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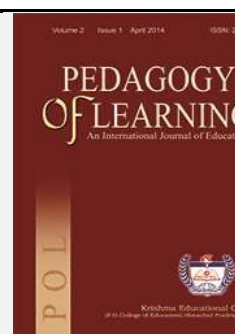
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ICT Knowledge of Kendriya Vidyalaya Students and Teachers

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Abstract

Kendriya Vidyalaya Sangathan (KVS) in collaboration with Intel has been doing continuous efforts to integrating ICT in teaching-learning process to maximize the effective learning and ensure quality education across the country. For successful integration of ICT in teaching-learning process, KVS has been empowering its teachers ICT competencies and usage every year under staff and professional development scheme. This study had been undertaken to know the ICT Knowledge of Student and Teachers of Kendriya Vidyalayas. The data collected from 160 teachers and 640 students of 16 KVs in Odisha with the help of knowledge test, questionnaire and focus group discussion revealed that satisfactory percentages of teachers ranging from 53 % to 63 % in all subgroups (male and female; more experience and less experience; with computer course and without computer course) had basic knowledge and skills in ICT and teachers with prior computer course had performed slight better than the teachers without any computer course. From the knowledge test it revealed that male students have better knowledge than female students on ICT..

Keywords: ICT Resources, Multimedia Packages, System Software

BACKGROUND OF THE STUDY

The presence of rational thinking within the individuals makes them different from other species of this mysterious world. The creative spark of human brains has given birth to new innovations and inventions as a result of which the whole world is going under rapid

changes. These rapidly changes are mainly due to development of science and technology. The willingness towards quality and secure life, the individual mind always try to bring evolution in the field of science and technology. In the context of education, it is shows that the integration of technology with education system giving a new direction to design a flexible child-centered learning sphere to enlighten the young minds for sustainable future. In the most part of the world, the maximum numbers of individuals are not experience the signature of advance education system due to high population growth, insufficient economic conditions, and low quality of education. In the new era of digital days to provide quality education and to create a sense of divergent thinking among individuals the education system merge with the advance technology to solve various problems and achieve its goal. Information and Communication Technologies (ICT) represents a new approach for enhancing the dissemination of information and helping to meet these challenges (Lever-Duffy, McDonald, & Mizell, 2003; USDE, 2000). ICT has been a pivotal in improving the quality of education from the very beginning of the information age. Hence, all the countries of the world want to enhance the quality and effectiveness of the learning processes in schools; and consider ICT as one eminent means of achieving this goal. This role in education includes helping learners in learning and teachers in performing their teaching profession more effectively and efficiently.

Teachers are the key for effective and efficient ICT integration into the curriculum. When technology is available, it is frequently used with styles of teaching that fail to maximize its full potential. This could be the result of inability, improper training, technophobia, or a lack of practice using alternative teaching strategies. Therefore, adequate professional development is needed for effectiveness of ICT for improving learning. In these contexts, schools of teacher education play key roles to effective and efficient ICT integration into the K-12 schools (Fullerton, 1998). The shifting role of teachers in the 21st century involves the new frontier for using technological innovations in teaching learning processes. For this, necessary skills and readiness level are key factors in the implementation process of ICT (Ozoul, 2002). According to Duran (2000) Moursund & Bielefeldt (1999) Schools of Teacher Education do not currently provide prospective teachers with the necessary skills, competencies, and experiences to prepare them to use ICT effectively in their future professions. With the aim of using ICT effectively, teachers should be equipped with the adequate skills and knowledge. Every semester, new teachers start their careers and are required to obtain the skills to merge today's ICT into learning activities that will stimulate and maintain students interest, while at the same time prepare the students for the future.

Realizing the importance of Information and Communication Technology, National Curriculum Framework (NCF-2005) states, "*Integration of Information and Communication Technologies (ICT) into schooling needs serious consideration. Teachers, educators, curriculum developers, evaluators and others will have to redefine their roles to tackle ICT rich environment and harness its full potential for the benefit of learners.*" Consequently, Central Board of Secondary Education (CBSE) in order to empower the teachers to materialize reflective curriculum transaction as envisaged in NCF -2005. National ICT Policy (2009): A national ICT policy prepared by Govt. of India in the MHRD, Department of School Education and Literacy in 2009 aims at Implementation of ICT at school level in three stages viz. ICT literacy and competency enhancement, ICT enabled teaching-learning and introduction of ICT related elective subjects at senior Secondary level.

