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A STUDY OF ATTITUDE OF SECONDARY SCHOOL TEACHERS TOWARDS THE USE OF EDUCATIONAL DIGITAL TECHNOLOGICAL SKILLS IN TEACHING AND LEARNING PROCESS IN RELATION TO CERTAIN DEMOGRAPHIC VARIABLES

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ABSTRACT :

Today in the modern times there has been tremendous revolution in the field of science and technology. Information and communication technologies have now a profound and deep cultural revolution changing. In the present era of massive and rapid technological advances are taking place and in this scenario, the quality of education has now become an important measure of productivity and prosperity of the Nation. Today the information arena is now witnessing an excelling plethora of technological revolution, which has to a great extent been responsible for immeasurable enhancement as human knowledge. Technology has also provided the means of collecting, strengthened capabilities of collecting, storing, processing, packaging and transmitting information. The investigator has taken a sample of hundred secondary school teachers from six different secondary schools. In this paper the author has tried to explore and find out the attitude of secondary school teachers towards the use of the new available digital technologies in the process of teaching and learning. The author then suggested that the authorities and government should find suitable measures so as to improve the interest of teachers in teaching and learning and in the application of these innovative digital technologies in Teaching Learning Process. Thus, the teachers must adapt themselves to the usage of new digital technologies so as to make their classroom teaching effective and efficient.

KEYWORDS : *Digital Technology, Digital Natives, Digital Immigrants, Digital Literacy, Digital Divide, Educational Technology.*

INTRODUCTION

Information and Communication Technologies (ICT) have now become commonplace entitles in all aspects of life. Across the past twenty years, the use of digital skills has fundamentally changed the practices and procedures of nearly all forms of endeavor within business and governance. Education is a very socially oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. The use of digital skill in education lends itself to more student centered learning settings. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the present twenty first century also.

Today digital skill is a vast technique used by all people. Educational technology and mobile learning, multi-media learning are all digital skills. The impact of digital skill technology among students in the field of science and educational technology is both good and bad.

WHAT ARE DIGITAL SKILLS?

While there is no standard or agreed upon definition, digital skills can be understood as the ability to locate, organize, understand, evaluate create and share information using digital technology. It involves knowledge of current communications technology and an understanding of how it can be used. Digital skills are a suite of skills that help individuals connect in today's world and functions in the labour market of today and tomorrow.

Digital Skills can be divided into

1. Digital Technical Skills
2. Digital Information processing skills

Digital Technical Skills

Digital technical skills include the ability to:
1. Use digital systems and tools: use computers and other hardware;
2. Use software applications: select and use appropriate software;
3. Apply security measures in digital environments: protect hardware, software applications, data and personal information.

Digital Information Processing Skills

Digital information processing skills include the ability to:
1. Determine information needs: recognize, define and articulate digital information needs;
2. Access information: locate, select and retrieve digital information;
3. Study information: judge the quality, congruity, comfort, authenticity and genuine nature of mechanized information;
4. Coordinate data: translate, dissect, abridge, look at, differentiate, join, repurpose and speak to computerized data;
5. Apply data: use data of different computerized arranges viably and productively;
6. Convey data: share advanced data with others;
7. Make data: produce new advanced substance and learning by sorting out, coordinating, adjusting and applying computerized data;
8. Info data: distinguish, perceive, record and store advanced data to encourage recovery what's more, use;
9. Organize information: decode, restructure and protect digital information.

Digital Skills for Teachers and Students

These can be skills used by faculty in the educational setting, or also skills students learn so as to be able to compete in the job market.
1. Life-long Learning: the ability to self-teach new concepts in a quickly changing work environment;
2. Understanding Copyrights: know the difference between 'fair use', plagiarism, creative commons and other copy-right related topics;
3. Time Management: Know the on-line digital tools that can aid in time management and exhibit;
4. Graphic Design: Ability to edit and resize images for on-line presentations and exhibit;
5. Audio recording: Ability to create, edit and publish audio recordings;
6. Web 2.0: Understand the appropriate uses of Web 2.0, both in the classroom and on the job. Know the limits and dangers of Web 2.0 in these contexts as well;
7. Screen capture/video: Know how to edit and create screen captures and videos for educationaland/or work needs;
8. e-Portfolio (Agile Portfolios): Know how to create, edit and manage an on-line e-portfolio, for educational or professional exhibit;
9. Online Talks: Know how to create, edit and managed on-line webinars and work related needs;
10. Mobile Learning: Know how to exploit mobile technologies for education and work related needs;

11. Collaboration: Know how to use a variety of on-line office tools and file sharing components for virtual collaboration.

