

This research report is a critical analysis of opinion gathered through an opinion scale among 540 School Teachers of Swaziland regarding staff development for an Effective Classroom Management using Distance Education Mode. The opinions were regarding Orientation Session, two days contact session, various 17 Units of the Self Instructional Material, and 3 months interaction with Peers and Resource Persons using variety of media. It revealed some fruitful guidelines being useful for organising this programme in future for rest teachers. This project is a landmark effort in the direction of making this staff development programme learner friendly among school teachers of Swaziland. An acceptance and implementation of the findings may enhance the quality of this programme. The purpose of publication these results in a book form is to appraise the outcomes among all programme organisers for staff development among school teachers using Distance Education Mode.

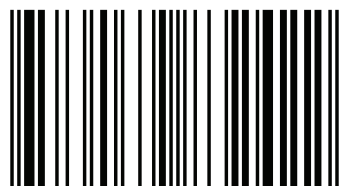


Satish Rastogi

Teachers' Opinion to Staff Development Using Distance Education Mode



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978-613-9-83242-2

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LAP LAMBERT Academic Publishing

Imprint

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Cover image: www.ingimage.com

Publisher:

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International Book Market Service Ltd., member of OmniScriptum Publishing Group

17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page

ISBN: 978-613-9-83242-2

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FOREWORD

Every industry is concerned with “Quality Control” and “Total Quality Management” at its Input, Process and Output stages with ‘Customer Satisfaction’ as its motto. Imparting education through Distance Education mode is also an industry producing in bulk, the learning materials, as well as finally students after a successful programme completion. Learner as a customer has every right to get necessary support, being learner friendly, from the Distance Education system. Programme Evaluation is a complementary activity with the system of Distance Education to collect necessary feedback from all stakeholders connected with a programme and its delivery. It is because day to day feedback is not possible in present day situation prevailing with distance education system in developing countries.

One feels that present project is a landmark effort in the direction of making this staff development programme learner friendly among school teachers of Swaziland. The information gathered through an Opinion Scale from 540 school teachers from various four regions of Swaziland reveals some remarkable suggestions to make this programme as learner friendly. These teachers had participated in Staff Development Programme for an Effective Classroom Management using Distance Education Mode. Their own experiences during the Orientation programme, Self-study of Course material, Peer group Interaction, and also, during a two days contact session as well as implementation of the knowledge gained in managing classroom activities were of much value in modifying this staff development programme for them.

This research project was also essential because of distance education philosophy being “Word of Mouth is Word of Hand”. Everything should be communicated in writing between Distance Education system and learners. In this system there is no provision for exchanging views/opinions etc. day to day in a classroom situation. Both parties, the Resource Persons and the participants had only one way of expression and that was in writing. So, the participants were given full liberty to express their views on various issues related to this training in writing through the “Opinion Scale”. The analysis gave some fruitful ideas for the Resource Persons and I am sure, these ideas will be taken into consideration before this programme starts again to train the rest of the School Teachers from all four regions of Swaziland.

It is a matter of appreciation that Prof.Satish Rastogi and his team worked as Resource person during this project and sincerely analysed the findings based on opinions expressed by 540 teacher participants from Swaziland.

I wish this research project would be a guideline for other similar projects to be taken in future by the Institute of Distance Education at the University of Swaziland. Also, this report may serve as reference material for similar researches conducted by others at global level.

Dated: April 30, 2018

Prof. C.M. Magagula

Vice Chancellor

University of Swaziland

PREFACE

The system of distance education has been found potent enough at the global level in imparting a need based mass education. A large number of students join as raw material being part of input for different programmes and come out as output after a successful completion. The Institute of Distance Education (IDE) at University of Swaziland has also demonstrated same potential of Distance Education in the Kingdom of Swaziland. This institute had taken an initiative of staff development among school teachers using the distance education mode and successfully trained around 643 school teachers about their role as classroom manager.

Now, the system of Distance Education has been recognised as an industry because of its bulk production of students for different programmes. This industrial character has labeled the student as a customer for education and customer satisfaction is the motto of this industry. During a pilot project with 89 school teachers financed by University of Swaziland (UNISWA), the material and methodology was verified as potent enough in increasing Knowledge, strengthening Skills, and, developing a positive Attitude towards various steps in managing classroom activities successfully. In Staff Development Programme the participant teachers were customers and it was felt as essential to seek their opinion about various stages of this programme in order to making this programme as user friendly for future batches. This research report is an evidence of the same. It has extracted course users opinion about various stages of the programme and dived them into acceptable and non-acceptable opinion. It will help the organisers of the same training programme in future to make it more course user friendly and thus a quality programme may be initiated in future.

I take this opportunity to express my sense of obligation to the **Vice Chancellor and his team at the University of Swaziland** for a financial assistance to complete the pilot project with 89 teachers for this training. I can't forget the financial assistance by **Commonwealth of Learning (COL), Canada** for training 540 teachers from different schools of Swaziland.

My sincere vote of thanks to my colleagues at Institute of Distance Education, University of Swaziland, **Dr. K. Ferreira Meyers**, Co-ordinator, Linguistics and Modern languages, **Dr. G. Nsibande**, Copy Editor, and **Ms. N. Vilakati** Co-ordinator, Material Development for their herculean efforts while performing as a Resource person during Orientation programme as well as during contact sessions too. They had shown their scholarly contributions and tried for learner satisfaction during presentation. I feel much obliged to **Dr. S.S. Shongwe**, and **Mr. P.L. Biswalo**, Lecturers in Faculty of Education at the University of Swaziland for their role as Resource Person during Orientation programme as well as contact sessions. I appreciate their valley of knowledge and presentation style which impressed the participants much during their presentations. I am sure; their services will be available to us in future also for the same programme. My heartiest thanks to all **540 School Teachers** who participated in this training programme and submitted their opinion about various activities in an Opinion Scale.

In the last, but not the least, I wish to express, with deep regards, my sincere sense of obligation to **Professor C.M. Magagula**, Hon'ble Vice Chancellor for taking pains in writing a thought – provoking 'Foreword' to this Research Report.

Dated: April 24, 2018

Prof. Satish Rastogi

Project Manager

**SWAZILAND SCHOOL TEACHERS'
OPINION TO STAFF DEVELOPMENT FOR
AN EFFECTIVE CLASSROOM
MANAGEMENT USING DISTANCE
EDUCATION MODE**

1) Introduction

The University of Swaziland (UNISWA) is the only dual mode University established in 1982 by the Government of Swaziland. Since achieving university status, UNISWA has continued to grow and develop in accordance with its stated aim of assisting national development. The chief mandate which the University has tried to implement has been manpower production. Eight Faculties and an Institute of Post Graduate Studies as well as an Institute of Distance Education (IDE) have been functioning to meet the objective of manpower production. This IDE came into existence in 1994 as a result of the national educational demands. The aim of the IDE is to offer higher education programmes, through the distance education mode, for the persons being deprived of the opportunity for one reason or the other. It follows the multimedia system and provides printed course materials to the learners and arranges limited face- to – face sessions through lecturing and tutorial sessions. The Institute of Distance Education has a responsibility of taking care of educational and vocational needs of all those who need some education and skills for their livelihood at the pre-service as well as at the in-service stages.

The mission of the Institute of Distance Education is to increase access to tertiary education by providing demand-driven educational and training opportunities to individuals (employed, self-employed, unemployed and school leavers) by offering them quality short and long term credit and non-credit courses using the

distance education delivery mode. The teacher education programmes in Swaziland are lacking with modern concepts and follow very old syllabus at all levels. As a result the teachers working in Swaziland lack with modern ideas being essential for managing classroom activities effectively.

Individual differences among students, Optimum learning, and Effective communication between teacher and his students are major challenges before every teacher at all levels of education. Educational Technology being a combined gift by three major Sciences, being Communication Sciences, Social Sciences, and Managerial Sciences, is solution to this problem. These may include, Managerial approach to classroom communication, Systems approach to teaching and learning process, Bloom's taxonomy of educational objectives: its utility to classroom communication, Pedagogy and Andragogy in the teaching and learning process, Instructional modes for classroom interaction, Learning Activity, Learning theories for classroom communication, Motivation, interest and emotions: meaning and role in learning, Verbal & Non-verbal communication, Role of audio / video aids in teaching and learning process, Role of computers in the teaching-learning process, Concept and Utility of E-learning, Mastery learning for effective teaching, Individual differences among learners, Assessment, measurement and evaluation: meaning and utility for examinations, and Various types of test items and their application in examinations. These are some of the important issues being essential for every teacher.

The teacher training programme in Swaziland do not cover modern concepts of Educational Technology, Classroom Management and Optimum learning in a classroom having individual differences among students. It was felt that a staff development programme through Distance Education mode may be launched for these teachers in batches. Accordingly, around 621 teachers were funded by COL, Canada, and, trained by Institute of Distance Education, Swaziland. Looking to this staffdevelopment need among school teachers, the IDE has developed a book entitled “Educational Technology for an Effective Teaching”. A mix media covering this book, Interaction, among teacher participants, and with resouce persons using various media followed by a two days contact session, was used to train 69 teachers in first batch followed by 543 teachers using financial support from Commonwealth of Learning, Canada in second batch from all four regions of Swaziland. Below is teacher classification in all four regions.

Table 1: Region-wise number of Schools and Teachers

S. No.	Region	Number of Schools			Number of Teachers		
		Primary	High	Total	Rural	Urban	Total
1.	Hhohho	157	60	217	2483	947	3430
2.	Manzini	164	63	227	2720	970	3690
3.	Shiselweni	135	54	189	2674	235	2909
4.	Lubombo	119	50	169	2096	450	2546
5.	Total	575	227	802	9973	2602	12,575

2) Objectives of this Project

This staff development project among school teachers of Swaziland had following objectives.

1. To make the teachers aware of various innovative ideas from Educational Technology and their application in classroom activities.
2. To enhance 'Classroom Managerial Skills' among target group teachers.
3. To develop a positive 'Attitude' towards Educational Technology application in classroom among target group teachers.
4. To seek opinion of target group teachers about proposed Learning package for making it user friendly.

3) Expected Outcome

It would enable the school teachers to manage classroom activities effectively for an effective communication with students having individual differences, with an aim of optimum learning among these students. This staff development project among school teachers using distance education mode would enrich them with 17 modern concepts being essential for managing classroom activities. These are: The nature and scope of Educational Technology, Managerial approach to classroom communication, Systems approach to teaching and learning process, Bloom's taxonomy of educational objectives: its utility to classroom communication,

Pedagogy and Andragogy in the teaching and learning process, Instructional modes for classroom interaction, Learning Activity, Learning theories for classroom communication, Motivation, interest and emotions: meaning and role in learning, Verbal & Non-verbal communication, Role of audio/video aids in teaching and learning process, The concept and utility of E-learning, Role of computers in the teaching-learning process, Mastery learning for effective teaching, Individual differences among learners, Assessment, measurement and evaluation: meaning and utility for examinations, and Various types of test items and their application in examinations. 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.

4) Key Activities

Following were key activities during this project.

1) Production and distribution of a Book entitled “Educational Technology for Effective Teaching - A Handbook for Educators” in Self Instructional Material format among participant teachers.

2) The participants had made a self- study for about three (3) months and interacted with project team members through Email, SMS, Phone, and or, in person with peer group teachers.

3) The project team and change agents (already trained teachers) had provided from time to time academic support to these participants through email. The question rose by one participant and its reply by project team had been well received by all participants through email. These participants were motivated for Peer group interaction using email, Phone and SMS or in person etc.

4) There had been a contact session for two days in batches at the end of self-study phase. The project team, during this contact programme, had taken care of Confusions/Questions/Queries which might have had come at the time of learning and were found still unsolved.

5) The project team had sought participants’ opinion about Quality of learning material, Contactsessions, Peer Group interaction and role of change agents etc. by using an opinion Scale. The purpose of the same was to make the package more users friendly. An

analysis of participants' opinion would now reveal their expectations which might be same or different from the perceptions.

5) Target Group

The total number of school teachers working in different regions of Swaziland is about 12,575. These were considered as population for this study. There are 7551 teachers in 575 Primary schools, and, 5024 in 227 High schools. Table on page 2 shows distribution of these teachers in different Regions of Swaziland. There were around 540 teachers who had responded the opinion scale. Gender wise distribution of these respondents was as in Table 2 below.

Table 2: Gender-wise Teachers' participation in Opinion Survey

Gender	Male	Female	Total
Number	185	355	540
Percentage	34.3%	65.7%	100%

There were 185 (34.3%) Male, while, 355 (65.7%) Female participants in a group of 540 participants who had responded the Opinion Scale. It indicates that Female participants were about double the number of male participants.

Region wise distribution of these respondents was as shown in Table 3.

Table 3: Region-wise Teachers' participation in Opinion Survey

Region	Manzini	Hhohho	Shiselweni	Lubombo	Total
Number	205	178	86	71	540
Percentage	38.0%	33.0%	15.9%	13.1%	100%

Out of 540 teachers who responded the opinion scale, there were 205 (38%) teachers from Manzini region while 178 (33%) from Hhohho while only 86 (15.9%) were from Shiselweni and 71 (13.1%) were from Lubombo region. The SPSS package was used to analyse the primary information about the teachers.

