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Perceptions on Multimedia technology by College of Education Teachers

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Abstract
Multimedia means, combination of text, audio, still images, animation, video and interactivity content forms delivered electronically. E-learning is a process and e-content is a product. The objectives of the study are to find out the significant relationship between the college of education teachers' perception towards multimedia technology on the basis of gender wise, locality wise, marital wise, subject wise, technical skill wise, experience wise and possessing degree wise. Evaluation of Multimedia Perception scale (EMPS) developed by the investigator with a reliability of 0.89 and it collected 350 teachers from Tamil Nadu State of Indian Context. From the analysis, there are no significant differences between the perceptions of multimedia technology in terms of gender, locality and marital status. The same perception was rejected on the basis of subject, technical skills, higher degree level and their experiences. The quality of learning depends not only on the form of how the process is carried out but also on what content is taught and how the content is presented.

Keywords: Multimedia, Perception, Teacher Education

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Introduction

For the past fifteen years computers have been used increasingly for teaching and learning in educational institutions in India. Due to the recent norms by Government of Tamil Nadu in the SMART board classrooms; the classrooms are filled with LCD (Liquid Crystal Display) projectors, Multimedia devices; interactive white boards; laptops; wireless technology and internet access etc., The school teachers were getting in-service training by the relevant field experts. So, the colleges of education institutions were needs to develop their level in the method of teacher training. Due to the awareness of multimedia and their perceptions towards the multimedia in their classroom, the study was estimated in the college of education level. Because the teacher educators are the role model of student teacher and the today's student teachers are the tomorrow's regular teachers in Indian classrooms.

Information technology and the Internet are major drivers of research, innovation, growth and social change. The growth in Internet has brought changes in all walks of life including the education. Multimedia includes all kinds of content created and delivered through various electronic media from 'old media' such as print and radio to the increasingly sophisticated electronic tools with combination of sounds, images and text. The development of multimedia consists of six phases' viz., analysis, design, development, testing, implementation and evaluation. Each and every multimedia package consists of meaningful information, active participation of the learner, references, blogs, frequently asked questions (FAQs), immediate feedback with MCQ (multiple choice questions) and other links.

Modern technology has enabled the non-speaking to speak, the non-hearing to hear and the non-seeing to see. In a developing country like India, E-learning concept is an emerging opportunity to meet the educational desires of the millions of youth with universal quality educational materials. Multimedia is media and content that uses a combination of different media content forms.

Multimedia means, combination of text, audio, still images, animation, video and interactivity content forms delivered electronically. In India, this concept was started in 1993. The multimedia programmes use different features which make the learning or teaching process effective and unique. The features include video/audio, text, quiz, case study, reference material, frequently asked questions (FAQs), etc, which help to teach the subject effectively (Nachimuthu, 2012). A multimedia content can have a strong effect on our mind and senses. The attraction of multi media videos extends to movies, TV programs, commercials, and music videos. Numerous studies in specific areas such as teacher education have produced significant results favouring videos (Borko & Pitman, 2008); computer-assisted video learning (Vijayakumari, 2009); and powerful emotional effects (Moreno & Mayer, 2004) and using of clear recorded clips (Kenneth Kobre, 2012).

e-learning is a process and e-content is a product. A multimedia e-content package can be used as a teacher in the virtual classroom situations. The quality of learning depends not only on the form of how the process is carried out but also on what content is taught and how the content is presented.

Towards satellite based solutions

India is one of the major countries across the world to realise the potential of satellite based technologies for education. The Department of Space, Government of India, has made huge investments for the launch of EduSat, a dedicated satellite, solely available for education and development. The satellite has been specially designed to use interactive satellite terminals, create virtual classrooms, develop mechanisms for video on demand and to create effective mechanisms for teaching and training at remote locations. This capability has facilitated one national level network and five regional/state level networks in the country in Ku-band. Rajiv Gandhi Project for EduSat Supported Elementary Education (RGPEEE) which is on the national beam of EduSat in Ku band is a major venture of Ministry of Human Resource Development (MHRD), Indian Space Research Organization (ISRO) and Indira Gandhi National Open University (IGNOU), New Delhi and governments of seven Hindi speaking states in India, namely Madhya Pradesh, Chhattisgarh, Uttaranchal, Uttar Pradesh, Bihar, Jharkhand and Rajasthan. (DLR, 2012).

