



ISSN 2278 – 0211 (Online)

Utilization of E-Content among Teacher Educators

K. Sumathirai

Ph.D. Scholar, Karpagam University, Coimbatore, Tamil Nadu, India

Dr. R. Ravi

Principal, R.V.S College of Education, Coimbatore, Tamil Nadu, India

Abstract:

E-content is defined as providing information in digital form which is viewed on screen not on paper. The use of technology in education provides the students with a more suitable environment to learn, create interest and helps to increase the student motivation. Thus it is the innovative way of assessment focused on main key skills: knowledge acquisition, knowledge imparting, knowledge creation, and knowledge sharing. Smart class is implemented in Schools with the provision of digital content mapped to school syllabus. E-content used in education can be from a number of sources: e journals, e books, e-research reports, e-lecture modules, e-lecture slides etc. Knowledge of e-content class and skill to use in teaching learning has gained immense importance for today's teachers. The study explored the level of utilization of e-content among Teacher Educators of Coimbatore region. The samples of 284 teacher educators were involved in the present study. The survey research design was used. The tool was constructed by the investigators. The collected data were analyzed by descriptive analysis through the Statistical Package for Social Science (SPSS). The findings indicated that, that majority of them (64%) of the selected teacher educators are utilizing e-Resources occasionally.

Keywords: Utilization, E-content and Teacher Educators.

1. Introduction

Education is a social process that is aimed towards the individual development. Classrooms are embedded in the knowledge center and are equipped with a state of the art Digital Teaching System (DTS) comprising a highly versatile interactive white board and a sophisticated projective system. Teachers access the digital content in their classrooms on everyday basis to explain the concepts with the help of animations, graphics and video. Smart class can provide a large repository of 3D animated modules and videos mapped to school curriculum. Use of all forms of technology to help the teaching learning processes in schools will pave the way for enriched learning of children in school. This also serves as a base for improvement of quality school education (Saratkumar Rout and Manas Ranjan Panigrahi, 2004). Nelson (2006) suggests that students synthesize and create new meanings when they combine visual images and text, for example, digital storytelling activities. To be effective in the classroom instruction, teacher-educators should acquire the knowledge and skills to use the new challenges in promoting innovative teaching strategies that are student-centered, collaborative, engaging, authentic, self directed and based on the development of higher order thinking skills with respect to handling classes for student-teachers which aim to achieve high academic standards (Anandan and Gopal, 2011).

2. Literature Review

Naijars (1996) indicates that there is a time savings of 36% when CAI is used in the classroom. Rochowicz (1996) and Funkhouser (1993) found that students of Mathematics courses were more motivated, self-confident, and joyful and the subject became more meaningful with CAI. Meera (2000) concluded that (1) different modes of computer-based instruction, viz, Drill; Practice and Simulation were more effective than conventional lecture method in realizing the instructional objectives in Biology at Class XI. A survey of Massachusetts teachers (Russell, Bebell, O'Dwyer, and O'Connor, 2003) found new teachers to be more comfortable with technology. A study of pre-service student teachers and Veteran teachers (Williams and Kingham, 2003) revealed that veteran teachers demonstrated very little use of technology in their subject areas. Suwanna Ruttanathummatee (2004) has investigated the development of CAI package on Thai Language is effective and received favorable opinion both by the teachers and students. Hiral Kumar M Barot (2005) has developed CAI package in Sanskrit which was found effective in teaching Sanskrit to VIII std. students. The reactions of the students towards the developed CAI in Sanskrit were found positive. Gunderson (2009) found video recordings helpful for pre-lab tutorials on the use of SPSS for her statistics Course. Meenu (2006) found that the ETV lessons in Mathematics and EVS (SC and SS) taught to students of both class III and V significantly improved in their learning achievement as compared to their counterparts who taught through traditional method. Ramalingam, Ranch (2007) has revealed that the micro teaching sessions conducted through video in the orientation courses were very effective. Singaravelu (2010) concluded that gain scores of the

