

A Study On Attitude Of Pupil Teachers Towards The Use Of Information And Communication Technology (Ict) In Teaching-Learning Process.

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ABSTRACT

The present study is an attempt to investigate the attitude of pupil teachers towards the use of information and communication technology (ICT) in teaching learning process in relation to their gender and locality. The ICT awareness becomes an urgent need of the hour in present scenario. The objectives of the study were 1. To study the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process. 2.To study the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process. The sample for the study comprised of 80 B.Ed. Students of Saharanpur district. ICT ATTITUDE SCALE was developed and standardized by the researcher with the help of his guide. The findings of this study revealed that there were no significant differences between the attitude towards ICT of male and female pupil teachers. on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS) and revealed that mean score of urban pupil teachers is greater than mean score of rural pupil teachers on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS). So the Urban pupil teachers have positive attitude towards ICT on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS).

Key words : Attitude, Pupil Teachers, ICT, and Teaching-Learning Process

INTRODUCTION

Knowledge of ICT usage has improves human capacity, including business transactions, industrial use, educational programme and educational activity. Use of ICT in teaching learning process can change the attitude, competency and self-concept of teachers and students. Attitude is one of the determining factors in predicting people’s behavior. That is to say by understanding an individual’s attitude towards something, one can predict with high precision the individual’s overall pattern of behavior to the object (Ajzen and Fishbein, 1977). ICT is needed to assist teachers & fascinating learning thus all colleges have to be equipped with necessary. ICT is order to provide the next generation with the needed tools and resource for access and us to attain the expected skills. At present, every person in society should become technology competent. Now ICT have revolutionized our daily lives, work, Teaching learning business & Health. Computer technology would transform the existing educational system, raise the effectiveness and efficiency of the teaching and

learning methods, and increase student achievement. ICT can motivate pupils, increase their self-confidence and self-esteem, stimulate their interest, increase their attainment, allow greater inter-activity and individualization, enhance the pupils critical thinking, increase their creativity, etc. it can increase teacher's enthusiasm and efficiency, pro-mote their co-operation and planning with ICT, reduce their workload, help them alter their traditional pedagogical belief, implement new pupil-centered teaching strategies, and enhance stronger relationship between teachers and pupils, amongst others. Once again, after the easy access to a wealth of knowledge about the benefits of ICT for teaching and learning purposes, the teacher and learning purposes, the teacher becomes the centre of the reform efforts.

SIGNIFICANCE OF THE STUDY

Teacher is an effective and dominating factor among the ones contributing to educational improvements. The teacher effectiveness depends mainly on the teachers' attitude, characteristics and the classroom phenomena such as environment and climate, organisation and management. Various commissions and committees have recommended methods of bringing about qualitative improvements in education. Attitude has been defined as "a learned predisposition to respond positively or negatively to a specific object, situation, institution, or person" (Aiken, 2000). Therefore, attitude affects people in everything they do and reflect what they are and hence a determining factor of people's behavior (Yushau, 2006). As a result, the teachers are motivated, inspired and endured to develop better curriculum, text books and teaching aids. But, all the efforts are meaningless unless teachers are not having the positive attitude towards educational technology. The teaching learning process has been greatly influenced by rapid advances in Information and Communication Technology (ICT). Integration of this ICT in classroom helps to create an environment for students' activities that lead to meaningful and sustainable learning experiences. It supports students in their own constructive thinking, allows them to transcend their cognitive limitations. It is possible to bring the process of learning beyond the boundaries of classroom by exploring new possibilities of ICT. One of the basic requirements for education in this era of information explosion is to prepare learners for participation in a networked information society. All over the world, educational institutions are being forced to find better pedagogical methods to cope up with these new challenges. Most of the recent research on qualitative improvement of learning mediated through ICT is more or less explicitly considering technology's possibilities how to facilitate social interaction between teacher and student as well as among students globally. In this

perspective, ICT is a meditational tool incorporated within learning environment with authentic goals for both students and teachers. Therefore, it can be considered that Information and Communication Technology Mediated Collaborative Learning (ICML) is one of the most promising innovative pedagogical practices at present to build a classroom culture supportive of active knowledge construction that can transform individual learning to the group level mediated by ICT.