Started in December 2005 the Project has now in 2012, it is expanded to 7 different states in India where Hindi is the link language with 1082 Receive Only Terminals (ROTs) and 33 Satellite Interactive Terminals (SITs) in different parts of the country. The major idea related to this project is Information and communication technology (ICT) can be a viable means to link the urban centred institutions with the rural schools; and the teachers have to be identified from the grassroots and their capacities have to be built up for development of such interactive lessons through multimedia. e-learning is a process and e-content is a product. A multimedia e-content package can be used as a teacher in the virtual classroom situations.

Objectives & hypothesis of the study

The objectives of the study are to find out the significant relationship between the college of education teachers' perception towards multimedia technology on the basis of gender wise, locality wise, marital wise, subject wise, technical skill wise, experience wise and possessing degree wise. The hypothesis of the study are, there is no significant relationship between the college of education teachers' perception towards multimedia technology in relation to the demographic variables such as gender, locality, marital status, subjectivity, technical skills, possessing degree and their experience.

Tools for the study

Evaluation of Multimedia Perception scale (EMPS): is a collection of forty six statements developed by the investigator about the multimedia concepts, utility of multimedia, classroom experiences by the multimedia and also the scale enquired the college area (rural/ urban); teacher's gender (male/female); teaching experiences (below five yeas/ above it); and technology training level (attended / non-attended) with four point scale. The forty six statements developed were given to five educational Professors; two in education department and two in psychology department and one in educational technology department. These experts were asked to indicate whether they agreed or disagreed with the classification of items under the multimedia emphases. The six irrelevant statements were deleted as a result of their suggestions. Then the final tool consists of forty statements as four point scale and it distributed to ten teachers as pilot study.

Due to the recommendations of the experts and the suggestions of the pilot study, also the Karl-Pearson co-relation co-efficient was calculated and then Spearman-Brown formula was used to find out the reliability and it was 0.89 obtained to reach the tool good enough for the study. Among them 20 were positive and 20 were negative statements. The scale consists of four point scale ranging from strongly agree to strongly disagree (See Appendix –A).

Sample of the Study

Explorative method was adopted with the purposive random sampling size of teachers. The sampling area consisted of fifty College of Education institutions at Namakkal, Salem and Erode district of Tamil Nadu State of Indian Country affiliated by Tamil Nadu Teacher Education University, Chenni. And the teachers working in College of Education in Tamil Medium (mother-tongue) of 350 were selected as a sample for the study; among them 149 were male and 201 were female teachers.

Methodology

All the fifty college of education institutions were approached by the investigator personally and the questionnaire (EMPS) was filled by the teachers after the effective rapport. The teachers were given a maximum of thirty minutes to fill out the scale and assured that the completed scale was confidential. For positive statements 2, 1, -1 and -2 was awarded to strongly agree to strongly disagree and the negative statements the marks awarded vice-versa and the collected data on the spot were analyzed through SPSS (Statistical Package for Social Science) version 20.0.0 and the results were computed.

Data Analysis

Perception towards multimedia technology scores were taken for the analysis of the data. Mean, SD and 't' tests were calculated to analyze the data. The results are presented in the following Table 1 to 6.

Table 1. Difference in Perception towards multimedia among the college of education teachers (Gender wise)

Groups	N	Mean	S.D	't' value
Male	149	115.36	13.69	0.922 @
Female	201	114.04	12.61	

(@ = No significant at 0.05 level)

From Table 1, shows that the computed 't' value 0.922 is lesser than the critical value 1.96 at 0.05 level and hence it is no significant. Hence the null hypothesis is accepted, and it can be said that there is no significant difference in perception towards multimedia technology among the prospective male and female college of education teachers. Here in gender wise analysis, both of them are equal in their perception towards multimedia utility in their classrooms.

Table 2. Difference in Perception towards multimedia among the college of education teachers (Locality wise)

Groups	N	Mean	S.D	't' value
Rural	126	97.94	11.57	1.266 @
Urban	224	96.38	10.12	

(@ = No significant at 0.05 level)

From Table 2, it is observed that the 't' value 1.266 is lesser than the critical value 1.96 at 0.05 level and so it is no significant. Hence the null hypothesis is accepted, and it can be said that there is no significant difference in perception towards multimedia technology among the prospective college of education teachers with respect to their locality. Here in locality wise analysis, both of them are equal in their perception towards multimedia utility in their classrooms.

