

Empowering School Teachers with Educational Technology using the Distance Education Mode

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ABSTRACT

Educational Technology deals with defining overall and specific objectives, analysis of learning situations, selection of methods and media, development of educational materials and evaluation tools, implementing and validating teaching-learning process at all levels and sectors of education, ranging from pre-primary to university levels, from formal to non-formal, including Distance Education. The classroom input needs to be strong for a quality process resulting in a quality product/students coming out after programme completion. The teacher plays primary role in classroom by using Educational Technology to function as a classroom manager. Swaziland is a small developing country having 7551 Primary and 5024 Secondary teachers spread in 575 Primary and 227 Secondary schools. Distance Education mode may be used for staff development regarding Educational Technology among these teachers. Major objective of this research is "To develop and try out a training package in the field of Educational Technology for staff development among school teachers through distance education mode". Major Hypothesis is "The proposed learning package, in the field of Educational Technology, would enhance teachers' competency up to a significant level. A sample of 380 primary and 250 secondary teachers had been drawn using stratified random sampling method with due representation to rural & urban areas from all four regions of Swaziland. They have undergone a pre- test in Their 'Knowledge', 'Skills', and, 'Attitude' towards Educational Technology. They will study using a Module entitled "Educational Technology for Effective Teaching" for three months and will participate in a two days contact session followed by a post- test in all three tests. Statistical analysis of pre-test and post-test data will reveal effectiveness of this study package for empowering school teachers with Educational Technology. If the proposed package is found effective, it may raise the knowledge levels among school teachers about their role in classroom communication, equip them with many skills being essential, and strengthen their positive attitude towards a competency-based teaching-learning process.

Individual differences among students are a major problem before every teacher. He has to amalgamate his teaching aids, teaching methods in order to manage his classroom activities in such a way that all students reach to their optimum level of learning. These students come as raw material in educational institutions and, leave as product. The quality of this product is never same or similar because of individual differences among these students. Educational Technology is a tool to manage classroom activities effectively for meeting the .problem of Individual differences and creating a learning environment to meet optimum learning target among students. Educational Technology is a combined gift by three major sciences known as – Communication Sciences, Social Sciences, and, Managerial Sciences. Various instruments Electronic or non- Electronic used as teaching aids are the gifts by Communication Sciences. Similarly, knowledge of various physical and mental differences among students, and, an appropriate solution comes from Educational Psychology, Education, and, Sociology etc. The managerial sciences have gifted teachers a new role as classroom Manager. Davies (1971, 5-11) in his book entitled 'Management of Learning' has described Planning, Organisation, Controlling/Leading and Evaluation as four major stages of classroom managerial role of a teacher in classroom. Knowledge of all these gifts and their application by every teacher may bring a quality classroom communication and finally a good quality product too. It has necessitated empowering every teacher working in Swaziland at Primary and High School level about Educational Technology and its use by them. This is a 'Staff Development' project by using Distance Education Mode. Face to Face mode or Induction effect modes are neither economical nor effective. Therefore, Distance Education Mode has been considered as best fit mode for this project.

OBJECTIVES OF THIS STUDY

The Major objective was to develop and try out a training package in the field of Educational Technology for staff development among school teachers through distance education mode. There were some specific objectives as below.

- a) To determine the significance of difference before and after experimentation regarding knowledge level about Educational Technology and its applications among target group teachers.
- b) To determine significance of difference before and after experimentation regarding classroom managerial skills among target group teachers.
- c) To determine significance of difference before and after experimentation regarding change in attitude towards Educational Technology application in classroom among target group teachers.
- d) To seek opinion of target group teachers on proposed Learning package to make it user friendly.
- e) To examine the significance of difference among all four regions of Swaziland regarding the effect of learning material on target group learners.
- f) To compare the significance of difference between rural teachers and urban teachers in various regions as well as the whole target group.
- g) To assess the effectiveness of proposed learning package for enhancing quality of classroom communication.

