ATTITUDE TOWARDS USE OF TECHNOLOGY AMONG PRIVATE AND GOVERNMENT SCHOOL TEACHERS IN RELATION TO ACADEMIC STREAMS

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ABSTRACT

The present study attitude towards use of technology among private and Government school teachers in relation to academic streams. The sample consisted of 140 teachers of XI and XII (science and arts streams) class from seven private and seven Government schools of Chandigarh city. Attitude towards use of technology scale (Adopted version of Attitude towards e-media scale by Bhushan and Mehra 2004) was used to collect the data. Descriptive analysis technique like mean and standard deviations were worked out to study the general nature of the sample employed, t-ratio with independent mean was used to analyse the data. It was found that (i) the private school teachers had more favourable attitude towards the use of technology as compared to government school teachers (ii) The science stream teachers had more favourable attitude towards the use of technology as compared to arts stream teachers.

Keywords: Attitude towards Use of Technology, Private and Government School Teachers, Academic Streams

INTRODUCTION

Technology plays a significant role in our society today. Most students, parents, and teachers use technology on a regular basis. It also influences everything that we do on a daily basis including classroom environment. Teachers and students are consistently being introduced to new technologies. School districts are being pressured to buy even more technology and teachers are being pressured to use the technology. Teachers are no longer just teaching, but they are also learning new technologies. Teachers have to learn technology and implement it into their lessons, while also making sure that the content that is being presented is valid and differentiated (Gardner, 2011). Due to the extensive use of technology in every walk of life, the educational institutes are also supposed to prepare their students and teachers to be technology literate

(Kalanada, 2005). There is a wide variety of audio/visual/technological tools that can be utilized in different ways to help teachers teach and students learn. To start with, the simplest visual representation is with an overhead projector and transparencies to present text, graphs, illustrations, photographs, cartoons etc. Video documentaries and audio-tapes are used so that students can actually view and better understand theoretical concepts like human anatomy or the eclipse phenomena. Moving to the computer, internet and mobile phones, the array of teaching aid is simply mind-boggling –email, online chat, face book, twitter, forums, blogs, slideshows, search engines, interactive whiteboards, videoconferencing, etc. Teachers can effectively use these tools to communicate with students, ask questions, solve doubts, answer queries, give assignments, send reminders, coordinate group activities or even have a group discussion out of the class. Such virtual interactions encourage a running dialogue of thoughts, comments, reflection and feedback overcoming limitations of time, distance and even students' shyness (Kumari, 2016).

Roblyer and Edwards (2000) suggested that there are five important reasons for teachers to use technology in education: (i) motivation, (ii) distinctive instructional abilities, (iii) higher productivity of teachers, (iv) essential skills for the Information Age, and (v) support for new teaching techniques. In order to use of technology in the classroom effectively, teachers' attitude toward technology should be positive and they should be trained in using the modern technologies in the field of education. Chin and Hortin (1993) stated that the teacher clearly must act as the "change agent" in the relationship between technology and the student.

When it comes to teachers and use of technology, 'attitude' appears to correspond closely to behaviour. That is, the ways in which teachers make use of technology in the classroom vary by confidence level and attitude. Attitude is a broader term covering almost all the important fields of education. It is guiding force of all human factors. An attitude is an effective by product of an individual's experience and its base in inner urges, acquired habits, and importance of attitude in the life of an individual is universally acknowledged (Sahu, 2004). The social environment of an individual influences him much more as compared to his physical environment. The customs, beliefs, prejudices, value pattern and the norms of the society, of which he is the member, affect his life style in all possible ways. The value system and the beliefs are the two promising factors which are found to determine the attitude of an individual towards technology (Gardner, Dukes, & Discenza, 1993).

Talking of schools, private schools in India have generally less qualified teachers than government schools and operate using much lower levels of capital. However, private schools operate within the market and as a result have strong incentives to be competitive. Private schools hire teachers who often do not have a teaching certificate and pay them a fraction of the

salaries of government schools, but they hire more teachers to reduce class sizes. The heads have far greater control over hiring and firing of teachers and thus are able to exhibit tighter control, have higher attendance and only retain effective teachers (Nechyba, 2000; Peterson, Howell, Wolf& Campbell, 2003). Extant Indian studies are consistent in suggesting that private schools in India are, on average, more internally efficient than government schools. They are more cost efficient on average costing only about half as much per student as public schools. Private schools are also more technically efficient, producing higher achievement levels (after controlling for student intake) and making more efficient use of inputs, for example having more students per class and lower teacher absenteeism (Govinda & Varghese, 1993; Kingdon, 1996; Bashir, 1997; Tooley & Dixon, 2005, Muralidharan & Kremer, 2006).