REVIEW OF RELATED LITRATURE

- ❖ Gupta, M.M. and Veer, D. (2017). Conducted a study on prospective teacher's attitude towards the use of ICT: a comparative study between C.C.S. University, Meerut & Kurukshetra University, Kurukshetra. The objectives of the study were (1) To compare the attitude towards the use of ICT between male prospective teachers of c.c.s. university, Meerut and male prospective teachers of Kurukshetra University Kurukshetra. (2) To compare the attitude towards the use of ICT between female prospective teachers of C.C.S. University, Meerut and female prospective teachers of Kurukshetra University Kurukshetra. The sample for the study comprised of 80 prospective teachers of Saharanpur district and 80 prospective teachers of Yamuna Nagar district. "ICT ATTITUDE SCALE" was developed and standardized by the researcher with the help of his guide. The findings of the study indicate that there were no significant differences between prospective male teachers of C.C.S.U. Meerut and prospective male teachers of K.U. Kurukshetra on the dimension of "Knowledge", "Presentation" and total "ICT Attitude Scale". There were no significant differences between the attitude toward the use of ICT scores of prospective female teachers of C.C.S.U. Meerut & prospective female teachers K.U. Kurukshetra on the dimension of "Knowledge", and female prospective teachers of K.U. Kurukshetra have more positive attitude rather than female prospective teachers of C.C.S. University Meerut on "Presentation" dimension of ICT attitude sacle it is significant at 0.05 and 0.01 level of significant. There were no significant differences between the attitude toward the use of ICT scores of prospective female teachers of C.C.S.U. Meerut & prospective female teachers K.U. Kurukshetra on total "ICT Attitude Scale".
- ❖ Meerza, A., Beauchamp, G. (2017). Conducted a study on Factors Influencing Attitudes towards Information and Communication Technology (ICT) Amongst Undergraduates: An Empirical Study Conducted in Kuwait Higher Education Institutions (KHEIs) and found that The increasing use of information and communication technology (ICT) in higher education has largely been explored in relation to undergraduates' attitudes to

ICT usage at university. However, the success of ICT in any learning institution, including higher education institutions (HEIs), depends on the attitudes of undergraduates to using ICT in their daily learning. Therefore, this paper aims to investigate the critical factors impacting on ICT use amongst undergraduates in their learning at Kuwait universities. The Technology Acceptance Model (TAM) was applied to achieve this study aim. A sample of 717 undergraduates was subsequently selected from both a government (state-funded) and private university in Kuwait. The critical factors examined here include the type of university (government or private), the language (medium) of the learning and ICT support. Mixed methods, namely quantitative and qualitative methods, were implemented for the corresponding data collection. The quantitative results suggested that 'usefulness' and 'ease of use' of ICT are key dimensions of undergraduates' attitudes to its utilization in learning. Another result showed that the factors examined had a direct impact on undergraduates' attitudes. Moreover, the qualitative results suggested that the factor of 'peer learning' had a strong impact on undergraduates' attitudes to ICT use in their university studies.

- ❖ Yang, S., & Kwok, D. (2017). Conduct A study of students' attitudes towards using ICT in a social constructivist environment. *Australasian and* This study aims to examine the factors that support or hinder students' attitudes towards using information and communication technology (ICT) in problem-based learning (PBL) using the technology acceptance model (TAM) (Davis, 1989) among polytechnic students. A total of 737 first-year polytechnic students in Singapore participated in the cross-sectional survey study by completing a questionnaire (The assessment of attitude and intention to use ICT tools among polytechnic students), which gathered both quantitative and qualitative data. Based on the analysis of the quantitative data, perceived usefulness and perceived ease of use are found to be significantly and positively correlated with attitudes towards using ICT. Results from the analysis of the qualitative data suggest five major themes (engagement, communication, information gathering, collaboration and efficiency) on what students enjoyed most about using ICT. On the other hand, Internet connectivity, usability, technical issues and ICT competency are the four other themes that categorized the difficulties students faced using ICT. An important implication is to develop polytechnic lecturers' competency in the use of ICT-enabled learning tools as a priority to enable them to successfully integrate ICT in their PBL lessons.
- ❖ Ganesan, P., Krishnakumar, R. (2016) conducted a study on attitude of teacher educators towards ICT objectives of the study were 1) To study the attitude of teacher educators towards ICT. 2) To study the attitude of teacher educators towards ICT in relation to their gender. 3) To study the attitude of teacher

