

5.1 Introduction

As per the need of the study the investigator collected the data using self made standardized tools and analysed the data using adequate statistical technique to study the proposed hypotheses for achieving the objectives of the study. The chapter deals with the detailed explanation of the results that have been achieved in the preceding chapter. For the convenience of the understanding and clarity in the presentation the result of the study has been discussed and interpreted in the accordance with the hypotheses framed in the first chapter of the thesis.

HYPOTHESES related to OBJECTIVE NO.1

1.1 There is no significant difference in the attitude of principals of CBSE and ICSE board schools towards educational media at secondary school stage.

1.2 There is no significant difference in the attitude of male and female principals towards educational media at secondary school stage.

1.3 There is no significant difference in the attitude of principals in the age group of 21- 40 years and the principals in the age group of 41-60 years towards educational media at secondary school stage.

1.4 There is no significant difference in the attitude of principals with a teaching experience of 1-20 years and the principals with a teaching experience of 21-40 years towards educational media at secondary school stage.

Findings and Discussion:-

- 1) Attitude of Female principals is more favourable than that of Male principals towards educational media at secondary school stage
- 2) Attitude of Principals in the age group of 31-45 years is more favourable than that of Principals in the age group of 46-60 years towards educational media at secondary school stage.

According to **Howse, E., Hamilton, D. and Symons, L. (2000)**, user satisfaction with the SMART Board was moderately high, reflecting a positive attitude toward the SMART Board. Research conducted by D&B(2010) show principals have favourable attitude towards smartclass. Female Principals have more favourable attitude towards educational media as compared to Male Principals though study conducted by Singh (2015) did not showed a significant difference in the attitude of male and female teachers towards ICT. Male and Female principals and teachers have different interests these interests thus influences their attitude towards educational media.

Principals in the age group of 31-45 years have more favourable attitude towards educational media as compared to Principals in the age group of 46-60 years at secondary school stage. It can be said that young Principals are more techno friendly and well aware of the importance of technology in education.

HYPOTHESES related to OBJECTIVE NO.2

- 2.1 There is no significant difference in the utilization of educational media in CBSE and ICSE board school according to the principals at secondary school stage.

2.2 There is no significant difference in the utilization of educational media according to male and female principals at secondary school stage.

2.3 There is no significant difference in the utilization of educational media according to principals in the age group of 31-45 years and 46-60 years at secondary school stage.

2.4 There is no significant difference in the utilization of educational media according to the principals with a teaching experience of 1-20 years and 21-40 years at secondary school stage.

Findings and Discussion:-

- 1) Utilisation of any type of educational media is done more according to female principals as compared to male principals at secondary school stage.
- 2) Utilisation of any type of educational media is done more according to the principals with a teaching experience of 21-40 years than the principals with a teaching experience of 1-20 years at secondary school stage.

Majority of Principals have a tendency towards the use of all types of educational media. The outcomes of the study also show that there are significant difference of mean scores in using educational media by the principals on the basis of gender and teaching experience.

The results can be supported by the fact that Female Principals are frequent users of educational media because they have more favourable attitudes towards them as compared to Male Principals. Attitude towards an object defines their better utilization.

Apart from gender differences experience also plays a key role in utilisation of educational media. Principals who have more teaching experience are using or facilitating the use of any of the educational media in teaching learning process as they understand the importance of these educational medias in education.

As the female Principals have more favourable attitudes towards educational media they are witnessing and promoting more utilization of educational media in their schools. Also Principals with more years of teaching experience are utilizing educational media as they are in this field of education for years and understand the importance of teaching through educational media, also they have more experience in using educational medias.

HYPOTHESES related to OBJECTIVE NO.3

3.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer in CBSE board schools according to the principals of secondary school stage.

3.2 There is no significant difference in the extent of utilization of Computer and Smartclass in CBSE board schools according to the principals at secondary school stage.

3.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in CBSE board schools according to the principals at secondary school stage.

3.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer in ICSE board schools according to the principals at secondary school stage.

3.5 There is no significant difference in the extent of utilization of Computer and Smartclass in ICSE board schools according to the principals at secondary school stage.

3.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in ICSE board schools according to the principals at secondary school stage.

Findings and Discussion:-

- 1) Usage of Computer is more than the Smartclass according to the Principals of CBSE board school at secondary school stage.
- 2) Usage of OHP is more than the Smartclass according to the Principals of CBSE board school at secondary school stage.
- 3) Usage of Computer is more than the Smartclass according to the Principals of CBSE and ICSE board school at secondary school stage.