Table 4: School wise status of participants

School Type	Primary School	Secondary School	High School	College/ University	Total
Number	384	03	148	05	540
Percentage	71.1%	0.6%	27.4%	0.9%	100%

This analysis revealed that 384 (71.1%) teachers were from Primary schools while only 3 (0.6%) were from Secondary Schools. But, 148 (27.4%) a good number was from High Schools and only 5 (0.9%) were from Higher Institutions. Thus, we see that most of the teachers 384 (71.1%) had participated in this staff development programme. There were, 508 teachers, 23 acting Head Teachers and 09 Curriculum designers who had responded to Opinion Scale.

Table 5: Qualifications of Participant Teachers

Qualification	B.A. (Hum) & PGCE	B.Ed. Primary	B.Ed. Secondary	Diploma Primary Teachers	M. Ed.	B.Sc. Agri. Edu.	Diploma Secondary Teachers	Total
Number	113	72	14	255	16	28	42	540
Percentage	20.9	13.3	2.6	47.2	3.0	5.2	7.8	100%

The qualification wise distribution of teacher participants witnessed 255 (47.2%) having Diploma Primary Teachers, while with B.A.(Hum) & P.G.C.E. were 113 (20.9). There were 72 (13.3%) teachers had B.Ed. (Primary) degree but only 14 (2.6%) had B.Ed. (Secondary) degree. Only 16 (3%) teachers had a Master of Education degree and 28 (5.2%) were having B.Sc. (Agricultural Education).

Table 6: Experience level among participants

Experience In years	01 – 05 Years	06 – 10 Years	11 – 15 Years	16 – 20 Years	Above 20 Years	Total
Number	208	135	65	34	98	540
Percentage	38.5%	25.0%	12.0%	06.3%	18.1%	100%

The above Table shows that a large number 208 (38.5%) of teachers having only (01 - 05) years' experience were keen to learn these new skills of managing classroom activities. However, only 34 teachers having experience of (16-20) years' had participated in

this experiment. This indicates keenness among fresher's/newly recruited teachers for their participation.

6) Research Methodology

This was a staff development project among school teachers of Swaziland for managing classroom activities effectively using distance education mode. The effectiveness of the used methodology was assessed during a pilot research project by taking 79 school teachers and it was found that the proposed material in print form supplemented with contact session was potent enough to increase Knowledge, develop Skills and finally frame a strong positive attitude towards using this methodology for managing various activities in classroom situation. It was decided to make this approach as user friendly by making some changes based on their opinion about whole experiment and then prescribe the same for further training batches. The whole training had six major components as cited below.

- a) The learning material entitled “Educational Technology for Effective Teaching” in SIM format.
- b) Difficulties faced in understanding the material during Self-Study for 3 months.
- c) Orientation session for target group

- d) Peer Group Interaction among teacher participants and also with Resource persons using different media and modes available.
- e) Two days Contact programme for interaction between resource persons and target group School Teachers.
- f) Any other point which the participant teachers want to mention and is not covered above but is important.

These six criteria became basis for developing an Opinion Scale to collect target group opinion. This scale was as annexed herewith at the end of this report. It was circulated among 540 participants at the end of two days contact session and they were requested to submit the complete form before taking money and proceeding home. The first item was a closed type Question having three options regarding utility of various Units in classroom management. They had to tick on any one of these three options. Rest five questions were open type questions for a detailed reply. The opinion expressed by the teacher participants was analysed and reported in the form of acceptable recommendations as well as non-acceptable recommendations. Thus, this opinion survey revealed many good ideas which can be implemented before launching this training programme in near future. However, there were many other opinions which might be discarded as these have a smell of personal advantage by the participants.

7) Question wise analysis of Teacher Opinion

It was clear from the Opinion Scale that Question one (1) was a closed type question and the participants has to tick any one of the three options being **“Very Useful”**, **“Useful”** and **“Not Useful”**. Rest five (5) questions were open type questions which gave full freedom to the target group for writing whatever they want to express. The question wise analysis was as next page.

7.1) Analysis of Closed type Question

Below is an explanation of the Question asked and an analysis of the responses using SPSS Package.

Q1) There were 17 Units in the book “Educational technology for Effective Teaching”. Which of these Units were found ‘Very Useful’, ‘Useful’ and ‘Not Useful’ for you in managing your classroom activities effectively? Please tick (X) in anyone of the columns below for each Unit.

There were Seventeen (17) Units covered in the Module **“Educational Technology for Effective Teaching”**. This collection was in Self Instructional Material (SIM) format and the participants were expected to cover it in about 03 months’ time. They had interacted with project team members as well as with peer group participants using media and also in a face to face situation too. The project team had sought participants’ opinion

about the utility of these Units in their day to day classroom activities.

These Units were as cited below.

- 1) The Nature and Scope of Educational Technology.**
- 2) Managerial Approach to Classroom Communication.**
- 3) Systems Approach to Teaching and Learning.**
- 4) Bloom's Taxonomy of Educational Objectives: Its Utility to Classroom Communication.**
- 5) Pedagogy and Andragogy in the Teaching and 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 Teaching and learning Process.**
- 12) Role of Computers in the Teaching- Learning Process.**
- 13) E-learning: Its Mechanisms and Classroom Applications.**
- 14) Mastery Learning for Effective Teaching.**
- 15) Individual Differences among Learners.**
- 16) Assessment, Measurement, and, Evaluation: Meaning and Utility for Examinations.**
- 17) Various Types of Test Items and their Application in Examination.**

This was a three point scale being very useful, useful, and not useful. All 540 participants were tabulated under these three options. Some did not like to answer and so were labeled as Missing. Analysis of participants' opinion in a tabulated form was as shown below.

Table 7: The Nature and Scope of Educational Technology

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	380	149	03	08	540
Percentage	70.4%	27.6%	0.5%	1.5%	100%

It was clear from above Table 7 that 380 (70.4%) participants found this Unit in the module as Very Useful while 149 (27.6%) found it as useful. Only 03 (0.5%) participants opined it as Not Useful. But, 08 (1.5%) participants failed to render their opinion about this Unit. It shows that 98% participants opined in favour of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 8: Managerial Approach to Classroom Communication

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	441	94	01	04	540
Percentage	81.7 %	17.4 %	0.2 %	0.7 %	100%

Table 8 revealed that 441 (81.7%) participants found this Unit as very useful while 94 (17.4%) found it as useful. Only 1 (0.2%) participant opined it as notuseful. But, 4 (0.7%) participants failed to render their opinion about this Unit. It shows that 99.1% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 9: Systems Approach to Teaching and Learning

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	370	160	01	09	540
Percentage	68.5%	29.6%	0.2%	1.7%	100%

It was witnessed from Table 9 that 370 (68.5%) participants found this Unit as very useful while 160 (29.6%) found it as useful. Only 01 (0.2%) participant opined it as not useful. But, 09 (1.7%) participants failed to render their opinion about this Unit. It shows that 98.1% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 10: Bloom's Taxonomy of Educational Objectives: Its Utility to Classroom Communication

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	426	104	03	07	540
Percentage	78.9%	19.2%	0.6%	1.3 %	100%

Table 10 revealed that 426 (78.9%) participants found this Unit as very useful while 104 (19.2%) found it as useful. Only 03 (0.6%) participants opined it as not useful. But, 7 (1.3%) participants failed to render their opinion about this Unit. It shows that 98.1% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 11: Pedagogy and Andragogy in the Teaching and learning Process

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	352	176	06	06	540
Percentage	65.2%	32.6%	1.1%	1.1%	100%

It was evident from the figures in Table 11 that 352 (65.2 %) participants found this Unit as very useful while 176 (32.6 %) found it as useful. Only 06 (1.1%) participants opined it as not useful. There were 06 (1.1%) participants who failed to render their opinion about this Unit. It shows that 97.8% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 12: Instructional Modes for Classroom Interaction

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	373	161	02	04	540
Percentage	69.1%	29.8%	0.4%	0.7%	100%

Table 12 revealed that 373 (69.1%) participants found this Unit as very useful while 161 (29.8%) found it as useful. Only 02 (0.4%) participants opined it as not useful. But, 04 (0.7%) participants failed to render their opinion about this Unit. It shows that 98.9% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 13: Learning Activity

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	333	194	05	08	540
Percentage	61.7%	35.9%	0.9%	1.5%	100%

It was witnessed from Table 13 that 333 (61.7%) participants found this Unit as very useful while 194 (35.9 %) found it as useful. Only 05 (0.9%) participants opined it as not useful. But, 08 (1.5%) participants failed to render their opinion about this Unit. It shows that 97.6% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 14: Learning Theories for Classroom Communication

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	347	177	08	08	540
Percentage	64.3%	32.8%	1.5%	1.5%	100%

The above Table 14 helped in establishing the fact that 347 (64.3%) participants found this Unit as very useful while 177 (32.8%) found it as useful. Only 8 (1.5%) participants opined it as not useful while there were 8 (1.5%) participants who failed to render their opinion about this Unit. It shows that 97.1% were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table15: Motivation, Interest and Emotions: Meaning and Role in Learning

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	462	75	00	03	540
Percentage	85.6%	13.9%	00%	0.6%	100%

Table 15 revealed that 462 (85.6%) participants found this Unit as very useful while 75 (13.9%) found it as useful. No participant found it as not useful. However, only 03 (0.6%) participants failed to render their opinion about this Unit. It shows that 99.5% participants found this unit as useful and realised the importance of the same in managing classroom activities effectively.

Table 16: Verbal and Non-verbal Communication

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	383	155	01	01	540
Percentage	70.9%	28.7%	0.2%	0.2%	100%

It is evident from above Table 16 that 383 (70.9%) participants found this Unit as very useful while 155 (28.7%) found it as useful. Only 1 (0.2%) participant opined it as not useful. Only 1 (0.2%) participant failed to render his/her opinion about this Unit. It shows that 99.6% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 17: Role of Audio/Video Aids in Teaching and learning Process

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	381	152	03	04	540
Percentage	70.6%	28.1%	0.6%	0.7%	100%

Table 17 revealed that 381 (70.6%) participants found this Unit as very useful while 152 (28.1%) found it as useful. Only 3 (0.6%) participants opined it as not useful and 4 (0.7%) participants failed to render their opinion about this Unit. It shows that 98.7% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 18: Role of Computers in the Teaching- Learning Process

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	334	193	10	03	540
Percentage	61.9%	35.7%	1.9%	0.6%	100%

An analysis of data stated in Table 18 revealed that 334 (61.9%) participants found this Unit as very useful while 193 (35.7%) found it as useful. Only 10 (1.9%) participants opined it as not useful while only 3 (0.6%) participants failed to render their opinion about this Unit. It shows that 97.6% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 19: E-learning: Its Mechanisms and Classroom Applications

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	291	213	24	12	540
Percentage	53.9%	39.4%	4.5%	2.2%	100%

Table 19 revealed that 291 (53.9%) participants found this Unit as very useful while 213 (39.4%) found it as useful. But, 24 (4.5%) participants opined it as not useful. Also, 12 (2.2%) participants failed to render their opinion about this Unit. It shows that 93.3% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 20: Mastery Learning for Effective Teaching

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	298	215	15	12	540
Percentage	55.2%	39.8%	2.8%	2.2%	100%

It is evident from Table 20 that 298 (55.2%) participants found this Unit as very useful while 215 (39.8%) found it as useful. But, 15 (2.8 %) participants opined it as not useful. Also, there were 12 (2.2%) participants failed to render their opinion about this Unit. It shows that 95% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 21: Individual Differences among Learners

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	392	120	02	26	540
Percentage	72.6%	22.2%	0.4%	4.8%	100%

Table 21 revealed that 392 (72.6%) participants found this Unit as very useful while 120 (22.2%) found it as useful. Only 2 (0.4%) participants opined it as not useful and 26 (4.8%) participants failed to render their opinion about this Unit. It shows that 94.8% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities.

Table 22: Assessment, Measurement and Evaluation: Meaning and Utility for Examinations

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	383	123	05	29	540
Percentage	70.9%	22.8%	0.9 %	5.4%	100%

From the results obtained after analysis shown in Table 8, it was evident that 383 (70.9%) participants found this Unit as very useful while 123 (22.8%) found it as useful. Only 5 (0.9%) participants opined it as not useful. Also, there were 29 (5.4%) participants failed to render their opinion about this Unit. It shows that 93.7% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

Table 23: Various Types of Test Items and their Application in Examination

Comments	Very Useful	Useful	Not Useful	Missing	Total
Number	375	125	00	40	540
Percentage	69.4%	23.1%	00%	07.4%	100%

Table 23 revealed that 375 (69.4%) participants found this Unit as very useful while 125 (23.1%) found it as useful. None of the participants had an adverse opinion. However, 40 (7.4%) participants failed to render their opinion about this Unit. It shows that 92.5% participants were in favour of utility of this Unit and realised the importance of the same in managing classroom activities effectively.

The Table 24 tabled after this Para has evidence that all 17 Units had been found as useful by a very large number of teacher participants ranging from 92.5% to 99.6%. It indicated that all units

are very useful and the teachers were not having literature related to the same. This Book now seems to be a Bible on which these teachers may rely and read for managing various activities effectively in the classroom.