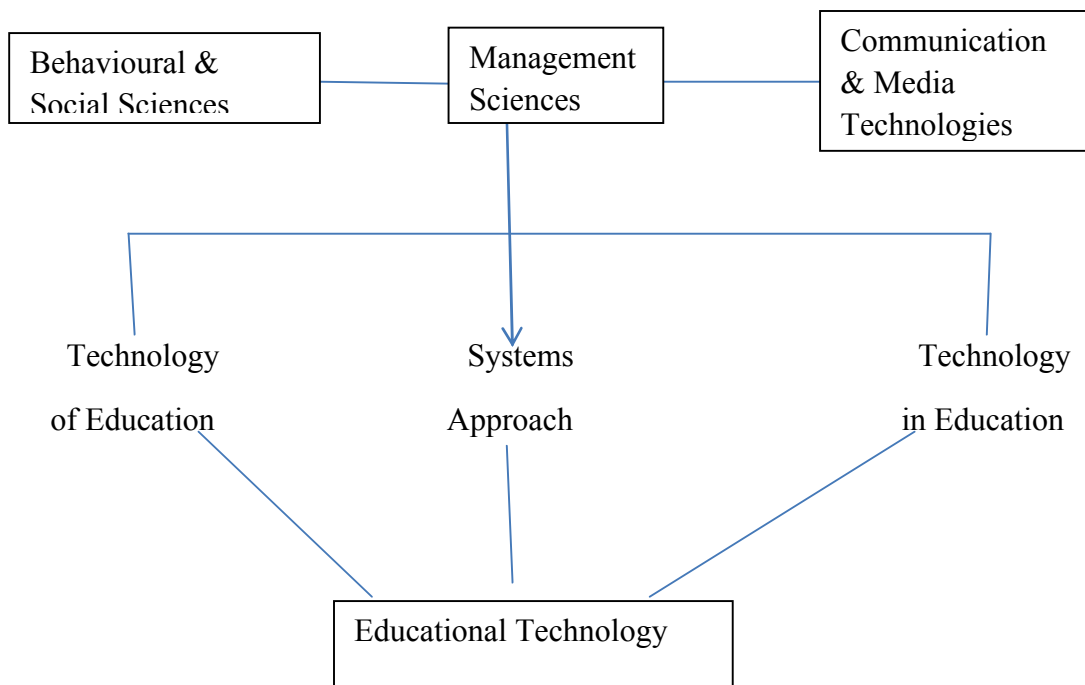
HYPOTHESES

The major hypothesis was "The proposed learning package, in the field of Educational Technology would enhance teachers' competency up to a significant level". There were some minor hypotheses as below.

- a) There may be a significant enhancement in the Knowledge level regarding Educational Technology application in the classroom after experimentation among target group teachers.
- b) There may be a significant up gradation about classroom Managerial Skills, among the target group teachers, after experimentation.
- c) There may be a significant difference before & after experimentation in Attitudes towards managerial role in classroom among the target group teachers,
- d) There may be a significant difference before and after experimentation regarding educational technology application competency among target group teachers.
- e) There may be a significant difference between rural area teachers and urban area teachers regarding educational technology application competency before and after experimentation.

EDUCATIONAL TECHNOLOGY – ITS MEANING AND SCOPE

The term Educational Technology refers to the use of various techniques gifted by three major sciences. These are 1) Behavioural & Social sciences, 2) Management sciences, 3) Communication and Media Technologies. The black board & chalk, charts, maps, figures, modern electronic devices to display information are the gifts of physical sciences, being the outcome of various innovations and their application to the field of education. Social Sciences which cover Psychology, Education and Sociology, among others, tell us about individual differences among learners and their treatment. Learning rate, role of intelligence in learning, motivation, attitudes, and aptitudes are social sciences gifts which a teacher must know for an optimum learning by the students. How to manage classroom activities, cybernetics being the control of information flow in a classroom are the gifts of managerial sciences. The teacher must be a competent person to use these gifts for an optimum learning.



