tests were found to be 0.63 and 0.68 using Spearman-Brown Prophecy formula. The reliability coefficients of 0.63 and 0.68 were significant at 0.01 levels which show that the reliability of the questionnaires was high and the tools were sufficiently reliable.

Validity: Content validity of the tests was established by the constructors with the help of various experts' opinions and suggestions. The items were thoroughly evaluated and criticized by the experts.

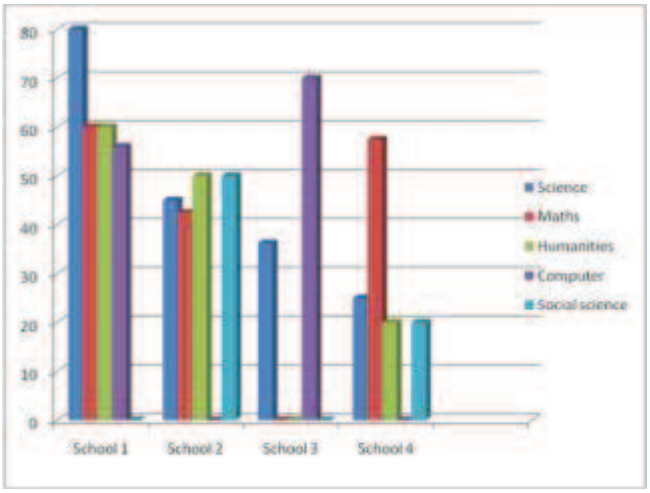
Data Analysis and Interpretation:

1. Analysis related to the first objective: To determine the extent of use of Smart Class in schools at elementary level.

Table 2: Extent of use of Smart Class (in %) in schools

	Science	Maths	Humanities	Computer Science	Social Science
School 1	80	60	60	56	–
School 2	45	42.5	50	–	50
School 3	36.25	–	–	70	–
School 4	25	57.5	20	–	20

Figure 1: Extent of use of Smart Class (in %) in schools



It can be clearly seen from the Table 2 and Figure1 that all the four schools are using Smart Class for teaching sciences. For teaching Mathematics and Humanities, schools 1, 2 and 4 are using Smart Class. School 3 is making maximum use of Smart Class for teaching Computer Science. School, 2 and 4 are using Smart Class for teaching Social Sciences. However, the differences in the extent of use of Smart Class are mainly due to limited infrastructural facilities, nature of the subject, shortage of time and availability of trained teachers.

1. Analysis related to the second objective: To find out the attitude of elementary school students towards Smart Class.

Table 3: Attitude of Elementary School Students Towards Smart Class

S. No.	Statement	No%	Can't Say %	Yes%
i	I find participating in Smart Class more interesting than reading books.	16.11	7.22	76.67
ii	I find the content of Smart Class more effective than textbook content.	19.45	14.44	66.11
iii	I find Smart Class hampering my imagination capabilities.	56.67	26.67	16.66
iv	I am able to recall the things taught in the smart class easily.	12.23	3.33	84.44
v	I like the presentation graphics used in the Smart Class.	7.23	2.77	90
vi	I need to read books to comprehend a topic thoroughly even after watching it on Smart Class.	52.77	13.88	33.35
vii	I am comparatively more attentive in the Smart Class than regular class.	25	12.23	62.77
viii	I gain more illustrated information in Smart Class as compared to books.	17.77	9.44	72.79
ix	I find it easy to interact with the teachers in a normal class than in the Smart Class.	48.27	36.25	15.48
x	I understand diagrammatic descriptions more easily in the Smart Class.	6.68	9.44	83.88
xi	I find Smart Class very useful for revision.	9.46	20.77	69.77
xii	I can focus more on the lessons taught through Smart Class than through traditional methods.	21.66	20	58.34
xiii	I feel motivated to learn through Smart Class.	21.11	12.77	66.12
xiv	I find difficulty in participating in Smart Class.	75.55	11.11	13.34
xv	I find myself dependent on technology when learning.	58.88	25.91	15.21
xvi	I find my eye muscles fatigued easily and rapidly in Smart Classes.	41.66	17.22	41.12
xvii	In Smart Class it becomes difficult to take down the notes quickly.	49.88	13.22	36.90
xviii	I find Smart Class more illustrative than textbooks	26.66	19.44	53.90

The above Table 3 reveals that 77% of students find Smart Class interesting than reading books.63% students agree that they are more attentive in Smart Class than regular class.84% students state that they are able to recall the things taught in the Smart Class easily. 84% students report that the diagrammatic descriptions can be easily comprehended through Smart Class. 88% students find Smart Class useful for revision. 66% of students agree that through Smart Class they are motivated to learn. Moreover, 58% of students report that they are able to focus better on their lessons when taught through Smart class.

Thus, Elementary school students were found to have favourable attitude towards Smart Class.

Analysis related to the third objective: To find out the attitude of teachers towards Smart Class.

