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Attitude of secondary school teachers towards application of ICT in classroom in relation to stream and teaching experience

Samira Kumar Sahoo
Reserch Scholar, Regional Institute of Education, Bhubaneswar, Odisha, India

Abstract
We are living in the age of science and technology where Information and Communication Technology (ICT) plays a vital role in providing learning experience and digital literacy among the students. In this regard ICT@schools Scheme has been implemented in secondary schools all over India. Successful implementation of this programme requires teacher's competency and positive attitude towards ICT application. The present study was conducted on 120 secondary school teachers to study the attitude towards ICT application belonging to different stream and years of teaching experience. Attitude Scale towards Information and Communication Technology application was used. The major findings of the study were: (i) There was no difference between attitude towards Information and Communication Technology application between secondary school teachers of Arts and Science stream, and (ii) Teachers with different years teaching experience.

Keywords: ICT, attitude, teaching experience, stream

Introduction

Now days, Information Communication Technology (ICT) has emerged as one of the most important aspect of human life. ICT during the past three decades especially after the advent of the internet have transformed the way we communicate; the way we conduct business and the way we entertain ourselves. In education field it has affected every aspects of school working including administration, timetable, lesson delivery, project work, evaluation, examination system etc. ICT have made teaching learning process more relevant for the learner and connected to real life. It is generally accepted as the modern instrumental tool which enables the teacher to modify the teaching methods. It had also made entry into school education because of its appropriateness, applicability and versatility in use for classroom teaching and learning. It is well recognized that ICT has great potential for improving the teaching learning process. It facilitates individualized learning and develops problem solving skills. Its interactive nature motivates students to learn. In India there is serious need for increasing the learning abilities of the students with the help of ICT. The teacher is key to effective implementation of ICT in the educational system. Educationists and teachers believe that with the help of ICT, quality of education provided to the students can be significantly improved. Teachers have immense potential to transmit beliefs and values of students. The National Policy on Education (NPE) 1986, as modified in 1992, stressed the need to employ educational technology to improve the quality of education. The policy statement accompanied to two major centrally subsidized schemes, namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) covering the way for a more comprehensive centrally sponsored scheme–Information and Communication Technology at Schools in 2004. It is revised in 2010 to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through computer aided learning process. Now, ICT at school has been subsumed in the Rashtrya Madhaymik Shiksha Abhyan (RMSA). Now ICT @ school is component of RMSA. The ICT @ school scheme is a window of opportunity to the learners in the school of India to bridge this digital divide. The scheme is not a simple merger of the earlier class and ET schemes but is a comprehensive and well thought out initiative to open new vista of learning to provide a level playing field to school students, whether in rural areas or in metropolitan cities. In Odisha, ICT @school scheme has implemented in 2010-11. The Department of School and Mass Education, Government of Odisha through Odisha Madhyamik Shiksha Mission (OMSM) and Odisha Knowledge Corporation Limited (OKCL) has implemented the ICT@Schools programme across 4000 (Phase-I) secondary schools in the state. Now the role of teacher becomes compressive. So, the teacher's attitude towards the application of ICT results upon the ICT usage in school.

Attitude towards Information and Communication Technology (ICT)

Attitude towards ICT is refers to as the degree of favour or disfavor towards ICT. It is a person's general assessment or feeling of favour or antipathy towards computer-based technologies and specific computer related activities (Palaigeorgion, Siozos, Konstantakis &Tsoukalas, 2005). This assessment usually encompasses statements that examine users' interaction with computer hardware, computer software, other people relating to computers and activities that necessitate computer application (Roussos, 2004). ICT attitude is the preference of a person to respond positively or negatively towards computers and related technologies.