Table 24: Summary of participants' opinion in percentage about various Units

Sr. No.	Unit Title	Useful	Not Useful	No Reply	Remarks
1.	The Nature and Scope of Educational Technology.	98%	0.5%	1.5%	VeryUseful
2.	Managerial Approach to Classroom Communication.	99.1%	0.2%	0.7%	VeryUseful
3.	Systems Approach to Teaching and Learning.	98.1%	0.2%	1.7%	VeryUseful
4.	Bloom's Taxonomy of Educational Objectives: Its Utility to Classroom Communication.	98.1%	0.6%	1.3%	VeryUseful
5.	Pedagogy and Andragogy in the Teaching and learning Process.	97.8%	0.4%	0.7%	VeryUseful
6.	Instructional Modes for Classroom Interaction.	98.9%	0.4%	0.7%	VeryUseful
7.	Learning Activity.	97.6%	0.9%	1.5%	VeryUseful
8.	Learning Theories for Classroom Communication.	97.1%	1.5%	1.5%	VeryUseful
9.	Motivation, Interest and Emotions: Meaning and Role in Learning.	99.5%	0.0%	0.6%	VeryUseful
10.	Verbal and Non-verbal Communication.	99.6%	0.2%	0.2%	VeryUseful
11.	Role of Audio/Video Aids in Teaching and learning Process.	98.7%	0.6%	0.7%	VeryUseful

12.	Role of Computers in the Teaching- Learning Process.	97.6%	1.9%	0.6%	VeryUseful
13.	E-learning: Its Mechanisms and Classroom Applications.	93.3%	4.5%	2.2%	VeryUseful
14.	Mastery Learning for Effective Teaching.	95%	0.4%	4.8%	VeryUseful
15.	Individual Differences among Learners.	94.8%	0.4%	4.8%	VeryUseful
16.	Assessment, Measurement, and Evaluation: Meaning and Utility for Examinations.	93.7%	0.9%	5.4%	VeryUseful
17.	Various Types of Test Items and their Application in Examination.	92,5%	0.0%	7.4%	VeryUseful

7.2) Analysis of Open Type Questions

There were 05 Questions framed as open type Questions as per Opinion Scale annexed at the end of this report. The teacher participants had replied the same. Their views were summarised and stated below for interpretations.

Question 2): There were Seventeen Units in the Book entitled “Educational Technology for Effective Teaching”. Please mention the Unit title and Page No. of some Units where you had some difficulty in understanding the content. We will make it more simple and easy to grasp by school teachers.

Following were responses by the participants regarding various 17 Units.

Table 25: Difficulties in Understanding the Content in Unit One: The Nature and Scope of Educational Technology

Page No.	9	10	11	12	13	14	15	16	17	18	Full Unit
Respondents Number	04	03	16	09	19	10	05	11	17	02	03
Respondents Percentage	0.74	0.55	2.96	1.66	3.51	1.8	0.92	2.03	3.14	0.37	0.55

The above Table 25 had helped to conclude that only 4 (0.74%) teachers had difficulty in understanding the content on page 9, while only 3 (0.55%) had some difficulties on pages 10. But 16 (2.96%) respondents found page 11 as difficult as 19 (3.51%) students found page 13 as difficult. Also, there were 10 (1.8%) students found page 14 as difficult while only 5 (0.92%) found page 15 as difficult. Similarly, 11 (2.03%) students experienced some difficulties on page 16 while 17 (3.14%) had difficulties on page 17 and only 2 (0.37%) had a difficulty on page 18. **There were only 3 (0.55%) students expressed difficulties in full unit one.**

Table 26: Difficulties in Understanding the Content in Unit Two: Managerial Approach to Classroom Communication

Page No.	20	21	22	23	24	25	26	27	28	30	Full Unit
Respondents Number	07	04	12	04	20	04	03	17	04	02	07
Respondents Percentage	1.30	0.74	2.22	0.74	3.7	0.74	0.55	3.14	0.74	0.37	1.30

The above Table 26 had helped to conclude that only 4 (0.74%) teachers had difficulty in understanding the content on pages 21, 23, 25 & 28 while only 7 (1.30%) had some difficulties on page 20. But 12 (2.22%) respondents found page 22 as difficult and 20 (3.70%) students had found page 24 as difficult. Also, there were 10 (1.8%) students found page 14 as difficult while only 3 (0.55%) had found page 26 as difficult. Similarly, there were 17 (3.14%) students experienced some difficulties on page 27 while only 2 (0.37%) had difficulties on page 30. **There were 7 (1.30%) students having difficulties in full unit two.**

Table 27: Difficulties in Understanding the Content in Unit Three: Systems Approach to Teaching and Learning

Page No.	31	32	33	34	35	36	37	38	39	Full Unit
Respondents Number	06	05	17	21	32	18	14	04	03	09
Respondents Percentage	1.11	0.92	3.14	3.88	5.92	3.33	2.59	0.74	0.55	1.66

The data in Table 27 on last page had helped to conclude that only 6 (1.11%) had on page 31, while only 5 (0.92%) had on page 32 some difficulties. But, 17 (3.14%) respondents on page 33 while 21 (3.88%) had found page 34 as difficult. Also, there were 32 (5.92%) found on page 35 while 18 (3.33%) had on page 36 some difficulties. Similarly, 14 (2.59%) on page 37, while 4 (0.74%) participants on page 38 and 3 (0.55%) on page 39 had some

difficulties. **There were only 9 (1.66%) respondents having difficulties in full unit three.**

Table 28: Difficulties in Understanding the Content in Unit Four: Bloom's Taxonomy of Educational Objectives: Its Utility to Classroom Communication

Page No.	40	41	42	43	44	45	46	47	48	49	50	52	Full Unit
Respondents Number	04	02	17	11	15	22	20	17	08	10	05	02	03
Respondents Percentage	0.74	0.37	3.14	2.03	2.77	4.07	3.7	3.14	1.48	1.8	0.92	0.37	0.55

The data in Table 28 above revealed that only 2 (0.37%) participants had difficulties on pages 41 & 52, while 17 (3.14%) participants found difficulties on pages 42 & 47. But, only 4 (0.74%) on page 40, while 22 (4.07%) had found page 45 as difficult. Also, 11 (2.03%) had on page 43 and 15 (2.77%) on page 44 while 20 (3.7%) on page 46 had found some difficulties in understanding. About 8 (1.48%) participants on page 48 and 10 (1.8%) on page 49, as well as 5 (0.92%) had on page 52 some difficulties in understanding the content. **There were only 3 (0.55%) respondents having difficulties in understanding the full unit four.**

Table 29: Difficulties in Understanding the Content in Unit Five: Pedagogy and Andragogy in the Teaching and Learning Process

Page No.	53	54	55	56	57	58	59	60	61	62	Full Unit
Respondents Number	10	11	29	27	26	36	25	09	09	02	06
Respondents Percentage	1.8	2.03	5.37	5.00	4.81	6.66	4.62	1.66	1.66	0.37	1.11

Above Table 29 revealed that 9 (1.66%) participants on pages 61 & 62, and 10 (1.8%) participants on page 53 as well as 11 (2.03%) on page 54 had difficulties in understanding the content. Also, 29 (5.37%) on page 55 and 27 (5.0%) on page 56 as well as 26 (4.81%) on page 57 had faced some difficulties. Similarly, it was evident that 36 (6.66%) on page 58 and 25 (4.62%) on page 59 had some difficulties. Only 2 (0.37%) had difficulties on page 62 of this unit. **There were only 6 (1.11%) respondents having difficulties in understanding the full unit five.**

Table 30: Difficulties in Understanding the Content in Unit Six: Instructional Modes for Classroom Interaction

Page No.	63	64	65	66	67	68	69	70	71	72	Full Unit
Respondents Number	05	01	07	06	04	03	17	14	04	04	02
Respondents Percentage	0.92	0.18	1.30	1.11	0.74	0.55	3.14	2.59	0.74	0.74	0.37

The data stated in Table 29 concluded that only 4 (0.74%) participants had difficulties on pages 67, 71 & 72, and 5 (0.92%)

on page 63, as well as 6 (1.11%) on page 67 and 7 (1.30%) on page 65 had some difficulties. Also, 17 (3.14%) on page 69 and 14 (2.59%) on page 70 had some difficulties in understanding the content. But only 1 (0.18%) on page 64 and only 3 (0.55%) on page 68 had experienced some difficulties. **There were only 2 (0.37%) respondents having difficulties in understanding the full unit six.**

Table 31: Difficulties in Understanding the Content in Unit Seven: Learning Activity

Page No.	73	74	75	76	77	78	79	80	81	82	83	Full Unit
Respondents Number	11	06	12	33	34	23	20	18	08	05	04	08
Respondents Percentage	2.03	1.11	2.22	6.11	6.30	4.26	3.70	3.33	1.48	0.92	0.74	1.48

Evidence stated in table 31 helped to conclude that only 4 (0.74%) respondents on page 83 and 5 (0.92) on page 82 while 6 (1.11%) on page 74 and 8 (1.48%) had some difficulties in understanding the content. Also about 11 (2.03%) for page 73 and 12 (2.22%) for page 75 had some difficulties. But 18 (3.33%) participants on page 80 and 20 (3.7%) on page 79 as well as 23 (4.26%) on page 78 had some difficulties in understanding the content. But a large number of participants being 33 (6.11%) on page 76 and 34 (6.30%) on page 77 had some difficulties in

understanding the content. **There were only 8 (1.48%) students expressed difficulties in full unit seven.**

Table 32: Difficulties in Understanding the Content in Unit Eight: Learning Theories for Classroom Communication

Page No.	84	85	86	87	88	89	90	91	92	Full Unit
Respondents Number	16	10	23	21	28	26	14	09	02	14
Respondents Percentage	2.96	1.8	4.26	3.88	5.18	4.81	2.59	1.66	0.37	2.59

Above Table 32 revealed that 9 (1.66%) participants on pages 91, and 10 (1.8%) participants on page 85 as well as 16 (2.96%) on page 84 had difficulties in understanding the content. Also, 28 (5.18%) on page 88 and 23 (4.26%) on page 86 as well as 26 (4.81%) on page 89 had faced some difficulties. Similarly, it was evident that 21 (3.88%) on page 87 and 14 (2.59%) on page 90 had some difficulties. Only 2 (0.37%) had difficulties on page 92 of this unit. **There were about 14 (2.59%) respondents having difficulties in understanding the full unit eight.**

Table 33: Difficulties in Understanding the Content in Unit Nine: Motivation, Interest and Emotions: Meaning and Role in Learning

Page No.	93	95	96	97	98	99	100	101	Full Unit
Respondents Number	01	07	06	03	01	07	02	01	02
Respondents Percentage	0.18	1.30	1.11	0.55	0.18	1.30	0.37	0.18	0.37

It is evident from table 33 that only 1(0.18%) respondent had some difficulties on pages 93, 98 and 101 of this unit. But there were 7 (1.30%) participants had difficulty on pages 95 & 99. Only 2 (0.37%) on page 100 and 3 (0.55%) on page 97 as well as 6 (1.11%) on page 96 had some difficulties in understanding the content of this unit. **There were only 2 (0.37%) respondents having difficulties in understanding the full unit nine.**

Table 34: Difficulties in Understanding the Content in Unit Ten: Verbal and Non-verbal Communication

Page No.	104	105	106	107	108	109	110	111	Full Unit
Respondents Number	01	01	05	03	04	01	06	01	01
Respondents Percentage	0.18	0.18	0.92	0.55	0.74	0.18	1.11	0.18	0.18

Above table 34 had revealed that only 1 (0.18%) respondent had some difficulties on pages 104, 105, 109 & 111. There were 3 (0.55%) on page 107, 4 (0.74%) on page 108 and 5 (0.92%) on page 106 as well as 6 (1.11%) on page 96 had some difficulties in understanding the content of this unit. **There was only 1 (0.18%) respondent having difficulties in understanding the full unit ten.**

Table 35: Difficulties in Understanding the Content in Unit Eleven: Role of Audio/Video Aids in Teaching and learning Process

Page No.	114	115	116	117	118	119	120	121	Full Unit
Respondents Number	05	02	07	04	04	02	03	10	05
Respondents Percentage	0.92	0.37	1.30	0.74	0.74	0.37	0.55	1.8	0.92

It is evident from table 35 that 10 (1.8%) respondents had some difficulties on page 121. But there were only 2 (0.37%) on pages 115, and 119 and 4 (0.74%) on page 117 & 118 and only 3 (0.55%) on page 120 as well as 5 (0.92%) on page 114 and 7 (1.30%) on page 116 had some difficulties in understanding the content of this unit. **There were only 5 (0.92%) respondents having difficulties in understanding the full unit eleven.**

Table 36: Difficulties in Understanding the Content in Unit Twelve: Role of Computers in the Teaching- Learning Process

Page No.	125	126	127	128	129	130	131	132	133	134	135	Full Unit
Respondents Number	06	03	04	06	09	13	14	06	06	02	01	06
Respondents Percentage	1.11	0.55	0.74	1.11	1.66	2.40	2.59	1.66	1.66	0.37	0.18	1.11

Above table 36 had helped to conclude that 6 (1.11%) respondents had some difficulties on pages 125, 128, 132, and 133. Only 1 (0.18%) participant on page 135, 02 (0.37%) on page 134,

03 (0.55%) on page 126, 04 (0.74%) on page 127 had some difficulties in understanding the content of this unit. Also, 9 (1.66%) on page 129, 13 (2.40%) on page 130 and 14 (2.59%) on page 131 had some difficulties in understanding the content of this unit. **There were only 6 (1.11%) respondents having difficulties in understanding the full unit twelve.**

Table 37: Difficulties in Understanding the Content in Unit Thirteen: E-learning: Its Mechanisms and Classroom Applications

Page No.	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	Full Unit
Res. No.	30	19	42	28	28	17	20	26	27	43	25	24	20	16	10	05	04	15
Res. (%)	5.5	3.51	7.77	5.18	5.18	3.14	3.7	4.81	5.00	7.96	4.62	4.44	3.7	2.96	1.8	0.92	0.74	2.77