In schools students inflowing the senior secondary stage have to select between the streams of study. The prevalent choices are science and arts. The massive field of study that comes under the ground of science allows students under this stream countless career options. Science involves the systematic study and examination of all natural phenomena and incidents by employing various methods such as observation, experimentation, etc. Arts are an academic discipline which deals with the study of the 'Human Condition', utilizing methodologies that are usually analytical, critical or speculative. In the modern world, the indispensability of use of technology in everyday life is more than apparent. Thus use of technology forms not only a compulsory part of the school curriculum up to the secondary stage; it is often necessary in the following tertiary stages.

NEED AND SIGNIFICANCE

In life no change is permanent. The development of science and technology has brought tremendous changes and made the environment around us very complex. This is no exception in the field of teaching and learning. The teacher is considered to be effective only if he/she accept the emerging challenges, and acquaint with the modern trends. With the advancement in technology, there has been lot of development in the field of education too. Use of technology in teaching is one such development. Teacher must be able to understand conceptual understanding and analytical ability among students through the use of diverse technology. Due to availability of modern technology, both man and machine need to be organized in a system so as to attain desired educational objective in teaching learning process. According to Pajares (1992), in order to understand teaching practices, one must study on teachers' beliefs and attitudes because it is considered as an indicator of several behaviours in class. Because of technology adoption process are positively correlated with the teacher attitudes (Aldunate & Nussbaum, 2013), examining govt. and private teachers' attitudes toward the use of technology in arts and science stream teaching is crucial. The purpose of this study is to investigate teachers' attitudes toward

the use of technology in teaching. Understanding teachers' attitudes is essential because it is a way to figure out how they integrate technology into their teaching. This paper is a part of project which aims to encourage teachers to develop digital teaching materials by training them on how to use technology on the process of teaching and learning and increase the level of educational technology usage in the academic streams. In order to achieve these goals, the authors must understand how teachers perceive technology integration into their teaching and therefore the investigator has made and attempt to enquire into attitude towards use of technology among private and government school teachers in relation to academic streams.

OBJECTIVES

1. To compare the attitude of teachers of different academic arts and science streams towards the use of technology.
2. To compare the study of attitude of private and government school teachers towards the use of technology.

HYPOTHESES

H_1: There will be no significant difference between attitudes of teachers of different academic arts and science streams towards the use of technology.

H_2: There will be no significant difference between attitude of private and Government school teachers towards the use of technology.

Sample

The present study was conducted on 140 science and arts school teacher from 14 schools of Government and private school of Chandigarh only through purposive-cum random sampling. The school wise distribution of the sample is given in table-1
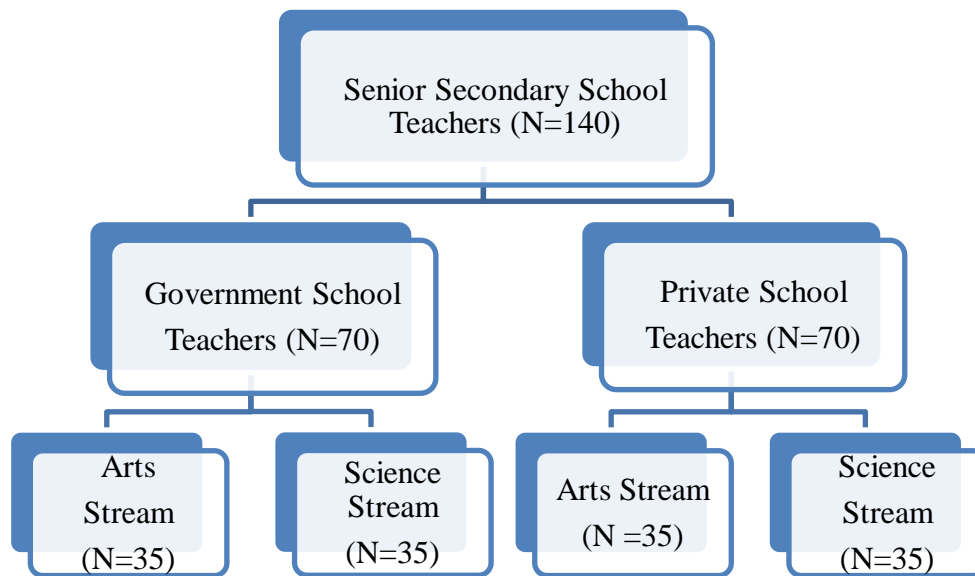
Table 1: The school wise distribution of the sample

