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## Strengthening training needs of faculty on education technology in a state agriculture university: A retrospective view

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### Abstract

Effectiveness of teaching can be, gauged through students Assessment of Teachers (SAT). But, the faculty often don't like their teaching be evaluated by their students. In the west it is more common. But, in India, it is uncommon. Nevertheless, to achieve academic excellence, this step is very essential. It is in this direction studies were undertaken to ascertain the training needs of faculty on Educational Technology at University of Agricultural Sciences, Bangalore during 1991, 1999, 2007 and 2011 by Somashekhsrappa, Naika, Ravikanth and Pallavi respectively form the basis. This paper traces (a) the origin of concept of Education Technology (b) perspectives of Education Technology (c) The approach followed. The Results reveal that training needs of teachers on Education Technology over two decades, were varied as revealed by RJ scores. However, certain core areas like theories of learning and its application in teaching, methods and motivation techniques appears to be very important for the faculty. This calls for arranging in house training programs for newly recruited teachers or deputing outside, for refresher courses. So that, the faculty can sharpen their knowledge on pedagogy of teaching in the university to achieve Academic excellence in the years to come.

**Keywords:** Education technology, training needs, faculty, teaching

### Introduction

Effectiveness of teaching needs to be gauged by its results, with a quantitative expansion in student enrollment, a steep decline in teaching has set in; one of the terms of accountability in the Rostogi committee (1997) [2] is the Assessment of Teachers by Students (ATS). But, the argument leveled against such a move is that students are accountable for their studies not on evaluating the teachers. However, teachers in Agricultural Universities by and large have fair knowledge in their field of specialization. But, lack the pedagogy, the ways and means of imparting it effectively. Most of the teachers simply imitate their seniors, since greater emphasis is now being laid on improving higher education and raising the standard of higher education perpetuation of status quo is not going to open the door to Academic improvement (Miller 1990) [6]. Now, time has come to think in terms of educational objectives, defining them and relating them to teaching and testing procedures. Educationist regard this process as a very essential step on the part of the teachers which is in greater part contribute to Academic excellence. It is in this direction, studies were undertaken to ascertain the training needs of teachers on education technology.

The University of Agricultural Science, Bangalore (UAS) was established during 1964, under Land Grant Collages (LGC) pattern of USA. It is one of the oldest Agricultural University in the state of Karnataka. Later, it was bifurcated into two. Now, there are four Agricultural Universities and one Animal Sciences University in the state besides Horticulture University. In this backdrop, this paper tries to address the training needs of teachers during two epochs? at UAS Bangalore. This paper tries to trace the (a) Concept of education technology (b) Historical perspective (c) Approach followed (d) The results and Discussion besides, conclusion.

### a. Genesis of Education Technology Concept

Educational technology is inevitable to achieve quality of education. However, The Ministry of Education and Social welfare, Government of India, having realized the importance of educational technology for qualitative improvement of education during 1971, included educational technology in the Fifth Five Year Plan which gave birth for (a) establishing a centre for educational technology in the National Council of Educational Research and Training (NCERT), New Delhi and (b) Assisting States for setting up of educational technology cells with 100 percent funding (Mohanty, 1992) [7].

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The important pre-requisite for achieving qualitative improvement in education is curriculum. Curriculum is the sum total of learning experiences provided by college/university. It is called the "stuff of education". Spalding (1970) observed that one of the main reasons of unrest among the students' of to-day throughout the world is the fact that curriculum reform has not been continuous and curriculum has not been entirely relevant, neither to what the students bring to it; nor to what the students expect from it. Besides, the students in colleges or universities to-day are different from the students of yester generations. Therefore, a reform in curriculum from time to time is very crucial to achieve quality in education and should be relevant to the changing needs of present and the future. There is a constant demand for up-dating the curriculum. Therefore, it is mandatory for the colleges or Agricultural universities to take up curriculum development to build strong human resource in the colleges/universities.

The universities in India may be classified into three groups on the basis of the method of Academic Assessment *viz.*, (i) universities continuing with traditional method of assessment with external evaluation, (ii) universities with partly external evaluation and partly internal evaluation and (iii) universities which have adopted total internal assessment. Most of the agricultural universities in South India fall under the second category (Venkat Rao, 1974) [12].