Multimedia Assisted Teaching in understanding the pedagogical technique is (58%) where as conventional method is (8.2%) only and Multimedia Assisted Teaching proves more impact when compared to conventional method. LeelaGnanalet and RamaKrishnan (2010) investigated the effectiveness of the computer multimedia assisted teaching of environmental education at secondary level shown that the students learning through Multimedia Programme was found to be better than the students learning through the conventional method of teaching. Thorat *et. al.*, (2010) investigated the Video Conferencing with CAI for Better Impact on Training and Education. Soon, we will see changes in educational systems and students and teachers like will be taking advantage of the affordances, of web 2.0 tools to learn together and connect to others around the world (Cheri Toledo and Mary friend Shepard, 2011). Abdul-Salaam Aminat Obakhume (2011) concluded that ICT facilities are not readily available in our secondary school and there is low level of ICT utilization in our secondary schools. The study revealed that most teachers lack the basic skill to use the computer and other ICT devices. Prince Hycy Bull Shayla Adams (2012) has conducted sessions in learning technologies and Tweeting in a high school social studies class. Findings show that the use of Twitter promoted student's creativity, fun and engaged them in meaningful learning activities inside and outside of the classroom. Abraham Oomen (2012) has described the teachers English as a global language in smart classrooms with Power Point presentation. Almost all the learners responded positively towards the idea of using PowerPoint in English language classroom. The most important of all, it is hoped that the study could raise the awareness of PowerPoint presentation as a powerful pedagogical tool in the English classroom instruction, among language teachers, instructors, lecturers and educators. Dinesh Kumar and Amit Singh (2013) aptly said by using the modern technologies in classroom the teacher enjoyed a different experience of teaching students interactively and also enjoy the smooth working. One can take advantage of available information and knowledge, only if he can manage and understand how the technology works.

Rachael Folashade Aina (2014) found that information awareness of electronic resources among lectures in BBS was inadequate. The web 2.0 is like web of contributing, collaborating and creating. It has provided opportunities for teachers to explore out of the classroom teaching methods for students to indulge in collaborative learning. The students lacked much knowledge of what virtual learning entails and the benefits to their curriculum offerings. They are not likely to highly engage in virtual learning to enrich their course Curriculum (Olibie *et. al.* 2014). Velmurugan, C (2009) found that 26.67% and 21.90% were the most used e-Journals and e-Books followed by the use of e-Database 15.24%, e-thesis and Dissertations 13.33%; E-Magazines 12.38% and only 10.48% responses indicate the use of all e-resources used by the respondents. Hsiu-Ping *et. al.*, (2015) analyzed students through an extension of the Unified Theory of Acceptance and Use of Technology (UTAUT) and Structural Equation Model (SEM) and confirmed that factors of social influence have direct and significant effects on student's actual usage of Wiki system.

3. Research Design

Since the major objective of the present study is to find out the utilization on e-Content among teacher educators, it requires adopting survey method. The data were collected from 284 teacher educators from various colleges of education at Coimbatore region using the utilization of e-Content Questionnaire developed by the investigators. Thus the collected data were analyzed using descriptive statistical methods.

4. Analysis and Interpretation

The collected data were screened and grouped for verifying the hypotheses proposed for this study. Statistics is an indispensable tool for researchers that enable them to analyze and to make inferences or generalizations from the observations of the characteristics of samples. In the present study the descriptive analyses like Frequency and Percentage were employed to analyze the data with the help of SPSS. The results and interpretation were tabulated and presented as follows.

5. Percentage Analysis of Utilization of e-Content

| Sl. No. | Item No. | Most Frequently | | Frequently | | Occasionally | | Rarely | | Never | |
|----------------|---|-----------------|-----------|------------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 01 | I could not use e-content for effective Classroom Instruction | 60 | 21 | 56 | 20 | 68 | 24 | 60 | 21 | 40 | 14 |
| 02 | I employ e-content to disseminate the subject-content easily | 58 | 20 | 58 | 20 | 41 | 14 | 78 | 28 | 49 | 17 |
| 03 | I exercise e-content to have better group discussion | 44 | 16 | 60 | 21 | 63 | 22 | 80 | 28 | 37 | 13 |
| 04 | While I am using e-content, I need a skilled person to operate it | 55 | 19 | 50 | 18 | 70 | 25 | 62 | 22 | 47 | 17 |
| 05 | I make use of e-content to gather enormous amount of related information | 53 | 19 | 40 | 14 | 70 | 25 | 72 | 25 | 49 | 17 |
| 06 | I can make use of e-content to disseminate information of the subject to the student-teachers | 49 | 17 | 54 | 19 | 72 | 25 | 68 | 24 | 41 | 14 |
| 07 | I have the ability to download and use e-content for my classes | 51 | 18 | 40 | 14 | 61 | 22 | 88 | 31 | 44 | 16 |
| Average | | 53 | 19 | 51 | 18 | 64 | 22 | 73 | 26 | 44 | 15 |