Teaching through Computer that is making power point presentations and delivering in front of students is more convenient for the Principals to teach the students. Once a presentation is made it can be used for many consecutive years, also Principals are friendlier with computer usage as it is in use in their daily life for many purposes. Preparing Transparencies is a burden for Principals but they prefer it over teaching through Smartclasses. Since Smartclass is a new initiative in the field of education

Principals find it little tricky to operate as it requires time and practice to understand the functions of the interactive whiteboards.

HYPOTHESES related to OBJECTIVE NO.4

4.1 There is no significant difference in the attitude of teachers of CBSE and ICSE board schools towards educational media at secondary school stage.

4.2 There is no significant difference in the attitude of male and female teachers towards educational media at secondary school stage.

4.3 There is no significant difference in the attitude of teachers in the age group of 21-40 years and teachers in the age group of 41-60 years towards educational media at secondary school stage.

4.4 There is no significant difference in the attitude of teachers with a teaching experience of 1-15 years and teachers with a teaching experience of 16-30 years towards educational media at secondary school stage.

4.5 There is no significant difference in the attitude of teachers teaching science subjects and teachers teaching arts subjects towards educational media at secondary school stage.

Findings and Discussion:-

- 1) Attitude of Female teachers is more favourable than that of Male teachers towards educational media at secondary school stage.
- 2) Attitude of teachers teaching science subjects is more favourable than teachers teaching arts subjects towards educational media at secondary school stage.

Teachers have positive attitudes towards educational media at secondary school stage. The above findings goes with the research findings of **Ndibalema (2014)**, **Teo (2008)**, **Mehra(2007)** and **Joy and Manickan(2002)** who found that teachers have positive attitudes towards the use of ICT as a pedagogical tool; while **D&B(2010)**, **Huck and Schmitz(2004)**, **Howse and Hamilton(2000)** and **Bell(1988)** found a favourable attitude of teachers towards smartclass. Another study by **Pachaiyappan (2016)** confirms that most of the higher secondary school teachers have moderate level of attitude towards educational technology.

Female Teachers have more favourable attitude towards educational media as compared to Male Teachers. **Pachaiyappan (2016)** also confirms that Female teachers have high attitude towards educational technology as compared to male teachers at higher secondary school, though study conducted by **Singh (2015)** did not showed a significant difference in the attitude of male and female teachers towards ICT. But according to study conducted by **Ozdamli, Hursen and Ozcinar (2009)** attitude of male teacher candidates is more positive than female teacher candidates towards the instructional technologies.

Teachers teaching Science subjects have more favourable attitude towards educational media than teachers teaching Arts subjects at secondary school stage. This finding again goes with the finding by **Pachaiyappan (2016)** who found that science teachers have more favourable attitude towards educational technology as compared to arts teachers of higher secondary schools. It is reported that the role of science teachers can influence the attitudes of students towards Science, **Comb and Keeves (1973)**

HYPOTHESES related to OBJECTIVE NO.5

5.1 There is no significant difference in the utilization of educational media by the teachers in CBSE and ICSE board school at secondary school stage.

5.2 There is no significant difference in the utilization of educational media by male and female teachers at secondary school stage.

5.3 There is no significant difference in the utilization of educational media by teachers in the age group of 21-40 years and 41-60 years at secondary school stage.

5.4 There is no significant difference in the utilization of educational media by the teachers with a teaching experience of 1-15 years and 16-30 years at secondary school stage.

5.5 There is no significant difference in the utilization of educational media by the teachers who teach Science subjects and teachers who teach Arts subjects at secondary school stage.

Findings and Discussion:-

- 1) Usage of any type of educational media is done more by the teachers with a teaching experience of 1-15 years than the teachers with a teaching experience of 16-30 years at secondary school stage.
- 2) Usage of any type of educational media is done more by the teachers who teach science subjects as compared to the teachers who teach arts subjects at secondary school stage.

Based on the findings it is proved that majority of Teachers have a tendency towards the use of all educational medias. Past researches of **Ndibalema(2014)** and **Anitha(2013)** show that teachers have good computer skills and they are utilizing it for daily academic updates. The outcomes of the study also show that there are significant difference of mean scores in using educational media on the basis of teaching experience and teaching subject. According to **Dun and Bradstreet [D&B] Information Services India Pvt. Ltd. (2010)**, for teachers with greater teaching skills and experience, the effectiveness was higher.

