

IT Impact on an Elite School's Female Students

Prof. K.C. Vashishtha, Ms. Neha Gupta

Abstract— IT has ballooned to encompass every aspect of society. It has major impact on almost every sphere of life including the enhancement of creativity in young minds. The paper is presenting an impact of IT Usage on Scientific Creativity of female students of an elite school of Agra (UP) city.

Index Terms— IT Usage, Scientific Creativity, IT Impact

I. INTRODUCTION

Information Technology is surging ahead to explore new frontiers of growth. It provides opportunity of systematic strategies, effective organization and a new view point of thinking in teaching-learning environment. It helps in developing ability to produce something new and innovative i.e. creativity and hence widens the domain of science application. Creativity refers to see or express new relationships among things. It has a remarkable influence on scientific, technological and artistic spheres of human activity. It can be regarded as a diamond having many facets that it cannot be comprehended fully even when viewed from a multiplicity of angles. From all these different angles of creativity, Scientific Creativity is one of the important angle, playing a vital role in transforming modern ways of teaching-learning in Indian class-rooms. In psychometric sense, the construct of Scientific Creativity refers as a measure of the scientific temper, process-oriented concept in which efforts have been made for the divergent production of scientific content delivered in response to familiar and common content of science. It is a problem-solving skill which requires creative performance, recognizing the problem, thinking differently and finding solutions. (Erdener, 2003). Thus, Scientific Creativity is neither the *creativity in science* nor the *high attainment in science*. However, it is the acquisition of scientific temper and scientifically operated bent of mind which includes scientific processing of data in the brain. It yields socially useful and serviceable products in the process of meeting the needs and demands of the external world. But now-a-days schools are not sharing the responsibility of broadening the creativity as the prime importance of school education rather they focus on accumulation of knowledge instead of cultivation of spirit of inquiry. It was reported that the Indian Education system is failing to develop children's latent abilities and intelligence, also failing to prepare them for rational and creative living.

Prof. K.C. Vashishtha, Faculty of Education, Dayalbagh Educational Institute (Deemed University), Agra
Ms. Neha Gupta, UGC-JRF, Faculty of Education, Dayalbagh Educational Institute (Deemed University), Agra

Thus, it is a requirement of society that the individual should possess technical literacy. Science is the basis of all technological innovations, therefore Scientific Creativity becomes an essential requirement for the learners. Combination of science and technology can prevent the blockage of creative urge which acts as a building block of science education but is existing as a gap in present education system. Jackson (2011) examined relationships between children's Information Technology use and their creativity and found that use of Information Technology predicted all measures of creativity regardless of gender or race. Thus, keeping the importance of Scientific Creativity and increasing access to Information Technology, the present study was undertaken to study the impact of Information Technology on an elite school's female students i.e. by using Information Technology in curricula of female students, is their Scientific Creativity affected by Information Technology or not?

II. OBJECTIVES

The objectives formulated in this study are mentioned as under:

1. To determine the usage of Information Technology by female students studying in old convent of English medium school, affiliated to Indian Council of Secondary Education (ICSE) Board.
2. To determine the effect of Information Technology usage on Scientific Creativity of female students studying in old convent of Agra city affiliated to Indian Council of Secondary Education (ICSE) Board.

III. TOOLS EMPLOYED

To measure the different variables of the study, Verbal Test of Scientific Creativity (VTSC) by Sharma and Shukla (2006) and a Self-constructed Information Technology Usage Questionnaire was used to measure the types of ICT usage and the time spared for it.

A. SAMPLE

The sample of the present study consisted of IX grade female students studying in St. Patrick's College, an elite English medium Convent school of Agra City, affiliated to Indian Council of Secondary Education (ICSE) Board, having full ICT-enabled infrastructural ambience classrooms and labs. The researcher followed the Purposive sampling method for selecting the female students in the final sample.

B. DESIGN

The Descriptive Survey method was being adopted in this study as it focused upon the survey of current perspective with regard to ICT usage by female students in an elite English medium school of Agra city. Further the researchers have considered Scientific Creativity as Dependent Variable and Usage of Information Technology as Dependent

Variable presuming that ICT has effect on student's Scientific Creativity. The statistical course plan is only restricted to probe in depth the effect of ICT usage on student's Scientific Creativity.