Table 1: Number and Percentage of Utilization of e-Content (factor Attitude on e-Content) among the selected teacher educators.

The above table presents the Number and Percentage of Utilization of e-Content (factor Attitude on e-Content) among the selected teacher educators. According to the table,

- 19% of the selected teacher educators are utilizing e-Content most frequently
- 18% of them are using frequently,
- 22% of them are using occasionally,
- 26% of them are using rarely and
- Only 15% of the selected teacher educators are never utilizing e-Content.

Finally, it is concluded that 85% of the selected teacher educators are utilizing e-Content at various levels like most frequently, frequently, occasionally and rarely but majority of the them i.e., 64% of the selected teacher educators are utilizing e-Resources occasionally.

| Sl. No. | Item No. | Most Frequently | | Frequently | | Occasionally | | Rarely | | Never | |
|----------------|---|-----------------|-----------|------------|-----------|--------------|-----------|-----------|-----------|-----------|----------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 01 | I utilize e-content for multi-sensory learning experience among Student-teachers | 67 | 24 | 103 | 36 | 70 | 25 | 30 | 11 | 14 | 5 |
| 02 | I make use of e-content to keep the Student-teachers attentive in the classroom situation | 78 | 28 | 113 | 40 | 60 | 21 | 27 | 10 | 6 | 2 |
| 03 | I apply e-content to enhance the understanding level in teaching | 78 | 28 | 99 | 35 | 68 | 24 | 29 | 10 | 10 | 4 |
| 04 | I make use of e-content to conduct discussion forum at any time any where | 86 | 30 | 94 | 33 | 65 | 30 | 30 | 11 | 9 | 3 |
| 05 | I cannot use of e-content for Interactive session | 64 | 23 | 114 | 40 | 67 | 24 | 27 | 10 | 12 | 4 |
| 06 | While I am using e-content, it is so difficult for me to make Student-teachers attentive | 61 | 22 | 111 | 39 | 72 | 25 | 31 | 11 | 9 | 3 |
| 07 | I use e-content on various subjects for clarity in understanding | 79 | 28 | 94 | 33 | 72 | 25 | 29 | 10 | 10 | 4 |
| 08 | I am using of e-content for learning with clear understanding | 73 | 26 | 106 | 37 | 68 | 24 | 24 | 9 | 13 | 5 |
| Average | | 73 | 26 | 104 | 37 | 68 | 25 | 28 | 10 | 10 | 4 |

Table 2: Number and Percentage of Utilization of e-Content (factor Classroom Transaction) among the selected teacher educators.

The above table presents the Number and Percentage of Utilization of e-Content (factor Classroom Transaction) among the selected teacher educators. According to the table,

- 26% of the selected teacher educators are utilizing e-Content most frequently
- 37% of them are using frequently,
- 25% of them are using occasionally,
- 10% of them are using rarely and
- Only 4% of the selected teacher educators are never utilizing e-Content.

Finally, it is concluded that 96% of the selected teacher educators are utilizing e-Content at various levels like most frequently, frequently, occasionally and rarely but majority of the them i.e., 37% of the selected teacher educators are utilizing e-Resources frequently.

