A TOOL TO MEASURE THE B.ED TEACHER TRAINEES' ATTITUDE TOWARDS ICT

By

J. SAMUEL GNANAMUTHU * R. KRISHNAKUMAR **

* Doctoral student in the Department of Education, Annamalai University, India.
** Professor of Education, Department of Education, Annamalai University, India.

ABSTRACT

There are indications that the new technologies could have radical implications for conventional teaching and learning processes. It notes that, in reconfiguring how teachers and learners gain access to knowledge and information, the new technologies challenge conventional conceptions of both teaching and learning materials, and teaching and learning methods and approaches. Information and communication technologies (ICTs) are a major factor in shaping the new global economy and producing rapid changes in society. They have the potential to transform the nature of education- where and how learning takes place and the roles of students and teachers in the learning process. Teacher education institutions may either assume a leadership role in the transformation of education or be left behind in the swirl of rapid technological change. For education to reap the full benefits of ICTs in learning, it is essential that pre-service and in-service teachers have basic ICT skills and competencies. Teacher education institutions and programmes must provide the leadership for pre-service and in-service teachers and model the new pedagogies and tools for learning (Annaraja, P., Nima M Joseph. 2006). ICT has great potential for enhancing teaching and learning outcomes. The realization of this potential depends much on how the teacher uses the technology. This would in turn depend, among other things, on the kind of training that the teacher has undergone.

Teachers' attitude towards ICT is a very important factor which stake-holders ought to consider in implementing ICT in education. With the introduction of the new ICT initiatives it becomes crucial particularly for newly qualified teachers to be confident in using ICT effectively in their teaching (Maria Kyriakidou, 1999). This necessitated the researcher to develop a research tool to measure the attitude of B.Ed. teacher trainees towards ICT. The purpose of this study is to develop a research tool to measure the attitude of B.Ed. teacher trainees towards ICT. Initially the tool was constructed with 34 statements and administered to 400 B.Ed., teacher trainees. In order to standardize the tool the researcher applied Kolmogorov-Smirnov test, Cronbach Alpha test and t' test. After the item analysis 20 statements were considered for the final Tool.

Keywords: ICT, Attitude, Kolmogorov-Smirnov test and Cronbach Alpha test

INTRODUCTION

A shift from teacher-centered instruction to learner-centered instruction is needed to enable students to acquire the new 21st century knowledge and skills. Shifting the emphasis from teaching to learning can create a more interactive and engaging learning environment for teachers and learners. This new environment also involves a change in the roles of both teachers and students. Teacher education institutions (TEIs) now aim to encourage student teachers to acknowledge the significance of ICT both as a classroom teaching tool and as a source of personal and professional development.

Attitudes, the affective by-product of an individual's experience, have their bases in his inner urges, acquired habits, and the environmental influences by which he is surrounded. In other words, attitude result from personal desires and group stimulation. They act as causes as well as results of behaviour. They are personal and are associated with the feeling tones connected with the

individual's experiences. Attitudes grow and develop, as do other mental and emotional behaviour patterns, in terms of an individual's reactions to his environment. Attitude is a set or disposition (readiness, inclination, tendency) to act toward an object according to its characteristics so far as we are acquainted with them (Woodwoth,1940). Measuring attitude and efforts to improve attitude towards technology is very much essential to effect any change through technology.

Background

Attitudes and Perceptions are considered the filter through which all learning occurs (Abdulkafi Albirini, 2006). Attitudes and perceptions are described as part of the learner's self-system which oversees all other systems (Maria Kyriakidou. et. al,1999).

Technological changes play a key factor in social and economic development. People's knowledge, attitudes, and abilities about technology influence the choices and national development (Zhang,1999).

The teaching strategies that teachers use depend upon a range of factors such as attitudes, confidence, views of the nature of the learner and perceptions of themselves as practitioners (Dillemans, Lowyck, Vander Perre, Claeys & Elen, 1998).

Academic lecturers have positive attitude towards using computers and Internet in their work. Currently multimedia presentations appear to be widely used in the overall teaching process. The possibilities to draw the students' attention and to modify the learning content are attractive factors towards the development and use of self made learning materials (Tuparova et al, 2006). Those students who had access to WebCT had more positive attitude towards it, reported better understanding and learning of the course material (Syed Jafar Naqvi & Manzur Ali Ajiz, 2006). The study of teachers' attitudes becomes indispensable to the technology implementation plans (Sheingold 1991), cited in North Central Regional Educational Laboratory, 2003.