JUSTIFICATION FOR THIS STUDY

The information revolution has affected every field of life. The role of a teacher is supported with different innovative ideas for using 'new machines', 'new methods' and, 'managerial techniques' in the classroom. The purpose of this new role is to make every learner to learn up to his/her optimum level. The student (as customer) and the teacher (as dealer of education) have to develop a liaison for an easy information flow between them. The managerial role of a teacher in class room situation, the concept of cybernetics, use of various teaching devices, learning theories, taxonomy of educational objectives, and, an application of various electronic gadgets in classroom are some of the innovative ideas for a school teacher. Completing the course in a prescribed time limit and meeting an objective of optimum learning for every learner has been a challenge for every teacher. Also, implementing Quality Control Norms and Total Quality Management in a classroom are the responsibilities of every teacher. The quality in classroom communication is a matter of bridging the gap between 'perceptions' and 'expectations' from a teacher. The teachers are expected to know "An Art of Effective Communication", while it may not be in the perception. Mere covering the course content without assessing its effect on learner mind is perception in most of the classrooms. A good quality output of classroom communication depends upon its process, which again depends upon its input. Man (teacher) is the primary component among all five (Man, Machine, Method, Money and Material) components of every input. A skilled man (Teacher) can easily amalgamate all other components for managing a good quality input for an effective classroom communication. Therefore, an orientation of the 'Man' (teacher) is essential for a competency regarding a quality classroom interaction.

METHODOLOGY ADOPTED

This is an Experimental Research having a single group design as practically it was not possible to have a two group design known as Experimental group and Controlled Group.

POPULATION AND SAMPLE FOR THIS STUDY

Table 1. Region-wise Teacher Number in Primary Schools (Population)

Sr.No.	Region Name	No. of Schools	No. of Teachers		
			Rural	Urban	Total
1.	Hhohho	157	1469	441	1910
2.	Manzini	164	1796	462	2258
3.	Shiselweni	135	1654	127	1781
4.	Lubombo	119	1344	258	1602
Total		575	6263	1288	7551

Source – Ministry of Education Mbabane, Swaziland.

Table 2. Region-wise Teacher Number in High/Secondary Schools (Population)

Sr.No.	Region Name	No. of Schools	No. of Teachers		
			Rural	Urban	Total
1.	Hhohho	60	1014	506	1520
2.	Manzini	63	924	508	1432
3.	Shiselweni	54	1020	108	1128
4.	Lubombo	50	752	192	944
Total		227	3710	1314	5024

Source – Ministry of Education Mbabane, Swaziland.

Table-3. Number of Teachers in sample from Primary Schools in each Region

Sr. No.	Region Name	No. of Schools	No. of Teachers		
			Rural	Urban	Total
1.	Hhohho	157	77	22	99
2.	Manzini	164	90	23	113
3.	Shiselweni	135	82	07	89
4.	Lubombo	119	67	12	79
Total		575	316	64	380

Source - Stephen I & William B., Handbook in Research and Evaluation Ed. IIS, San Diego, California, USA (3rd ed. p 201)

Table4. Number of Teachers in sample from High/Secondary Schools in each Region.

Sr. No.	Region Name	No. of Schools	No. of Teachers		
			Rural	Urban	Total
1.	Hhohho	60	51	25	76
2.	Manzini	63	46	25	71
3.	Shiselweni	54	51	05	56
4.	Lubombo	50	37	10	47
5.	Total	227	185	65	250

Source - Stephen I & William B., Handbook in Research and Evaluation Ed. IIS, San Diego, California, USA (3rd ed. p 201)

Note- In spite of an open invitation to all schools, only 193 teachers had participated in Pre-test. These 193 teachers will be invited for a two days contact programme followed by post-test session.

LEARNING MATERIAL DEVELOPMENT SELF INSTRUCTIONAL MATERIAL FORMAT.