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The government of India approved the scheme of Kendriya Vidyalayas to cater the educational needs to the children of Central government employees including defence personnel, who in exigency of their services are frequently transferred from one language area to the other with the objective of initiate and promote experimentation and innovations in education in collaboration with other bodies like the Central Board of Secondary Education (CBSE) and the National Council of Educational Research and Training (NCERT) providing quality and unique pattern of education system throughout the nation without hampering their educational facilities.

To reinvent teaching and learning to prepare students with 21st century skills, the Kendriya Vidyalaya Sangathan (KVS) joined hands with Intel and signed an MoU with the objective of Preparing the students for the emerging knowledge society and Global Competition through developing Constructivist skills, higher order thinking by adopting multimedia and interactive web and applications for Research, Communication and Productivity Strategies and Tools and Assessments. Association of Intel and KVS total of 505 teachers participated in a professional development course infused with research-based approaches to integrate technology into the classroom. The Intel® Help Guide is a flexible resource for teachers and students to learn technical skills (word processing, multimedia, graphics, and spreadsheet). The resource is available in a CD format and online. ([www.intel.com/ education/ helpguide](http://www.intel.com/education/helpguide)).

Various studies were conducted in relation to ICT knowledge of teacher and student around the globe. Becta (2004) found that teachers have very low degree of ICT knowledge regarding to the different component of ICT then their student. Mehra (2007) found that the teacher of Chandigarh possessed fairly positive attitude towards computers use but majority of them needed training for using computer in instructional settings. Rajekar and Vaijapuri (2008) revealed that due to computer anxiety the teachers have no computer knowledge. Obidike, Anyikwa, & Enemou (2010) found that both the nursery and primary school teachers have knowledge about different ICT tool but they don't know how to use it for their work.

Research Questions

1. What ICT knowledge do the Kendriya Vidyalaya students of Odisha possess?
2. How does the ICT knowledge of male Kendriya Vidyalaya students of Odisha differ from that of their female counterparts?
3. What ICT knowledge do the Kendriya Vidyalayas teachers of Odisha possess?
4. How does the ICT knowledge of male Kendriya Vidyalaya teachers of Odisha differ from that of their female counterparts?
5. How does the ICT knowledge of Kendriya Vidyalaya teachers of Odisha with more years of experience differ from that of their counterparts with less years of experience?
6. How does the ICT knowledge of Kendriya Vidyalaya teachers of Odisha having computer course done differ from that of their counterparts without having any computer course?

METHODOLOGY OF THE STUDY

Design: The purpose of the study was to find out the basic ICT knowledge of KVs teachers and students in relation to their demographic factors. The key question of the study is about the knowledge of KVs teachers and students about ICT; and find out whether there exists any difference with reference to their demographic factors. In order to answer these research questions, Ex-Post-Facto design was adopted.

Population and Participants: The researcher selected all KVs in Odisha as the population of the study. In Odisha, there are 38 KVs which come under the jurisdiction of four Zones namely Cuttack (12 KVs), Bhubaneswar (08 KVs), Berhampur (09 KVs) and Sambalpur (09 KVs). By adopting disproportionate stratified random sampling, the researchers selected four KVs from each Zone as sample schools of the study. Further, 10 teachers excluding computer teachers from each KV and 40 students of Class-IX-X from each 16 KV were purposively selected as the informants. Therefore, the total sample of the study was 160 teachers (N=160) and 640 students (N=640).

Tools Used: A tools named ‘ICT knowledge Test for Students and Teachers’ was developed to collect data from teachers & students on their basic technological knowledge with consisted of 25 multiple choice items for students and 50 items for teachers covering five dimensions namely 1) word processing, 2) file navigation, 3) use of www, 4) use of spreadsheets and 5) presentation software.

RESULTS

ICT Knowledge of Students

ICT knowledge refers to knowledge on computer operation and use of internet. The test items were designed to assess the knowledge of students on computer fundamentals, system software, hard ware, computer applications like Ms-word, Ms- excel, Power Point, database, Multimedia Packages and Internets. The gender of students has taken as background variable to know its impact on ICT knowledge of students.