Definitions of the Terms

Teacher trainees

The students who are in the process of obtaining a bachelor's degree in education and to become a teacher in high / higher secondary schools.

Attitude towards ICT

The tendency to react favourably or unfavourably towards ICT.

ICT (Information and Communication Technology)

ICT refers to a range of technologies, which includes computers, computer work situations, display facilities, hardware, software, recording and processing systems for sound, still and moving pictures, graphics, calculations and a wide range of communication facilities. ICT can be defined as the modern science of gathering, storing, manipulating, processing and communicating desired types of information in a specific environment.

Objective of the Study

The purpose of this study was to develop a research tool to measure of B.Ed teacher trainees attitude towards ICT. As such it seems that there is no research tool to measure the B.Ed teacher trainee's attitude towards ICT and that necessitated the researcher to construct a tool.

Methodology

To construct the tool entitled, 'Attitude of B.Ed teacher trainees towards ICT' at the initial stage, the researcher refered to the books, journals and discussed with experts in educational technology as well as in ICT and in this background as many as 34 statements were developed. Out of 34 statements 20 were positive and 14 were negative. The response of the tool was at 5 point Likert scale with the responses strongly agree, agree, undecided, disagree and strongly disagree. The responses were given with the weight age of 5, 4, 3, 2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree respectively. However, in the case of positive statements and in the case of negative statements the weightages were kept reversed.

The tool was administered on 400 B.Ed Teacher Trainees from 8 colleges of Education. The 400 B.Ed Teacher Trainees were selected at random. All the 400 tools, collected from the B.Ed Teacher Trainees, were scored carefully. Based on the scores the tools were arranged in

the descending order from the highest to the lowest. The highest 27% and lowest 27% of the respondent were taken for item analysis. Accordingly 108 cases from the higher group and 108 cases from the lower group were considered.

In order to select the reliable items the researcher has used three statistical measures namely (i) 't' value, (ii) Kolmogorov-Smirnov test, and (iii) Gronbach's Alpha test. In order to select the items the research tools collected from 400 teachers were arranged on the basis of the scores in the decreasing order of magnitude. The highest 108 and lowest 108 of the respondents were identified. Totally 216 tools were taken into consideration for the analysis. Then for the higher group and the lower group the individual test item scores were scored. Using the Kolmogrov Smirnov test the equality of mean scores was tested, the mean scores that differed significantly were retained (Guilford, J.P. 1965). The significant level is 0.0 level. The Kolmogorov Smirnov test value for those items significant at 0.0 level were considered for the final tool and the values are given in the Table 1.

The Cronbach's Alpha value was calculated for the two set of scores for each statement. The item with the Cronbach's Alpha value greater than 0.5 were retained and less than 0.5 were not considered. Further, to establish the significance of the test items, the't' value were calculated. The't' value for the statements greater than the table value at 0.05 level has been taken into consideration.

Based on the statistical treatments namely Cronbach's Alpha test value ranging from 0.789 to 0.994, Kolmogorov Smirnov test value ranging from 4.09 to 12.11 and 't' value ranging from 1.927 to 4.532 the statements of the final tool was established. Out of the 34 statements 20 statements were found to be statistically valid. The final version of the tool entitled "Attitude of B.Ed teacher trainees towards ICT" consists of 20 statements with the dimensions avoidance/acceptance with 5 statements, Classroom learning with 8 statements and Negative impact on learning with 7 statements. The tool consists of five point scale with a maximum score of 100 and a minimum of 20. Out of the 20 statements 10 were positive statements and 10 were negative statements.

Item No.	Cronbach's Alpha	't' value	Kolmogorov - Smirnov test
1	0.847	8.12	3.828
2	0.859	7.22	2.482
3	0.868	4.09	3.113
4	0.823	6.34	2.393
5	0.818	11.23	4.258
6	0.839	5.27	1.982
7	0.897	7.18	3.227
8	0.822	10.19	4.158
9	0.885	6.22	1.927
10	0.808	9.39	3.108
11	0.831	7.62	4.532
12	0.931	5.14	3.112
13	0.938	10.76	2.578
14	0.916	9.29	4.161
15	0.803	7.55	2.627
16	0.789	8.23	2.142
17	0.871	11.45	3.338
18	0.815	12.11	2.522
19	0.994	10.62	3.656
20	0.959	11.23	4.127

Table 1. Attitude of B.ED. Teacher trainees' towards ICT (values of the statements selected)

Validity

In the beginning of the process of tool construction the selected statements were given to experts on educational technology and testing for their approval. They judged the appropriateness of the statements. The statements were modified with their suggestions prior to administration and thereby the content validity was ensured.