Communication in the classroom is the mutual interchange of ideas by any effective means. It is desired to make this communication effective. Therefore, it is essential that the transmission of facts or information is carried out in such a manner that the meaning intended and the use of the message is understood by the learners. Ludlow Ron (1996, 18-19) advocated for an orientation of teachers for an effective communication in classroom with students. Orientation of teachers is the process of aiding them to gain effectiveness in their present or future work through the development of an appropriate competency. It helps the teacher to do his job correctly, effectively and conscientiously. The orientation programme for teachers must include a sequence of experiences, a series of opportunities to learn, in which the trainee is exposed in some more or less systematic way to certain materials or events. It is true that every person must keep abreast of the latest developments in his field; otherwise he will soon be working far below his potential and capacities. The explosions of technological advancements, science of teaching-learning, and the science of management have jointly forced a teacher to have an altogether a different role from the previous one. He is now a facilitator of learning and not a preacher of mere ideas and information. Following may be course content for the proposed learning package. Following 16 Units followed by some practical activities were included in Self Instructional Material.

A) Theoretical Component

- 1) The Nature and Scope of Educational Technology.
- 2) Managerial Approach to Classroom Communication.
- 3) Systems Approach to Teaching-learning process.
- 4) Bloom's Taxonomy of Educational Objectives: Its utility to classroom communication.
- 5) Pedagogy & Andragogy in the teaching-learning process.
- 6) Instructional modes for classroom interaction.
- 7) Learning Activity.
- 8) Learning Theories for Classroom Communication.
- 9) Motivation, Interest and Emotions: Meaning and role in learning.
- 10) Verbal and Non-verbal Communication.
- 11) Role of Audio/Video aids in the teaching-learning process.
- 12) Role of Computers in the teaching-learning process.
- 13) Mastery learning for effective teaching.
- 14) Individual Differences among learners.
- 15) Assessment, Measurement and Evaluation: Meaning and utility for examinations.
- 16) Various types of test items and their application in examinations.

B).Practical Component

- 1) To develop some remedial learning material (Print/Audio/Video) for some level in any subject.
- 2) To prepare a report about some slow learners or high achievers with recommendations for meeting their academic needs.
- 3) To develop some test items based on Bloom's Taxonomy of the Cognitive Domain.
- 4) To use various technologies for classroom communication.

A well-framed Self-Instructional Material (SIM) is supposed to perform these activities with an isolated distance learner. This research project aims at evaluating the effectiveness of the proposed package in SIM format among a sample of teachers drawn from both rural and urban areas of all four regions in Swaziland. If this package is found effective, it may be used for staff development among teachers working in different schools of Swaziland.

DEVELOPMENT AND CONDUCT OF NECESSARY TESTS

The research team had developed three different tests. The first test was Knowledge Test used before and after reading the proposed material. The second test was Skills Test to assess their competency/art of dealing with

their students, and, the third test was an Attitude Scale to assess their Attitude towards teaching profession and classroom activities. These tests were given two times as Pre-test & Post- test. The pre-test was conducted in the beginning after the target group teachers had shown their willingness and the post test will be (in September- October) ,after they complete their study through SIM and their participation in contact sessions. The analysis of the pre- and post-tests will reveal the effect of the proposed training programme among the target group teachers. Since all teachers have a working knowledge of English, it is presumed that they will understand the content of the book. The research team feels that there will be no need to reproduce this material in Siswati for them. However, they can interact among themselves in either SiSwati or English as per their convenience. The Research team had also developed an Opinion Scale to seek target group feedback/opinion about modifications in the learning package and finally produce a user friendly standard learning package for staff development to be done in phases among all school teachers of Swaziland.

EXPECTED IMPACT

If the proposed package is found effective, it may raise the knowledge levels among school teachers about their role in classroom communication, equip them with many skills being essential, and strengthen their positive attitudes toward a competency-based teaching-learning process. It will have its impact on the Policy of the Ministry of Education which advocates for the training of teachers and the Ministry may like to make this orientation compulsory for all school teachers. Also, it may have an impact on Application of the competency gained by the target group teachers for managing classroom activities. Finally, as an Outcome it will help the participants to provide effective classroom communication to their students. These target group school teachers might become capable to meet the learning needs of slow learners as well as high achievers too. It will result in good quality interactions with the learners in the classroom, resulting in better results of learner performance during examinations.