Table 3. Difference in Perception towards multimedia among the college of education teachers (Marital Status wise)

Groups	N	Mean	S.D	't' value
Married	171	76.18	8.14	0.967 @
Unmarried	179	75.34	8.09	

(@ = No significant at 0.05 level)

From Table 3, it is observed that the 't' value 0.967 is lesser than the critical value 1.96 at 0.05 level and so it is no significant. Hence the null hypothesis is accepted, and it can be said that there is no significant difference in perception towards multimedia technology among the college of education teachers with respect to their marital status. Here in marital status wise analysis, both of them are equal in their perception towards multimedia utility in their classrooms.

Table 4. Difference in Perception towards multimedia among the college of education teachers (Subject wise)

Groups	N	Mean	S.D	't' value
Science Handling teachers	140	74.44	8.05	3.159 *
Arts handling teachers	210	71.57	8.72	

(* = Significant at 0.05 level)

From Table 4, it is observed that the 't' value 3.159 is greater than the critical value 1.96 at 0.05 level and so it is significant. Hence the null hypothesis is rejected, and it can be said that there is significant difference in perception towards multimedia technology among the college of education teachers with respect to the teachers those major subject of either science or arts in their post graduate level. That means, both the type of science and arts subject handling teachers are not equal in their perception towards the multimedia technology in their classrooms. Here in subject wise analysis, both of them are not equal in their perception towards multimedia utility in their classrooms.

Table 5. Difference in Perception towards multimedia among the college of education teachers (Training skill wise)

Groups	N	Mean	S.D	't' value
Training attended teachers	066	62.07	7.02	3.487 *
Training not attended teachers	284	65.62	9.07	

(* = Significant at 0.05 level)

From Table 5, it is observed that the 't' value 3.487 is greater than the critical value 1.96 at 0.05 level and so it is significant. Hence the null hypothesis is rejected, and it can be said that there is a significant difference in perception towards multimedia technology among the college of education teachers with respect to the teachers those who are attended the technology training or not. That means, both the type of teachers are not equal in their perception towards the multimedia technology in their classrooms. Here in training skill wise, both of them are not equal in their perception towards multimedia utility in their classrooms.

Table 6. Difference in Perception towards multimedia among the college of education teachers (Experience wise)

Groups	N	Mean	S.D	't' value
Above 5 years experience	122	69.98	7.02	4.406 *
Below 5 years experience	228	73.65	8.13	

(* = Significant at 0.05 level)

From Table 6, it is observed that the 't' value 4.406 is greater than the critical value 1.96 at 0.05 level and so it is significant. Hence the null hypothesis is rejected, and it can be said that there is a significant difference in perception towards multimedia technology among the college of education teachers with respect to the teachers those who are having more than five years experience and below. Here on the basis of their experience they are differ in their perception towards multimedia technology. Here in experience wise analysis, both of them are not equal in their perception towards multimedia utility in their classrooms.

Table 7. Difference in Perception towards multimedia among the college of education teachers (Possessing higher Degree wise)

Groups	N	Mean	S.D	't' value
Teachers having M.Phil degree holder along with M.Ed	109	75.47	7.13	3.627 *
Teachers having M.Ed degree holder with out M.Phil	241	78.53	7.69	

(* = Significant at 0.05 level)

From Table 7, it is found that the 't' value 3.627 is greater than the critical value 1.96 at 0.05 level and so it is significant. Hence the null hypothesis is rejected, and it can be said that there is a significant difference in perception towards multimedia technology among the college of education teachers with respect to their possessing of M.Ed and M.Phil degree level. Here on the basis of their M.Ed and M.Phil degree level, they are differ in their perception towards multimedia technology.