Research tells that secondary school teachers of Greek exhibited variation in attitude towards ICT in education, viz., strongly positive, positive and negative or neutral

beliefs (Jimoyiannis & Korris, 2006). In Nepal Government and private secondary school teachers exhibited comparable attitude towards ICT. Also, teacher's attitude towards ICT was not found to be different for teachers with different academic streams (Newa, 2007) [12]. Turkish science teachers exhibited positive attitude towards ICT (Cavas, Cavas, Karaoglan & Kisla, 2009). Although teachers had the basic necessary knowledge and skills related to ICT, but particular attention on training of ICT in instruction was needed (Abu Qudais, Al-Adhaileh & Al-Omani, 2010). Secondary school teachers of Malyesia perceived ICT positively and had moderate fundamental ICT knowledge and skills (Mahmud & Arif, 2010). School teachers of Cyprus (Paparionnpou & Charalambous, 2011), Turkish EFL teachers (Kizil, 2011) and Spanish teachers (Sanchez, Marcos, Gozales & Gnanlin, 2012) and Indian teachers (Mhetre & Suryawanshi, 2013) exhibited positive attitude towards ICT, but they require to have more training to acquire ICT skills. Ndibalema, P. (2014) [13] reported that teachers have a favourable attitude towards the application of ICT.

Rationale of the Study

Today, India actively promotes the use of ICT in education sector, the country's decision-makers, at both the central and state levels, have chosen to explore the use of newer computer and internet-based ICTs for education, along with broadcast ICT. Knowledge of ICT and application of ICT skills in teaching and learning have become imperative for today's teacher. ICT integration in institutions is being perceived as a necessity and is growing exponentially. The extensive use of ICT in all spheres of life, the knowledge economy and the paradigm shift together, originate demands on the institutions to adopt ways that help inculcate 21st century skills amongst students. An important key element in application of ICT tool is attitude of teachers as the end-users and the real agents of change within the classroom arena in order to application of ICT in secondary schools, the first need is to study and assess the teacher attitude. It is the need of the hour to examine and assess the attitude of teacher towards Information and Communication Technologies (ICT).

Objectives

The objectives of the study are

1. To study the attitude of secondary school teachers towards application of ICT in classroom.
2. To compare the attitude of Science and Arts teachers of Secondary school towards application of ICT in classroom.
3. To compare the attitude of secondary school teachers towards application of ICT in classroom with respect to their teaching experience

Hypotheses

H_O1: There will be no significant difference in the attitude of Science and Arts teachers of Secondary school towards application of ICT in classroom.

H_O2: There will be no significant difference in the attitude of Secondary school teachers towards application of ICT in classroom with respect to their teaching experience

Method

Descriptive Survey method of research was employed in the present study to compare secondary school teachers' attitude towards application of ICT with respect stream and teaching experiences. In this study stream and teaching experience has been taken as independent variable and attitude as dependent variable.

Sample

Stratified random sampling technique was used on 336 no. of secondary school teachers for conducting this study. The researcher was divided the total population into two groups i.e. Science Teacher and Arts teacher. Then the investigator has selected equal number of science teacher (60 nos) and Arts teacher (60 nos). In this way the desired sample size of sample i.e. 120 have been selected through stratified random sampling.

Table 1: Stream wise distribution of sample

Stream	Arts	Science	Total
Teachers	60	60	120

Tools used

Scale of attitude towards ICT application (developed by the authors). The scale is consisting of 30 statements, about which the teachers are required to give their opinion by encircling any one point of attitude scale. For validity of the scale experts were consulted

Procedure of Data Collection and Analysis

The scales were administered to the participants, i.e. 120 secondary school teachers of Balesore district. Next, scales were collected and scoring was done in accordance with instructions of Likert (1932) method of summating rating for scoring. The collected data are entered in SPSS with variables such as stream and teaching experience. All the items of attitude scale were quantified in terms of marks given to different responses. In the process of data tabulation, on the basis of their teaching experience teachers were classified in to 3 groups. Teachers having 0-10 years of teaching experience called Group-A. Teachers having 11-20 years of teaching experience called Group-B. Teachers having 21 and above years of teaching experience called Group-C. The data collected through the attitude scale was analyzed with the help of quantitative statistical technique such as mean, SD, and t-Test etc.