ETHICS IN EXPERIMENTATION

This experimental research will involve school teachers of Swaziland as target group. Their desire to cooperate will be main criterion for participation. There will be no compulsion on the part of any individual teacher for the same. They may leave the experiment if they feel it unsuitable for them. The experiment will be in four batches of about 160 teachers at different place. The target group teachers will enjoy openness for their participation in any batch as per their suitability of time. Also, this experiment will not affect their career or traditions or their sentiments. Its major purpose is to assess effectiveness of a learning package for enhancing competency of target group teachers for using Educational Technology in classroom.

DATA ANALYSIS

The research team will enter the question marks obtained in every test in Excel format and use the SPSS Package for data analysis. This analysis at pre-test level will reveal the target group status/level of various aspects of using Educational Technology in classroom. Similar analysis at post-test level will explain the gain in status/level of various aspects of using Educational Technology in classroom. The target group opinion will be put in Excel format for an analysis using the SPSS package. The compilation of all opinions will reveal the changes to be done in learning material for making it more user-friendly for all teachers of Swaziland. The use of the 't' test will reveal the significance of difference between Pre-test and Post-test for all the three different tests used for Knowledge, Skills and Attitude change with this experiment. Similarly, the use of 'F' test may reveal significance of difference among four regions for competency development among teachers about their role in classroom activities and an optimum learning by the students. The reliability of statistical interpretations will depend upon actual performance by the experimental groups drawn from four regions. A difference between rural teachers and urban teachers may also be examined by using the 't' test. The results will be interpreted as per objectives of this research project and may reveal significance in regional differences as well as a difference between urban teachers and rural teachers within every region and in overall target group too regarding competency gained in the field of educational technology application. This information may be shown in the form of Tables, Graphs and Pie charts too. A product moment method of correlation will also be used among all three gains as – Knowledge, Skills and Attitude towards using Educational Technology in classroom

situation. The research team will produce question wise interpretation for all three tests as well as for the Opinion scale as per the objectives of this research project.

FINDINGS OF THIS EXPERIMENTAL RESEARCH

At present the pre-test had been conducted in June 2013. The Contact sessions will be in September/ October 2013. After that the data analysis will be done. It will throw some light on findings. The final report may be ready by end of November. The findings will be presented in power point presentation during the conference session.

FUTURE PLAN OF ACTION

This experimental research project is a pilot study to see the effectiveness of a training package to be used through distance mode for raising competency among school teachers regarding classroom activities management to achieve the target of optimum learning. If this package is found effective and user- friendly in its purpose, it may be used to train all school teachers of Swaziland. There are about **7551 primary teachers** and **5024 secondary teachers** working in **575 primary schools** and **227 high/secondary schools** of rural and urban areas of Swaziland. This target group will be trained in the next phase after completion of this research project. The present sample comprising of 193 Primary and Secondary teachers, may become competent in various activities after completion of this experiment. These 193 teachers may be asked to work as an agent for change among whole population of school teachers. The project team has a plan to take the services of these 193 teachers in their localities for monitoring various activities when the whole population would be given training for enhancing their competency to achieve the optimum learning target in classroom. Thus, these 193 teachers being well trained will be change agents to convince the population teachers being their counterparts numbering approximately 12575 school teachers in Swaziland. These 193 teachers will also work as a link between target population teachers and the Institute of Distance Education, University of Swaziland, for Staff Development through distance mode if proposed package is found effective and user- friendly. Therefore, future plan of action depends upon success of this experiment.

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- 4) Stephen I Stephen I & William B., Handbook in Research and Evaluation Ed. IIS, San Diego, California, USA (3rd ed. p 201)

Note- This is an Experimental Research based on Single group (Pre-test & Post-test) research design. The Pre-test has taken place in June 2013, and the target group teachers are studying through distance mode for three months. They will meet for a two days contact session followed by a post test. The final report regarding effectiveness of Distance Education mode will be ready by the end of November 2013. I shall bring with me 50 copies of the report and final Power Point Presentation too. Because of the project is going on, work done is written in past tense while rest things are stated in future tense.