DIGITAL LITERACY

Digital literacy is the ability to effectively and critically navigate, evaluate and create information using a range of digital technologies. It requires one "to recognize and use that power, to manipulate and transform digital media, to distribute pervasively, and to easily adapt them to new forms". Digital literacy does not replace traditional forms of literacy. It builds upon the foundation of traditional forms of literacy. Digital information is a symbolic representation of data, and literacy refers to the ability to read for knowledge, write coherently and think critically about the written word. In Scandinavian English as well as in OECD research, the term Digital Competence is preferred over literacy due to its holistic use.

Eshet-Alkalai contends that there are five types of literacy that is encompassed in the umbrella term that is digital literacy and these are as following:

1. Photo-visual literacy: It is the ability to read and deduce information from visuals;
2. Reproduction Literacy: It is the ability to use digital technology to create a new piece of work or combine existing pieces work together to make it your own;
3. Branching literacy: It is the ability to successfully navigate in non-linear medium of digital space;
4. Information literacy: It is the ability to search, locate, assess and critically evaluate information found on the web;
5. Socio-emotional literacy: It refers to the social and emotional aspects of being present on-line, whether it may be through socializing and collaborating or simply consuming content'.

NEED OF DIGITAL SKILLS IN THE MODERN EDUCATION SYSTEM

Under the digitalization of education, we mean that more learning materials, complementary materials or educational games will have to be made accessible electronically and on-line, but at the same time, the change poses challenges for higher education. Universities will have to complement their traditional methods with digital tools with the increase in the number of students. Many universities and colleges are not ready for this yet and most Professors employed in public education are not confident in using digital tools either---70% of them would opt for further training in the field.

The education landscape is changing drastically, from school to university and beyond. Open technology---based education will soon be a '*must have'*, not just a '*good-to-have*' for all ages. Teachers often teach digital literacy skills to students who use computers for research. Such skills include credible sources online and how-to-cite web sites. Google and Wikipedia are used by students "*for everyday life research*". Educators are often required to be certified in digital literacy to teach certain software and, more prevalently, to prevent plagiarism amongst students.

DIGITAL NATIVES AND DIGITAL IMMIGRANTS

Marc Prensky invented and popularized the terms "*Digital Native*" and "*Digital Immigrant*". A digital native, according to Prensky, is one who was born into the digital age. A digital immigrant refers to one who adopts technology later in life. These terms aid in understanding the issues of teaching digital literacy, however, simply being a digital native does not make one digitally literate.

Digital immigrants, although they adapt to the same technology as natives, posses as sort of "*accent*" which restricts them from communicating the way natives do. In fact, research shows that, due to the brain's malleable nature, technology has changed the way today's students read, perceive and process information. This means that today's educators may struggle to find effective teaching methods of digital natives. Digital immigrants might resist teaching digital literacy because they themselves weren't taught that way. Prensky believes this is a problem because today's students are, "*a population that speaks an entirely new language*" than the people who educate them.

BRIDGING THE DIGITAL DIVIDE

Digital literacy and digital access have become increasingly important competitive differentiators. Bridging the economic and developmental divides is in large measure a matter of increasing digital literacy and access for peoples who have been left out of the information and communication technologies (ICT) revolutions. Scholar Howard Besser contends that the digital divide is more than just a gap between those who have access to technology and those who don't. This issue encompasses aspects such as information literacy, appropriateness of content and access to content. Beyond access, a digital divide exists between those who apply critical thinking to technology or not, those who speak English or not and those who create digital content or merely consume it. Research published in 2017 found that the digital divide, as defined by access to information technology, does not exist amongst youth in the United States. Young people of all races and ethnicities report being connected to the Internet at rates of 94-98%.

OBJECTIVES OF THE STUDY

The present study has the following objectives:

1. To study the level of secondary school teachers attitude towards the use of this new technology in teaching and learning process.
2. To find out whether there is any significant relationship between secondary school teachers attitude towards the use of new technology and their interest in teaching.
3. To find out the impact of various demographic variables such as Gender, qualification, locality of the school and type of school on the attitude of secondary school teachers towards the use of new technology.