Table 4: Attitude of Elementary School Teachers towards Smart Class

S. No.	Statement	No%	Can't Say %	Yes%
i	I find Smart Class effective for teaching my subject.	0	5	95
ii	I need to invest a lot of time in preparing lessons for teaching through Smart Class.	75	10	15
iii	I can teach topics in greater depth through Smart Class.	15	10	75
iv	I am able to recapitulate my knowledge in the subject I teach through Smart Class.	10	0	90
v	I feel that students appreciate me more when I teach through Smart Class.	20	15	65
vi	I find that students participate more when I teach through Smart Class.	10	5	85
vii	I find myself competent in using Smart Class in my subject.	0	5	95
viii	Use of Smart Class has enhanced my technological knowledge.	0	10	90
ix	I can independently develop learning materials for teaching through Smart Class.	10	15	75
x	Smart Class has contributed to my pedagogical knowledge of the subject I teach.	5	20	75
xi	I get tired after teaching through Smart Class.	100	0	0
xii	I think that it takes long time to finish the lesson when taught through Smart Class.	70	0	30
xiii	Smart Class has given me opportunities to learn many new things.	15	5	80
xiv	I believe teaching through Smart Class is essential for my career growth.	5	20	75
xv	I find Smart board processing time too long.	60	5	35
xvi	I get nervous while teaching through Smart Class.	95	0	5
xvii	I find Smart Class more effective for slow learners and average learners.	5	0	95
xviii	I am able to assess and evaluate the learning of students instantly through Smart Class.	30	5	65
xix	I always have an alternate plan in case something goes wrong with the Smart Board.	0	0	100
xx	While using Smart Class, the frequency of occurrence of technical failures is generally low.	15	15	70

As shown in Table 4, 95% teachers find Smart Class effective and consider it useful for teaching slow learners and average learners.75% teachers are of the opinion that Smart Class contributes to their pedagogical knowledge. 90% teachers agree that it has enhanced their technological knowledge and is best tool for recapitulating the knowledge of the subject .65% teachers are of the view that through Smart Class they are able to assess and evaluate the learning of students instantly. 75% teachers believe that teaching through Smart Class is essential for their career growth.85% teachers are of the opinion that students participate more when they teach through Smart Class. Thus, from the responses, it is clear that teachers have positive attitude towards Smart Class.

Analysis related to the fourth objective: To outline the reasons for the attitude of teachers towards Smart Class**.**

The following reasons were reported by the teachers for their positive attitude towards Smart Class:

- Smart Classes use all interactive modules like videos and presentations and these visually attractive methods of teaching become appealing to students who are already struggling with the traditional methods of teaching in a classroom.
- Smart Classes are almost like watching movies as sometimes, animated visuals are used to teach a point. These kinds of visuals are eye-catching and students can easily relate with them.
- The audio-visual senses of students are targeted and it helps the students store the information fast and more effectively.
- There is the advantage of utilizing much of the time wasted earlier in drawing or preparing diagrams on board.
- Some teachers have problems with chalk dust and they tend to suffer from allergic reactions. The Smart boards relieve the teachers from such distress and save them from developing health issues later.
- Smart boards are a lot smarter when it comes to field trips which are impossible with textbooks.
- The use of Smart Classes eases the learning process for all students.
- Smart Class promotes interaction between teacher and students.
- The teacher can instantly evaluate/ assess the learning achieved by their students in his/her class.
- Through Smart Class, learning in the classroom becomes a thrilling and exciting experience. They find abstract and difficult concepts easy to comprehend and hence their academic performance is enhanced.
- Smart board has an inbuilt library in it which enables a teacher to have an instant look at it in case of requirement. He/she may not have to scan a real library for this.

Conclusions:

1. On the basis of the study it can be concluded that efforts are being made by schools to make optimum use of Smart Class in teaching learning process. However, the differences in the extent of use of Smart Class are mainly due to limited infrastructural facilities, nature of the subject, shortage of time, availability of trained teachers.
2. Findings show that elementary school students have positive attitude towards Smart Class learning as Smart Class is an

enjoyable experience for them. The content taught through Smart Class is more appealing as it caters to both audio and visual senses. They are able to comprehend difficult concepts in a better way.

3. The study also leads to the conclusion that teachers are positively inclined towards use of Smart Class.
4. The study also brings to light the reasons for positive attitude towards Smart Class among teachers. Smart class not only saves time but also makes understanding easier, makes the class interactive, improves productivity of both teacher as well as student, improves academic performance and ensures instant formative assessment of students.

Limitations:

After retrospective view of the whole study, investigators found that there were few limitations in this study. These limitations have restricted the area of generalization of this study. The limitations are as given below:

1. The first limitation of this study was that only selected CBSE and ICSE board based elementary schools were taken where Smart Class is in use for study in purposive sampling method.
2. Due to the paucity of time and resources a sample of only 180 students and 20 teachers were taken which restricted the scope of valid generalization.
3. Another limitation was that participants of this study were only from Patna.
4. Since the attitude was measured on the basis of fixed responses the students might have given socially accepted responses instead of giving correct responses.
5. Some respondents put tick mark against more than one alternative and sometimes they left some of the items unanswered which presented difficulty in accurate analysis of the data.

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