| Sl. No. | Item No. | Most Frequently | | Frequently | | Occasionally | | Rarely | | Never | |
|----------------|---|-----------------|-----------|------------|-----------|--------------|-----------|-----------|-----------|-----------|----------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 01 | I employ CAI to facilitate the Student-teachers for analyzing the subject-content in their learning process | 69 | 24 | 108 | 38 | 68 | 24 | 29 | 10 | 10 | 4 |
| 02 | To get immediate response from the Student-teachers, when I utilize CAI in the Classroom | 72 | 25 | 96 | 34 | 68 | 24 | 39 | 14 | 9 | 3 |
| 03 | I make use of CAI to evaluate the performance of the Student-teachers in their learning | 66 | 23 | 87 | 31 | 79 | 28 | 31 | 11 | 21 | 7 |
| 04 | I make use of CAI in Classroom teaching to improve the performance of the slow learners in their learning process | 71 | 25 | 101 | 36 | 77 | 27 | 27 | 10 | 8 | 3 |
| 05 | I cannot use e-content for demonstration purpose | 83 | 29 | 103 | 36 | 58 | 20 | 29 | 10 | 11 | 4 |
| 06 | I employ e-content to acquire world-wide knowledge related to specific concepts of the subject | 107 | 38 | 113 | 40 | 50 | 18 | 10 | 4 | 4 | 1 |
| 07 | I employ e-content only for high achievers | 72 | 25 | 131 | 46 | 56 | 20 | 18 | 6 | 7 | 3 |
| 08 | When I am using e-content student-teachers are more enthusiastic in learning | 86 | 30 | 90 | 32 | 66 | 23 | 33 | 12 | 9 | 3 |
| 09 | I utilize CAI only for high performing Student-Teachers | 82 | 30 | 97 | 34 | 53 | 19 | 26 | 9 | 26 | 9 |
| Average | | 79 | 28 | 103 | 36 | 64 | 23 | 27 | 10 | 12 | 4 |

Table 3: Number and Percentage of Utilization of e-Content (factor Cognitive Enhancement) among the selected teacher educators.

The above table presents the Number and Percentage of Utilization of e-Content (factor Cognitive Enhancement) among the selected teacher educators. According to the table,

- 28% of the selected teacher educators are utilizing e-Content most frequently
- 36% of them are using frequently,
- 23% of them are using occasionally,
- 10% of them are using rarely and
- Only 4% of the selected teacher educators are never utilizing e-Content.

Finally, it is concluded that 96% of the selected teacher educators are utilizing e-Content at various levels like most frequently, frequently, occasionally and rarely but majority of the them i.e., 36% of the selected teacher educators are utilizing e-Resources frequently.

| Sl. No. | Item No. | Most Frequently | | Frequently | | Occasionally | | Rarely | | Never | |
|----------------|---|-----------------|-----------|------------|-----------|--------------|-----------|-----------|----------|-----------|----------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 01 | I am able to make the student-teachers more attentive in the classroom with the help of VAI | 109 | 38 | 128 | 45 | 37 | 13 | 5 | 2 | 5 | 2 |
| 02 | I employ VAI to deliver the content effectively | 81 | 29 | 112 | 39 | 67 | 24 | 17 | 6 | 7 | 3 |
| 03 | I apply VAI to demonstrate the visual concepts more effectively | 91 | 32 | 102 | 36 | 68 | 24 | 16 | 6 | 7 | 3 |
| 04 | I make use of VAI to practice different Micro-teaching skills for Student-teachers | 81 | 29 | 110 | 39 | 58 | 20 | 23 | 8 | 12 | 4 |
| 05 | I am able to employ VAI to understand the difficult concepts so easily | 79 | 28 | 111 | 39 | 64 | 23 | 20 | 7 | 10 | 4 |
| 06 | I employ various modes of CAI for Student-Teachers to attain mastery in their subject | 103 | 36 | 112 | 39 | 54 | 19 | 10 | 4 | 5 | 2 |
| 07 | I apply e-content for effective participation of the Student-teachers in the Classroom | 71 | 25 | 88 | 31 | 75 | 26 | 34 | 12 | 16 | 7 |
| 08 | I make use of e-content to make the student-teachers to learn at their own pace | 77 | 27 | 103 | 36 | 68 | 24 | 22 | 8 | 14 | 5 |
| Average | | 87 | 31 | 108 | 38 | 61 | 22 | 18 | 7 | 10 | 4 |

Table 4: Number and Percentage of Utilization of e-Content (factor Media Selection) among the selected teacher educators.