This table 37 revealed that 28 (5.18%) on page 139 & 140 and 20 (3.7%) on pages 142 & 148 had difficulty in understanding the content. But 16 (2.96%) respondents found page 149 and 19 (3.51%) respondents found page 137 as difficult to understand. There were only 4 (0.74%) respondents on page 152, 5 (0.92%) on page 151, and 10 (1.8%) on page 150 had smelled some difficulties in understanding the content of this unit. Similarly, 17 (3.14%) on page 141, 24 (4.44%) on page 147, 25 (4.62%) on page 146, 26 (4.81%) on page 143, and 27 (5.00%) on page 144 had difficulties in understanding the content. Also, 30 (5.5%) on page 136, 42 (7.77%) on page 138, and 43 (7.96%) on page 145 were having some difficulties in understanding the content of this unit. **There were 15 (2.77%) respondents having difficulties in understanding the full unit thirteen.**

Table 38: Difficulties in Understanding the Content in Unit Fourteen: Mastery Learning for Effective Teaching

Page No.	153	154	155	156	157	158	159	160	161	162	163	Full Unit
Respondents Number	38	23	44	73	54	55	50	51	30	12	12	37
Respondents Percentage	7.03	4.26	8.14	13.51	10.0	10.18	9.2	9.44	5.5	2.22	2.22	6.85

It is evident from table 38 that 12 (2.22%) respondents had some difficulties on page 162 and 163. But there were 23 (4.26%) on page 154, 30 (5.5%) on page 161 and 38 (7.03%) on page 153 had some difficulties in understanding the content. Similarly, 44 (8.14%) on page 155, while 73 (13.51%) on page 156, and 54

(10.0%) on page 157 had some difficulties in understanding the content. Also, 55 (10.18%) on page 158, 50 (9.2) on page 159, and 51 (9.44%) on page 160 had some difficulties in understanding the content. **37 (6.85%) respondents had difficulties in understanding the full unit fourteen.**

Table 39: Difficulties in Understanding the Content in Unit Fifteen: Individual Differences among Learners

Page No.	164	165	166	167	168	169	170	171	172	173	Full Unit
Respondents Number	03	02	08	05	04	06	15	04	03	02	04
Respondents Percentage	0.55	0.37	1.48	0.92	0.74	1.11	2.77	0.74	0.55	0.37	0.74

The above Table 39 had witnessed 4 (0.74%) teachers on pages 168 & 171, 3 (0.55%) on pages 164 & 172 while only 2 (0.37%) on pages 165 & 173 some difficulties in understanding the content. Similarly, 8 (1.48%) on page 166, 5 (0.92%) on page 167, and 6 (1.11) on page 169 as well as 15 (2.77%) on page 170 had experienced some difficulties while studying the content. **There were only 4 (0.74%) respondents with difficulties in understanding the full unit fifteen.**

Table 40: Difficulties in Understanding the Content in Unit Sixteen: Assessment, Measurement, and, Evaluation: Meaning and Utility for Examinations

Page No.	174	175	176	177	178	179	180	181	182	183	184	185	Full Unit
Res. No.	13	04	15	63	36	30	25	21	21	18	05	04	11
Res. (%)	2.40	0.74	2.77	11.66	6.66	5.5	4.62	3.88	3.88	3.33	0.92	0.74	2.03

It is evident from table 40 that only 4 (0.74%) teachers on page 175 & 185, as well as 21 (3.88%) teachers on page 181 & 182 and 5 (0.92%) on page 184 had difficulties in understanding the content. It was also found that 15 (2.77%) on page 176, and 18 (3.33%) on page 183 and 25 (4.62%) on page 180 had similar complaints. About 30 (5.5%) on page 179 and 36 (6.66%) on page 178 as well as 63 (11.66%) on page 177 had some difficulties in understanding the content. **There were about 11 (2.03%) students having difficulties in full unit sixteen.**

Table 41: Difficulties in Understanding the Content in Unit Seventeen: Various Types of Test Items and their Application in Examination

Page No.	186	187	188	189	190	191	192	193	194	Full Unit
Respondents Number	04	01	06	02	01	01	11	03	02	02
Respondents Percentage	0.74	0.18	1.11	0.37	0.18	0.18	2.03	0.55	0.37	0.37

The information revealed in table 41 indicated that only 1 (0.18%) respondents on pages 187, 190 & 191 and 2 (0.37%) on pages 189 & 194 as well as 3 (0.55%) on pages 193 had some difficulties in understanding the content. Similarly, 4 (0.74%) on page 186, 6 (1.11%) on page 188, and 11 (2.03%) on page 192 had some difficulties in understanding the content. **There were only 2 (0.37%) respondents with difficulties in full unit.**

Conclusion:

The results shown in above tables indicated that very few persons had difficulties on various pages of most of the Units. But this trend was reversed in table 8, 13, 14 & 16 where the participants number was comparatively high regarding difficulties faced on various pages. The details are reproduced below.

Table 42: Units found very difficult by many participants

Unit No.	Title	Page No.	Respondents No.	Percentage
08	Learning Theories for Classroom Communication.	84 -92	02 to 28	0.37-5.18
		Full Unit	14	2.59
13	E-learning: Its Mechanisms And Classroom Applications.	136-152	04 to 43	0.74 – 7.96
		Full Unit	15	2.77
14	Mastery Learning for Effective Teaching.	153 – 163	12 to 73	2.22 – 13.51
		Full Unit	37	6.85
16	Assessment, Measurement, and, Evaluation: Meaning and Utility for Examinations.	174 -185	04 – 63	0.74 – 11.66
		Full Unit	11	2.03

Question 3): You must have participated in Orientation Session in April 2016. There was a short description about the Course Content and also about How to Study through Distance Education mode. SQ 3 R Technique was also explained to you. Please suggest some steps for making this orientation Session more effective and user friendly.

The respondents' views were as per Table 43 cited on this page.

Table 43: Participants opinion about Orientation programme

S. No.	Opinion	Resp. No.	(%)
1.	After orientation, the teachers should be grouped homogeneously. School Principals/Head Teachers be consulted for marketing this programme among other teachers. Introduction of Units was too short to understand the content in the unit. Speakers were very fast during their presentation. Inform participants well in advance. School wise programmes must be conducted to cover all teachers. Closing time to orientation should not be late. Regional Education Officers should be involved in this programme.	3	0.55
2.	Highlights of each unit be given during orientation. Units may be divided into two parts enabling the participants to understand importance of the course. Facilitators should brief in 5 minutes during orientation session about activities during contact sessions and its schedule. The course period must be extended to 06 months period with monthly contact sessions. The participants must be supplied Electronic Gadgets for practice at home. It should be conducted at the end of every month. It should be conducted in schools enabling all teachers to participate. Units should be written precisely. Explain importance and objectives of each Unit. Radio, SMS, and, Whats App be used for making contacts with the participants. Facilitators must take 30 minutes to explain the Unit under discussion. Participants be given time to form the groups. It should be conducted during weekend. A unit about online courses and their assessment should be added. Mid-orientation may be organised to update any new information. Entering behaviour should be checked before entering the Unit. Participants may be asked about the problems they face during teaching. Ultimate goal of this programme be	1	0.18

	explained during Orientation. Resource persons should apply all techniques given in the Handbook. Time lines be prescribed to cover the programme. There should be a Handout on SQ3R Technique. Reference material should be suggested during Orientation for a deep study. Word pronunciation was not clear from some resource persons. All schools must have internet accessibility. Encourage the teachers to use smart phone to access the material. Some past participants be asked to motivate new participants during orientation. The teachers should be grouped as per their academic status and abilities. Examinations must be conducted at the end of this programme.		
3.	It should be with Breakfast, Lunch, Accommodation and Transport money as well as a good voice projection. Maintaining time in every session is important. It should not be organised on Sunday due to transport problem. Loud speaker Sound was not clear.	4	0.74
4.	It should be conducted at Regional level.	63	11.64
5.	It should be done in smaller groups.	98	17.63
6..	Half day Orientation Programme was too short.	128	23.68
7.	It was done perfectly as necessary steps were taken to ensure teachers' participation during whole programme.	59	10.90
8.	Few speakers can summarize the course in one hour in place of many speakers.	6	1.11
9.	It should be organised when the schools are closed for vacation. Modules, programme copy and handouts covering important points of each unit as well as a soft copy of the modules should have been supplied to participants 05 days prior to orientation programme.	5	4.06

10.	Group work must be given after briefly explaining each unit.	16	2.96
11.	Videography should be done and be shown to other teachers. A break in between two speakers be given. E-learning technology may be used during programme to save time and cost. Follow up should be done after the task is given to participants. Background information about this Programme must be given to participants. Find ways to ensure that every participant reads all modules and also uses technology in classrooms. Ministry of Education should be involved in this programme. One week orientation should be conducted. Head Teachers/Principals should be trained first through this programme. Motivation to participants and content clarity must be covered, and, simple English language should be used during orientation session. The orientation programme should not be too long. Participants may be asked for their expectations of this programme before orientation session. Add more activities to the participants. Resource persons should be competent in all subjects. Each speaker should be brief and specific. Participants may be given a chance to interact with the resource persons during orientation programme.	2	0.37
12.	LCD projector should have been used to explain Unit content. Email ID and social media account and a Blog may be opened for the participants.	22	4.06

Conclusion:

The information summarised and reproduced above in table 43 reveals a lot of personal desires/views/ opinion listed under Serial No. 1, 3, 10 & 12 being expressed by 1 (0.18%) to 6 (1.11%) persons. These express personal opinions which are relevant to

their personal benefits. But, opinion regarding conducting examinations at the end of training programme, and, grouping the teachers as per their academic status as well as job levels seems to be golden. It had been felt that it should be kept into consideration as and when this training would be conducted in future. But use of WhatsApp, email, E-learning and a Blog may not be possible because the ICT knowledge level of the participants is not known to the organisers.

The orientation programme was conducted perfectly and necessary steps had been taken to ensure participants' involvement during whole programme was opinion by 59 (10.90 %) participants. But it should be conducted at regional level, was opined by 63 (11.64%) participants, while 98 (17.63%) wished the same with smaller groups. The orientation programme was too short being half day in duration was opined by 128 (21.08%) participants. It was felt by the organisers also, that Unit introductions were completed in very short time without giving time to participants for due interactions. The idea of giving group work after explaining each unit was among 16 (2.96%) participants and has been taken into consideration. LCD projector should have been used to explain Unit content. Email ID and social media account and a Blog may be opened for the participants had been suggested by 22 (4.06%) participants. But, the group was mixed and the organisers had no idea about ICT level of the participants. The reviews must be taken into consideration while repeating same training programme for rest school teachers.

Question 4): You were asked for Self-Study for 3 months and also for interactions with other Participants as well as with Resource Persons either in person or using Email/ Phone/SMS/Fax etc. Kindly suggest how this activity can be strengthened for making an academic interaction.

The respondents' views were as per Table 44 cited on next page.

Table 44: Opinion about 3 months' Self-study and variety of Academic Interaction

S. No.	Opinion	Resp. No.	(%)
1.	Resource persons were helpful whenever needed. They should also follow what is there in the Course material given to participants. Exposure to computers through practical sessions be done. Shorter contact sessions with enough time to follow up activities. Video conferencing may be used as mode of interaction. Every session should have a longer duration.	3	0.55
2.	Air time should be given to participants for group interaction. Enough time was given for studying the Module. Subject content may be also mixed with this content. More computer lessons should be included in course material. One toll free number must be set for this purpose. Follow up for implementation status of this programme must be done. Top level authorities must also be trained about how to implement this programme. Weekly discussions should take place. Contact sessions should be for 4 days in place of just 2 days. Interactive presentations should be conducted during contact sessions. Time allocation must be for contacting the resource persons. Questions raised through email should be promptly answered by the Resource persons. Study centers may be	1	0.18

	<p>established for participants in Regional areas. This should be a one year Programme. Two weeks contact session may be conducted. How to study in Distance Education setting was essential before registering for the programme. Interaction with other participants was limited due to work load. The Oriented/Trained teachers should train other teachers. This kind of in service programme can be done after every 05 years. Resource persons and participants should fix one day for a discussion. The Sound was not clear to participants. Govt. of Swaziland may supply every school with electronic gadgets to be used in class. Programme guide should be developed to help the participants about how to study in distance education scenario. The participants may be called during weekends to make their presentations. Head teachers /Principals should also be informed about various activities to avoid a delay. Some reference material may be suggested to enhance understanding. Trainer team from among the oriented teachers may be developed. National Curriculum Centre may be involved in this programme. Between two sessions there should be interactions with the presenters/resource persons.</p>		
3.	Contact sessions may be conducted every month.	53	9.75
4.	Contact sessions should be at least twice every month. Six months' time should be given for this programme. Participants must get a chance to interact within the group.	9	1.66
5.	Only 2 months period for study was sufficient in place of 3 months. Another group of same number wants this study period be increased as 3 months' time is very short time. Group discussion was not possible as the participants were from different locations. Provide contact details of other participants for group interaction.	6	1.11

6.	Groups must be formed by taking teachers from neighbouring schools. Group leaders should present progress. Ministry of Education & Training should organise another workshop for rest teachers. Whatsapp & Blog may be used for interaction.	96	17.76
7.	Participants must be given some group work and individual activities also.	11	2.03
8.	Contact session should be for 3 days in place of 2 days. At least three teachers from same school should be allowed to participate enabling them to interact among them. Facilitators should always keep in touch with participants.	5	0.92
9.	Region wise groups must be formed after an introduction of each other during orientation. Divide them into Primary school Group and High school Group in each region.	28	5.18
10.	Talk the participants on phone in place of SMS or E-mail. All teachers from same school be admitted to this training programme. Schools must be equipped with all kinds of ICT devices. Assignments may be sent using email and the respondents should answer them either through email or by post. Participants must make a report of what they have gained in group interactions. A Videography should be done and shown to rest teachers. Participants should be involved in an activity based programme rather than mere lecturing. Role play should be done by resource persons. Involve all stake holders in education field. Exam writing work must be through e-mail/SMS. Resource Persons should visit teachers in schools to assess problems they face and follow up after training programme. Participants should be given Audio CDs of all lectures. Group discussion should take place before the training starts. This programme may be included in the PGCE programme. Soft copy of the	2	0.37

	course material should be supplied to the participants. Inspectors should make a follow up to ensure that what is learnt is implemented in classrooms. This should be launched as a degree programme by University of Swaziland. It was difficult to interact with other participants as they have very little knowledge about emails, SMS etc.		
11.	Monthly/Weekly checks for progress would be more valuable.	22	4.07
12.	Group discussion should be supervised by any one resource person. Present setup was O.K. and needs no change. Some tests must be conducted for outcome evaluation. Email may be used for interaction with fellow participants as well as with resource persons.	84	15.54
13.	Participants must use Smart phone/Tablet etc. for interaction purpose.	19	3.51
14.	Number of contact sessions should be increased as face to face sessions may be more useful.	25	4.63

Conclusion:

Table 44 cited on previous pages indicated lot of personal views expressed by either one or two participants. Most of these personal opinions were for individual benefits and had no concern with the group. **However, following may be accepted looking to the utility for all participants.**

One toll free number must be set for this purpose. Follow up for implementation status of this programme must be done.