METHODOLOGY FOR THE STUDY

The methodology adopted for carrying out this present study is explained in detail. The investigator personally went to five schools of the Aligarh district and then gave the questionnaire which consisted of about twenty five items. The interview was directly conducted with each teacher and was asked questions related to the proficiency in the usage of these modern and new technologies in the classroom. The sampling technique, size of the sample, variables of the study, description of the tool sued and administration of the tools were elaborated.

Sample for the Study

A sample size of hundred secondary schools teachers was taken. The investigator has taken six secondary schools from Aligarh district of Uttar Pradesh. Out of these five schools, three secondary schools were private and two secondary schools were of government.

Data Collection

Primary data which was required for the study was collected through direct interviews using a questionnaire consisting of twenty five items prepared by the investigator himself. All the respondents were given sufficient information about the study in the form of a questionnaire. Biographical information blank was also attached along with the each questionnaire booklet, so that the respondents may fill their particulars in that.

Data Analysis and Interpretation

The data was analyzed through the following research analysis:

1. Study of the relationship of attitude of secondary school teachers towards the use of new technology and gender.

Null Hypothesis No. 1: There is no significant difference between Male and Female secondary school teachers attitude towards the use of new technology.

Table 1: Mean scores of male and female teacher's attitude towards the use of new technology

S.No.	Gender	N	Mean	S.D.	't' value	Level of significance
1.	Male	50	100.3	11.81	4.89	*Significant
2.	Female	50	107.3	12.57		

*Significance at 0.05 level

It can be seen from the above given table 1 that the calculated 't' value of 4.89 is significant at 0.05 level. Hence, the framed null hypothesis is rejected and research hypothesis is accepted. Thus, it can be inferred that there is a significant difference between male and female secondary school teachers attitude towards the use of new technology.

2. Study of the relationship of attitude of secondary school teachers towards the use of new technology and qualification.

Null Hypothesis No. 2: There is no significant difference between undergraduate and post graduate secondary school teachers attitude towards the use of new technology.

Table 2: Mean scores of undergraduate and post graduate teacher's attitude towards the use of new technology

S.No.	Qualification	N	Mean	S.D.	't' value	Level of significance
1.	Under graduate	35	103.64	11,44	0.28	*Not Significant
2.	Post graduate	65	103.23	13.53		

*Significance at 0.05 level

It is very evident from the table 2 that the calculated't' value of 0.28 is not significant at 0.05 level. Hence, the framed null hypothesis is accepted. It shows that there is no significant difference between undergraduate and post graduate secondary school teachers with respect to their attitude towards the use of new technology.

3. Study of the relationship of locality of the school and the attitude of secondary school teachers towards the use of new technology.

Null Hypothesis No. 3: There is no significant difference between rural and urban senior secondary school teachers attitude towards the use of new technology.

Table 3: Mean scores of rural and urban secondary school teacher's attitude towards the use of new technology

S.No.	Locality	N	Mean	S.D.	't' value	Level of significance
1.	Rural	65	103.42	11.23	0.06	*Not Significant
2.	Urban	35	103.33	14.15		

*Significance at 0.05 level

It can be seen from the analysis of the table 3 that the calculated't' value of 0.06 is not significant at 0.05 level. Hence the framed null hypothesis is accepted. It shows that there is no significant difference between rural and urban secondary school teachers attitude towards the use of new technology.

4. Study of the relationship of type of the school and the attitude of secondary school teachers towards the use of new technology.

Null Hypothesis No. 4: There is no significant difference between private and government secondary school teachers attitude towards the use of new technology.

Table 4: Mean scores of private and government teacher's attitude towards the use of new technology

S.No.	Type of School	N	Mean	S.D.	't' value	Level of significance
1.	Private	65	104.79	11.54	1.26	*Not Significant
2.	Government	35	102.78	13.01		

*Significance at 0.05 level

It can be observed from the table 4 that the calculated't' value of 1.26 is not significant at 0.05 level. Hence, the framed null hypothesis is accepted. It therefore, shows that there is no significant difference between private and government secondary school teachers attitude towards the use of new technology.

5. Study of the relationship of teaching experience of secondary school teachers and their attitude towards the use of new technology

Null Hypothesis No. 5: There is no significant difference among secondary school teachers who have different years of teaching experience with respected to their attitude towards the use of new technology.

