CHAPTER- 5

FINDINGS, EDUCATIONAL IMLICATIONS,

SUGGESTIONS FOR FURTHER RESEARCH AND CONCLUSION

The research was carried out to assess the techno-integrated teaching of college teachers. For this purpose, the researcher collected the primary data through checklists, questionnaire, interview and observation. The analysis process and the results and their interpretation were presented in chapter 4. On the basis of these results and interpretations, the major important findings of this research work are discussed as under.

Main findings

1. Technology availability

On the basis of quantitative research, the availability of technological resources necessary for teachers techno- integrated teaching were found insufficient. Neither the teachers possessed the sufficient technologies in person nor available in the colleges they are teaching. The qualitative research was in support of quantitative one also. The teachers responded lack of technological resources as an important barrier in their techno-integrated teaching. Moreover, the researcher observed that the technological resources available in the colleges were old, outdated and not functioning properly.

2. Technology usage

The quantitative data showed that teachers are not using the available technological resources frequently but very rarely. Mostly they are using projectors and very rarely they are using Google classrooms, smart classrooms and blogs. The teachers during interview responded that we use projectors, internet sources, e-content, whatsapp groups, smartphones , computers for our personal use and also sometimes for our teaching purposes.

3. Pedagogy usage

The teachers are mostly relying on lecture method of teaching. All the teachers were using lecture method regularly and the other methods like discussion , demonstration, buzz sessions, activity based were used by few teachers irregularly.

4. TPACK knowledge

The self assessed TPACK knowledge of teachers was found on average on a TPACK scale used by the researcher and showed no significant difference when compared in relation to their gender, locality, teaching position, teaching experience, teaching subject, academic qualifications and two divisions of Jammu and Kashmir. The qualitative data revealed the different picture that teachers are very much lacking in their TPACK knowledge. They are not competent enough in making the effective integration of the TK, PK & CK. Basically they are unaware about the latest digital technologies and pedagogies, so far away from techno-integrated teaching competency.

5. Lesson planning

The qualitative analysis revealed that teachers are properly or even no planning for the content they teach to their students. They simply think what to teach and go through its depth study well before the actual classroom teaching and deliver a lecture on it before their students in a classroom. They are not planning for effective pedagogies nor technology incorporation for content delivary. Basically the unawareness of pk and tk and lack of competency in the integration of tk,pk,ck is the main cause.

6. **Techno-integrated teaching**

The quantitative data i.e. the self-assessed scale showed that teachers are on average level as their TPACK knowledge is considered. But the researcher further explored the teachers TPACK knowledge through interview and observation methods and the data revealed that the teachers TPACK knowledge varies along a continuum from little or no knowledge to exceptionally good knowledge. Some teachers are not aware about more than lecture method and are wholly and solely relying on this method, while few teachers are about the different pedagogies but are very rarely employing other than lecture method. However, exceptionally very few have a sound pedagogical knowledge and are frequently using these pedagogies. Technological knowledge also followed the similar continuum, as some teachers are not aware about the latest technologies, some are limited to projectors only and few are aware about goggle classrooms, smart classrooms, virtual classrooms, Google cardboards, simulation and blogs, and very few about subject specific online teaching applications. Teachers are very much lacking in their techno-integrated teaching knowledge i.e. the integration of the three knowledge aspects.

7. Motivational factors

The important motivational factors explored by the researcher which encourage teachers to welcome new innovations are their updating, latest developments in their subject, student attentiveness and interest and taste in the classroom teaching.

8. Challenges

The important challenges that come forward in this study were insufficiency of resources, dearth of time, minimal awareness, minimal level of skill and competency, poor administrative support, threat of losing importance, teacher interest, attitude and confidence, poor ICT policies and digital illiteracy among learners.

9. Proposed model: At last, the researcher developed the suggestive theory and model which are primarily focusing on the effective and successful integration of technology in modern day teaching-learning process in Indian conditions.