Top level authorities must also be trained about how to implement this programme. Weekly discussions should take place. Interactive presentations should be conducted during contact sessions. How to study in Distance Education setting was essential before registering for the programme. Programme guide should be developed to help the participants about how to study in distance education scenario. Trainer team from among the oriented teachers may be developed. National Curriculum Centre may be involved in this programme. Between two sessions there should be interactions with the Resource persons. It was opined by 01 (0.18%) participants. About 02 (0.37%) participants' acceptable views are reproduced below. Assignments may be sent using email and the respondents should answer them either through email or by post. Participants must make a report of what they have gained in group interactions. Involve all stake holders in education field. Resource Persons should visit teachers in schools to assess problems they face and follow up after training programme. Participants should be given Audio CDs of all lectures. This programme may be included in the PGCE programme. Soft copy of the course material should be supplied to the participants. Inspectors should make a follow up to ensure that what is learnt is implemented in classrooms.

About 6 (1.11%) wanted contact details of all participants for organising the group discussion. 11 (1.48%) wanted some group work and individual activities also for all participants.

Facilitators should always keep in touch with participants was the opinion of 5 (0.92%) participants. 53 (9.75%) wanted contact sessions to be conducted every month, while 9 (1.66%) desired it twice every month. It was not possible due to paucity of funds and time too. About 28 (5.13%) participants opined that region wise groups must be formed after an introduction of each other during orientation. Divide them into Primary school group and High school group in each region.

A large number of participants being 96 (17.76%) advocated for groups to be formed with teachers from neighbouring schools. Group leaders should present progress. Ministry of Education & Training should organise another workshop for rest teachers. Whatsapp & Blog may be used for interaction. Similarly about 84 (15.54%) participants desired that group discussion should be supervised by any one resource person. Present setup was O.K. and needs no change. Some tests must be conducted for outcome evaluation. Email may be used for interaction with fellow participants as well as with resource persons. A good suggestion from 19 (3.51%) participants had been regarding use of Smart phone/Tablet etc. for interaction purpose. Monthly/Weekly checks for progress would be more valuable was advised by about 22 (4.07%) participants. An unacceptable suggestion by 25 (4.63%) participants was for increasing number of contact sessions as they felt face to face sessions might be more useful.

Question 5: You have attended a two days Contact Programme covering all Seventeen (17) Units. There were interactions between the presenters and participants as well as among participants too. Please suggest some steps to make these two days Contact Programme more useful and fruitful to the participants.

The respondents' views were as per Table 45 cited below.

Table 45: Opinion about Utility of Two days Contact Programme.

S. No.	Opinion	Resp. No.	(%)
1.	Activities/Assignments should be included. It should be discussed during contact programme. Practical activities were essential.	62	11.48
2.	Such programmes should be conducted thrice in a year. Contact programme should be twice in a month during the training programme. Some presenters were very fast during presentation and it was difficult to follow. Schools should upgrade technology of Learning. It should have more Audio/Visual presentations. Encouragement for further study should be given to participants. Skill development should be covered in next training programme. Parents should also be oriented for using technology. The participants be consulted the methodology during contact sessions. It should be learner centered. Travel cost must be increased. Some presenters were not time cautious. The participants must bring their own teaching aids. Presenters should include how to make use of Unit 11 &12 in rural areas. Give at least two examples per Unit for content clarity. The opinion scale should be given on the first day itself to have a precise opinion about various activities. Practical experience in E-learning must be organised during	1	0.18

	<p>contact sessions. Presentations in summarised forms may follow question answers during contact sessions. Questions given in modules may be discussed during contact sessions. Units may be broken down into smaller pieces by task analysis. Registration must take only 30 minutes. Participants must submit written answer to questions given in every Unit. Internet should be used to understand ICT Programme. Provide a bigger venue for this programme. The University should offer a Diploma programme in this course material.</p>		
3.	Interactive skills should be used than lecturing.	9	1.66
4.	Provide refreshment to participants.	8	1.48
5.	It was up to the mark and beneficial as it brought a clear understanding of the concepts.	97	17.96
6.	Such contact sessions should have been organised every month during Training programme. The Resource persons' voice should be clear to understand. Transport money should not be same for all participants. The contact sessions should be either on Saturday or on Sunday. Number of facilitators may be more. Ensure time management by the participants. Some incentives must be given to students to motivate them about use of technology in classroom.	2	0.37
7.	Electronic gadgets may be made available to teachers and students. The parents may be convinced about the application of the same.	55	10.1
8.	Feedback must be taken after each presentation. Participants should be allowed to present their difficulties/problems in understanding the content and the Resource Persons should help in meeting the same.	13	2.40

9.	There should be group work after each presentation.	77	14.25
10.	More time duration should be with every session.	54	10.0
11.	Participants should explain what they have learnt during this programme.	70	12.96
12.	Tests and Assignments should be included to assess the understanding level among the participants.	74	13.7
13.	Handouts may be supplied to participants at the end of every presentation. Sound from one facilitator was not clear. Follow up programme should be organised. More demonstrations were expected from the Resource persons.	5	0.81
14.	During contact session the groups should be small.	34	6.29
15.	Some participants may be taken as resource persons for coming programmes. Presenters should collect Questions from participants and answer them during contact sessions. End Lecture sessions at 14.30 hours. On line group discussions should be facilitated by the Resource persons.	4	0.74
16.	Provide a short break in time table to refresh. Participants should be grouped as per their job status (High School./Primary)	24	4.44
17.	Contact sessions should be for more than 2 days. It will allow more time for interaction.	127	23.51
18.	Accommodation and Food should be arranged for the participants.	38	7.03
19.	Sponsors should provide such programmes in future also.	109	20.18
20.	These contact sessions should be during Holidays or during weekends.	16	2.96

21.	These contact sessions should be organised in rural area of all four Regions of Swaziland.	36	6.66
22.	Contact sessions should be conducted on working days. Power point Presentation used by facilitators must be given to participants. Time management was essential. Lunch time should be reduced to finish early. Detailed explanations of each unit should be given during contact sessions.	3	0.55
23.	Only 03 Units per day should be taken for discussion.	7	1.30
24.	Students should also be oriented regarding use of Technology in classroom situation.	27	5.00
25.	Involve Regional Education officers, Ministry of Education and the School Principals/Head Teachers in such programmes.	10	1.85
26.	Lunch and Transport money may be paid day to day at the end of the session every day. This programme should be for one year through IDE at UNISWA.	11	2.03
27.	Contact sessions should start early to avoid late ending.	30	5.55

Conclusion:

It is evident from Table 45 cited above on previous pages that a large number of demands covering personal interests were made by the least number of participants being either 1 (0.18%) or 2 (0.37%) or 3 (0.55%) or even 4 (0.74%). Only three opinions needed due attention for consideration. The first opinion was about

the way unit 11 & 12 might be utilised in schools of rural areas while second opinion was a suggestion to University of Swaziland for launching this course as Diploma programme in future and the third one was selection of some participants as resource persons for future such programmes. A demand for refreshment by 8 (1.48%) participants cannot be justified as they were paid cash money for Lunch and breakfast as well as transport too. Similarly, a demand by 55 (10.1%) participants for supply of Electronic Gadgets to participants and convincing the parents about application of Educational Technology in classroom was not the responsibility of Training programme organisers. Also, orientation to students about the same as suggested by 27 (5.00%) cannot be included in this programme being meant for teachers only. About 97 (17.96%) participants had expressed their satisfaction as they found contact sessions up to the mark and beneficial as it brought a clear understanding of the concepts. Similarly, 62 (11.48%) opined for including some Activities / Assignments which should be discussed during contact sessions. An idea of group work by 77 (14.25%) after each presentation and more time duration with every session demanded by 54 (10.0%) had been appreciated as it would develop some skills among the participants. A suggestion by 13 (2.40%) for taking feedback after each presentation and expression of difficulties by the participants during session cannot be accepted as it will delay the session and finally there would be no time management. It can be done through email/phone, fax, letter etc. with the resource persons.

Participants should explain what they have learnt during this programme was a good suggestion by 70 (12.96%) participants. But it should not be during contact sessions. This can be done using various media and be submitted to the resource persons. Tests & Assignments should be included to assess the understanding level was an opinion by 74 (13.7%) participants and would be in consideration as and when such programme is conducted in future. A demand of short break between two sessions and grouping as per job status in various regions was also a good idea given by 24 (4.44%) participants. The contact sessions be organised by taking small groups (about 50) from same job status and same regional locations was a right demand by 34 (06.29%) participants. A suggestion by 9 (1.66%) participants for using interactive skills than mere a lecturing is a good and acceptable suggestion for such Programmes in near future. A demand by 5 (0.81%) for handouts and follow up programme by organisers cannot be accepted as the material written in SIM format is very simple to understand. Also, 127 (23.51%) had given a good and acceptable opinion for more than 2 days contact sessions as it will allow more time for interaction. About 109 (20.18%) wanted such programmes in future also. These sessions should be during Holidays or during weekends was a good idea given by 16 (2.96%) participants. The venue for the same should be in rural area of all four regions of Swaziland was opined by 36 (6.66%) participants. As suggested by 10 (1.85%), other stakeholders working as principals/head teachers, or working at Regional Education offices,

or at Ministry of Education & Training in Swaziland may also be included in this training programme.

A demand for food and accommodation by 38 (7.03%) cannot be accepted as the participants are paid for the same. Similarly a suggestion of taking only 3 units per day by 7 (1.30%) participants was practically not possible as it requires 6 days contact sessions. Also, a request by 11 (2.03%) for payment of lunch and transport money every day is practically not possible as there is no guarantee that person present on day 01 will surely be present on day 2 also. A suggestion by 30 (5.55%) participants for starting contact sessions early to avoid late ending was not practically possible as most of the participants were from long distances. But, decentralisation and organisation of Orientation as well as Contact sessions in regional areas will solve this problem.

Question 6: Any other suggestion or opinion which you want to mention and is not covered in this Opinion Scale.

The respondents' views were as per Table 46 on next page.