Table 5: Significance of the difference ('F' test) among secondary school teachers with respect to their attitude towards the sue of new technology

S.No.	Teaching Exp.	Sum of squares	Mean Squares	df	'F'	Level of significance
1.	Between Groups	2281.690	1140.845	**2**	7.48	Significant
2.	Within Groups	45273.227	152.435	97		
3.	Total	47554.917		99		

*Significance at 0.05 level

It is very much evident from the table 5 that the calculated 'F' value is 7.48 is significant at 0.05 level. Hence the framed null hypothesis is rejected and research hypothesis is accepted. It is inferred that there is significant difference among secondary school teachers who have different years of teaching experience with respect to their attitude towards the use of technology.

Table 6: Significance of the difference ('t' test) between secondary school teachers who have different years of teaching experience with respect to their attitude towards the use of new technology

S.No.	Teaching experience	N	Mean	S.D.	't' value	Level of Significance (0.05)
1.	Below 10 years	49	109.33	11.05	3.06	Significant
2.	10-20 Years	20	103.33	12.80		
3.	Above 20 years	31	101.67	12.47	4.16	Significant
4.	Below 10 years	49	109.33	11.05		
5.	10-20 years	20	103.03	12.80	0.81	Not Significant
6.	Above 20 years	31	101.67	12.47		

*Not Significant at 0.05 level

From the above table 6, it is very much revealed that there is significant difference between secondary school teachers who have below 10 years of teaching experience and 10-20 years of teaching experience and secondary school teachers who have above 20 years of teaching experience and below 10 years of teaching experience. Whereas no significant difference is found between secondary school teachers who have above 20 years of teaching experience and 10-20 years of teaching experience.

Applying Correlation Analysis

7. Correlation Analysis between secondary school teachers attitude towards the use of new technology and interest of secondary school teachers in teaching.

One of the foremost important objectives of the present investigation is to study the significant relationship between teacher's attitude towards the use of new technology and interest in teaching. For this purpose, the investigator applied the coefficient of correlation ('r'). The computed values are given in the table 7. The investigator framed a null hypothesis for testing the relationship between teacher's attitude towards the use of new technology and interest of secondary school teachers in teaching.

Null Hypothesis No. 6: There is no significant relationship between secondary school teachers attitude towards the use of new technology and their interest in teaching.

Table 7: Coefficient of Correlation between teacher's attitude towards the use of new technology and their interest in teaching

S. No.	Correlation	N	'r' value	Level of Significance at 0.05 level
1.	Teacher's attitude towards the use of new technology and their interest in teaching	100	0.56	Significant

It can be seen from the table 7 that the computed correlation coefficient 'r' for the entire sample is 0.56, and the value of 0.56 is significant at 0.05 level. Hence, the framed null hypothesis is rejected. Therefore, it is inferred that there is significant relationship between secondary school teacher's attitude towards the use of new technology and their interest in teaching.

SUGGESTIONS

The present study gives a clear-cut view about the present position of secondary school teachers attitude towards the use of new digital technology and their interest in teaching. Based on the above important findings the following recommendations are suggested:

1. Secondary school teachers must be provide with adequate opportunities to enhance their knowledge in new digital technologies and in the use of new equipments. The government should provide more effective environment through schools for them to improve their skills in application of new technologies in teaching.
2. The findings of the present study reveal that the secondary school teachers have neutral attitude towards the use of these new digital technologies in teaching and low interest in teaching. This indicates that the Heads of the institutions must look into the varied problems that influence the interest of secondary school teachers and find amicable solutions to their difficulties.
3. In addition to the above recommendations the government and all the other concerned authorities should realize the problems of experienced teachers and provide conducive environment of growth and mutual help of secondary school teachers should be ensured.

CONCLUSION

The present study is conducted on secondary school teachers so as to find out their attitude towards the use of new digital technologies in teaching and leanring process and their interest in teaching. The findings of the present study revealed that the secondary school teachers have neutral attitude towards the use of new digital technology and have low interest in teaching. Therefore, the

authorities and government should find suitable measures so as to improve the interest of teachers in teaching and the application of innovative technologies in Teaching Learning Process. These secondary school teachers should also be provided with adequate Teaching Learning Material on the use of these new digital technologies in their classrooms. In this regard, the government should frame the curriculum in such a manner that it is infested with the topics that could be taught to the students maximally through the use of these new digital technologies and other related information and communication technologies.

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