There is a direct relation between attitude and utilization of educational media. Teachers who were teaching science subjects have more favorable attitudes towards educational media than teachers teaching art subjects, those teachers were again found to be using educational media more.

As per **Zhao, Jiangtao (2006)**, no significant difference on faculty's use of smart classroom technologies was identified based on gender, rank and status, except, age. Teachers with less teaching experience are showing more interest and enthusiasm in using any type of educational media for teaching than teachers with more teaching experience. Teachers, who are young and energetic, are more techno friendly and computer friendly. They find teaching through any educational media motivating for the students as they can see the difference in their students learning. Also making a power point presentation or transparencies is not a difficult job for them and they also learn tricks of teaching through smart boards easily as they find them innovative. On the other hand teachers who are teaching for many years complains of being

overburdened with the schools activities and consider teaching through educational media as wastage of time.

HYPOTHESES related to OBJECTIVE NO.6

6.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer by the teachers in CBSE board schools at secondary school stage.

6.2 There is no significant difference in the extent of utilization of Computer and Smartclass by the teachers in CBSE board schools at secondary school stage.

6.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector by the teachers in CBSE board schools at secondary school stage.

6.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer by the teachers in ICSE board schools at secondary school stage.

6.5 There is no significant difference in the extent of utilization of Computer and Smartclass by the teachers in ICSE board schools at secondary school stage.

6.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector by the teachers in ICSE board schools at secondary school stage.

Findings and Discussion:-

- 1) Usage of Computer is more than the Smartclass and OHP by the Teachers of secondary school stage.
- 2) Usage of Smartclass is more than the OHP by Teachers of secondary school stage.
- 3) Usage of Computer is more than OHP by teachers of CBSE and ICSE board at secondary school stage.
- 4) Usage of Computer is more than Smartclass by teachers of CBSE board school at secondary school stage.

Usage of Smartclass is more than OHP by teachers of ICSE board at secondary school stage. **Irfan Shah (2005)** found a low degree of ICT awareness, use and need of secondary and higher secondary teachers. **Korkmaz, O., & Cakil, I. (2013)** teachers find smart boards useful, but do not utilize them adequately.

HYPOTHESES related to OBJECTIVE NO.7

7.1 There is no significant difference in the competence level of teachers in using educational media in CBSE and ICSE board schools at secondary school stage.

7.2 There is no significant difference in the competence level of male and female teachers in using educational media at secondary school stage.

7.3 There is no significant difference in the competence level of teachers in using educational media who are in the age group of 21-40 years and 41-60 years at secondary school stage.

7.4 There is no significant difference in the competence level of teachers in using educational media who have a teaching experience of 1-15 years and 16-30 years at secondary school stage.

7.5 There is no significant difference in the competence level of teachers in using educational media who teach science subjects and those who teach arts subject at secondary school stage.

Findings and Discussion:-

- 1) Competence level of using educational media of teachers with a teaching experience of 1-15 years is more than that of teachers with a teaching experience of 16-30 years at secondary school stage.
- 2) Competence level of using educational media of teachers teaching Science subjects is more than that of teachers teaching Arts subjects at secondary school stage.

As already found above utilization of educational media was found to be more by the teachers with less years of teaching experience hence it can be related with the findings here that the competence level of these teachers are more as compared to teachers who have more years of teaching experience. Also attitude of Science teachers was found more favourable than Arts teachers hence they are using educational medias more, it can be related that it is because competence level of Science teachers are better than teachers teaching Art subjects.

The level of adaptability towards PowerPoint presentation utility in classroom teaching was found to be more with the science teacher when compared to the teachers teaching

the Arts subjects (**Shankar and Subasri, 2006**). According to **Mc Neese, M.N. et al. (2003)**, the male participants find the SMART Board interactive whiteboard to be less valuable in the instructional setting. There were no differences between the genders in terms of comfort level, instructions given in the training sessions and the desire to use the SMART Board interactive whiteboard in the future. It was stated by the teachers that the most important reason for not using smartboards in classroom is the fact that they do not know how to use these tools (**Korkmaz, O., & Cakil, I., 2013**).

HYPOTHESES related to OBJECTIVE NO.8

8.1 There is no significant difference in the attitude of students of CBSE and ICSE board students towards educational media at secondary school stage.

8.2 There is no significant difference in the attitude of boys and girls towards educational media of secondary school stage.

