A Perception of High School Teachers Regarding Barriers Associated with the use of ICT in Patna District

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Abstract—*This study investigates the teachers' perceptions of barriers to using Information and Communication Technology (ICT) in secondary schools in Patna district. ICT in Education is the foundation upon which a country develops. It is a dynamic force in the life of every individual influencing his physical, mental, emotional, social and ethical developments. It is a complete development of the individuality of a child enabling him to make original contribution to human life. The integration of ICT in the classrooms has become a necessity. With a large investment in the ICT infrastructure and increased emphasis on the use of ICT in teaching, teachers are expected to be competent and effective in utilizing these tools. Some teachers accept new ways to teach with technology while other resist.*

The purpose of this study is to find out the major barriers faced by the high school teachers on the basis of sex, age, habitat, training and teaching experience. Survey method was used for this study. Purposive sampling technique was used to collect the data. The sample consisted of 100 high school teachers of 4 different schools of Patna where ICT is much in use for curriculum transaction. The sample consisted of 51 male and 49 female teachers. A self-constructed and validated opinionnaire regarding the barriers in ICT usage was administered. A personal data sheet was also used. Percentage analysis, Mean, SD and t-test will be used for data analysis. The results will indicate the present status of the barriers associated with the use of ICT among the high school teachers.
Keywords: Information and Communication Technology (ICT), High School Teachers, ICT Barriers.

INTRODUCTION

Information and communication technology (ICT) has become an important tool in education, a tool that offers possibilities to teachers and pupils across the curriculum. While many initiatives, investments and research studies were undertaken worldwide to integrate ICT into education, the effective integration of ICT into education is still occasionally difficult and problematic (Goktas et al. 2013).

"Information is data that have been put into a useful and meaningful context and communicated to a recipient who uses it to make decisions. Information involves the communication and reception of intelligence or knowledge." (Burch & Grudnitski, 1989)

"An information system (IS) is a formalized computer information system that can collect store, process and report data from various sources to provide the information necessary for managerial decision making." (Hicks, 1993)

In recent years, the use of computers as a tool for pupil learning has become a necessity. The integration of Information and Communications Technology (ICT) in classrooms has been a challenge for the educational systems of all countries which aim to be ready to cope with the needs and the demands of the 21st century. In different parts of India, despite the variability that exists in terms of financial and human resources, the educational technology needs appear to have many similarities. Each state in the country are heading towards greater ICT use for learning in secondary schools.

A lot of interest has been expressed among educationalists towards the key factors that enable technological implementation in schools (Handler, 1993; Collis, 1996; Davis, 1997; Haughey and Anderson, 1998; Burge and Roberts, 1998; Somekh, 1998). Teachers play an important role in supporting and extending pupils' experiences with computers, while governments throughout the world recognize that the success of educational systems rises and falls on the backs of teachers (Davis 2002). Educationalist has suggested that the integration of technology into teaching and learning is typically affected by teachers' technology skills, teachers' technology beliefs and teachers' perceived technology barriers (Hew and Brush 2007). Teachers' beliefs about the role of ICT for learning are important in teachers' pedagogical reasoning (Webb and Cox 2004) and their beliefs often limit their efforts to integrate ICT into classroom practices (Pelgrum 2001). It is obvious that unless teachers perceive as valuable the new technologies, they will be unwilling or unable to use them meaningfully. Although ICT is now a useful tool in class, many teachers still struggle to integrate technology in their teaching practice. Taken into account that teachers' views are essential for ICT use in class, it is important to investigate their perceptions regarding barriers to the use of computers in classes. The identification of teachers' perceived barriers is

important, as some barriers may play a role in excluding technology in classes.

IMPORTANCE OF THE RESEARCH

As a new pedagogy ICT integration in education has a lot of potential to enhance learning. It offers variety to the students and therefore can keep them motivated to learn. As with any new reform in education, ICT integration faces a number of challenges. If these are not adequately addressed they act as barriers to the effective implementation of this reform. If it is not implemented successfully it discourages those who initially had the enthusiasm to take part in adopting ICT (Hollow 2011).

This analysis aims to investigate the barriers to the use of computers in high school classes, from the perspective of Patna high school teachers. The term barrier (or obstacle) is affected teachers personal characteristics that prevents or hinders teachers' use of ICT in the classroom. The term high schools is used for secondary schools that attend pupils aged 12–17.

OBJECTIVES OF THE STUDY

1. To find out the major barriers faced by the school teachers towards the barriers faced by them in ICT usage.
2. To find out the difference between the male and female school teachers towards the barriers faced by them in ICT usage.
3. To find out the difference of school teacher towards the barriers faced by them in ICT usage on the basis of their age.
4. To find out the difference between the urban and rural school teacher towards the barriers faced by them in ICT usage.
5. To find out the difference of school teacher towards the barriers faced by them in ICT usage on the basis of their computer training.
6. To find out the difference of school teacher towards the barriers faced by them in ICT usage on the basis of their teaching experience.
7. To investigate high school teachers' perceptions of barriers to using computers in class.