Table 46: Any Other suggestion or opinion not covered in Opinion Scale

S. No.	Opinion	Resp. No.	(%)
1	Dealing with learners, having a negative attitude towards study, should be covered in this training programme. Accounting courses may be started for the administrators for controlling misappropriation. Schools can assist teachers with loans to purchase Electronic Gadgets. Peer group	1	0.18

	<p>interaction must be managed by making groups from same locality. Empowerment topics should be added in this course. Examples should be given from local situation. At the end of the book, please state problems faced by the teachers in classroom. Orientation programme is not necessary. Teachers may start learning from first day. In book, e-marking was not covered. Experienced persons should cover E-learning unit. There should be revision of this course material after 5 years due to technological changes. There should be a better marketing for teachers' selection. There should be presentation by the participants on certain topics. Full time line should be provided before the programme starts. Incorporate new format of Lesson Planning. Module wise evaluation should be done at the end of the module presentation. Some teachers present during orientation, were absent during contact sessions. Provide a common format of Lesson Plan. Literature should be provided on how to deal with large number of students in a class. Old and younger teachers should attend separately. Field trips may be organised. School libraries should provide internet facility to teachers. Modules may be put online for an access of the same. Ministry of Education should formulate policy to enhance ICT. High schools should charge some rent for using technology by students. E-learning may be used for effective communication. E-learning had to be practiced during contact session. One lesson on how to use E-learning must have been added. Ministry of education should recognise it as one of the qualifications. Problems faced by rural learners may be included in opinion Scale. Money should be paid in advance to participants. The programme is important and will enhance learners' self-esteem. Opinion Scale should be given one day before the last day of contact programme. Ensure that all teachers are involved in this programme. On line presentation can help teachers to listen at a time of their own choice. Activities cited in the handbook were difficult</p>		
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<p>to answer. More attention should be given to the use of Technology in teaching-learning process. Grading of presentations should be done. On line tests should be organised to cover up knowledge gained. NGOs must fund schools for technological Gadgets. Test the effectiveness of the programme in four to five schools. There should be similar programmes on other issues also. Teachers can ask the students to bring Cell Phone and download the needy information. Time for study should not clash with examination time. Curriculum designers should be invited for this training programme. Include how ICT can be used in lower grade. We should add ‘Curriculum development’ and ‘Programme implementation’ in day to day routine work as course material. Academic support must be given even after the training is over. Sign language booklet should also be developed and may be used hand in hand with manual. Participants must be informed that the payment will be made at the end of the programme. Feedback collected through opinion scale may be circulated among participants. The participants must implement knowledge gained. Value and importance of this training programme must be included in the course material. Opinion Scale should have Multiple choice type items. Local level discussion at school level must take place about what has been done during training programme. Practice on computers was essential. Individual instruction in school setting must be added to syllabus. More relevant examples are needed to accommodate the concept of individual difference in class. Presenters should discuss some technology which can be used in Rural area schools. Theories of learning need more explanation. Online video should be made available to participants. Various types of incentives to students may also be discussed. The content should have been drafted as per primary school level teachers. The opinion scale has covered everything. Role of other stakeholders like parents, learners and teachers must be discussed. There should be</p>		
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	Tea break. This programme should be repeated 2or3 times in a year. DVDs of all modules should be provided to all participants. Email the soft copy of the handbook and Power Point presentations to all participants. This programme should be made compulsory for all teachers. Participants may be oriented to using Tablet/ Smart phone.		
02..	Session should not continue after 04.00 p.m. due to transport problem. Add content and discuss about making learning phenomenon in practice in all schools.	7	1.29
3.	Every year this programme should be organised to cover all teachers.	8	1.48
4.	Dramatisation / Demo should also be included during Contact Programmes. The Resource persons should visit the schools for checking the progress.	4	0.74
5.	One tablet and one computer should be supplied to each school.	5	0.92
06.	One Unit about positive discipline should be added.	11	2.03
07.	Unit 11, 12, and 13 should have more information. Orientation day money was not given. Please explain how gained knowledge can be applied in classroom situation. Modules should be converted to eLearning format. Career Guidance may be included in the course material. Government of Swaziland must fund the programme. Practical; activities should be organised to gain competency. Comfortable chairs in an air conditioned room may be provided for this programme. Another such workshop being part 2 for skill development should be organised. Participants may be given opportunity for interaction with Resource Persons. The teachers may be motivated to use technology in place of paper. Ensure that every school should purchase a Laptop and LCD Projector. Ensure that the programme is implemented. Participants should state the problems they face in the course and the changes to be made accordingly. Implementation of this	2	0.37

	programme should have been discussed. Transport should be provided to take participants back to their places. Use of Power Point presentation was interesting to participants. The teachers should have options for selecting date s of their suitability from among many options for contact programme. Programme should be online and discussion should be at contact sessions. Teachers should make a presentation in their schools about benefits of this training programme. Deeper information must be given on how Pedagogy and Andragogy can be used in teaching.		
08.	The programme should be conducted at Regional level.	20	3.70
09.	Handling and dealing with learners having special needs in classroom should be added in this programme.	15	2.78
10.	All teachers must be given such opportunity.	60	11.11
11.	An award may be given for best performer. High achievers must be facilitated. Opinion Scale should cover difficulties and challenges faced by the teachers in implementation. Inclusive education, Education policies must be included in the syllabus.	3	0.55
12.	Institute of Distance Education and Ministry of Education should work together in this matter in future. There should be a lesson for reducing stress among teachers and motivate them for application of Technology.	6	1.11

Conclusion

A lot of personal issues by a single participant being 0.18% based on personal interest were slated in table 46 above. But, some of these might be considered for betterment of this programme. These are reproduced herewith.

Dealing with learners, having a negative attitude towards study, should be covered in this training programme. Peer

group interaction must be managed by making groups from same locality. Experienced persons should cover E-learning unit. There should be revision of this course material after 5 years due to technological changes. Full time line should be provided before the programme starts. Literature should be provided on how to deal with large number of students in a class. Modules may be put online for an access of the same. Ministry of Education should formulate policy to enhance ICT. E-learning may be used for an effective communication. E-learning had to be practiced during contact session. One lesson on how to use E-learning must have been added. Ministry of education should recognise it as one of the qualifications. Problems faced by rural learners may be included in opinion Scale. Ensure that all teachers are involved in this programme. On line presentation can help teachers to listen at a time of their own choice. Test the effectiveness of the programme in four to five schools. There should be similar programmes on other issues also. Include how ICT can be used in lower grade. Academic support must be given even after the training is over. Feedback collected through opinion scale may be circulated among participants. The participants must implement knowledge gained. Value and importance of this training programme must be included in the course material. Local level discussion at school level must take place about what has been done during training programme. Individual instruction in school setting must be added to syllabus. Presenters should

discuss some technology which can be used in rural area schools. Theories of learning need more explanation. Role of other stakeholders like parents, learners and teachers must be discussed. DVDs of all modules should be provided to all participants. Email the soft copy of the handbook and Power Point presentations to all participants. This programme should be made compulsory for all teachers. The organisers of this programme would like to implement these opinions before starting again the same.

There were a large number of suggestions rendered by 2 participants being (0.37%). These were scrutinized and some of these were found acceptable. These are reproduced below.

Unit 11, 12 & 13 should have more explanation. Government of Swaziland must fund the programme. Practical; activities should be organised to gain competency. Another such workshop being part 2 for skill development should be organised. Participants may be given opportunity for interaction with Resource Persons. Ensure that the programme is implemented. The teachers should have options for selecting dates of their suitability from among many options for contact programme. Programme should be online and discussion should be at contact sessions. Teachers should make a presentation in their schools about benefits of this training programme. Deeper information must be given on how

Pedagogy and Andragogy can be used in teaching. About 3 (0.55%) participants wanted that the Opinion Scale should cover difficulties and challenges faced by the teachers in implementation. Also, 4 (0.74%) opined that the Resource persons should visit the schools to check the progress. While, 6 (1.11%) advised for Institute of Distance Education (IDE) and Ministry of Education (MOE) to work together in this matter in future. There should be a lesson for reducing stress among teachers and motivate them for application of Technology. One Unit about positive discipline should be added in course material as well as adding content and discuss how can learning phenomenon be brought into practice in all schools was opinion by 11 (2.03%) participants. Handling and dealing with learners having special needs in classroom should be added in this programme was desired by 15 (2.78%) participants. There were around 20 (3.70%) participants advocating to conduct this programme at regional level and 60 (11.11%) opined that every teacher must get this opportunity.

8) Major Findings based on Target Group Opinion

The target group school teachers were 540 drawn from Primary schools as well as from High Schools covering both male and female teaching different subjects in various grades. They expressed their opinion on various issues through an opinion scale. These issues were as listed below.

- 1. Utility of various Units / Topics in managing classroom activities.**
- 2. Difficulties in understanding the course content of various Units.**
- 3. Steps for making Orientation session more effective.**
- 4. Group interaction among participants using Media during study period.**
- 5. Steps for making 2 days Contact session more effective.**
- 6. Any other suggestion or opinion on an issue not covered above.**

An analysis of opinion expressed by all 540 teacher participants revealed following results.

8.1) Utility of various Units/Topics in managing classroom activities

The opinion analysis revealed that 98% participants opined in favour of Unit One being The Nature and Scope of Educational Technology. The second Unit being Managerial Approach to Classroom Communication was also found useful by 99.1% participants who had realised the importance of this Unit in managing classroom activities effectively. The third Unit was Systems Approach to Teaching and Learning and the fourth Unit was Bloom's Taxonomy of Educational Objectives: Its Utility to Classroom Communication. These both units were found useful by 98.1% participants. There was 97.8% response in favour of Unit

Five being Pedagogy and Andragogy in the Teaching and learning Process. Similarly, 98.9% participants had observed Unit six being Instructional Modes for Classroom Interaction as very useful in managing classroom activities. The Unit seven was 'Learning activity' and was found useful by 97.6% participants. The Utility of Learning Theories for Classroom Communication being unit Eight was witnessed by 97.1% participants. There were around 99.5% participants in favour of Unit Nine being Motivation, Interest and Emotions: Meaning and Role in Learning. Also, a very large number being 99.6% participants observed the Utility of Unit Ten being Verbal and Non-verbal Communication.

A similar trend of 98.7% was observed for Unit Eleven being Role of Audio/Video Aids in Teaching and learning Process and, 97.6% favour was observed for Unit Twelve being Role of Computers in the Teaching- Learning Process. E-learning: Its Mechanisms and Classroom Applications being Unit Thirteen had also 93.3% favour. Similarly Unit Fourteen being Mastery Learning for Effective Teaching was found useful by 95% participants, and Unit Fifteen being Individual Differences among Learners was found useful by 94.8% participants. There were around 93.7% participants in favour of Unit Sixteen entitled as Assessment, Measurement, and, Evaluation: Meaning and Utility for Examinations. About 92.5% participants had found utility of

Unit Seventeen entitled Various Types of Test Items and their Application in Examination.

Thus, it is evident ranging between 93.3% and 99.6% participants had found all 17 Units as very useful in managing classroom activities effectively. Thus the Module entitled Educational Technology for Effective Teaching was found effective and very useful by 93.3% to 99.6% participants.

8.2) Difficulties in understanding the course content of various Units

It was evident that in each Unit, there were very few participants having difficulties in understanding the course content on various pages. Their number and percentage was negligible. However, some persons expressed difficulties in full Unit. The Unit wise number of participants and their percentage was as cited in Table 47.

Table 47: Participants who found whole Unit as difficult to understand

Unit Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Teacher Number	03	07	09	03	06	02	08	14	02	1	5	6	15	37	4	11	2
%	.5	1.3	1.6	.5	1.1	.37	1.5	2.6	.4	.18	.92	1.1	2.77	6.85	.74	2.03	.37

The above table predicted that ranging from 2 to 9 participants found full Unit Number 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 15 and 17 as difficult. But, there number and so, percentage is very negligible. But, Unit number 8, 13, 14 and 16 were found as difficult by 14, 15, 37 and 11 participants respectively. These numbers and their percentage are also very small in comparison to their total number 540. **However, it is observed that all these Units be reviewed before another training programme is initiated for rest teachers.**

8.3). Steps for making Orientation session more effective

A lot of recommendations were made by the participants as cited in Table 43. These were clubbed into ‘Acceptable’ and ‘Not acceptable’ recommendations after a careful examination. Below is this classification.

a) Acceptable Recommendations

Note – The number in first bracket is teachers’ number while that in second bracket is their percentage.

- 1) Highlights of each unit be given during orientation. **(01), (0.18%)**
- 2) Explain importance and objectives of each Unit. **(01), (0.18%)**

- 3) Participants be given time to form the groups. **(01), (0.18%)**
- 4) Entering behaviour should be checked before entering the Unit. **(01), (0.18%)**
- 5) Participants may be asked about the problems they face during teaching. **(01), (0.18%)**
- 6) There should be a Handout on SQ3R Technique. **(01), (0.18%)**
- 7) Encourage the teachers to use smart phone to access the material. **(01), (0.18%)**
- 8) Some past participants be asked to motivate new participants during orientation. **(01), (0.18%)**
- 9) The teachers should be grouped as per their academic status and abilities. **(01), (0.18%)**
- 10) It was done perfectly as necessary steps were taken to ensure teachers participation during whole programme. **(59), (10.90%)**
- 11)Examinations must be conducted at the end of this programme. **(01), (0.18%)**
- 12) It should be conducted at the Regional Level. **(63), (11.64%)**
- 13) Loud speaker sound should be clear to understand. **(04), (0.74%)**
- 14) Maintaining time in every session is important. **(04), (0.74%)**
- 15)It should be done in smaller groups. **(98), (17.63%)**

- 16) Half day Orientation Programme was too short. **(128), (23.68%)**
- 17) Group work must be given after briefly explaining each unit. **(16), (2.96)**
- 18) It should be organised when the schools are closed for vacation. **(05), (4.06%)**
- 19) Modules, programme copy and Handouts covering important points of each unit as well as a soft copy of the modules should have been supplied to participants at least 05 days prior to orientation programme. **(05), (4.06%)**
- 20) LCD projector should have been used to explain Unit content. **(22), (4.06%)**
- 21) Email ID and social media account and a Blog may be opened for the participants. **(22), (4.06%)**
- 22) After orientation, the teachers should be grouped homogeneously. **(03), (0.55%)**
- 23) School Principals/Head Teachers be consulted for marketing this programme among other teachers. **(03), (0.55%)**
- 24) Regional Education Officers should be involved in this programme. **(03), (0.55%)**
- 25) Follow up should be done after the task is given to participants. **(02), (0.37%)**
- 26) Find ways to ensure that every participant reads all modules and also uses technology in classrooms. Ministry of Education should be involved in this programme. **(02), (0.37%)**

27) Head Teachers/Principals should be trained first through this programme. **(02), (0.37%)**

28) Motivation to participants and content clarity must be covered. **(02), (0.37%)**

29) Simple English language should be used during orientation session. **(02), (0.37%)**

30) Participants may be asked for their expectations of this programme before orientation session. **(02), (0.37%)**