Results of the study

After testing the hypotheses; the results of the study were as follows; (i) There is no significant relationship between the male and female college of education teachers' perception towards multimedia technology is accepted; (ii) There is no significant relationship between the rural and urban college of education teachers' perception towards multimedia technology is accepted; (iii) There is no significant relationship between the married and unmarried college of education teachers' perception towards multimedia technology is accepted; (iv) There is no significant relationship between the arts and science college of education teachers' perception towards multimedia technology is rejected; (v) There is no significant relationship between the college of education teachers those who are attended and non-attended the technology training with their perception towards multimedia technology is rejected; (vi) There is no significant relationship between the college of education teachers those who having M.Ed and M.Ed with M.Phil degree holders with their perception towards multimedia technology is rejected; and (vii) There is no significant relationship between the college of education teachers those who having below five years experiences ad above five years experiences with their perception towards multimedia technology is rejected.

Discussion of the study

Consistent with the findings from earlier studies (Lampe & Chambers, (2001); MacArthur & Malouf, (1991); & Zepp (2005), this study found that teachers had the combination of different belief (syncretism) perceptions. Experienced teachers asked many more questions before they began planning in experienced and

inexperienced teachers and found that, the experienced teachers' planning also differ in teacher evaluation study by Grieffey et al., (1991) and they described differences in experiences of physical education teachers' approaches.

The effects of gender were not significant on the perceptions of teachers about the two media options with the finding of Hoffmans,Caylie.(2012). Hoffmans found that gender as a variable did not affect teachers' perceptions of social studies orientation. The Participants of this research, described several specific professional development activities that contributed to their understanding of content standards. These findings did not support conclusions from cognitive style studies which hold that female teachers are field-dependent and technophobia; while male teachers being field-independent, prefer application of media to instruction (Parker & Leonie, 2002; Haynie, 2003; Weber & Custer, 2005).

Evdokia Stergiopoulou (2012) found out that, the teachers' more degree and experiences are helps to improve their teaching learning process. This results were also supported to Taren Thune (2012). He argued that, with this perspective in mind, having a relatively high number of M.Phil and PhD holders outside the academic sector are steps that would appear to be necessary in fulfilling the improvement of aims and which are in line with the further development of the knowledge society in Norway.

The Acceptable Use Policy (AUP) for Internet use is one of the most important documents a school will produce in Western Countries. Creating a workable AUP requires thoughtful research and planning. Education World offers food-for-thought and a few useful tools for educators faced with developing a workable AUP for their school's students.

Bridget McCrea (2012) supported the views of whiteboards are gaining more visibility in the classroom of the future in Western countries. The placement of that equipment in the classroom will also be important Teaching aids like traditional marker boards and interactive white boards will continue to have a place in the classroom and other key pieces of technology that will be prominent in tomorrow's classrooms will include tablet and laptop computers, interactive whiteboards and projectors, and wall-mounted, flat-panel monitors.

Conclusion

To conclude, more research needs to be done especially with experienced teachers, because they are a group with specific needs and interests. Particularly in the Indian context, state and private school teachers should be further researched, as a clearer understanding of the challenges they face will help trainers to offer more helpful seminars and provide them with the support they need. Technology plays a prominent role in the continuing evolution of colleges. Computers will enhance learning, but they will never replace the profoundly personal dimension in deep learning (Darryl Tippens, 2012). Some educationists supported this analysis of the role towards computation in education (i.e., memory storage, calculations per second, evolutionary programs, etc.).

More than eighty percentage of teachers supported that, the B.Ed and M.Ed students quickly recognize that their electronic documents can be easily shared. Because of the high standard of productions added with text, images, sound and animations with blogs. Students quickly recognize that publishing a multimedia document that communicates effectively requires attention to both the content and the design of the document. Hence the NCERT (National Council of Educational Research and Training) and NCTE (National Council of Teacher Education) organizations look forward to conduct seminars and in service training for college of education teachers and then produce lot of multimedia that are relevant to the contents. Then only the student's welfare can improve.

As recommended, teacher's use of multimedia technology should be encouraged and must be addressed by the college of education administrators since it enhances students to learn more. If possible, any multimedia technology must be utilized and maximized. Strategies and a well-planned program must be fully implemented and realized. In future, the teachers can utilized the multimedia in their classroom will improve their teaching learning process effectively. The quality of learning depends not only on the form of how the process is carried out but also on what content is taught and how the content is presented.

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APPENDIX- A

Multimedia Perception Scale (MPS)

Dear Teacher,

The following questionnaire is to be for research purposes only. Please help me to complete the questionnaire very well thanks.

