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ICT IN SECONDARY SCHOOL EDUCATION: A CRITICAL REVIEW

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ABSTRACT

Information and communication technologies (ICT) have become common entities in all facets of life. The world eloquent rapidly into digital media and knowledge, the role of ICT in education is enhancing prominent and will pursue to grow and flourish in the 21st century. The exclusive purpose of this paper is to compile the relevant research on the use of ICT in school education and take together its conclusion and key points. This review deliberates and appraise the relevant approach in national and international research and action related to aligning and demonstrating the compelling use of ICT for education with view to the teaching-learning process.



KEYWORDS: *ICT, integration, attitudes, Likert-scale, questionnaires.*

INTRODUCTION

Information and Communication Technology (ICT) is a tool of communication and presentation for bringing the individuals on a common platform for presentation of their ideas with exchanging their views so as to increase the interactions between individuals and between individuals and technologies. In the school education system in India, ICT has been launched in December, 2004 to give the opportunities to secondary level students to empower them with ICT skill so as to learn them through computer assisted learning process. The ICT programme is a major impetus to bridge digital divide amongst students of different geographical and socio-economic barriers. The capability of computing technology in building modern society has created the need for public that can employ such technology most adequately for the betterment of society. Therefore, National Curriculum Framework for Teacher Education has introduced ICT in schools. During XII five-year plan period, ICT literacy programme is implemented across all schools in the States. With this, ICT would be an additional subject altogether with the award of a certificate of proficiency has been introduced during initial days. This paper attempts to take the review of literature related to the use of ICT at school level.

Review of Related Literature and Research

The review has been divided into two main parts, viz., research conducted in abroad and in India.

Research Studies Conducted in Abroad

Cassim K. M. and Eyono Obono S. D. (2011), has investigated the factors affecting the acceptance of ICT for teaching of word problems. The theoretical framework of Technology Acceptance Model (TAM) has been developed by the researchers with the help of quantitative analysis of data. They had conducted the survey based on questionnaire administered to 102 foundation phase teachers from 36 primary schools in the Kwa-Zulu Natal (KZN) province of South Africa. The developed Likert-scale based questionnaire having five sections to represent an independent research variable and sixth section to represent dependent variable. These six variables were analysed by statistical analysis viz., frequencies and means and descriptive analysis viz., Pearson's correlation, multiple linear regressions, ANOVA, and ANCOVA.

The findings concludes that teachers' positive attitude, perceptions and awareness towards ICT, demographic profiles, ways of integrating ICT in teaching-learning, and ease-of-use of ICT contribute to higher levels of ICT adoption for teaching of word problems. It is also concluded that there were lower levels of ICT adoption for the teaching of word problems in rural areas compared to urban areas.

Hadi Salehi and Zeinab Salehi (2012), has made an attempt to investigate the teacher's viewpoint of the obstacles and challenges inhibit teachers to integrate ICT in classroom. Researchers had administered the questionnaire based on Likert scale by stratified random sampling technique to 30 high school English teachers of five educational districts from the city of Isfahan, Iran. The questionnaire was designed by keeping in view, the teacher's familiarity with ICT and the factors inhibits them to use ICT in classroom. The questionnaire data was analysed based on frequencies, percentages and means for each item. Findings indicated that inadequate technical supports at schools, limited connection to internet and ICT were prevented teachers to use ICT in classroom which is a major barrier to integrate ICT into curriculum. Moreover, the descriptive analysis confirmed that teachers are pessimistic to use ICT into curriculum because of shortage of class time and time required to learn using ICT.

Alajab M. A. and Huda S. A. (2013), attempted to investigate the approach of Bahraini secondary school teachers and their students towards the use of ICT for teaching-learning English language. The investigation was done during the academic year 2012-2013 by administering the structured questionnaire and interview questions. Two different questionnaires were administered to 48 English language teachers and 208 students, at governmental secondary schools in Hammed and Riffa Towns of Northern and Southern provinces of Bahrain. Teacher's questionnaires were based on teachers' approach towards use of ICT in teaching-learning and students questionnaires were based on students' approach towards use of ICT for learning. With the use of Statistical Package for Social Sciences (SPSS) package a descriptive analysis of questionnaire data viz., frequency, percentage, means and standard deviations and t-test were carried out, while interview questions were analysed thematically. Authors concluded that anticipated versatility acted as a significant enticement of attitude towards ICT use in teaching-learning. It also reveals that Bahrain secondary school students were technologically, economically and skilfully willing to use ICT in learning.