IV. OBJECTIVE I: TO STUDY THE USAGE OF INFORMATION TECHNOLOGY BY FEMALE STUDENTS

The Information Technology Usage Questionnaire has four specific sections on which the female students have to give responses as (a) Awareness about Computer System, (b) Awareness about MS Office, (c) Awareness about Internet and (d) General Category of Information Technology. The detailed findings related to this objective are exhibited here:

Major findings engrossed as:

(i)The female students were having higher level of awareness about the various aspects of Information Technology like-hard disk, computer, internet, video games etc. and having expertise in their skillful applications. About 58.33% female students are using ICT applications for academic purposes and 80% are utilizing for their recreational activities.

(ii)The female students were freely engaged in internet surfing, chatting and e-mailing showing their high competence.

(iii) The female students were aware about the usage of MS Office and its various components and having habit to apply these for academics and entertainment purposes. It was reported that 76% female students use charts for effective presentation of their computation work. Usage of different types of charts can be visualized from figure 1.

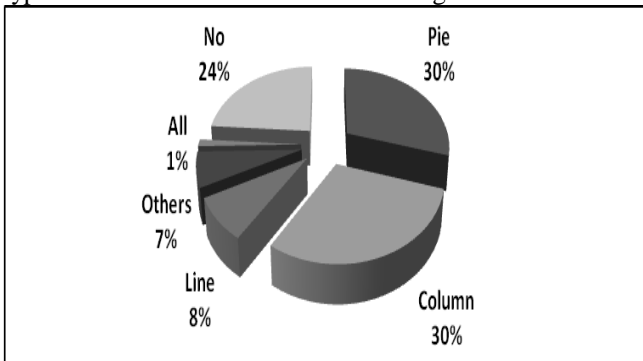


Fig.1 Showing Distribution of Chart Usage

(iv) The female students were aware about the proper use of internet and they were using internet for various purposes and from a very long time. 95% female students are using internet, out of which 45% female students started going online from 1-3 years ago and 25% started from 4 or more years. Further, female students are using internet for various purposes like buying railway-tickets, e-mails which can be visualized from following figure:

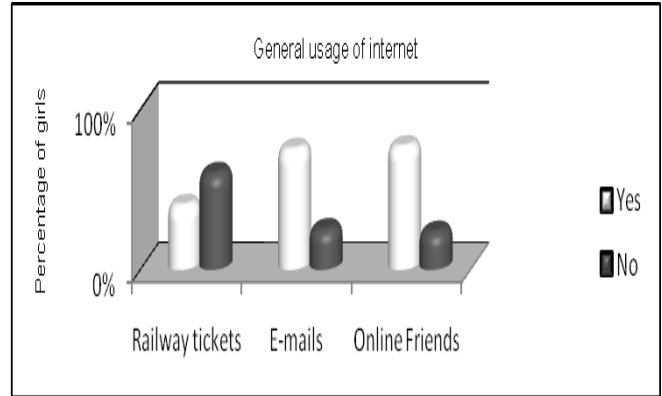


Fig.2 Depiciting general Usage of Internet

(v) The female students were highly interested in watching science programs and science quizzes as well as different type of video games like 51.67% like racing games, 46.67% like Brain-storming games like Archery, Ping-pong and 15% like fighting games. They use them to satisfy their interest and to promote awareness.

The findings of this objective were also supported by many studies. Verma and Kaur (2008) reported that the impact of e-resources is visible from decreasing number of printed journals. Polly (2011) mentioned the positive influence of technology on students' learning as exploring technology-rich tasks require them to use higher-order thinking skills.

V. OBJECTIVE II: TO STUDY THE SCIENTIFIC CREATIVITY OF THE FEMALE STUDENTS

In order to study the Scientific Creativity of the female students, mean and standard deviation of the scores were calculated. Distribution of the scores above and below the mean value indicates the high Scientific Creativity and low scientific creativity resp. Test was administered on 60 female students of class IX of ICSE Board. For this purpose, frequency distribution, skewness and kurtosis of Scientific Creativity test scores were computed for the total sample. The two groups of female students have been drawn on the basis of Scientific Creativity scores as represented in table 2.1.