No	Government Schools	Private Schools
1	GMSSS Sector-33 Chandigarh	Ajit Karman Singh Int. Public School, Sector-41 Chd
2	GMSS Sector-35 Chandigarh	BhawanVidyala, Sector-27 Chandigarh
3	GMSSS Sector-37 Chandigarh	Delhi Public School, Sector-40 Chandigarh
4	GMSSS Sector-38 Chandigarh	Gurunanak Public School, Sector-36 Chandigarh
5	GMSSS Sector-42 Chandigarh	St. Joseph High School, Sector-44 Chandigarh
6	GMSSS Sector-45Chandigarh	ShiriGuruharkrishan Public School, Sector-40 Chd
7	GMSSS Sector-46Chandigarh	Ryan International School, Sector-49 Chandigarh

Design

For the purpose of present investigation descriptive method of research was employed to study the attitude of teachers of Government and private schools of different academic arts and science streams towards use of technology. The schematic layout of the design is given in fig-1

Schematic layout of the design

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          ┌─────────────────────────────┐
          │  Senior Secondary School    │
          │     Teachers (N=140)        │
          └─────────────────────────────┘
             │                      │
  ┌──────────────────────┐   ┌──────────────────────┐
  │  Government School    │   │    Private School     │
  │   Teachers (N=70)     │   │    Teachers (N=70)    │
  └──────────────────────┘   └──────────────────────┘
      │           │              │            │
 ┌────────┐  ┌──────────┐   ┌──────────┐  ┌──────────┐
 │  Arts  │  │ Science  │   │   Arts   │  │ Science  │
 │ Stream │  │ Stream   │   │  Stream  │  │ Stream   │
 │ (N=35) │  │ (N=35)   │   │ (N =35)  │  │ (N=35)   │
 └────────┘  └──────────┘   └──────────┘  └──────────┘
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Tool used

Attitude towards use of Technology Scale (Adopted version of Attitude towards e-media scale by Bhushan & Mehra, 2004).

Procedure

After developing and validating the tool, the investigator took permission from the principals of selected school. Data was collected from the required teachers and scoring was done. Next, data obtained from the teachers were divided into two academic streams, viz., Science and Arts. Analysis and Interpretation of the Results.

Descriptive statistical techniques will be used to see the nature of the distribution of scores. t-ratio will be used to see the significance difference between the two variables.

- **Analysis of Descriptive Statistics**

Descriptive statistics such as Mean, Standard deviation, Skewness and Kurtosis were computed to ascertain the nature of distribution of scores on the various areas of attitude towards use of technology. The results are being presented in table-2

Table 2: A summary of descriptive statistics of attitude towards use of technology

Dimensions	Mean	SD	Skewness	Kurtosis
Technology and Teacher	10.34	1.91	0.118	-.526
Technology and Teaching	15.19	2.68	-.058	-1.156
Technology and Learning	25.80	3.60	-.212	-.060
Importance of Technology	28.24	3.51	-.244	-.688

Source: Field Study, 2016

(i) *Mean:* The table-2 shows that the mean score is 10.34, 15.19, 25.8, 28.24 for the dimensions of technology & teacher, technology & teaching, technology & learning and importance of technology respectively. As the values are nearly the same, so the distribution can be taken to be normal**.**

(ii) *Standard Deviation:* The table-2 shows that the value of standard deviation is 1.91, 2.68, 3.60, 3.51 in case of technology and teacher, technology and teaching, technology and learning, importance of technology respectively. The result indicates that the standard deviation of attitude towards use of technology was well distributed.

(iii) *Skewness:* The table-2 shows that the value of skewness for the dimensions of technology and teacher is .118 (positively skewed), technology and teaching is -.058 (negatively skewed), technology and learning is -.212 (negatively skewed) and importance of technology is -.244 (negatively skewed) which is almost equal to 0. The distribution of the measure may be considered as normal.

(iv) *Kurtosis:* The table- 2 shows that the value of *kurtosis* was -.526, -1.156, -.060, -.688 for the dimensions technology and teacher, technology and teaching, technology and learning, importance of technology respectively hence the distribution is slightly platykurtic.

- **Differential Statistics**

The t-ratios were calculated to determine the difference among the attitude of Government and private school teachers towards use of technology. The results are shown in the table-2.