Enos K. A. (2013), made an attempt to explore the views on teachers' approach and attitudes on assimilation of ICTs and its use in schools in Kenya by using e-mail survey to specially defined sample of 'Technical Support Teachers' referred as ICT champions by using random sampling method. A google group forum was specially made to exchange ideas for the selected 20 ICT champions and a questionnaire was administered to them. Out of these 20 champions, 16 were responded. The issues raised by the champions like deficient infrastructure, inadequate knowledge and competency to integrate ICTs, their own approaches, assumptions and curriculum were addressed. Researcher has observed that it was not only the budget that government had used modern equipment but also the right perceptive of the teachers for using the ICTs meaningfully. Hence the researcher had recommended to pay more attention towards the training to teachers and school administrators.

Eid Alharbi (2014), criticize on application of ICT in the classroom of Kuwaiti schools from the angle of students, teachers and decision-makers. Intension of researcher was to analyze the level and impact of ICT on teacher's pedagogy, students' attitude toward the use and to seek out principal

disparity amongst public and private education, as well as across genders. The mixed-method approach was adopted with questionnaires and semi-structured interviews for data collections from students, teachers and policy-makers. The questionnaires were administered to 331 teachers and 308 students of 18 schools from six districts and interviews of teachers were conducted. The results show isolated use of ICT in secondary schools and evidence was blended as positive and negative impacts from ICT use.

Simin Ghavifekr and Wan Athirah Wan Rosdy (2015) researched the teachers' impression on the consequence of ICT integration to backing the teaching-learning process in the classroom. A four-point Likert scale questionnaire consists of 43 questions was administered to randomly select 101 teachers from 10 public secondary schools in Kuala Lumpur, Malaysia. The data were analyzed for both descriptive and presumed statistics using SPSS software. The results indicated that ICT assimilation has great effect for teachers and students. It was revealed that the achievement of technology-based teaching-learning was based on teachers' well-equipped preparedness with ICT tools and facilities. Also, technology-based teaching-learning were highly compelling in comparison with the traditional classroom.

Research Studies Conducted in India

Sidhaye Narendra and Kamble Geeta (2010), has attempted to ascertain the use of ICT and its performance in teaching-learning in unaided English medium secondary schools from Pune city in Maharashtra. Authors has used experimentation methods for their research. Teachers were asked to use ICT for at least of 7 weeks regularly in selected classes of few schools and the performance were continuously followed for 7 years. From interview with teachers and students, researcher has concluded that ICTs were used to support traditional pedagogical practices and to empower more learner-centric constructivist learning models.

Paul P. K. and Mondal N. K. (2012), researched on the role and achievement of ICT in augmenting the quality of school education in Burdwan district in West Bengal. A structured questionnaire based on impact of ICT on quality of education (QE) was administered to 100 respondents from 65 secondary schools in West Bengal during the academic year 2009-10. The data was analysed with descriptive statistics viz., mean and standard deviation, concordance analysis and multiple regression models. Finding of the analysis admits that there has been significant positive impact on quality of education through ICT by taking into deliberation on the factors like relative dominance, compatibility, demonstrability and likeness with some variation among the estimated 't' values. While in case of factors like ramification and prevention of the estimated values of coefficients are negative. Finally, it proves the powerful association between ICT and quality of education.

Farhat B. and Siddiqui M. H. (2012), has made an endeavour to analyse the characteristics in the usage of ICT between boy and girl students of higher secondary school of Jammu and Kashmir.

The questionnaire dwells of 20 questions based on usage of ICT at higher secondary level and was administered 50 boy and 50 girl students of standard 9th to 12th. Responses were marked under two categories, viz., Yes and No. The analysis has been carried out by using statistical technique, percentage. The finding of the study reveals that the usage of ICT by students in higher secondary schools was very low, however, usage of ICT by boy students was higher as compared to that of girl students.