educators towards ICT in relation to their locality of home. The Descriptive Survey Method was adopted to investigate the aim of the present study viz., attitude of teacher educators towards ICT. Sample consisted of 12 male and 18 female teacher educators selected from the esteemed teacher education colleges in Coimbatore, South India. Cluster sampling method was adopted. In this study, Attitude scale on ICT was used to collect the required information. The tool was standardised by the investigator. The reliability of the scale was determined through Kuder- Richardson formula is 0.82. In this study, the following statistical techniques were used: Mean, Standard deviation and t-test. The result of this study were Majority of Teacher Educators in the sample have favourable attitude towards ICT. 10% of teacher educators have unfavourable attitude, 30 % of teacher educators have moderate attitude and 60 % have favourable attitude towards ICT. There is no significant difference between male and female teacher educators in their attitude towards ICT. There is significant difference between rural and urban teacher educators in their attitude towards ICT.

- ❖ Sekar, A., Lawrence, A. (2015). Conducted a study on the attitude of B.Ed., students towards information and communication technology (ICT) revealed that (a) there was no significant difference in the attitude of B.Ed., students towards ICT with regard to (i) gender, (ii) discipline, (iii) course of study, and (iv) locality, and (b) aided colleges of education B.Ed., students were better than government college students in their attitude towards ICT.
- ❖ Dixit, M., and Kaur, M. (2015). Investigated in their study, the attitude of Teacher Trainees towards ICT Teaching and revealed that the factors like locality and gender of teacher-trainees influenced the attitude towards information and communication technology teaching.

OBJECTIVES

The present study is based on the following objectives:

1. To study the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process
2. To study the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process

HYPOTHESIS

The present study is carried out on the bases of following hypotheses:

1. There is no significant difference between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process.

2. There is no significant difference between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process.

DELIMITATIONS OF THE STUDY

Due to the lack of time, resources and finance this study is confined only to the B.Ed. Colleges of Chaudhary Charan Singh University, Meerut district of Uttar Pradesh.

DESIGN OF THE STUDY

This study is descriptive in nature so survey method is used to collect the data.

POPULATION

All the students studying in B.Ed. course being offered by colleges of education affiliated to Chaudhary Charan Singh University, Meerut, district of Uttar Pradesh constituted the population for present study.

SAMPLE & SAMPLING TECHNIQUES

To study the sample for present study the researcher selected the 4 colleges who are offering B.Ed. courses situated in Saharanpur district by using lottery method of random sampling technique. From these selected 04 colleges, 20 pupil teachers were selected from each college. Therefore the total sample consists of 80 pupil teachers.

TOOL USED

To obtain the data, the data gathering device- “ICT ATTITUDE SCALE” was prepared by the investigator over two dimensions e.g. (1) “Knowledge” and (2) “Presentation” and it had been given to some of the experts for the content validity and preliminary try out was made on the sample size -50. There were 25 prospective teachers from C.C.S. University Meerut and 25 were Kurukshetra University, Kurukshetra. The reliability of the tool was established by split half method and test retest method by computing coefficient of correlation by Karl Pearson Method. The value of coefficient of correlation was found be 0.83. The tool consists of 30 statements involving positive as well as negative items. Thus the tool was standardized by the research investigator with the help of his guide.

SCORING PROCEDURE OF ICT COMPETENCY SCALE

The “ICT Attitude Scale” was constructed by the investigator is a scale having 30 statements of which 23 of them positive statements and the remaining 7 were negative statements.