Findings and Discussion

1) Attitude of boys of CBSE Board is more favourable than that of boys of ICSE Board towards educational media at secondary school stage.

Most of the secondary school students have favourable attitude towards educational media. Research supporting this is by **Aytekin et. al.(2004)**, according to whom high percentages concentrated on that there are positive attitudes towards computer because of it being a tool to organize life efficiently. The secondary school students, in general, have more favourable attitude towards computer (**Mahmood, 2013**).

Attitude of Boys of CBSE board students is most favourable towards educational media at secondary school stage. It was found out in secondary education that the computer

attitude of girls seem to less positive than that of boys, girls and boys took on different tasks when working together on the computer and they tackled ICT tasks differently (Volman, M., et al.,2005). Studies conducted by Volman(2005) and Robertson(1985) found attitude of boys to be more favourable than girls towards any educational media. Contrary to this research conducted by Hamid(1977), Hamzah and Ahmad(2016) and Mahmood(2013) shows female students to have favourable attitude towards new instructional technology.

HYPOTHESES related to OBJECTIVE NO. 9

9.1 There is no significant difference in the utilization of educational media in CBSE and ICSE board school according to the students at secondary school stage.

9.2 There is no significant difference in the utilization of educational media according to boys and girls at secondary school stage.

Findings and Discussion:-

- 1) Usage of any type of educational media is more according to the boys as compared to girls at secondary school stage.
- 2) Usage of any type of educational media is more according to boys of CBSE board as compared to girls of CBSE board and Boys of ICSE board.

Since attitude of students of CBSE board is more favourable than those of ICSE boards the utilization of educational media was found to be more by the students of CBSE board as compared to students of ICSE board. It was also found that boys of CBSE board school have most favourable attitude hence utilization of educational media was found more by the boys as compared to girls. Boys are more found to be engaged in

online activities browsing sites on the internet hence they find learning through educational media interesting as compared to girls who have less interest in these activities. Girls still enjoy the traditional means of teaching.

Nouri and Shahid (2005) showed that PowerPoint may improve students' attitude towards instructor and class presentation. No significant difference in the attitude towards utility and significance of smart classes in relation to gender (**Singh, Garima, 2013**).

HYPOTHESES related to OBJECTIVE NO. 10

10.1 There is no significant difference in the extent of utilization of Overhead Projector and Computer in CBSE board schools according to the students at secondary school stage.

10.2 There is no significant difference in the extent of utilization of Computer and Smartclass in CBSE board schools according to the students at secondary school stage.

10.3 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in CBSE board schools according to the students at secondary school stage.

10.4 There is no significant difference in the extent of utilization of Overhead Projector and Computer in ICSE board schools according to the students at secondary school stage.

10.5 There is no significant difference in the extent of utilization of Computer and Smartclass in ICSE board schools according to the students at secondary school stage.

10.6 There is no significant difference in the extent of utilization of Smartclass and Overhead Projector in ICSE board schools according to the students at secondary school stage.

Findings and Discussion:-

- 1) Usage of Computer is more as compared to OHP according to the Students of secondary school stage.
- 2) Usage of Computer is more than the Smartclass according to the Students of secondary school stage.
- 3) Usage of OHP and Computer is more in CBSE board as compared to ICSE board according to students of secondary school stage.
- 4) Usage of Smartclass is more in ICSE board as compared to CBSE board according to students of secondary school stage.
- 5) Usage of Computer is more than Smartclass in CBSE board school according to students of secondary school stage.
- 6) Usage of Smartclass is more than computer in ICSE board school according to students of secondary school stage.
- 7) Usage of Smartclass is more as compared to OHP according to the Students of CBSE and ICSE board school at secondary school stage.

According to **Bartch and Cobern(2003)**, **Loury(1999)** and **Evan(1998)** students liked or preferred PowerPoint presentation better than overhead transparencies. **Szabo and**

Hastings (2000) conclude that the efficacy of using PowerPoint presentation was case specific rather than universal. **Blokzigi and Naeff (2004)** studied students' reaction to PowerPoint presentation as a tool for lectures and to lectures using PowerPoint instead of overhead transparencies. The students preferred PowerPoint over transparencies and liked the slides with large font sizes, unity in lay out and easy to view color contrasts. Regarding the attitude of students towards math and their comfort level towards technology, 100% of the students preferred using SMART Board and other forms of technology as opposed to traditional paper and pencil methods of instruction (**Clemens, A., Moore, T. and Nelson, B., 2001**)