### b. Historical Perspectives of Educational Technology

The predictions about the effect of technology on education have been slow to mature. It mainly because the field itself has been changing over time. Of late, the instructional systems/methods have been developing fast. If any professional field is going to stay viable and continue to grow, it must be responsive to its competition and its users. Educational technology is not an exception (Venkataiah, 1996) [13] to this phenomena.

#### (i) International development of educational technology

If we look into the history of educational technology in the last five decades, especially in developed countries like U.S.A. and U.K., it is observed that every decade has seen the introduction of at least one new communication technology which was predicted to radically transform the instructional communication. The new communication technology introduced in the 1950s was film; radio broadcast, Educational Television, Audio-Visual aids such as film strips, slides and transparencies and Programmed Instruction (PI) were introduced in 1960's. In the 1970's, video cassettes, remote access audio and video, and computer assisted learning were in vogue. During 1980's, new communication technologies: video-text, interactive video, teleconferencing, electronic mail and artificial intelligence were developed.

#### (ii) Origin of the term 'Educational Technology'

The term educational technology was recognized in 1967 with the establishment of the National Council for Educational Technology (NCET) in United Kingdom Association for Programmed Learning promptly added "Educational Technology" to its title in 1968. In the United States it was the Department of Audio-Visual Instruction of the National Education Association for Educational Commissions and Technology in 1970.

The term 'system' appeared fairly regularly in the early writings on educational technology. But, it did not

immediately become widely adopted as a conceptual frame work. Now, educational technology is firmly established as a field of study. Instructional development, educational communications and educational resources are the terms which describe the field of education technology.

### The Concept of Educational Technology (ET)

The concept of Educational Technology (ET) was viewed across the nations variedly. However, broadly there are three distinct views on educational technology, to the process of teaching, first view of Finn (1972) [4]. The second view of Gange (1963) [5] on educational technology refers to application of scientific principles to instruction. (i) Educational technology lays stress on use of hardware in education; (ii) educational technology lays stress on the psychological principles of learning; (iii) as described by Davis and Hartley (1972) educational technology incorporates both view of (i) and (ii). According to them, educational technology should be considered as a system in which men, machines, media and materials are inter related parts and are organized in such a way that they work together in a pre-planned manner for the fulfillment of specified educational objectives.

Gange (1963) [5] cited educational technology as the development of a set of systematic techniques and accompanying practical knowledge for designing, testing and operating schools as educational systems.

The Council for Educational Technology (CET), U.K. (1979) defined Educational technology as the development, application and evaluation of systems, techniques and aids to improve the process of human learning.

According to Alancleary *et al.*, (1976) [1] argued that educational technology is a broad term which covers not only the use of teaching machines or similar devices in education but increasingly refers to the application of scientific disciplines to education. Thus, operationally it could be said that education Technology refers to the 'package' a teacher adopts to teach his pupils.

The Specific objective of this study is to identify the training needs of faculty on education technology and constraints as perceived by them at University Agricultural Sciences Bengaluru.

### c. Approach followed

Studies on Training needs of teachers on education technology conducted at University of Agricultural Sciences Bangalore (UASB) campus during 1991, 1999, 2007 and 2011 form the basis. The respondents were teachers drawn from Agricultural colleges of different campuses of UAS (B). All the teachers who had more than three years of teaching experience were included for the study, using complete enumeration method. List of teachers working in the different campuses/ colleges were obtained from the officer concerned. This included Assistant Professors, Associate Professors and Professors respectively. Table 1 gives the details of this fact.

**Table 1:** Numbers of Faculty Members Selected for Studies at UAS Bengaluru by Different Researchers

Sl. No.	Author	No.	%
1.	Somashekharappa (1991) [11]	113	36.34
2.	Naika (1999)	48	15.44
3.	Ravi kanth (2007) [10]	90	28.94
4.	Pallavi (2011) [9]	60	19.28
	Total	311	100.00

### Construction of questionnaire

Total design method as suggested by Dilman (1978) was used in the construction of Questionnaire. The variable included was training needs and demographic characteristics of teachers. The number of teachers available in each campus was varied due to leave, some were on tour, and some of them were shifted to other disciplines like Research and Extension wing. The response rate was varied from 66 to 75 percent.