SCORES FOR POSITIVE STATEMENTS:

- 5 for Strongly Agree opinion (SA)
- 4 for Agree opinion (A)
- 3 for Undecided opinion (U)
- 2 for Disagree opinion (D)
- 1 for Strongly Disagree opinion (SD)

SCORES FOR NEGATIVE STATEMENTS

- 1 for Strongly Agree opinion(SA)
- 2 for Agree opinion(A)
- 3 for Undecided opinion(U)
- 4 for Disagree opinion(D)
- 5 for Strongly Disagree opinion(SD)

The sample prospective teachers were asked to tick any one response out of given five alternatives for each statement. There are total 30 items in the present attitude scale. The maximum possible scores on the whole attitude were 150 and the minimum possible scores were 30.

STATISTICAL ANALYSIS

To get the meaningful results from the present study the researcher used mean, standard deviation and 't'-test to analyze the data.

ANALYSIS AND INTERPRETATION OF DATA:-**Table-1**

H₀:-1 There is no significant difference between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process.

Mean & S.D. Scores of Male and female pupil teachers on "ICT Attitude Scale" (ICTAS)

Dimension of "ICT Attitude Scale"	Respondents	N	Mean	SD	t-value (df -78)
Knowledge	Male Pupil teachers	40	58.924	4.342	0.737

	female Pupil teachers	40	58.242	3.924	(N.S.)
Presentation	Male Pupil teachers	40	51.240	4.786	0.327
	female Pupil teachers	40	51.596	4.946	(N.S.)
Total score of ICT Attitude Scale	Male Pupil teachers	40	110.164	6.249	0.238
	female Pupil teachers	40	109.838	5.962	(N.S.)

*Not significant

Table 1 shows that the mean score is 58.924 & 58.242 and SD scores are 4.342 & 3.924. The t- value calculated from above two groups is 0.737 on Knowledge dimension. mean score of male and female pupil teachers is 51.240 & 51.596 and SD scores are 4.786 & 4.946 The t- value calculated from above two groups is 0.327 on Presentation dimension. Total mean score of male and female pupil teachers is 110.164 & 109.838 and SD scores are 6.249 & 5.962 The t- value calculated from above two groups is 0.238 which is not significant at any level. The analysis of the above table revealed that there were no significant differences between the attitude towards ICT of male and female pupil teachers. on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS).

Table-2

H₀ :- 2 There is no significant difference between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process.

Mean & S.D. Scores of Rural and Urban pupil teachers on “ICT Attitude Scale” (ICTAS)

Dimension of “ICT Attitude Scale”	Respondents	N	Mean	SD	t-value (df -78)
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Knowledge	Rural Pupil teachers	40	52.624	6.342	6.76 *(Sign) 0.05 & 0.01
	Urban Pupil teachers	40	61.256	5.102	
Presentation	Rural Pupil teachers	40	56.258	5.468	2.93 *(Sign) 0.05 & 0.01
	Urban Pupil teachers	40	59.698	5.010	
Total score of ICT Attitude Scale	Rural Pupil teachers	40	108.882	5.628	10.20 *(Sign) 0.05 & 0.01
	Urban Pupil teachers	40	120.954	4.926	

***Significant at 0.05 and 0.01 level**

Table 2 shows that the mean score is 52.624 & 61.256 and SD scores are 6.342 & 5.102. The t- value calculated from above two groups is 6.76 on Knowledge dimension. Mean score of Rural and Urban pupil teachers is 56.258 & 59.698 and SD scores are 5.468 & 5.010. The t- value calculated from above two groups is 2.93 on Presentation dimension. Total mean score of Rural and Urban pupil teachers is 108.882 & 120.954 and SD scores are 5.628 & 4.926. The t- value calculated from above two groups is 10.20 which is significant at 0.05 and 0.01 level of significant. The analysis of the above table revealed that mean score of urban pupil teachers is greater than mean score of rural pupil teachers on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS). So the Urban pupil teachers have positive attitude towards ICT on “Knowledge” & presentation dimension and the total score of ICT Attitude Scale (ICTAS).

FINDINGS OF STUDY

The first null hypothesis that there is no significant difference between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process is accepted. The findings related to above hypothesis are as follows:

- There were no significant differences between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “Knowledge” Dimension of “ICT Attitude Scale” (ICTAS).