METHOD

DESIGN

Descriptive survey method was used to collect data.

SAMPLE

Purposive sampling technique was used to select the sample. The sample consisted to 100 school teachers of 4 different school of Patna where ICT is much in use for curriculum transaction. The sample consisted of 51 male teachers and 49 female teachers.

TOOL

Data was collected by the use of a self-constructed opinionnaire, which consisted of two sections.

Section A involved statements regarding teachers' demographic and individual characteristics (Sex, age, habitat, computer training, years of teaching experience), teachers' views about the appropriateness of computer use in class, as well as information about characteristics of the class conditions (use of computer in class and frequency of computer use). In assessing teachers' views /perceptions about the appropriateness of computer use in class, teachers were asked to reply to the question ''do you believe computer/ ICT to be an appropriate tool in supporting pupils' learning?'' using a three-point rating scale (yes, no, not sure).

Section B involved 20 statements/ items aiming to investigate teachers' perceived barriers to the integration of computers in high school classes. This section was based on (Nikolopoulou and Gialamas 2015, Singh and Mazumdar 2013) study. Teachers were asked to rate their views on a four-point Likert type scale: 1 (not a barrier), 2 (minor barrier), 3 (major barrier).

DATA ANALYSIS

Percentage analysis, Mean, SD and t-test will be used for data analysis.

RESULTS AND DISCUSSIONS

OBJECTIVE 1

To find out the major barriers faced by the school teachers towards the barriers faced by them in ICT usage.

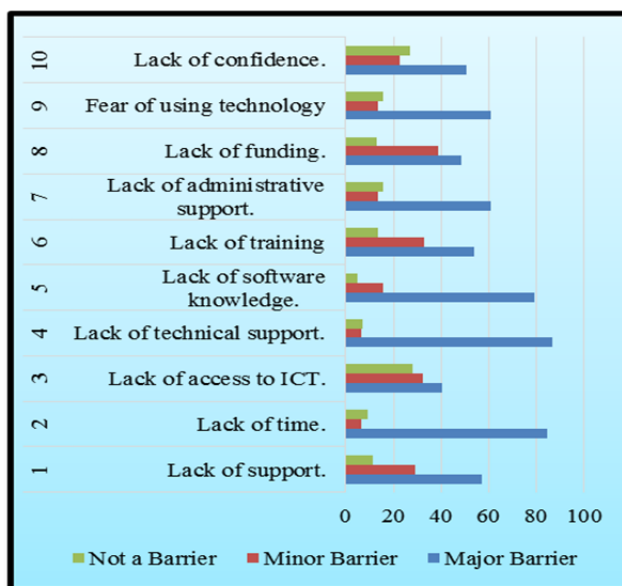**Table 1: Major barriers faced by School teacher, reported in percentage**

Table 1 reveals that item no. 1, 2, 4, 5 and 9 are the major barrier faced by the school teachers in ICT usage.

H₀₁ : There is no significant difference between attitude of male and female School teachers towards the barrier of ICT usage

Table 2 : Difference between attitude of Male and Female school teachers towards the barrier of ICT usage.

Sex	N	M	SD	t-ratio	Level of Significance
Male	51	30.04	10.11		
Female	49	34.69	8.23	2.52	S*

*Siginificant at 0.05 level**.**

Table 3 : reveals that t-ratio (2.52) is significant at 0.05 level. So, we conclude that there is significant difference between male and female School teachers toward the barrier of ICT. Since mean of female school teachers (34.69) is higher than the mean of male school teachers (30.04), female school teachers are face more bariers of ICT usage.

H₀₂ : There is no significant difference between attitude of Below 30 years and Above 30 years School teachers towards the barrier of ICT usage.

Table 3 : Difference between attitude of Below 30 years and Above 30 years school teachers towards the barrier of ICT usage.

Age	N	M	SD	t-ratio	Level of Significance
Below 30 Years	48	36.56	6.11		
Above 30 Years	52	35.5	6.73	0.82	NS*

*Not significant at 0.05 levels

Table 3 reveals that t-ratio between mean scores of school teachers based on their age was 0.82, which was not significant 0.05 and 0.01 levels. So, we conclude that there is no significant difference between attitude of school teachers towards the barrier of ICT usage on the basis of their age.

H₀₄ : There is no significant difference between attitude of Urban and Rural School teachers towards the barrier of ICT usage.

Table 4 : Difference between attitude of Urban and Rural school teachers towards the barrier of ICT usage.