Table 2: t-ratio between attitude of Government and private school teachers towards use of technology

Variable	Government School			Private School			SE$_D$	t-value
	N	Mean	SD	N	Mean	SD		
Attitude towards use of Technology	70	78.10	9.02	70	81.03	8.23	1.19	2.01*

* Significant at 0.05 level

(Critical Value 1.98 at 0.05 and 2.62 at 0.01 levels, df 138)

Table-2 reveals that the mean score of government school teachers are 78.10, which is less than the corresponding means score 81.03 of private school teachers. The t-value testing the significance of mean difference between attitude of Government and private school teachers towards use of technology is 2.01, which in comparison to the table value was found significant at 0.05 levels of significance. Hence, the null hypothesis H$_1$: There will be no significant difference between attitude of private and government school teachers towards use of technology, is rejected. The results indicate that the private school teachers had more favourable attitude towards use of technology as compared to government school teachers. The results are supported by the findings of Yadav (2015) which reported that private school teachers showed greater attitude towards use of ICT in education as compared to government school teachers. Mahajan (2016) revealed that about 25% of the teachers had only favourable attitude towards use of technology in teaching. Haseentaj and Perdeepkumar (2017) found that younger, female, English medium, science background, private management and urban secondary school teachers have better attitudes in using new technology than that of their counterparts. And the result is contradictory by the findings of Basu and Ahmad (2016) revealed the government secondary school teachers have altogether favourable attitude towards ICT than the private secondary school teachers. Khajuria (2017) confirms government secondary school teachers have better attitude than private secondary school teachers on attitude towards using new technology.

Table 3: t-ratio between attitude of science and arts school teachers towards use of technology

Variable	Science Streams			Arts Streams			SE$_D$	t-value
	N	Mean	SD	N	Mean	SD		
Attitude towards use of Technology	70	81.24	7.97	70	77.89	9.17	1.45	2.31*

* Significant at 0.05 level

(Critical Value 1.98 at 0.05 and 2.62 at 0.01 levels, df 138)

Table-3 reveals that the mean score of science streams are 81.24, which is higher than the corresponding means score 77.89 of arts streams. The t-value testing the significance of mean difference between of science and arts streams teachers attitude of towards use of technology is 2.31, which in comparison to the table value was found significant at 0.05 levels of significance. Hence, the null hypothesis H_2: There will be no significant difference between attitude of science and art stream school teachers towards use of technology, is rejected. The results indicate that the science stream teachers had more favourable attitude towards use of technology as compared to arts stream teachers. The results are consistent with the findings of Cavas and Kesercioğlu (2003) aimed to investigate the science teachers' attitudes toward computer assisted learning. Rogers (2003) indicated that trialability and observability are the two attributes of an innovation that might increase the rate of adoption of innovations. If science teachers are aware of computer technologies and have opportunity to access computers, their level of using technology in their courses might be rise. Cavas, Cavas, Karaoglan and Kisla (2009) the results indicate that Turkish science teachers have positive attitudes toward information communication technology. Angadi (2014) indicated that attitude towards information communication technology of science teachers is greater than arts teachers. Shafeeq and Imran (2017) reported that science/mathematics background teachers have a more favourable attitude than arts/social Science background teachers towards information and communication technology. The results showed that the majority of science teachers had positive attitudes toward computer assisted learning. Another study conducted by Kumari (2017) found that few of the science teachers of secondary schools of Shillong have a positive attitude towards information communication technology.

FINDINGS

1. The senior secondary schools teachers belonging to govt. and private schools are concerned, private senior secondary school teachers use technologies frequently while teaching as compared to government secondary school teachers who rarely utilized technology while teaching.
2. The teachers of different academic arts and science streams exhibit significant difference towards use of technology. Among the teachers of different academic streams science teachers had a fairly positive attitude towards the use of technology. Whereas arts teachers showed little or no interest in using technology while teaching.

Educational Implication

1. Teachers with positive attitude towards use of technology will surely use technology if they are provided appropriate infrastructure, motivation and corporation by the administration.

www.ijsser.org   Page 1228

2. Integrating technology in teaching can make real difference in the output of teaching learning process. It enables the teachers to spend more time with individual student, less time teaching to the whole class and allow each student to carry out more independent work.

3. Science stream teachers have fairly good and positive attitude as compare to art stream teachers when it comes to using technology in teaching. So refresher courses can be introduced for the same.

4. The level of success of technology integration in school is not dependent on the quality or sophistication of the technology, rather on teachers' readiness and positive disposition. Relevant programmes must be taken up especially for govt. school teachers to develop a positive attitude towards utilizing new technology in classrooms.

CONCLUSION

The secondary schools managed by private organizations or individuals, either partially or totally. The reputation of these schools is generally better when compared with the government schools. In these schools, the teachers are exposed to better conditions and better academic atmosphere. The quality of teaching is also supposed to be better in these schools, which largely depends on the utilization of technology. Also the science stream teachers in comparison to art stream are more inclined towards use of technology. Attitude of teachers plays a vital role in their teaching efficiency. Hence, appropriate guidance and training to teachers must be given to achieve good results.

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