Results

Comparison Attitude of Arts and Science teachers of Secondary school towards application of ICT in classroom

Table -2 contains Stream wise distribution of MEAN, SD and SED of the sample

Table 2: Stream wise mean and SD of attitude towards ICT application scores

Stream	N	Mean	Sd	Sed
Arts	60	92.03	5.866	.757
Science	60	94.05	6.990	.902

Table 3: Distribution of 't' value of Arts and Science teachers

Groups	df	Table value		Calculated 't'value	Test of significance	
		0.05	0.01		0.05	0.01
Arts and Science teachers	118	1.98	2.62	1.712	N. S	N. S

Table – 3 reveals that the calculated 't' value i.e. 1.712 is found in secondary school teachers attitude scores towards ICT application to be less than the statistical table value i.e. 1.98 at. 05 level and 2.62 at. 01 level of significance with respective degrees of freedom. It may be inferred that the means of Arts and Science teachers' attitude scores may be considered equal. The null hypothesis ($H_0$1) of equality was therefore retained. It means there was no significant difference between the Arts and Science teachers in respect to their attitude towards application of ICT in classroom

Comparison of attitude of Secondary school teachers towards application of ICT in classroom with respect to their teaching experience

Table 4: Teaching Experience wise distribution of MEAN, SD and SED of the sample

Stream	N	Mean	Sd	Sed
Group-a (0-10 yrs)	35	93.31	6.393	1.081
Group-b (11-20 yrs)	36	93.00	6.973	1.162
Group-c (21 yr and above)	49	92.88	6.356	0.908

Table 5: Distribution of't' value of secondary school teachers with regards to Year of teaching Experience

Groups	df	Table value		Calculated 't'value	Test of significance	
		0.05	0.01		0.05	0.01
Group-A and Group-B Teachers	69	2.00	2.65	0.198	N. S	*N. S
Group-B and Group-C Teachers	83	1.99	2.64	0.084	N. S	N. S
Group-A and Group-C Teachers	82	1.99	2.64	0.310	N. S	N. S

* Not Significant

Table – 5 reveals that the calculated 't' value between Group-A and Group-B, Group-B and Group-C and Group-A and Group-C secondary school Teachers attitude scores towards ICT application were not found to be significant even at 0.05 level of confidence. Hence the null hypothesis ($H_0$2) was retained, which means there is no significant difference between the in the attitude of Secondary school teachers towards application of ICT in classroom with respect to their teaching experience

Discussion

Hypothesis 1, "There is no significant difference between attitude scores of secondary school teachers of science and arts stream towards ICT application" was retained as the secondary school teachers belonging to different stream exhibited comparable attitude towards ICT application. Similar findings were reported by Abu Qudais, Al-Adhaileh and Al-Omari (2010), Newa (2007) [12], and Yapici and Hevedanli (2012). They also discovered that there was no significant difference between faculty members' attitude towards using technology and colleges or classes. DIET trainees have a positive attitude towards the use of computer in teaching learning process. Teachers have a favourable attitude towards the use of ICT (Ndibalema, P. (2014) [13]. Hypothesis 2, "There is no significant difference in the attitude of Secondary school teachers towards application of ICT in classroom with respect to their teaching experience" Was accepted. It was reported by Granger, Morbey, Lotherington, Owston and Wideman, 2002 that no relationship between teachers' teaching experience and experience in the use of ICT implying that teachers' ICT skills and successful implementation is complex and not a clear predictor of ICT integration.

Conclusion

ICT implementation in the classroom should become an integral part of the core mission for the institution, with its primary focus rooted in the paradigm shift from teaching to learning. Future generations would be computer literate and would expect technology implementation in the classroom. From the present study, the ICT preparedness of school teachers known to different stakeholders so that successful ICT implementation and organization training programme in all the school may be thought up in future. Steps will be taken for creating awareness and building positive attitude towards ICT use in classroom

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