PART -A

No	Variable		Sub -variables	
1.	Gender of the Teacher	:	Male	Female
2.	Area of college of education	:	Rural	Urban
3.	Marital Status	:	Single	Married
4.	Subject Handling	:	Science	Arts
5.	Technology Training Skill	:	Attended	Non-attended
6.	Teaching experience (up to June 30, 2012)	:	Below 5 yeas	Above 5 years
7.	Possessing Higher Degree	:	M.Ed	M.Ed & M.Phil

PART -B

The following statements describe the role of multimedia in class-room teaching-learning situation. Please indicate how far you agree or disagree with each statement by selecting one of the box below: SA, A, DA and SDA where; SA= Strongly Agree; A = Agree; DA = Disagree and SDA = Strongly Disagree. For example if, 'SA' check a person, It means 'SA' strongly agree with a statement. Please give your true views about all the items.

No	Statements related to utilization of multimedia	SA	A	DA	SDA
1	Multimedia technology should be considered by the teacher as a device which saves teacher's explanation time in the class hour.				
2	Multimedia can spoiled students' knowledge in a particular concept.				
3	Students are dehumanized when multimedia technology alone is used in institution.				
4	Multimedia in the classroom develops students' lethargy.				
5	Effectiveness of any teaching-learning situation related to the using of multimedia sources by the teacher.				
6	Multimedia can overlooked the teachers while disseminating knowledge in the classroom.				
7	I believe I can teach well even when multimedia technology is not available.				
8	Multimedia options are not attracted towards students' perception.				
9	The major use of multimedia technology is to assist the teacher by enhancing his/her effectiveness in the classroom.				
10	Multimedia is a substitute device for a teacher in any educational institution.				
11	Multimedia can dominate to the teachers in a classroom.				
12	Teachers use multimedia technology because they see it as a partner in progress.				
13	Multimedia when used with teacher limits the power of student to think for them.				
14	Multimedia can't dominate the teachers and it can help them.				
15	Instruction, whereby multimedia are used with teacher is having controlling power, because teacher still dominates the Classroom				
16	Multimedia is helps to assist the teacher and to explains the subject in an elaborate manner.				
17	Without the use of multimedia the quality of learning is poor.				
18	Students learn best when multimedia are used with teacher; and the same time, the teacher maintains discipline in the classroom.				

No	Statements related to utilization of multimedia	SA	A	DA	SDA
19	I believe I can only teach well when I use multimedia.				
20	The use of multimedia technology should be encouraged in schools because it enhances the elaborate work of teachers.				
21	The use of multimedia should be discouraged because it minimized the activities of the teachers.				
22	Both multimedia and teacher are closely related to the subject matter.				
23	Multimedia dictates to the teacher's activity and thus limits his/her freedom.				
24	The effectiveness of any teaching-learning situation depends on the combination of teacher and multimedia.				
25	Multimedia based instruction is ineffective because it does not make better use of teacher's time.				
26	Students learn best when multimedia are used in the classroom, because they can learn extra knowledge apart from their prescribed book.				
27	Multimedia when used with teacher does not provide for individualized learning and hence is defective.				
28	Multimedia technology can utilized to get relevant idea about the subject matter with good clarity by the teacher.				
29	Courses of instruction taught by programmed multimedia texts are bad because they displace teacher from his traditional role.				
30	The teacher can teach a subject matter easily by multimedia, because it can utilize the charts and important pictures in it.				
31	The use of multimedia technology does not make better use of teacher's time and sooner or later the teacher may be declared unwanted.				
32	Multimedia used, when the teacher is physically present in the classroom help to recapitalize the particular content knowledge.				
33	Multimedia adds interest but teaches little.				
34	Multimedia sounds are attractive towards the students' perception.				
35	The use of multimedia technology makes a lazy teacher.				
36	Multimedia video clippings can develop student's creativity in their subject.				
37	Multimedia technology should be considered by the teacher as a solution to problem of teacher's shortage.				
38	Multimedia images are used by the teacher's easy explanation about a concept.				
39	Multimedia technology parts like texts, video, sound, graph and animations, etc. are manufactured not for learning, but for relaxation.				
40	Multimedia can extend the knowledge about a particular unit of the subject.				