### d. Results and Discussion

#### Analysis of data

To work out the training needs hierarchy of educational technology the rank order assigned by the respondents were scored by giving 1 to 10 scores for most important to 10<sup>th</sup> least important. Based on Research Journal (RJ) scores i.e., lower the RJ scores higher the training need hierarchy has been worked out, The Kendall co-efficient of concordance 'w' and  $\chi^2$  was used to test the significance.

**Table 2:** Hierarchy of training needs on education technology

Training needs	Somashekarappa (1991) <sup>[11]</sup>	
	RJ Score	Rank (N=113)
Methods of class room teaching	448	1*
Techniques of motivation	468	2
Learning theories and their application to teaching	533	3
Preparation and use of A.V. Aids	621	4
Handling A.V. Aids	626	5
Preparation and Lesson plan	682	6
Teaching on Construction of test items	698	7
Evaluation	712	8
Students counseling	882	9

W=136x2=132.21\*\*

\*\*Significance at 5%

\*Least rank more important

The data presented in Table-2 reveals that class room teaching method, techniques of motivation, learning theories as applied to teaching, preparation and use of A.V. Aids, Handling of A.V. Aids, lesson plan preparation, evaluation methods in classroom, construction of test items, followed by students counseling were the major areas the faculty felt they need more training. (Somashekarappa 1991) <sup>[11]</sup> as alluded, The RJ score states that lower the score more important and higher the score least important, This Calls for organizing training program for newly recruited teachers on pedagogy (i.e., The principles of learning) methods, it could be inferred that there

appears to be less facility and poor encouragement for students counseling, lack of physical facilities, non-availability of teaching facilities like computers. A.V. Aids, slides, PPT etc. Added to this, encouragement from Administrators and Heads of departments seems to be not forthcoming to use the advanced gad jets in class room teaching. Therefore, attempts should be made to equip the teachers' knowledge and skills, to use more modern methods in teaching. So that, the young minds can be penetrated with new contents in to the minds of people in general and students in particular.

**Table 3:** Training Needs of Faculty Members on Education Technology

Training Area		Naika (1999)		Pallavi (2011) <sup>[9]</sup>	
		RJ Score	Rank order	RJ Score	Rank order
1	Theory of learning and their applications to class room teaching	176	1	322	5
2	Students motivation techniques	176	1	312	3
3	Preparation of lesson plans	182	2	299	2
4	Class room evaluation methods	200	3	271	1
5	Preparation and use of AV-aids	202	4	328	6
6	Teaching evaluation methods	247	5	316	4
7	Handling AV equipments	257	6	343	8
8	Guidance and counseling to students	257	6	337	7
9	Use of digital cameras	-----	-----	359	9

**Table 4:** Training Needs of Teachers Relating to Educational Technology according to (Ravikanth-2007) <sup>[10]</sup>

	Area of Training Needs	High Extent		Mode rate Extent		Low Extent	
		F	%	F	%	F	%
1.	Theories of learning and their application to class room teaching	68	75.50	15	16.70	7	7.80
2.	Students motivation techniques	54	60.00	18	20.00	18	20.00
3.	Class room teaching methods	52	57.80	21	23.30	17	18.90
4.	Guidance and counseling to students	51	56.70	16	17.70	23	25.60
5.	Teaching evaluation methods	49	54.4	23	25.60	18	20.0
6.	Preparation of lesson plans	47	52.30	26	28.90	17	18.80
7.	Handling of Audi visual equipments	40	44.4	19	21.10	31	34.50
8.	Preparation and use of audio visual aids	36	40.00	28	31.20	26	28.80

It is paradoxical to note from the Table 3 and 4 that the training needs of faculty as reported by Naika (1999) were in the order of application on learning theories in teaching,

students motivation techniques, preparation of lesson plans, class room teaching methods, use of A.V. Aids, evaluation methods followed by guidance and counseling methods. The

training needs area mentioned by Somashekarappa (1991) [11] has got altered over the years. This implies the explosion in technology and population was augmented during 90's. Also possibly, the number of student enrolled per class might be more as a result the lack of physical facilities and resources might have influenced this trend. Later, Ravikanth (2007) [10] and Pallavi (2011) [9] has investigated the training needs of teachers in the same university, perhaps including a mixture of old and newly recruited teachers as sample for her study, during 2011. The results of table-4 speaks out that use of A.V. Aids, emerged as important area followed by teaching methods motivation techniques, learning theories application in teaching, evaluation methods and use of digital camera in the decreasing order. This shows that, over the years, the technology usage in teaching-learning is getting priority. At the same time, the training needs of teachers on education technology have changed compared to previous years. Naika (1999). By and large, teaching is an art, the effectiveness of teaching is bent upon the experiences, exposure and integration of known ideas with un-known ideas. Known (I