Habitat	N	M	SD	t-ratio	Level of Significance
Rural	26	36.35	6.34		
Urban	74	30.91	10.05	3.19	S*

*Siginificant at 0.01 level**.**

Table 4 : reveals that t-ratio (3.19) is significant at 0.01 level. So, we conclude that there is significant difference between Rural and Urban School teachers toward the barrier of ICT. Since mean of Rural school teachers (36.35) is higher than the mean of Urban school teachers (30.91), Rural school teachers are face more bariers of ICT usage.

H₀₅ : There is no significant difference between attitude of Trained and Untrained teachers towards the barrier of ICT usage.

Table 5 : Difference between attitude of school teachers towards the barrier of ICT usage on the basis of their training.

Training	N	M	SD	t-ratio	Level of Significance
Trained	89	31.62	9.71		
Untrained	11	38	4.90	3.54	S*

*Siginificant at 0.01 level**.**

Table 5 : reveals that t-ratio (3.54) is significant at 0.01 level. So, we conclude that there is significant difference between computer trained and computer Untrained School teachers toward the barrier of ICT. Since mean of Untrained school teachers (38) is higher than the mean of Urban school teachers (31.62), Untrained school teachers are face more bariers of ICT usage.

H₀₆ : There is no significant difference between attitude of School teachers towards the barrier of ICT usage on the basis of their teaching experience.

Table 6 : Difference between attitude of school teachers towards the barrier of ICT usage on the basis of their teaching experience.

Teaching Experience	N	M	SD	t-ratio	Level of Significance
Below 5 Years	74	30.92	9.99		
Above 5Years	26	36.11	6.86	2.92	S*

*Siginificant at 0.01 level**.**

Table 6 : reveals that t-ratio (2.92) is significant at 0.01 level. So, we conclude that there is significant difference between Below 5 years teaching experience and Above 5 years teaching experience School teachers face toward the barrier of ICT. Since mean of Above 5 years teaching experience school teachers (36.11) is higher than the mean of Above 5 years teaching experience school teachers (30.92), Above 5 years teaching experience school teachers are face more bariers of ICT usage.

OBJECTIVE 7: To investigate high school teachers' perceptions of barriers to using computers in class.

Table 7 : Graphical representation of Teacher's choice to use of computer in class
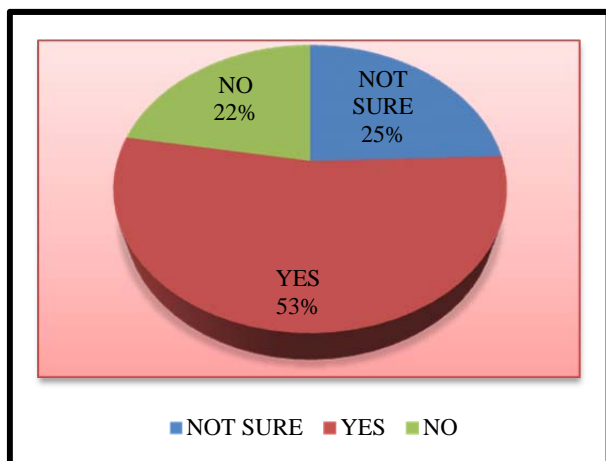
Do you believe computer/ ICT to be an appropriate tool in supporting pupils' learning?

Table 7: show that School teacher's choice to use computer in class. In this section 53% teachers believe computer/ICT to be an appropriate tool in supporting pupil's learning, 25% teachers are not sure and 22% teachers says 'NO'. It concludes that majority of teacher believe that ICT is major tool to pupil's learning.

FINDING

1. Lack of support. Lack of time. Lack of technical support. Lack of training, fear of using technology are major barrier to face in classroom.
2. There is significant difference between attitude of male and female School teachers towards the barrier of ICT usage
3. There is no significant difference between attitude of Below 30 years and Above 30 years School teachers towards the barrier of ICT usage.
4. There is no significant difference between attitude of Trained and Untrained teachers towards the barrier of ICT usage.
5. There is significant difference between attitude of Urban and Rural School teachers towards the barrier of ICT usage.
6. There is significant difference between attitude of School teachers towards the barrier of ICT usage on the basis of their teaching experience.
7. majority of teacher believe that ICT is major tool to pupil's learning.

Conclusion

The aim of this paper was to provide information on encouraging the desired improvement in the future teaching situation to those responsible for the integration of ICT in classroom. The findings of this study indicate that teachers have a strong desire for integration of ICT into education but that they encountered many barriers to it. The major barriers were lack of confidence, lack of time, lack of training. Since confidence, competence and accessibility have been found to be critical components for technology integration in schools, ICT resources including software and hardware, effective professional development, sufficient time, and technical support need to be provided for teachers.

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