



COMPUTER EDUCATION TO COMPUTERS IN EDUCATION - TECHNO-BASED TRANSACTION (TBT) IN TEACHER EDUCATION INSTITUTIONS

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Abstract

Education in Twenty-first century witnesses an enormous and widespread application of ICT enabled classroom transaction in teaching-learning process at all levels of education, especially at secondary and higher education. With the continuous emerging new technologies, the process of teaching has been evolved from conventional teacher-centered to learner-centered one with focused and need-based efforts on self construction of knowledge. In this context of inevitable curriculum transaction modified modes, many issues are raised which need to be addressed immediately so as to exploit technology constructively in all academic endeavors, especially curricular transaction.

The study is carried out with a view to examine the attitude of teacher educators towards, and their existing awareness on the ever-changing techno-based curriculum transaction strategies; their existing competency levels in using e-learning media facilities; their problems and prospects in acquiring and using the same and the feasibility of techno-based TLMs and transaction strategies in different types of TE institutions.

Analysis in the present study present study employs both qualitative and quantitative modes through observation, analysis of curriculum transaction, interview of student-teachers and teacher educators as well testing of attitude and awareness supported with reflective case studies. The researcher developed and used Academic E-Competency Scales (AECS), E-Facilities Information Schedule (EFIS), Computer Application Awareness Scale (CAAS), Techno-Based Transaction Awareness and Attitude Scale (TBTAAS) to procure the required data.

The Study revealed that the existing e-facilities available and accessible for techno-based curriculum transaction are insufficient; the existing awareness of teacher educators on the same is low and their attitude towards attaining e-competency and using techno-based curriculum transaction strategies is comparatively high. It is in this regard the study attempts to throw light on the problems and prospects of teacher educators on using e-learning facilities for curriculum transaction especially in the context of globalization of education with an alarming high in the competition at international level followed with feasible remedial measures.

INTRODUCTION:

The 21st century world witnesses a severe knowledge explosion, where knowledge getting doubled every two years. This indeed is the result of enhanced innovative venture of man in

all walks of life specially Education. The core dimensions of education are Aims and Objectives, Curriculum, Teaching-Learning process and Evaluation are blended with ICT application. It's seen in maximum with curriculum transaction (teaching-learning). This expansion and explosion in the trends of curriculum transaction demands teachers and teacher educators with no aversion or resistance to change but to have a positive attitude, awareness and skills of using techno-based strategies of curriculum transaction in classrooms so as to make learning more productive, exploratory and influential.

Techno-based learning can be viewed as learning with technology based strategies with using of e- gadgets and soft ware. It is an innovative approach for delivering well designed, learner-centered, interactive and facilitated learning experiences to pupil-teachers in the place of learning employing digital technology. This application of technology could be either in an isolated way or integrated way as in the case of multi-media approach. Techno-based Curriculum Transaction (TBT) mainly conglomerates all possible e-learning modes through Virtual Classrooms, On-Line Learning, Computer Assisted Instruction (CAI), Computer Based Learning (CBL), Web-Based Learning (WBL) etc.

Techno-based learning strategies are by and large employed in a digi-class enriched with multi-media interactive teaching solutions that combine state-of-the-art hardware with syllabi-compliant content. This would truly empower teachers to transform normally practiced or conventional modes of teaching in a traditional classroom setting into a highly productive, influential, experiential and interactive learning with knowledge not transferred or shared but produced by students using constructivist approaches..

NEED AND IMPORTANCE OF THE STUDY:

Indeed it's definitely a high time for teachers and teacher educators to employ high impact and diversified, teaching-learning strategies powered with advanced e-communication technologies which have revolutionized the very style of information accessing and processing for increasingly exploring of knowledge especially in the context of NCF-2005 which stresses self knowledge building or constructivism. In this context every teacher is expected to be aware of varieties of advanced techno-based instructional strategies which have brought drastic changes in the very pedagogy and are instrumental in enhancing academic productivity of both students and teachers..