mean here what the audience or (Students knew) un-known meaning what the teachers expect his pupils to know or learn) and understand. It is worthwhile to quote Ravindranatha Tagore's saying "A lamp can't lit another lamp unless it lit itself" Therefore, if the teacher (new or old) experienced or inexperienced want to teach his audience, their knowledge must be updated on technology usage, handling and maintenance, besides psychological principals in teaching and learning. Technology is a slave in the hands of user, But, its integration makes teaching more meaningful not technology itself or perse. Therefore, use of new gadgets in teaching is the need of the hour which calls for integration in teaching. Further, it could be observed that the common training needs of teachers are theories of learning, motivation techniques, lesson plan preparation, and different teaching methods. Handling and use of A.V. Aids, and evaluation methods. All these areas could be the contents for organizing induction training for newly recruited teachers and to senior teachers at UAS (B). This implies teaching is an art it requires constant up gradation on new methods of teaching.

**Table 5:** Constraints as Perceived by the Teachers on the Use of Educational Technology

Sl. No.	Constraints	(Naika 1999) (n=48)	(Ravikanth 2007) [10] (n=90)	(Pallavi 2011) [9] (n=60)	Total	%
1	Lack of physical facilities & funds	4	39	40	83	27.13
2	Non-availability of modern teaching aids	12	26	19	57	18.63
3	Lack of opportunities for higher training	20	16	15	51	16.67
4	High cost of modern gad jets	-	13	31	44	14.38
5	Student-Teacher ratio is more	12	-	17	29	9.48
6	No Encouragement	11	9	-	20	6.53
7	More work load	2	9	11	22	07.18
				<b>Total</b>	<b>306</b>	<b>100.00</b>

\*Multiple responses

Table – 5 indicates the constraints teachers faced in teaching. The common problems include non-availability of teaching aids, inadequate funds, lack of training for staff members' heavy work load high cost of gad jets. This calls for up graduation of classrooms with modern gadgets and training of teachers on use of gadgets. Therefore, encouraging teachers to go out and equip themselves on advanced areas of teaching is a worthy profession. Based on the results/ experience in

teaching it is good to organize three day or one week induction training to the teachers who are engaged in teaching, some of the important topics that could be included in the training curriculum are as follows. Added to this, the suggested areas are not only useful to UAS (B). But also to all the state Agricultural Universities (SAUs) across the states & within the state.

**Table 6:** Suggested Topics for Induction Training

Sl. No	Contents
1.	Theories of Learning and its implications to teaching
2.	Class room teaching methods
3.	Note taking techniques
4.	Listening skills
5.	Presentation skills
6.	Flanders Interaction Analysis (FIA)
7.	Learning styles and its application in teaching
8.	Curriculum development
9.	Students motivation techniques
10.	Preparation of lesson plans
11.	Classroom evaluation methods
12.	Construction of test items (Question paper)
13.	Students counseling and guidance
14.	Training need assessment
15.	Talent management in teaching learning transaction
16.	Use of tab / CAI in classroom
17.	Conference method of teaching
18.	Assessment of teaching competency
19.	Participatory teaching methods
20.	Video conference as a method of teaching
21.	Enhancing critical & creative thinking
22.	Performance of Appraisal

23.	TQM in agriculture education
24.	Integration of ICT in agriculture education
25.	Effective study skills
26.	Social media in agriculture education
27.	Case study as a method of instruction
28.	Use of multi-media in teaching

### Conclusion

It is axiom to note that, the training needs of faculty at Agricultural University in two Epochs on Education Technology were varied over the years. This calls for a concerted effort on the part of policy makers, Administrators and Teachers themselves with an open mind for learning. The evaluation of teaching seems to endanger alarm apprehension and even a certain level of fear. Therefore, Teachers who are in teaching must abreast themselves on recent advancement in their respective areas and practice sincerity and dedication in molding the behavior of students. In order to take the glory of UAS (B) to a higher level or greater height in the years to come. This calls for organizing rigorous induction training for newly recruited teachers and other faculty who are engaged in teaching in the years to come.

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