31) Participants may be given a chance to interact with the resource persons during orientation programme. **(02), (0.37%)**

b)Non-acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

1) Units may be divided into two parts enabling the participants to understand importance of the course. **(01), (0.18%)**

2) Facilitators should brief in 5 minutes during orientation session about activities during contact sessions and its schedule. **(01), (0.18%)**

3) The course period must be extended to 06 months period with monthly contact sessions. **(01), (0.18%)**

4) The participants must be supplied Electronic Gadgets for practice at home. **(01), (0.18%)**

- 5) It should be conducted at the end of every month. **(01), (0.18%)**
- 6) It should be conducted in schools enabling all teachers to participate. **(01), (0.18%)**
- 7) Units should be written precisely. Radio, SMS, and, Whats App be used for making contacts with the participants. **(01), (0.18%)**
- 8) Facilitators must take 30 minutes to explain the Unit under discussion. **(01), (0.18%)**
- 9) It should be conducted during weekend. **(01), (0.18%)**
- 10) A unit about online courses and their assessment should be added. **(01), (0.18%)**
- 11) Mid-orientation may be organised to update any new information. **(01), (0.18%)**
- 12) Ultimate goal of this programme be explained during Orientation. **(01), (0.18%)**
- 13) Resource persons should apply all techniques given in the Handbook. **(01), (0.18%)**
- 14) Time lines be prescribed to cover the programme. **(01), (0.18%)**
- 15) Reference material should be suggested during Orientation for a deep study. **(01), (0.18%)**
- 16) Word pronunciation was not clear from some resource persons. **(01), (0.18%)**
- 17) All schools must have internet accessibility. **(01), (0.18%)**

- 18) It should be with Breakfast, Lunch, Accommodation and Transport money as well as a good voice projection. **(04), (0.74%)**
- 19) It should not be organised on Sunday due to transport problem. **(04), (0.74%)**
- 20) Few speakers can summarize the course in one hour in place of many speakers. **(06), (1.11%)**
- 21) Introduction of Units was too short to understand the content in the unit. **(03), (0.55%)**
- 22) Speakers were very fast during their presentation. **(03), (0.55%)**
- 23) Inform participants well in advance. **(03), (0.55%)**
- 24) School wise programmes must be conducted to cover all teachers. **(03), (0.55%)**
- 25) Closing time to orientation should not be late. **(03), (0.55%)**
- 26) Videography should be done and be shown to other teachers. **(02), (0.37%)**
- 27) A break in between two speakers may be given. E-learning technology may be used during programme to save time and cost. **(02), (0.37%)**
- 28) Background information about this Programme must be given to participants. **(02), (0.37%)**
- 29) One week orientation should be conducted. **(02), (0.37%)**
- 30) The orientation programme should not be too long. **(02), (0.37%)**

31) Add more activities to the participants. Resource persons should be competent in all subjects. **(02), (0.37%)**

32) Each speaker should be brief and specific. **(02), (0.37%)**

The above classification indicated that 31 suggestions by the participants may be accepted and implemented before next training programme for the school teachers. But, other 32 suggestions seem to be reflecting personal interests of different participants and may be not accepted before another such training programme.

8.4) Peer Group interaction among participants using Media during 03 months self-study period.

In this section, many recommendations were made by the participants as cited in Table 44. These were clubbed into 'Acceptable' and 'Not acceptable' recommendations after a careful examination. Below is this classification.

a) Acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

1) Enough time was given for studying the Module. **(01), (0.18%)**

2) One toll free number must be set for this purpose. **(01), (0.18%)**

3) Follow up for implementation status of this programme must be done. **(01), (0.18%)**

- 4) Top level authorities must also be trained about how to implement this programme. **(01), (0.18%)**
- 5) Time allocation must be for contacting Resource persons. **(01), (0.18%)**
- 6) Questions raised through email should be promptly answered by the Resource persons. **(01), (0.18%)**
- 7) How to study in Distance Education setting was essential before registering for the programme. **(01), (0.18%)**
- 8) The Oriented/Trained teachers should train other teachers. **(01), (0.18%)**
- 9) Programme guide should be developed to help the participants about how to study in distance education scenario. **(01), (0.18%)**
- 10) Head teachers /Principals should also be informed about various activities to avoid a delay. **(01), (0.18%)**
- 11) Some reference material may be suggested to enhance understanding. **(01), (0.18%)**
- 12) Trainer team from among the oriented teachers may be developed. **(01), (0.18%)**
- 13) National Curriculum Centre may be involved in this programme. **(01), (0.18%)**
- 14) Facilitators should always keep in touch with participants. **(05), (0.92%)**
- 15) Participants must get a chance to interact within the group. **(09), (1.66%)**

- 16) Resource persons were helpful whenever needed. **(03), (0.55%)**
- 17) Group discussion was not possible as the participants were from different locations. **(06), (1.11%)**
- 18) Provide contact details of other participants for group interaction. **(06), (1.11%)**
- 19) Participants must be given some group work and individual activities also. **(11), (2.03%)**
- 20) Region wise groups must be formed after an introduction of each other during orientation. **(28), (5.18%)**
- 21) Divide them into Primary school group and High school group in each region. **(28), (5.18%)**
- 22) Assignments may be sent using email and the respondents should answer them either through email or by post. **(02), (0.37%)**
- 23) Participants must make a report of what they have gained in group interactions. **(02), (0.37%)**
- 24) Participants should be involved in an activity based programme rather than mere lecturing. **(02), (0.37%)**
- 25) Resource Persons should visit teachers in schools to assess problems they face and follow up after training programme. **(02), (0.37%)**
- 26) Participants should be given Audio CDs of all lectures. Soft copy of the course material should be supplied to the participants. **(02), (0.37%)**

- 27) Inspectors should make a follow up to ensure that what is learnt is implemented in classrooms. **(02), (0.37%)**
- 28) It was difficult to interact with other participants as they have very little knowledge about emails, SMS etc. **(02), (0.37%)**
- 29) Groups must be formed by taking teachers from neighbouring schools. **(96), (17.76%)**
- 30) Group leaders should present progress. **(96), (17.76%)**
- 31) Ministry of Education & Training should organise another workshop for rest teachers. **(96), (17.76%)**
- 32) Whatsapp & Blog may be used for interaction. **(96), (17.76%)**
- 33) Group discussion should be supervised by any one resource person. **(84), (15.54%)**
- 34) Present setup was O.K. and needs no change. **(84), (15.54%)**
- 35) Some tests must be conducted for outcome evaluation. **(84), (15.54%)**
- 36) Email may be used for interaction with fellow participants as well as with resource persons. **(84), (15.54%)**
- 37) Participants must use Smart phone/Tablet etc. for interaction purpose. **(19), (3.51%)**
- 38) Monthly/Weekly checks for progress would be more valuable. **(22), (4.07%)**

b) Non-acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

- 1) Air time should be given to participants for group interaction. **(01), (0.18%)**
- 2) Subject content may be also mixed with this content. **(01), (0.18%)**
- 3) More computer lessons should be included in course material. One toll free number must be set for this purpose. **(01), (0.18%)**
- 4) Weekly discussions should take place. **(01), (0.18%)**
- 5) Contact sessions should be for 4 days in place of just 2 days. **(01), (0.18%)**
- 6) Study centers may be established for participants in Regional areas. **(01), (0.18%)**
- 7) This should be a one year Programme. **(01), (0.18%)**
- 8) Two weeks contact session may be conducted. **(01), (0.18%)**
- 9) Interaction with other participants was limited due to work load. **(01), (0.18%)**
- 10) This kind of in service programme can be done after every 05 years. **(01), (0.18%)**
- 11) Resource persons and participants should fix one day for a discussion. **(01), (0.18%)**
- 12) The Sound was not clear to participants. **(01), (0.18%)**

- 13) Govt. of Swaziland may supply every school with electronic gadgets to be used in class. **(01), (0.18%)**
- 14) The participants may be called during weekends to make their presentations. **(01), (0.18%)**
- 15) Between two sessions there should be interactions with the presenters/resource persons. **(01), (0.18%)**
- 16) Contact session should be for 03days in place of 02 days. **(05), (0.92%)**
- 17) At least three teachers from same school should be allowed to participate enabling them to interact among them. **(05), (0.92%)**
- 18) Contact sessions should be at least twice every month. **(09), (1.66%)**
- 19) Six months' time should be given for this programme. **(09), (1.66%)**
- 20) They should also follow what is there in the Course material given to participants. **(03), (0.55%)**
- 21) Exposure to computers through practical sessions be done. **(03), (0.55%)**
- 22) Shorter contact sessions with enough time to follow up activities. **(03), (0.55%)**
- 23) Video conferencing may be used as mode of interaction. Every session should have a longer duration. **(03), (0.55%)**
- 24) Only 2 months period for study was sufficient in place of 3 months. **(06), (1.11%)**

- 25) Another group of same number wants this study period be increased as 3 months' time is very short time. **(06), (1.11%)**
- 26) Contact session may be conducted every month. **(53), (9.75)**
- 27) Talk the participants on phone in place of SMS or E-mail. **(02), (0.37%)**
- 28) All teachers from same school be admitted to this training programme. **(02), (0.37%)**
- 29) Schools must be equipped with various ICT devices. **(02), (0.37%)**
- 30) A Videography should be done and shown to rest teachers. **(02), (0.37%)**
- 31) Role play should be done by resource persons. **(02), (0.37%)**
- 32) Involve all stake holders in education field. Exam writing work must be through e-mail/SMS. **(02), (0.37%)**
- 33) Group discussion should take place before the training starts. **(02), (0.37%)**
- 34) This programme may be included in the PGCE programme. **(02), (0.37%)**
- 35) This should be launched as a degree programme by University of Swaziland. **(02), (0.37%)**
- 36) Number of contact sessions should be increased as face to face sessions may be more useful. **(25), (4.63%)**

The above classification indicated that 38 suggestions by the participants may be accepted and implemented before next training programme for the school teachers. But other 36 suggestions seem to be reflecting personal interests of different participants and may be not accepted before another such training programme.

8.5) Steps for making 2 days Contact session more effective

In this section, many recommendations were made by the participants as cited in Table 45. These were clubbed into 'Acceptable' and 'Not acceptable' recommendations after a careful examination. Below is this classification.

a) Acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

- 1) Feedback must be taken after each presentation. **(13), (2.40%)**
- 2) Participants should be allowed to present their difficulties / problems in understanding the content and the Resource Persons should help in meeting the same. **(13), (2.40%)**
- 3) Some presenters were very fast during presentation and it was difficult to follow. **(01), (0.18%)**

- 4) It should have more Audio/Visual presentations. **(01), (0.18%)**
- 5) Encouragement for further study should be given to participants. **(01), (0.18%)**
- 6) It should be learner centered. **(01), (0.18%)**
- 7) Presenters should include how to make use of Unit 11 &12 in rural areas. **(01), (0.18%)**
- 8) Practical experience in E-learning must be organised during contact sessions. **(01), (0.18%)**
- 9) Presentations in summarised forms may follow question answers during contact sessions. **(01), (0.18%)**
- 10) Questions given in modules may be discussed during contact sessions. **(01), (0.18%)**
- 11) Participants must submit written answer to questions given in every Unit. **(01), (0.18%)**
- 12) It was up to the mark and beneficial as it brought a clear understanding of the concepts. **(97), (17.96%)**
- 13) Activities/Assignments, being essential, should be included and discussed during contact programme. **(62), (11.48%)**
- 14) There should be group work after each presentation. **(77), (14.25%)**
- 15) More time duration should be with every session. **(54), (10.00%)**
- 16) Participants should explain what they have learnt during this programme. **(70), (12.96%)**

- 17) Tests and Assignments should be included to assess the understanding level among the participants. **(74), (13.7%)**
- 18) Participants should be grouped as per their job status. (High School/ Primary School) **(24), (4.44%)**
- 19) Handouts may be supplied to participants at the end of every presentation. **(05), (0.92%)**
- 20) Follow up programme should be organised. **(05), (0.92%)**
- 21) During contact session the groups should be small. **(34), (6.29%)**
- 22) Some participants may be taken as resource persons for coming programmes. **(04), (0.74%)**
- 23) Presenters should collect Questions from participants and answer them during contact sessions. **(04), (0.74%)**
- 24) On line group discussions should be facilitated by the Resource persons. **(04), (0.74%)**
- 25) Sponsors should provide such programmes in future also. **(109), (20.18%)**
- 26) These contact sessions should be during Holidays or during weekends. **(16), (2.96%)**
- 27) These contact sessions should be organised in rural area of all four Regions of Swaziland. **(36), (6.66%)**
- 28) Interactive skills should be used than lecturing. **(09), (1.66%)**
- 29) Power point Presentation used by facilitators must be given to participants. **(03), (0.55%)**

30) Students should also be oriented regarding use of Technology in classroom situation. **(27), (5.00%)**

31) Involve Regional Education officers, Ministry of Education and the School Principals/Head Teachers in such programmes. **(10), (1.85%)**

b) Non-acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

1) Such programmes should be conducted thrice in a year. Contact programme should be twice in a month during the training programme. **(01), (0.18%)**

2) Schools should upgrade technology of Learning. **(01), (0.18%)**

3) Skill development should be covered in next training programme. **(01), (0.18%)**

4) Parents should also be oriented for using technology. **(01), (0.18%)**

5) The participants be consulted the methodology during contact sessions. **(01), (0.18%)**