M. Padmavathi (2013), has attempted to enlighten the teachers approach and capability in relation to definite use of computers in classroom teaching. The questionnaire was administered to randomly select 134 secondary school teachers working in Puducherry, India. The questionnaire dwells of information on socio-demographic portrait; ownership, awareness and training in computer; ambition of use of computer, teacher's approach towards computer technology for classroom activity and computer capability. The questionnaire data was analysed by using frequency distribution, percentages, mean, t-test and ANOVA. Researcher has concluded that teachers' approach close to use of computer was favourable. Age, gender, training in computers, teaching subject did not show serious change in the teacher's perception on use of computers.

Erik Jon Byker (2014) analysed 14 research papers by the 'snowball' method and inspected the bibliographies of policy documents and innuendo in journal articles to find the obstacles to fulfilment of ICT programs. It comprises quantitative and qualitative analysis, circumscribed to the decade from 2003-2013. The review excluded policy reports and articles that refers only to secondary education, administrative uses of computers, and opinion papers. The author had concluded that there was a rapport among the barriers viz., insufficient ICT resource, lack of teacher preparedness and a shortfall in localized circumstantial understandings that act together to explain the nature of India's elementary school-based ICT programs.

Findings of the Literature and Research Review

Acceptance and use of ICTs in education has a conclusive impact on teaching-learning and research. ICT can alter the delivery of education and empower the wider access. In addition, it will enhance resilience so that students can access the education irrespective of time and geographical barricades. It can affect the way students are educated and how they learn. It would provide the rich surroundings and encouragement for teaching-learning process which has a serious impact on the process of learning by contributing new possibilities for students and teachers. These possibilities can have an impact on student achievement. Similarly, ample opportunity of best practices in education, which can be shared by means of ICT, can encourage better teaching and enhanced academic achievement. This demanding review deliberates the current position, obstacles to, and explanation for ICT integration in classroom.

REFERENCES

- Alajab M. A. and Huda S. A. (2013). Teachers and Students Perception towards the Use of Information and Communication Technology for Teaching English in Bahrain Governmental Secondary Schools, *International Journal of Information Technology and Management Information System (IJITMIS)*, Vol.-4, Issue-3, 47-67.
- Cassim K. M. and Eyono Obono S. D. (2011) On the Factors Affecting the Adoption of ICT for the Teaching of Word Problems, *Proceedings of the World Congress on Engineering and Computer Science, San Francisco, USA. Vol-I WCECS-2011.*
- Eid Alharbi (2014). A Study on the Use of ICT in Teaching in Secondary Schools in Kuwait, PhD Thesis, Cardiff School of Education, Cardiff Metropolitan University, Kuwait.
- Enos K. A. (2013) Teachers Attitudes and Perceptions on the Use of ICT in Teaching and Learning as Observed by ICT Champions, *X World Conference on Computers in Education, Toruń, Poland, July 2-5.*
- Erik, Jon Byker (2014) ICT in India's elementary schools: The vision and realities, *The International Education Journal: Comparative Perspectives Vol 13, No 2.*
- Farhat B. and Siddiqui M. H. (2012). Usage of ICT by the Students in Higher Secondary Schools of Jammu and Kashmir, *IOSR Journal Of Humanities and Social Science (JHSS)*, Vol.-4, Issue-2, 37-41.
- Hadi Salehi and Zeinab Salehi, (2012). Challenges for Using ICT in Education: Teacher's Insights, *International Journal of e-Education, e-Business, e-Management and e-Learning*, Vol.-2, No.-1.
- M. Padmavathi (2013). A Survey of Secondary School Teacher's Perceptions, Competency and Use of Computers, *International Journal of Education and Psychological Research (IJEPR)* Vol.-2, Issue-4, 7-16.
- Paul P. K. and Mondal N. K., (2012). Integration of ICT in School Education: An Analytical Study in Burdwan District in West Bengal, India, *Research Journal of Management Sciences*, Vol.-1, Issue-4, 21-25.
- Sidhaye Narendra and Kamble Geeta, (2010). Analysis of Research Findings of Use of ICT and its Effectiveness in Teaching / Learning in Schools from Pune City, retrieved from <http://www.articlesbase.com> on 11 May 2015.

Simin Ghavifekr, Wan Athirah Wan Rosdy (2015), Teaching and Learning with Technology: Effectiveness of ICT Integration in Schools, International Journal of Research in Education and Science, Volume 1, Issue 2.