Educational implications

Techno-integrated teaching is the dam need of our education system in contemporary world. Technology which is dominating every aspect of our life can't remain aloof from our classes today. However they are paving their effect on our teaching-learning process in one way or the other. But proper consideration of such an important factor can avail more benefits effectively. As teachers are playing a prominent role in every education system from all the times, so is the case of techno-integrated teaching. As the research work revealed that there is a lack of technological resources necessary for techno-integrated teaching, there is the responsibility for the concerned authorities' central and state governments to provide good financial resources to these colleges so they can manage them. A good portion of our GDP should be used for the quality of our education, so is the case of making these resources available to them. The teachers are lacking in pedagogical and technological knowledge and especially in their integration, skills, competency, so there is the requirement that authorities should manage training programs, workshops, conferences for the teachers exclusively meant for that purpose. Our policies regarding the use of ICT in institutions will be made strong enough which will take this important feature of 21st century teaching well importantly in their consideration and lay much emphasis on it. The training should be given to the administrators and heads of departments also so that they will encourage their teachers for the required purpose. There should be provisions incentives and awards for teachers who show some exceptionality in techno-integrated teaching competencies

National importance of the study

India is a second populace developing country in the world. Our educational system is a very big system of our country in which millions of people are connected directly or indirectly. The number of our learners, teachers and other administrative personnel counts a huge number. Engaging this huge number with the latest technologies is a sign of improving the growth and progress of our country and certainly the pace in development. 'Techno-integrated teaching will keep our teachers, learners and other personnel directly or indirectly related with our education system up to date, speed up with the leading nations, and make our teaching-learning process more fruitful and qualitative. While going through this study, the stakeholders especially the personnel connected with our educational system can find out the important dimension in which we are lacking for making the techno-integrated teaching more effective. As the study highlighted the issues like technology availability, its usage, teachers awareness, skill, competency, attitude, interest, their lesson planning, their actual classroom teaching, and their motivational and challenging factors related to the concept of techno-integrated teaching. Since techno-integrated teaching is our requirement at all levels of education and in every state, precisely in every classroom and from every teacher for every learner. The study is important as one can find here the important dimension where we are lacking and will take the necessary steps to address them, as the study has also provided the suggestions for their address.

Suggestions for further research

The present study explored the technology availability, technology usage, techno-integrated teaching knowledge of teachers and compared this knowledge in relation to their different demographic variables of gender, locality, teaching experience, teaching position, teaching subjects, educational qualifications and finally between teachers of Jammu and Kashmir division . Further the researcher explored the teachers lesson plans through in-depth interview of 10 teachers and their classroom observations to assess how teachers integrate technology in their teaching of students. Lastly, the researcher explored the important motivational factors teachers hold in the incorporation of technology dimension and the challenges they face while doing so. The researcher also provided some suggestions for the overcome of these challenges and for making the techno-integrated teaching more effective. Due to time constraint, the researcher limited the study to degree colleges of J&K only. The research can be extended to professional colleges and to different levels like primary, secondary and at university level. As techno-integrated teaching is the requirement of every classroom today. Further, the research can be extended to the teachers and other personnel who are expert in this field and exploring their special cases.

CONCLUSION

Technological evolution has revolutionized the whole world. Today we can't think of life sans technology. Every aspect of our life is highly affected by the latest digital technologies, education is of no exception. Our country has also taken several initiatives to introduce these ict in our teaching learning process. This study was designed to explore the latest concept of techno-integrated teaching among our teachers. For this purpose the researcher conducted a study in the degree colleges and selected a sample of 320 teachers . The researcher distributed in person the technology avaliabilty, usage and pedagogy usage checklist and TPACK questionnaire among the selected respondents and collected from them after they filled them. This was the quantitative data of my study. The researcher further extended the work by collecting the qualitative data from 10 teachers in the form of in depth interviews and their classroom observations. The analysis of the collected data revealed that there is a lack of technological facilities necessary for techno-integrated teaching either in person or in the colleges selected teachers are teaching. The researcher also observed that the available technologies in the colleges were old, outdated and not properly maintained. Also, colleges which are old established in urban areas proceed the colleges which are new and in rural and far flung areas. Further, the researcher found that the use of technologies like computers, laptops, internet, smart phones and Wi-Fi are used by teachers frequently for their personal use and also sometimes for the teaching purposes. However, the use of latest technologies like smart classrooms, google classrooms, blogs, online teaching, constructivism, simulation, google cardboards ,virtual classrooms, digital boards, interactive boards are used by the very small number of teachers and not frequently