Reliability

The Reliability coefficient of the tool was ascertained by using the split half method, which was found to be 0.83.

Conclusion

This research tool focuses on gathering information about the B.Ed teacher trainee's attitude towards ICT. The teaching strategies that teachers use depend upon a range of factors such as attitudes, confidence, views of the nature of the learner and perceptions of themselves as practitioners. Attitude plays a vital role in effecting a change or otherwise it becomes an indicator for effecting a change. This research tool will be of immense use for the Educational administrators, Teacher

educators and teachers, which will throw light upon the attitude of B.Ed. teacher trainees towards ICT. In turn it will help in measuring and developing proper attitude towards ICT among the teacher trainees.

Discussion

The formation of attitude is very much essential in implementing any innovations or inventions. In order to effect any change or implement anything new the attitudinal change is required. That facilitates any sort of change. This holds good also in the teaching learning process where there is lot of technological change. Those changes have to be effected for which there must be a favourable attitude among the teachers. Measuring the attitude will facilitate the educators or policy makers to effect any change particularly among the pre service teachers and newly qualified teachers. The study of teachers' attitudes becomes indispensable to the technology implementation plans.

References

[1]. Abdulkafi Albirini (2006). Teachers attitudes toward information and communication technologies: the case of Syrian EFL teachers. *Computers & Education.* 47, (4),373398.

[2]. Annaraja, P., Nima M Joseph. (2006). *DESIDOC Bulletin of Information Technology.*. 26(2), 37-40 © DESIDOC.

[3]. Dillemans, R., Lowyck, J., van der Perre, G., Claeys, C. & Elen, J. (1998). *New technologies for learning: contribution of ICT to innovation in Education* . Doi:10.1111/j.1467-8535.2006.00630.

[4]. Guilford, J.P. (1965). *Fundamental Statistics Psychology and Education*. New York: McGraw-Hill.

[5]. *Information and Communication Technologies in Teacher Education* - a planning guide Division of Higher Education UNESCO 2002 2 ED/HED/TED/3.

[6]. Maria Kyriakidou., Charalambos Chrisostomou., Frank Banks. (1999). Primary Teachers' Attitude to the Use of ICT: A comparative study between Cyprus and the UK. Paper presented at the *European Conference on Educational Research*, Lahti, Finland 22-25.

[7]. Tuparova, D., Tuparov, G., Ivanov, S., Karastranova, E., Peneva, J. (2006). *Teachers' attitude towards e-learning courses in Bulgarian universities.* Current Developments in Technology-Assisted Education. Retrieved from http:// www. Formatex.org /micte 2006 / pdf/1755-1759.

[8]. Syed Jafar Naqvi., Manzur Ali Ajiz. (2006). Attitudes toward WebCT and Learning: An Omani Perspective. *Informing Science and Information Technology* 3, 435-444.

[9]. Woodworth, R.S.(1940). *Psychology*, Henry Holt & company. NewYork.

[10]. Zhang, Y. H. (1999). The survey of teachers college students' technological attitude - Take national Hualien Teachers College as an example. *NHLTC Magazine, 8*, 297-31.

ABOUT THE AUTHORS

Samuel Gnanamuthu. J. is a research fellow undergoing research in the field of Educational Technology. He is a Master degree holder in History and Education. He has presented papers in national level seminars focusing on ICT impact in teacher education. His current research work is an attitudinal study about ICT among B.Ed teacher trainees. He has developed research tools to measure the Anxiety and Aptitude of B.Ed Teacher trainees' towards ICT.

Krishna Kumar, R. is a Professor of Education in Annamalai University. He has put in 26 years of teaching experience. He is a Doctorate in Education and Philosophy. He is a Master degree holder in Philosophy and Education. His areas of specializations are Educational technology, Philosophy of Education and Curriculum development. He has developed video lessons on Physics and Chemistry and CAI in English language teaching. He is a renowned speaker in the academic staff colleges of Tamil Nadu.