The above table presents the Number and Percentage of Utilization of e-Content (factor Media Selection) among the selected teacher educators. According to the table,

- 31% of the selected teacher educators are utilizing e-Content most frequently

- 38% of them are using frequently,
- 22% of them are using occasionally,
- 7% of them are using rarely and
- Only 4% of the selected teacher educators are never utilizing e-Content.

Finally, it is concluded that 96% of the selected teacher educators are utilizing e-Content at various levels like most frequently, frequently, occasionally and rarely but majority of the them i.e., 38% of the selected teacher educators are utilizing e-Resources frequently.

| Sl. No. | Item No. | Most Frequently | | Frequently | | Occasionally | | Rarely | | Never | |
|----------------|---|-----------------|-----------|------------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 01 | VAI affects the normal classroom interaction when I utilize it | 52 | 18 | 48 | 17 | 59 | 21 | 87 | 31 | 38 | 13 |
| 02 | It is difficult for me to project VAI for classroom instruction | 57 | 20 | 63 | 22 | 62 | 22 | 63 | 22 | 39 | 14 |
| 03 | I feel that CAI may dislocate the Teacher-educators from the classroom teaching | 48 | 17 | 43 | 15 | 62 | 22 | 78 | 28 | 53 | 19 |
| 04 | I find it so difficult to teach through CAI | 53 | 19 | 85 | 30 | 72 | 25 | 31 | 11 | 43 | 15 |
| 05 | I employ CAI to provide easy understanding of the subject | 62 | 22 | 54 | 19 | 53 | 19 | 76 | 27 | 39 | 14 |
| 06 | I cannot utilize e-content for larger group of pupils in the discussion | 74 | 26 | 99 | 35 | 70 | 25 | 26 | 9 | 15 | 5 |
| Average | | 58 | 20 | 65 | 23 | 63 | 22 | 60 | 21 | 39 | 13 |

Table 5: Number and Percentage of Utilization of e-Content (factor Perception on e-Content) among the selected teacher educators.

The above table presents the Number and Percentage of Utilization of e-Content (factor Perception on e-Content) among the selected teacher educators. According to the table,

- 20% of the selected teacher educators are utilizing e-Content most frequently
- 23% of them are using frequently,
- 22% of them are using occasionally,
- 21% of them are using rarely and
- Only 13% of the selected teacher educators are never utilizing e-Content.

Finally, it is concluded that 87% of the selected teacher educators are utilizing e-Content at various levels like most frequently, frequently, occasionally and rarely but majority of the them i.e., 23% of the selected teacher educators are utilizing e-Resources frequently.

6. Results

Majority of them (64% of the selected teacher educators) are utilizing e-Resources occasionally in Attitude on e-Content.

Majority of them (37% of the selected teacher educators) are utilizing e-Resources frequently in Classroom Transaction on e-Content.

Majority of them (36% of the selected teacher educators) are utilizing e-Resources frequently in Cognitive Enhancement on e-Content.

Majority of them (38% of the selected teacher educators) are utilizing e-Resources frequently in Media Selection on e-Content.

Majority of them (23% of the selected teacher educators) are utilizing e-Resources frequently in Perception on e-Content.

7. Discussion

Regarding the Attitude on e-Content, the present study concluded that majority of them (64%) of the selected teacher educators are utilizing e-Resources occasionally. Similar to the current study, information awareness of electronic resources among lectures in BBS was inadequate (Rachael FolashadeAina (2014); A study of pre-service student teachers and veteran teachers (Williams and Kingham, 2003) revealed that veteran teachers demonstrated very little use of technology in their subject areas. Dissimilar to this, CAI increased the positive attitudes of students toward learning (Kulik (1994); favorable opinion formed both by the teachers and students (Suwanna Ruttanathummatee (2004); A survey of Massachusetts teachers (Russell, Bebell, O'Dwyer, and O'Connor, 2003) found new teachers to be more comfortable with technology.