Table-1: Mean score difference in ICT knowledge of male and female students

Gender	N	Mean	S.D	SE_D	df	‘t’	Remarks
Male	386	16.19	3.30	.27	638	3.70	Significant at both .05 level and .01 level
Female	254	15.18	3.49				

The table-1 shows that the ‘t’ value obtained from the comparison of ICT knowledge scores of male and female students of KVs was 3.70 which was more than the table value (1.96 at 0.05 level and 2.58 at 0.01 level) with df 638. It is confirmed that there was significant difference in ICT knowledge between male and female students of KVs. The male students had excelled female students. This finding is consistent with the findings of previous studies that females tend to be less interested in computer and use them less often in their spare time (Schaumburg, 2001). In addition, studies have established that girls are less confident than boys in their computer skills, and that some international studies have found that boys scored better than girls in computer related knowledge and skills in vast majority of countries. In addition, the three computer related occupation (computer scientists, computer engineers and system analysts, and computer science and engineering) are the top career choices for boys (Derbyshire, 2003). Female students also have more negative attitude

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towards computer (Bebetsos & Antoniou, 2008). Thus, they are often less computer literate than males (Kadel, 2005; Schaumburg, 2001; Townsend, 1997). Similarly, study conducted by Mishra, Yadav and Bisht (2005) in G. B Pant University of Agriculture and Technology, Pantnagar showed that male students internet use percentage (61.5%) which was higher than female students (51.6%). Furthermore, the studies conducted by (Losh, 2004; Fallows, 2005; Cooper, 2006; Livingstone & Helsper, 2007) found that men use computers and the internet more than women, spend more time online, and are more motivated to learn digital skills. A study conducted by ICT consultants in Makerere University (2005) found that the ratio of male to female students in the ICT programs is 3:1. This disparity is consistent with results from other African universities. (Rathgeber 2000; Nsibirano 2006). On the other hand, study conducted by (Odell, Korgen, Schumacher, & Delucchi, 2000; Goodson, McCormick, & Evans, 2001) revealed that male and female students were equally competent in ICT. The difference between male and female students in ICT knowledge may be attributed to the fact that male students have more exposure to computer and internet outside the KVs as well as they spend more time in internet surfing at home, cyber café and friends' home.

ICT Knowledge of Teachers

ICT knowledge of teachers refers working knowledge of teachers on computer fundamentals, system software and computer applications such as Ms-word, Ms- excel, Power Point, database, Multimedia Packages and Internets. Minimum ICT knowledge of the teacher is the foundation pillar for complex and pedagogical application of ICT. ICT knowledge test is designed to assess the existing knowledge of teachers on computer operating in relation to their gender, teaching experience and prior computer course. The main purpose is to know how far the gender, teaching experience and prior computer course of teachers' counts their current ICT knowledge.

Table-2: Mean score difference in ICT knowledge of teachers' with reference to their gender, teaching experience and prior computer course

Variable	Groups	N	Mean	S.D	SE_D	df	't' value	Remarks
Gender	Male	110	32.29	7.16	1.42	158	.79	#
	Female	50	31.16	10.55				
Teaching Experience	More Experience	104	31.69	9.30	1.38	158	.50	#
	Less Experience	56	32.39	6.26				
Participation of prior	With comp. course	90	34.77	6.94	1.23	158	5.27	**
	Without comp. course	70	28.28	8.64				

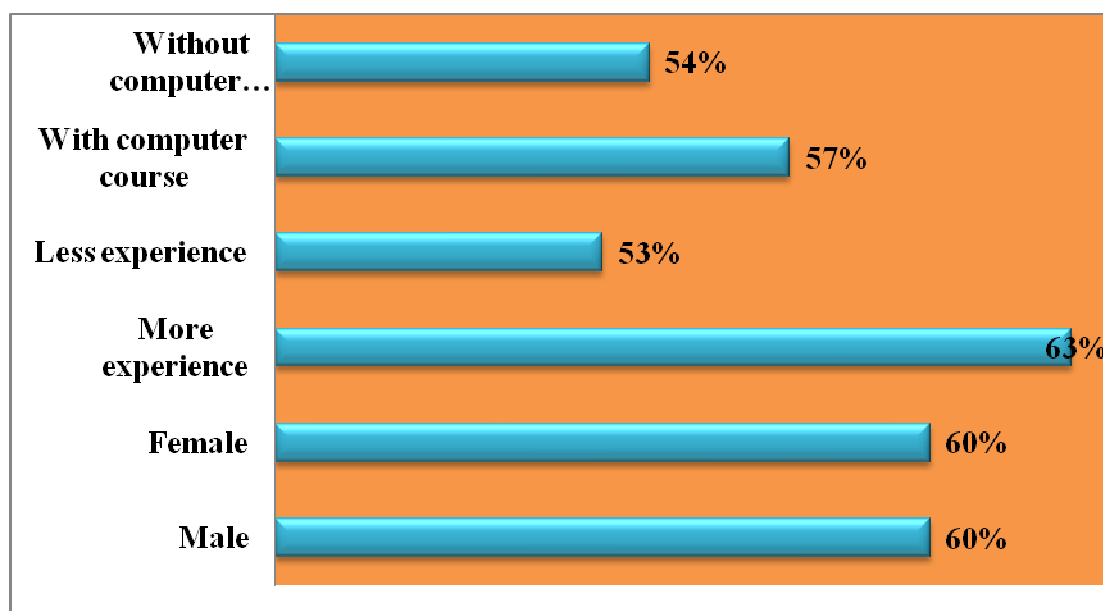
Not significant at both .05 level and .01 level, ** significant at both .05 level and .01 level