Table 2.1 Exhibiting the Distribution of Female Students

S.N.	Level of Scientific Creativity	Scientific Creativity (In percentage)
1	High Scientific Creativity	48.33
2	Low Scientific Creativity	51.66

It is clear that majority of female students (51.66%) were having low Scientific creativity.

VI. OBJECTIVE III: TO STUDY THE EFFECT OF IT USAGE ON SCIENTIFIC CREATIVITY OF FEMALE STUDENTS

In order to find out the relation of Scientific Creativity and Information Technology, Information Technology Usage Questionnaire and Scientific Creativity test were evaluated. Relation between awareness of IT usage and Scientific Creativity of the female students can be determined under the following heads. The major findings can be summarized as follows:

- (i) Female students with low Scientific Creativity are indulged in Entertainment pursuits of IT while high scientifically creative students are utilizing its academic pursuits.
- (ii) High Scientific Creative students are more aware about the functioning of computer operating system like they are more aware about regular scanning and back up files than low Scientific Creative students. This distribution can be visualized by following table:

Table 3.1 Scanning & Scientific Creativity

Time	Never	Daily	Weekly	Monthly	
Scanning	15%	21.67%	33.33%	30%	
Scientific Creativity	I 8.33%	F 6.67% L 8.33%	L 13.33%	H 18.33% L 15%	H 18.33% H 16.67%
Backup	16.67%	10%	33.33%	40%	
Scientific Creativity	I 10%	L 6.67% F 3.33%	L 6.67%	H 20% L 3.33%	H 15% H 25%

- (iii) More the Scientific Creativity of the students, more is their knowledge for different applications of operating system including MS Office. High Scientific Creative female students have enhanced knowledge of MS Power-point, MS Word and MS Excel and their corresponding wide areas of applications.
- (iv) Low Scientific Creative female students scored high on Internet usage questions. They mostly use internet as recreational activity while high scientific creative students utilize internet as a knowledge hub like for buying railway tickets, sending e-mails. Distribution can be represented in table 3.2.

Table 3.2 Internet Usage & Scientific Creativity

Purpose	Yes	No
Railway tickets	40%	60%
Scientific Creativity Online Friends	High 23.33%	Low 16.67%
Scientific Creativity E-mails	High 38.33%	Low 36.67%
Scientific Creativity	High 36.67%	Low 40%

- (v) High Scientific Creative female students have direct relation with watching science programs. They watch them regularly for upgrading their knowledge reservoir.

The findings of the study were in consistency with the studies conducted by Srinivasam et al. (2009) who provided effective scientific learning experiences for students with multi-media. Eyadat et al. (2010) also suggested to encourage faculty members to incorporate instructional technology into their teaching/learning process, plan curriculums around technology to advance the knowledge and creativity of students.

VII. CONCLUSION

On the basis of the findings of the study conclusion can be stated as follows:

Mostly female students were aware about the usage of every aspects of Information Technology. Female students were not beyond boys in terms of usage of internet, video games, MS Office, computer system etc. They were using it in education for effective and interesting way of studies at the full extent which is consistent with study conducted by Travers (2006) which investigated the influence of computer use on Brazilian high school students. Walavalkar (2009) also concluded the effect of technology in enhancing learning. Female students were scientifically creative but they differ in extent of Scientific Creativity due to individual differences in interest and facilities provided to them at home. Scientific Creativity of the female students varied in terms of Fluency, Flexibility and Originality. The results were consistent with findings concluded by Vasangi (2008) and Mohammed (2006) who investigated the Scientific Creativity of high school and 5th grade students respectively.

The main conclusion of the study was that there was a relation of Scientific Creativity and usage of Information Technology. More the female students are aware about the different aspects and use of Information Technology, more is the Scientific Creativity of the female students. In this relation, time spent on the usage of Information Technology, type of usage, area of applications, knowledge about Information Technology generally have an effect on Scientific Creativity of the female students. These findings were consistent with results mentioned by Shyama (2009) who concluded the application of e-learning in creative writing. Application of Multimedia in science learning environment was also reported by Srinivasam et. al. (2005).

Thus, it is the need of the hour to provide effective environment of different aspects of Information Technology to students so that they can think rationally and beyond what

is given in their text-books. This will cater their creative thinking especially logical and reasoning which will help them for stepping ahead in this technological era.

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