but very rare. The researcher also observed that teachers are mostly using the projectors, PPT, showing of online YouTube videos and documentaries to their students related to their content taught or subject of teaching and sometimes for their general information and knowledge. The study then focused on the self-assessed TPACK knowledge of the teachers. The quantitative data showed that teachers hold average techno-integrated knowledge when their scores were compared with the standardized TPACK scale. The researcher then compared their techno-integrated teaching knowledge with their demographic variable of gender, locale. Teaching experiemce, teaching position, teaching subjects, educational qualifications and finally between teachers of Jammu and Kashmir division. The quantitative data revealed no significant variation exists in the seven aspects of TPACK among instructors in relation to gender, locale, and significant variations was found in the aspects of content and pedagogical understanding of teachers in refference to their teaching subjects, and significant differences were found in the TPK, TCK PCK and TPACK components with refference to their teaching experience, teaching positions and academic qualifications. No differences were found in all aspects of TPACK between the teachers of two divisions i.e. Jammu division and Kashmir division'. The qualitative data revealed that teachers are lacking in their techno-integrated teaching. Especially the pedagogical and technological knowledge and there integration with their good content knowledge is very little among the teachers. Teachers are mostly relying on the lecture methods and very rarely using the other pedagogies and technologies in their classroom teaching. The planning of lessons to teach is also lacking among the teachers. Teachers are mostly focusing on what to teach and very less on how to teach as they believe that there is only one way of teaching. However some teachers made efforts to improve their teaching methods as they are sometimes using the pedagogies like discussions, demonstrations, buzz

sessions, activity methods and role playing. Besides, these teachers are using the smart classrooms, Google classrooms, Google cardboards, simulations, blogs, online lessons, developed the e-content for their teaching subjects, subject specific teaching applications like Geogebra, Photomath, Newtonium etc. The researcher further explored the motivational factors encouraging the teachers to teach accordingly, the replied the factors of to remain up to date, access to online resources, latest developments, classroom attentiveness , interest among learners, 21st century skills etc. The researcher further explored the challenges teachers face in making their teaching more techno-integrated. The teachers responded that scarcity of technological resources, insufficiency of time, dearth of awareness, skill and competency of pedagogies and techno-integrated teaching, poor administrative support, fear of losing their importance and lack of interest. The researcher finally provided some remedial measures for making the techno-integrated teaching more effective These are providing sufficient resources, sound financial support, increasing GDP % in education, staff for the proper maintenance of equipments, training for teachers, administrative support, rewards and incentives, help from NGOs , permanent job positions and digital literacy among the learners. The learning process when integrated with technology is the dire need of today. Conventional classroom teaching in itself is not sufficient to achieve the goals of teaching-learning. When the question arises to educate a generation which is living a lifestyle full of use or misuse of various gadgets, technology can't be overlooked. The facebook generation is exposed to vast information which needs to be sensitized, managed and diverted in right direction. Vast exposure of knowledge through a click of the cursor or tap of a finger impinge on the scope and extent of students learning, this is where good and effective teaching should come into play. Effective teaching activates and motivates the learners to effective learning , here ICT proves to be a

powerful tool in providing learning environments which comprises of improved access to education , flexible modes of content presentation & delivery , interactive learning skills, collaborative communicative and co-operative process of teaching – learning.