The table-2 shows that the 't' value obtained from the comparison of ICT knowledge scores of male and female teachers of KVs was 0.79 which was less than the table value (1.97 at 0.05 level and 2.60 at 0.01 level of significance) with df 158. Hence, it is confirmed that there was no significant difference in ICT knowledge of male and female teachers of KVs. Similarly, the computed 't' value obtained from the comparison of ICT knowledge scores of more experienced and less experienced teachers of KVs was .50 which was less than the table value (1.97 at 0.05 level and 2.60 at 0.01 level) with df 158. On the other hand, the 't' value

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obtained from the comparison of ICT knowledge scores of teachers of KVs with and without computer course was 5.27 which was more than the table value (1.97 at 0.05 level and 2.60 at 0.01 level of significance) with df 158.

With respect to the research question number two as to whether there was significant difference in teachers' ICT knowledge in relation to their demographic factors. The findings of this study showed no significant differences in teachers' ICT knowledge because of gender. However, studies undertaken by (Jowarneh et al., 2007; Sharif and Osman, 2005) revealed that although all teachers have equal opportunity to sit in the training programs organized by MOE, the results indicate that male teachers have higher levels of ICT skills than female teachers, and these results are in contrast to other studies. In a study by Jowarneh *et al.* (2007) of vocational teachers, it was found that female teachers have higher levels of ICT skills compared to male teachers. Regarding the effect of type of training on teacher's ICT skills, there was significant difference in ICT skills because of prior training at the 0.05 level of significance. These results are in agreement with other studies (Mahmud and Ismail, 2010; Ozden, 2007), which also indicate that teachers lacking ICT skills is due to lack of pre-service and in-service training. Moreover, the results of this study showed that the teachers who did not attend any ICT course had lower ICT skill scores than those who attended ICT courses.



(Fig.-1: Percentage teachers above the mean score of their subgroups in ICT knowledge)

Fig.1 shows that large percentages of male and female teachers of KVs (60 %) were above the mean score of ICT knowledge test. Furthermore, large percentages of more experience teachers (63 %) and moderate percentages of less experience teachers (53%) were above the mean score of ICT knowledge test. Similarly, moderate percentages of teachers with computer course (57%) as well as without computer course (54%) were above the mean score. The findings clearly indicated that satisfactory percentages of teachers ranging from 53 % to 63 % in all subgroups (male and female; more experience and less experience; with computer course and without computer course) had basic knowledge and skills in ICT.

MAJOR FINDINGS

- i. Male students had excelled female students of KVs in ICT knowledge test.
- ii. There was no significant difference in ICT knowledge of male and female and more experienced and less experienced teachers of KVs. On the other hand teachers with prior computer course had performed slight better than the teachers without any computer course.
- iii. Satisfactory percentages of teachers ranging from 53 % to 63 % in all subgroups (male and female; more experience and less experience; with computer course and without computer course) had basic knowledge and skills in ICT.

RECOMMENDATIONS FOR POLICY MAKER

- i. As per the findings female students of KVs were under performer in ICT knowledge test. This might be due to less exposure to computer by female students outside the school. At home parents are reluctant to allow the female child to access the cyber café or neighbors/friends home in comparison to male child. Thus, provision should be made at national level that all female students/selected female students of KV on the basis of their classroom performance should be given a laptop on free of cost at the beginning of Class-IV in order to mitigate the problem of less exposure to computer by female students at home.
- ii. Pre-service teacher education programs should provide ICT training for prospective teachers that satisfy their specific needs in the schools at which they work. Therefore, cooperation between KVS and NCTE is needed in designing ICT training curriculum to meet teachers' specific technology needs.

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