Regarding the Classroom Transaction on e-Content, the present study concluded that majority of them i.e., 37% of the selected teacher educators are utilizing e-Resources frequently. Similar to this, Multimedia Assisted Teaching proves more impact (Singaravelu (2010), Multimedia Programme was found to be better (Leela Gnaalet and Rama Krishnan (2010), PowerPoint presentation as a powerful pedagogical tool (Abraham Oomen (2012); time savings of 36% (Naijar's (1996), Drill; Practice and simulation were more effective (Meera (2000), Hiral Kumar M. Barot (2005), significantly improved their learning achievement (Meenu (2006) and

Gunderson (2009) found video recordings helpful for pre-lab tutorials on the use of SPSS for her statistics Course. Ramalingam, Ranch (2007) has revealed that the micro teaching sessions conducted through video in the orientation courses were very effective. Thorat, *et. al.*, (2010) investigated the Video Conferencing with CAI for Better Impact on Training and Education. Using the modern technologies in classroom we enjoy a different experience is of teaching students interactively (Dinesh Kumar and Amit Singh (2013). In contrast to present finding, ICT facilities are not readily available in our secondary school and there is a low level of ICT utilization in our secondary schools, most teachers lack the basic skill to use the computer and other ICT devices (Abdul-Salaam Aminat Obakhume (2011).

Regarding the Cognitive Enhancement on e-Content, the present study concluded that majority of them i.e., 36% of the selected teacher educators are utilizing e-Resources frequently. This is related to the previous study, that is more motivated, self-confident, joyful and the subject became more meaningful (Rochowicz (1996) and Funkhouser (1993), Use of Twitter promoted student's creativity, fun and engaged them in meaningful learning activities inside and outside of the classroom (Prince Hycy Bull Shayla Adams (2012).

Regarding the Media Selection on e-Content, the present study concluded that majority of them i.e., 38% of the selected teacher educators are utilizing e-Resources frequently. Velmurugan, C (2009) found that 26.67% and 21.90% were the most used e-journals and e-books and followed by use of e-database, 15.24%, e-thesis and Dissertations 13.33%, e-magazines and only 10.48% responses indicate the use of all e-resources used by the respondents. In contrast to this, respondents are not likely to highly engage in virtual learning to enrich their course Curriculum (Olibie *et. al.* 2014).

Regarding the Perception on e-Content, the present study concluded that majority of them i.e., 23% of the selected teacher educators are utilizing e-Resources frequently. Hsiu-Ping (2015) analyzed students through an extension of the Unified Theory of Acceptance and Use of Technology (UTAUT) and Structural Equation Model (SEM) confirmed that factors of social influence have direct and significant effects on student's actual usage of Wiki system. Soon, changes in educational systems, students and teachers will be taking advantage of the affordances, of web 2.0 tools to learn together and connect to others around the world (Cheri Toledo and Mary friend Shepard, 2011).

8. Conclusion

Regarding the Attitude on e-Content, the present study concluded that majority of them (64%) of the selected teacher educators are utilizing e-resources occasionally. This is not adequate usage of e-resources which are available in enormous volumes. Based on the study the following recommendations were made, like Orientation programmes for teachers should be given by Universities and Colleges. Internet time should be allotted more for e-content utilization and infrastructure facilities should be strengthened by Institutions.