Research on the application of ICT in schools and teacher education institutions, the e-resources available, the anxiety, awareness and attitude of teachers and students with respect to e-application in teaching-learning are carried out and validated in many parts of the world

and especially in western parts since a couple of decades. But, to what extent do they suit TE institutions with different profile - low, medium and high, in a developing country like India and especially in non-cosmopolite cities or big towns undergoing a dwelling transition from conventional chalk-board classrooms to e-based smart classes? In this context, there is a need to explore the need and feasibility of e-learning resources both in terms of availability and accessibility to teachers-students and teacher educators; the need for a positive shift in the teacher educators' attitude, enhancing their awareness and competency levels in using the same. At the same time there is a drastic need to explore means and ways of making technology, a user-friendly in teaching-learning situations. Added to this there is an immense need to reduce anxiety of teachers and students who are techno-phobic and show resistance towards technology usage.

OBJECTIVES OF THE STUDY:

1. To investigate into the existing e-learning resources and techno-based curriculum transaction facilities available in the selected TE institutions affiliated to the University of Mysore, Mysore.
2. To study the existing levels of awareness of teacher educators on different e-learning resources and techno-based curriculum transaction strategies that can be employed in TE institutions
3. To study the attitude of teacher educators on techno-based curriculum transaction strategies and employing the same in TE
4. To study the Anxiety levels of teacher educators on e-learning facilities and techno-based curriculum transaction strategies
5. To study the existing academic e-competency levels of teacher educators in employing various techno-based teaching practices using the available e-learning resources.
6. To study the dynamics of techno-based education in classrooms in terms of curriculum transaction, students' learning and evaluation of the same.
7. To inquire about the prospects and problems in the availability, accessibility and applicability of techno-based teaching-learning resources in TE institutions.

SAMPLE AND SAMPLING PROCEDURE:

The sample consists of 63 teacher educators working in 4 Aided, 4 unaided, and 1 Govt. TE institutions (in total 9) located in Mysore district.. To select this sample, 'simple-random sampling technique' was employed.

DESIGN OF THE STUDY:

The study employs **Descriptive Survey** using Attitude and Awareness Scale, Interview, Observation Analysis, Teaching Analysis Guides (TAGs) for Curriculum Transaction Analysis, Case studies and Documentary analysis.

63 teacher educators working in **9** TE institutions were administered with researcher-developed tools to collect data on the required variables, which were treated with simple statistical techniques to study the existing levels of awareness and attitude of teachers towards techno-based teaching using e-resources. E-competency scale was administered on all the teachers to study their existing competencies related to using of available ICT facilities for techno-based curriculum transaction. The problems and prospects related to availability, accessibility and employability of e-resources for teaching and learning were analysed through observation and documentary analysis with a check-list, and discussion with some selected students and teachers. Heads of the institutions were also interviewed at the end to study the feasibility of accessing and using e-resources for techno-based curriculum transaction in their TE institutions.

TOOLS DEVELOPED AND USED IN THE STUDY:

The researcher developed and used the following tools to collect the relevant data:

- (1) Techno-based Teaching Awareness Questionnaire (TBTAQ);
- (2) Techno-based Education Attitude Scale (TBEAS);
- (3) Techno-based Curriculum Transaction Analysis Guides (TBTAGs);
- (4) Academic e-competency Scale (AECS)
- (5) Checklists on e-learning facilities and
- (6) Interview profiles.

STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS:

Data collected on the selected aspects of the issues on hand were statistically analysed for Quantitative Analysis that include Mean, Quartile Deviation and Percentage Analysis; and Qualitative Analysis was done using Interview, Case Studies and Interaction with teacher educators. The scores on e-facilities, teacher educators' e-competence, their awareness and attitude towards techno-based teaching were analysed using Quartile Deviation for identifying the differential levels of aforesaid variables followed by Percentage Analysis. This was followed by a Case Study Analysis to examine the findings of Quantitative Analysis in the light of typical cases of teachers, heads of the institutions and students, who reflected the actual findings.

FINDINGS OF THE STUDY:

- 1) Out of **8** TE institutions selected for the study, only **one** was a high profile techno-based college with diversified e-learning facilities, both available and accessible always for teacher educators and contextually for pupil teachers. The facilities include smart board with dual pen, on-line classrooms, Smart board, virtual classroom and Science digital labs. They were consistently used for techno-based curriculum transaction; **2** colleges were found to be with average e-resources having smart classes and on-line learning facilities; **3** colleges were found to be with low facilities for e-learning having only internet connected computer labs; **2** colleges were with only small computer labs having only one or two net linked systems and LCD projectors.
- 2) All teacher educators selected for the study had awareness on techno-based modes of curriculum transaction to different levels; **14%** (09 teacher educators) of them had low awareness; **62%** (39 teacher educators) had average awareness and **24%** (15 teacher educators) were found to be with high level awareness. The mean awareness score on Techno-based Teaching Awareness Questionnaire (TTAQ) was **18.2** against the maximum score of **25**.
- 3) By and large, the teacher educators selected for the study showed positive attitude towards techno-based education. **44%** (**28 teacher educators**) showed low attitude level; **30%** (**19 teacher educators**) had average attitude level and **26%** (**16 teacher educators**) were found to be with high level attitude. The mean attitude score on Techno-based Teaching Awareness Questionnaire (TBTAQ) was **16.8** against the maximum score of **25**.
- 4) Teacher educators working in TE colleges without any techno-based learning facilities showed highest degree of anxiety; teacher educators of low and average profile TE colleges showed anxiety at average levels, but the teacher educators TE college with high-profile techno-based resources had no anxiety at all as they were trained and used for TBT strategies..
- 5) **11** teacher educators (**16%**) of the selected sample showed high academic e-competency; **18** teacher educators (**28%**) showed average e-competency, and as many as **34** teacher educators (**56%**) were having low level of e-competency and a few of them even did not have computer awareness. Among the teacher educators with high academic e-competency, a few were able to use many e-gadgets together with multi-media approach.
- 6) Many high and average techno-based profile teacher educators gave positive opinion on techno-based instructional media and techno-based curriculum transaction as follows:

- TBT offers more scope for teacher educators to use diversified electronic gadgets and media powered with software that allows them to customize learning plans by adding, deleting or modifying information and also imparting information online
 - The content is pre loaded with repository of non objects such as animations, diagrams, interactive videos, worksheets etc. Hence it becomes much easier and effective for both pupil-teachers and teacher educators.
 - The same media source can be used to teach upgraded and updated content as per the level specific needs simultaneously to different groups of students
 - The contents learnt can be easily, effectively and continuously evaluated with an effective tracker and even saved, retrieved and modified with corrections.
 - TBT can be a 'cutting edge solution' helping pupil-teachers and teacher educators understand, 'tough to teach' and 'difficult to learn' concepts specially while teaching Maths and Science contents or any scientific/technical lessons through exploratory learning experiences and probes.
- 7) Only 10 teachers who showed high e-competency were specially trained for teaching using e-resources and employing most effective and feasible techno-based strategies. A few teacher educators who were handling Science and Maths Pedagogy sessions in some colleges were found to be following the prescribed training modules.
- 8) Only one college was found to be equipped with highly techno-based and latest introduced e-strategies such e- programmed instruction and sensor operated multi-functional operations to teach Science and Maths. In one of the high profile techno-based college, touch-sensitive smart board, electronic note pad, interactive white board and collaborative learning software like Wikipedia were seen. Using A/V aids like LCD projector with PPP and short episodes for situational analysis for teaching Social Science was also observed in two colleges.
- 9) The qualitative analysis revealed that, though the teacher educators were lacking awareness, knowledge and skills related to TBT, showed a high level positive attitude on the same and strongly opined that TBT is much needed at any level of education in this modern world empowered by ICT.

CONCLUSIONS:

The existing levels of knowledge, awareness and attitude of teacher educators towards TBT by and large are low or average. They should be aware of the need and significance of TBT especially in this modern world featured with rapid expansion and explosion of knowledge.

The colleges should make all kinds of efforts to provide interactive, effective, need-based and experiential learning experiences with TBT for knowledge self construction by students. Teacher-educators are to be well trained to handle all kinds of technical or electronic gadgets without any anxiety in content development, teaching and evaluation.

Wi-Fi college campuses and technology-enabled classrooms, though play a vital role in modern education context, the role of teacher is still pivotal and crucial. Technology alone cannot produce meaningful learning. It is only a tool that can help enhance pupil-teachers' learning and cannot replace the teacher or teacher educators.. "*Technology can ever be a bridge, never a destination.*" Sometimes highly advanced technology employed in class rooms; fail to produce the desired learning outcomes as the teacher educators would not find them easy and effective to use. At the same time, the fact that there is an immense need for techno-based teaching strategies employed by e-competent teacher educators cannot be ignored. Teacher educators should not become the slaves of e-gadgets but master all the necessary skills and competencies in using them to stimulate and reinforce learning of pupil-teachers.

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