- There were no significant differences between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “Presentation” Dimension of “ICT Attitude Scale” (ICTAS).
- There were no significant differences between the attitude of male and female pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “ICT Attitude Scale” (ICTAS).

The second null hypothesis that there is no significant difference between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process is rejected. The findings related to above hypothesis are as follows:

- There were significant differences between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “Knowledge” Dimension of “ICT Attitude Scale” (ICTAS).
- There were significant differences between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “Presentation” Dimension of “ICT Attitude Scale” (ICTAS).
- There were significant differences between the attitude of rural and urban pupil teachers towards the use of information and communication technology (ICT) in teaching learning process on “ICT Attitude Scale” (ICTAS).

EDUCATIONAL IMPLICATIONS

The present study is an attempt to investigate the attitude of pupil teachers towards the use of information and communication technology (ICT) in teaching learning process in relation to their gender and locality. The ICT awareness becomes an urgent need of the hour in present scenario. Now, the time has come to use the ICT equipments in the class rooms. Furthermore the study makes contribution through its findings by revealing the difference between various groups of students and their attitude towards ICT is concerned.

- 1) On the basis of the results of this study it is suggested that the institutional of learning should organize some seminars and conferences on ICT awareness. In order to improve ICT awareness of students, their participation should be made mandatory in such events.

- 2) The college should also invite educationist for sharing their views with the students.
- 3) This study will encourage students to take some corrective measures such as ICT awareness, competency in ICT, ability to use the equipments of ICT and attitude towards ICT.
- 4) ICT awareness program should be made compulsory at all levels of teacher education.
- 5) ICT labs should be constituted in the school, colleges and universities.

SUGGESTION FOR FURTHER RESEARCHES

On the basis of the finding of the present investigation the investigator would like to suggest following for further research:

- The present study is delimited to the attitude towards the use of information and communication technology (ICT) of pupil teachers of Ch. Charan Singh University, Meerut. The same can be extended to different universities.
- The present study is confined only to the U.P. state; similar study may also be conducted in different state of India.
- The present study is confined only to district Saharanpur; similar study may also be conducted in different district of U.P.
- Present study is deals with a sample of 80 pupil teachers. A large number of samples can be used.
- The present study is related only to the pupil teachers in the same way study can be conducted on Teacher educator and M.Ed. students also for measuring their attitude towards ICT.

BIBLIOGRAPHY

- Abbas, (1995). conduct on as Attitude towards using computers among Malaysian teacher education student, in conference on computer in education VI: (WCCE95) *Journal of liberating the learner*, pp. (153-162).

- Aiken, (2000) as cited in Yushau, B. (2006). A study on The Effects of Blended E-Learning on Mathematics and Computer Attitudes in Pre-Calculus Algebra. *The journal of The Montana Mathematics Enthusiast*, 3 (2), pp176- 183.
- Ajzen, Fishbein,(1977) as cited in Yushau, B. (2006). A study on The Effects of Blended E-Learning on Mathematics and Computer Attitudes in Pre-Calculus Algebra. *The journal of The Montana Mathematics Enthusiast*, 3 (2), pp176- 183.
- Annaraja P, Nima, M., Joseph.(2006) Teacher Trainees' Attitude Towards Information and Communication Technology: *DESIDOC Bulletin of Information Technology*. 2006; 26(2)37-40. © 2006, DESIDOC.
- Archibong, I. A, & Joseph and Anijaobi, (2010). conduct as a ICT competence academic staff in universities in cross rivers state, Nigeria. <http://www.ccsenet.org/journal/index.php/cis/article/download/7050/6119>
- Birisci, Metin, Karakas (2007). Conduct as determining prospective elementary teachers' attitudes towards computer: a sample from turkey
- *Bulgarian Journal of Science and Education Policy (BJSEP)*, Volume 3, Number 1,(2009) <http://bjsep.org/getfile.php?id=55>
- Dixit, M., and Kaur, M.(2015) Attitude of Teachers Trainees towards ICT Teaching. *International Journal of Pure and Applied Researches*. 2015; 1(1).
- Dixon and Siragusa, (2009). Conduct as a attitudes towards ICT-based interaction: A Bachelor of education case study. <http://www.aare.edu.au/09pap/dix091331.pdf>.
- Ganesan, P., Krishnakumar, R. (2016) conducted a study on attitude of teacher educators towards ICT, *International Journal of Research – Granthaalayah*, Vol. 4, No. 5: SE (2016): 7-11. Retrieved from <Http://www.granthaalayah.com>
- Gupta M.M. and Veer, D. (2017). prospective teacher's attitude towards the use of ICT: a comparative study between C.C.S. University, Meerut & Kurukshetra University, Kurukshetra.