9. References

- i. Abdul-Salaam Aminat Obakhume (2011) Assessment of School Teachers' Use of Information and Communication. Journal of Educational and Social Research, Vol.1(4):131-136.
- ii. Abraham Oommen (2012) Teaching English as a Global Language in Smart Classrooms with PowerPoint Presentation, English Language Teaching; Canadian Centre of Science and Education. Vol.5 (12)
- iii. Anandan.K and Gopal.B.V (2011) Information and Communication Technology in Classroom Instruction, Edutracks, Vol.11(1):9-10.
- iv. Cheri Toledo and Maryfriend Shepard (2011) K-12 student use of web 2.0 Tools: A Global study. Journal on School Educational Technology, Vol. 7 (2):20 to 29.
- v. Dinesh kumar and Amit Singh (2013) "Computer Technology as an Interactive Teaching System A New Trend in Education". Edutracks, Vol.12(5):15-18.
- vi. Funkhouser, C. (1993) The influence of Problem Solving Software on Student Attitudes about Mathematics. Journal of Research on Computing in Education. 25(3): 339-346.
- vii. Gunderson, B. (2009). Statistics Video Wrappers: Moving It Out of the Class Room with Prelabs, CAUSEWEB: Teaching and Learning WebnerSereis
- viii. Hiral Kumar M Barot (2005) A Study of the Effectiveness of CAI in Sanskrit for Std. VIII Students. Case Study, MSU, Baroda.
- ix. Hsiu-Ping Yueh., Jo-Yi Huang., and Chueh Chang. (2015) Exploring Factors affecting Students' continued Wiki use for Individual and Collaborative Learning: An Extended UTAUT Perspective, Australian Journal of Educational Technology, Vol.31(1):16-31.
- x. Kulik, J. (1994) Meta Analytic Studies of findings on Computer Based Instruction. In Baker, E.L., and O'Neil, H.F.Jr (Eds), Technology Assessment in Education and Training, Hillsdale, N.J: Lawrence Erlbaum.
- xi. LeelaGnanalet, S and Ramakrishnan K.S. (2010) Effectiveness of Multimedia Programme in Teaching Environmental Education-A study. Research and Reflections on Education. Vol. 8(3) 9-11.
- xii. Meenu (2006) Utilization and Effectiveness of Educational Television Programmes at Primary School Level, Indian Educational Review, Vol. 41(1): 79-89.
- xiii. Meera, S (2000) Relative Effectiveness among different modes of Computer-Based Instruction in relation to Students' Personality Traits. Ph.D., Educational Technology, Bharathiar University, Coimbatore, India.

- xiv. Naijar, L.J. (1996) Multimedia Information and Learning. *Journal of Educational Multimedia and Hypermedia*, 129-150.
- xv. Nelson, M.E. (2006) Mode, Meaning and Synaesthesia in Multimedia L2 Writers, *Language Learning and Technology*, 10(2): 56-76.
- xvi. Olibie, Eyiuche, Ifeoma, Ezoem, MarithaNnoyelum andEKene, Ugochukw Stella (2014) Awareness of Virtual Learning among students of two Nigerian Universities: Curriculum Implications. *International Journal of Development and Economic Sustainability* Vol. 2(1):48-62.
- xvii. Prince Hycy Bull and Shayla Adams (2012) Learning Technologies: Tweeting in a High School Social Studies Class. *Journal of Educational Technology*, Vol. 8(4):26-33.
- xviii. Rochowicz, J. A. R. (1996) The Impact of using Computers and Calculators in Calculus Instruction. *Journal of Computers in Mathematics and Science Teaching*, 15:423-435.
- xix. Russell, M., D. Bebell, L. O'Dwyer, and K. O'Connor. (2003) Examining teacher technology use: Implications for pre-service and in-service teacher preparation. *Journal of Teacher Education* 54(4):297-310.
- xx. Ramalingam, Ranch (2007) Impact of Video Recorded Microteaching in the Professional Development of Teachers. *Journal of Technical and Vocational Education*, Chennai, Vol. 24(1):37-48.
- xxi. Rachael FolashadeAina (2014) Awareness and Accessibility and Use of Electronic Databases among Academic Staff of Babcock University Business School, Kuwait Chapter of *Arabian Journal of Business and Management Review*, Vol. 3(6):40-47.
- xxii. Sarat Kumar Rout and Manas Ranjan Panigrahi (2004) Multimedia Centre: Tapping Potential for quality school education. *The primary Teacher*, Vol. 24(3-4):43-49.
- xxiii. Singaravelu.G (2010) Multimedia Assisted Teaching in Pedagogical Technique. *Journal of Educational Research and Extension*. Vol. 47(2):39-47.
- xxiv. Suwanna Ruttanathummatee (2004) Effectiveness of Computer Assisted Instruction for Primary School Students: An experimental Study. South Gujarat University, Surat, India.
- xxv. Thorat, S.B, Kalyankar, N.V, Nayak, S.K and Bokare, M.M. (2010) Video conferencing with CAI for better impact on training and education: An Indian scenario. *Proceedings of the World Congress on Engineering and Computer Science* Vol.1(1)1-22, San Francisco, USA.
- xxvi. Velmurugan, C (2009). Awareness and Utilization of E-Resources by Faculty members with special reference to an Engineering College, Chennai, Tamil Nadu, India- A Case Study pp1-10