Educational Quest: An Int. J. of Education and Applied Social Science: Vol. 8, No. 1, pp. 1-8, April 2017

- Hammond (2009). what happens as a student teacher who made very good use of ICT during pre service training Enter their. *Journal of Teacher development, volume 13 N2 p3 -106.*
- Hashim et.al.(2010). Antecedents of ICT attitude of distance education students. *Turkish online journal of educational technology-TOJET, volume 9N.1, pp. 28-36.*
- Kutluca, Dr.T. (2011). A study on computer usage and attitude towards computer of prospective preschool teacher. *The journal of New Trends in Education and Their Implications Vol: 2 Issue:1 ISSN 1309-6249.*
- Lawrence, Samah, Shaffril and Hassan (2009). conduct as Factors That Influence Attitude Towards ICT Usage among Rural Community Leaders in Malaysia. *Australian Journal of Basic and Applied Sciences, 4(10): 5214-5220, 2010 ISSN 1991-8178 © 2010, INSInet Publication.*
- Meerza, A., Beauchamp, G. (2017). Conducted a study on Factors Influencing Attitudes towards Information and Communication Technology (ICT) Amongst Undergraduates: An Empirical Study Conducted in Kuwait Higher Education Institutions (KHEIs), *TOJET: The Turkish Online Journal of Educational Technology – April 2017, volume 16 issue 2.*
- Panday (2005). *frame work of information communication technology & teacher education.* Isha books Adarsh nagar , Delhi.
- Papastergiou (2010). Enhancing physical Education and sport science student” self- efficiency and attitude regarding information and communication technology through a computer literacy course. *Journals computer and education vol 54 , N1, p298-308.*
- Scturyn (1997) Vandna, Newa, (2009). Schoolteacher’ attitude towards information and communication technology [ICT]. *Edutracs vol. 8- No.6,(2009).*

- Sekar,A., Lawrence, A.(2015). Attitude of B.Ed. students towards information and communication technology (ICT): *International Journal of Applied Research*. 2015; 1(8):785-787. ISSN Print: 2394-7500, ISSN Online: 2394-5869 retrieved from www.allresearchjournal.com
- Sharma, A.K., Pyase, R., Jain, S. (2015). A Study & Survey of B.Ed. Students' Attitude towards Using Internet: *International Journal of Science and Research (IJSR)*. 2015; 4(12). www.ijsr.net
- Siribodhi Tinsiri (2007). conduct as ICT in Teacher Education: Case Studies from the Asia-Pacific Region http://www2.unescobkk.org/elib/publications/151_152/ICT_in_Teacher_Education.pdf
- Suganthi, M. (2013) Attitude of B.Ed. Students towards Information and Communication Technology: *Indian Journal of Applied Research*. 2013; 3(9). ISSN - 2249-555X.
- Yang, S., & Kwok, D. (2017). A study of students' attitudes towards using ICT in a social constructivist environment. *Australasian Journal of Educational Technology*, 33(5), 50-62. <https://doi.org/10.14742/ajet.2890>
- Yushau, B. (2006). A study on The Effects of Blended E-Learning on Mathematics and Computer Attitudes in Pre-Calculus Algebra. *The journal of The Montana Mathematics Enthusiast*, 3 (2), pp176- 183.
- Yusuf and Balogun. (2011). Conduct as Student-Teachers' Competence and Attitude towards Information and Communication Technology: A Case Study in a Nigerian University *Journal of contemporary educational technology*, 2011, 2(1), pp 18-36 <http://cedtech.net/articles/212.pdf>