6) Travel cost must be increased. **(01), (0.18%)**

7) Some presenters were not time cautious. **(01), (0.18%)**

8) The participants must bring their own teaching aids. **(01), (0.18%)**

- 9) Give at least two examples per Unit for content clarity. **(01), (0.18%)**
- 10) The opinion scale should be given on the first day itself to have a precise opinion about various activities. **(01), (0.18%)**
- 11) Units may be broken down into smaller pieces by task analysis. **(01), (0.18%)**
- 12) Registration must take only 30 minutes. **(01), (0.18%)**
- 13) Internet should be used to understand ICT Programme. **(01), (0.18%)**
- 14) Provide a bigger venue for this programme. **(01), (0.18%)**
- 15) The University should offer a Diploma programme in this course material. **(01), (0.18%)**
- 16) Provide Refreshment to Participants. **(08), (1.48%)**
- 17) Such contact sessions should have been organised every month during Training programme. **(02), (0.37%)**
- 18) The Resource persons' voice should be clear to understand. **(02), (0.37%)**
- 19) Transport money should not be same for all participants. **(02), (0.37%)**
- 20) The contact sessions should be either on Saturday or on Sunday. **(02), (0.37%)**
- 21) Number of facilitators may be more. Ensure time management by the participants. **(02), (0.37%)**
- 22) Some incentives must be given to students to motivate them about use of technology in classroom. **(02), (0.37%)**

- 23) Electronic gadgets may be made available to teachers and students. **(55), (10.1%)**
- 24) The parents may be convinced about the application of the same. **(55), (10.1%)**
- 25) Provide a short break in time table to refresh. **(24), (4.44%)**
- 26) Sound from one facilitator was not clear. **(05), (0.92%)**
- 27) More demonstrations were expected from the Resource persons. **(05), (0.92%)**
- 28) End Lecture sessions at 14.30 hours. **(04), (0.74%)**
- 29) Contact sessions should be for more than 2 days. As it will allow more time for interaction. **(127), (23.51%)**
- 30) Accommodation and Food should be arranged for the participants. **(38), (7.03%)**
- 31) Time management was essential. **(03), (0.55%)**
- 32) Lunch time should be reduced to finish early. **(03), (0.55%)**
- 33) Detailed explanations of each unit should be given during contact sessions. **(03), (0.55%)**
- 34) Contact sessions should be conducted on working days. **(03), (0.55%)**
- 35) Only 03 Units per day should be taken for discussion. **(07), (1.30%)**
- 36) Lunch and Transport money may be paid day to day at the end of the session every day. **(11), (2.03%)**
- 37) This programme should be for one year through IDE at UNISWA. **(11), (2.03%)**

38) Contact sessions should start early to avoid late ending.
(30), (5.55%)

It is evident that 31 suggestions by the participants had been found as acceptable and may be implemented before next training programme for the school teachers. But other 38 suggestions looked to be reflecting personal interests of different participants and might be not acceptable before another such training programme.

8.6)Any other suggestion or opinion about an issue not covered above

In this section, many recommendations were made by the participants as cited in Table 46. These were clubbed into ‘Acceptable’ and ‘Not acceptable’ recommendations after a careful examination. Below is this classification.

a) Acceptable Recommendations

Note – The number in first bracket is teachers’ number while that in second bracket is their percentage.

- 1) Peer group interaction must be managed by making groups from same locality. **(01), (0.18)**
- 2) At the end of the book, please state problems faced by the teachers in classroom. **(01), (0.18)**

- 3) There should be revision of this course material after 5 years due to technological changes. **(01), (0.18)**
- 4) There should be presentation by the participants on certain topics. **(01), (0.18)**
- 5) Full time line should be provided before the programme starts. **(01), (0.18)**
- 6) Module wise evaluation should be done at the end of the module presentation. **(01), (0.18)**
- 7) Ministry of Education should formulate policy to enhance ICT. **(01), (0.18)**
- 8) Literature should be provided on how to deal with large number of students in a class. Modules may be put online for an access of the same. **(01), (0.18)**
- 9) Ministry of education should recognise it as one of the qualifications. Problems faced by rural learners may be included in opinion Scale. **(01), (0.18)**
- 10) The programme is important and will enhance learners' self-esteem. **(01), (0.18)**
- 11) Ensure that all teachers are involved in this programme. **(01), (0.18)**
- 12) Test the effectiveness of the programme in four to five schools. **(01), (0.18)**
- 13) Curriculum designers should be invited for this training programme. **(01), (0.18)**

- 14) Include how ICT can be used in lower grade. Academic support must be given even after the training is over. **(01), (0.18)**
- 15) Feedback collected through opinion scale may be circulated among participants. **(01), (0.18)**
- 16) The participants must implement knowledge gained. **(01), (0.18)**
- 17) Local level discussion at school level must take place about what has been done during training programme. **(01), (0.18)**
- 18) Individual instruction in school setting must be added to syllabus. **(01), (0.18)**
- 19) Presenters should discuss some technology which can be used in rural area schools. **(01), (0.18)**
- 20) The opinion scale has covered everything. **(01), (0.18)**
- 21) Role of other stakeholders like parents, learners and teachers must be discussed. **(01), (0.18)**
- 22) Email the soft copy of the handbook and Power Point presentations to all participants. **(01), (0.18)**
- 23) This programme should be made compulsory for all teachers. **(01), (0.18)**
- 24) Unit 11, 12, and 13 should have more information. **(02), (0.37)**
- 25) Please explain how gained knowledge can be applied in classroom situation. **(02), (0.37)**
- 26) Government of Swaziland must fund the programme. **(02), (0.37)**

- 27) Practical; activities should be organised to gain competency. **(02), (0.37)**
- 28) Participants may be given opportunity for interaction with Resource Persons. **(02), (0.37)**
- 29) Ensure that the programme is implemented. **(02), (0.37)**
- 30) Participants should state the problems they face in the course and the changes to be made accordingly. **(02), (0.37)**
- 31) Implementation of this programme should have been discussed. **(02), (0.37)**
- 32) Use of Power Point presentation was interesting to participants. **(02), (0.37)**
- 33) The teachers should have options for selecting dates of their suitability from among many options for contact programme. **(02), (0.37)**
- 34) Teachers should make a presentation in their schools about benefits of this training programme. **(02), (0.37)**
- 35) Deeper information must be given on how Pedagogy and Andragogy can be used in teaching. **(02), (0.37)**
- 36) Opinion Scale should cover difficulties and challenges faced by the teachers in implementation. **(03), (0.55%)**
- 37) The Resource persons should visit the schools to check the progress. **(04), (0.74%)**
- 38) Institute of Distance Education and Ministry of Education should work together in this matter in future. **(06), (1.11%)**
- 39) Every year this programme should be organised to cover all teachers. **(08), (1.48%)**

40) The programme should be conducted at Regional level.

(20), (3.70)

41) All teachers must be given such opportunity. **(60), (11.11)**

b) Non-acceptable Recommendations

Note – The number in first bracket is teachers' number while that in second bracket is their percentage.

1) Dealing with learners, having a negative attitude towards study, should be covered in this training programme. **(01), (0.18)**

(0.18)

2) Accounting courses may be started for the administrators for controlling misappropriation. **(01), (0.18)**

3) Schools can assist teachers with loans to purchase Electronic Gadgets. **(01), (0.18)**

4) Empowerment topics should be added in this course. **(01), (0.18)**

5) Examples should be given from local situation. **(01), (0.18)**

6) Orientation programme is not necessary. **(01), (0.18)**

7) Teachers may start learning from first day. **(01), (0.18)**

8) In book, e-marking was not covered. Experienced persons should cover E-learning unit. **(01), (0.18)**

9) There should be a better marketing for teachers' selection. **(01), (0.18)**

10) Incorporate new format of Lesson Planning. **(01), (0.18)**

- 11) Some teachers present during orientation, were absent during contact sessions. **(01), (0.18)**
- 12) Provide a common format of Lesson Plan. **(01), (0.18)**
- 13) Old and younger teachers should attend separately. **(01), (0.18)**
- 14) Field trips may be organised. School libraries should provide internet facility to teachers. **(01), (0.18)**
- 15) High schools should charge some rent for using technology by students. **(01), (0.18)**
- 16) E-learning may be used for an effective communication. **(01), (0.18)**
- 17) E-learning had to be practiced during contact session. **(01), (0.18)**
- 18) One lesson on how to use E-learning must have been added. **(01), (0.18)**
- 19) Money should be paid in advance to participants. **(01), (0.18)**
- 20) Grading of presentations should be done. **(01), (0.18)**
- 21) Opinion Scale should be given one day before the last day of contact programme. **(01), (0.18)**
- 22) On line presentation can help teachers to listen at a time of their own choice. **(01), (0.18)**
- 23) Activities cited in the handbook were difficult to answer. **(01), (0.18)**
- 24) More attention should be given to the use of Technology in teaching-learning process. **(01), (0.18)**

- 25) On line tests should be organised to cover up knowledge gained. **(01), (0.18)**
- 26) NGOs must fund schools for technological Gadgets. **(01), (0.18)**
- 27) There should be similar programmes on other issues also. **(01), (0.18)**
- 28) Teachers can ask the students to bring Cell Phone and download the needy information. **(01), (0.18)**
- 29) Time for study should not clash with examination time. **(01), (0.18)**
- 30) We should add 'Curriculum development' and 'Programme implementation' in day to day routine work as course material. **(01), (0.18)**
- 31) Sign language booklet should also be developed and may be used hand in hand with manual. **(01), (0.18)**
- 32) Participants must be informed that the payment will be made at the end of the programme. **(01), (0.18)**
- 33) Value and importance of this training programme must be included in the course material. **(01), (0.18)**
- 34) Opinion Scale should have multiple choice type items. **(01), (0.18)**
- 35) Practice on computers was essential. **(01), (0.18)**
- 36) More relevant examples are needed to accommodate the concept of individual difference in class. **(01), (0.18)**
- 37) Theories of learning need more explanation. Online video should be made available to participants. **(01), (0.18)**

- 38) Various types of incentives to students may also be discussed. **(01), (0.18)**
- 39) There should be Tea break. **(01), (0.18)**
- 40) This programme should be repeated 2or3 times in a year. **(01), (0.18)**
- 41) The content should have been drafted as per primary school level teachers. **(01), (0.18)**
- 42) Role of other stakeholders like parents, learners and teachers must be discussed. **(01), (0.18)**
- 43) DVDs of all modules should be provided to all participants. **(01), (0.18)**
- 44) Participants may be allowed to learn use of Tablet/ Smart phone. **(01), (0.18)**
- 45) Orientation day money was not given. Modules should be converted to eLearning format. **(02), (0.37)**
- 46) Career Guidance may be included in the course material.**(02), (0.37)**
- 47) Comfortable chairs in an air conditioned room may be provided for this programme. **(02), (0.37)**
- 48) Another such workshop being part 2 for skill development should be organised. **(02), (0.37)**
- 49) The teachers may be motivated to use technology in place of paper. **(02), (0.37)**
- 50) Ensure that every school should purchase a Laptop and LCD Projector. **(02), (0.37)**

- 51) Transport should be provided to take participants back to their places. **(02), (0.37)**
- 52) Programme should be online and discussion should be at contact sessions. **(02), (0.37)**
- 53) An award may be given for best performer. **(03), (0.55%)**
- 54) High achievers must be facilitated. Inclusive education, Education policies must be included in the syllabus. **(03), (0.55%)**
- 55) Dramatisation / Demo should also be included during Contact Programmes. **(04), (0.74%)**
- 56) There should be a lesson for reducing stress among teachers and motivate them for application of Technology. **(06), (1.11%)**
- 57) Session should not continue after 04.00 p.m. due to transport problem. **(07), (1.29%)**
- 58) Add content and discuss about making learning phenomenon in practice in all schools. **(07), (1.29%)**
- 59) Handling and dealing with learners having special needs in classroom should be added in this programme. **(15), (2.78%)**
- 60) One tablet and one computer should be supplied to each school. **(05), (0.92%)**
- 61) One Unit about positive discipline should be added. **(11), (2.03%)**

9) Gist of Findings

The Opinion Scale was drafted on the basis of a systemic analysis covering whole training programme. There were 540 school teachers as participants drawn from various Primary schools as well as High schools of Swaziland. There were 185 Male and 355 female teachers from all four regions of Swaziland in this training programme. Their opinion on various steps/stages had been analysed. Following six stages/steps were sorted out after systemic analysis.

- i) Utility level of various 17 Units for managing classroom activities.**
- ii) Difficulties in understanding the content of various Units.**
- iii) Steps to make Orientation session more effective and user friendly.**
- iv) Self-study and Peer Group interaction using various media.**
- v) Ways and means to making two days contact programme more useful and fruitful.**
- vi) Any other suggestion or opinion not covered above.**

The detailed analysis for all these six steps was as stated in previous pages. The gist of all findings being step wise summary was as stated below.

i) Utility level of various 17 Units for managing classroom activities.

All 17 Units had been found as useful by a very large number of teacher participants ranging from 92.5% to 99.6%. It indicated that all units are very useful and the teachers were not having literature related to the same. It means that the Module **“Educational Technology for Effective Teaching”** is a Bible on which these teachers may read and rely for managing various activities effectively in the classroom.

ii) Difficulties in understanding the content of various Units

The results shown in above tables indicated that, very few persons had difficulties on various pages of most of the Units. But, this trend was reversed in four Units where the participants number was comparatively high regarding difficulties faced on various pages. These details are given in Table 42. The Unit 08 being **“Learning Theories for Classroom Communication”** had been found very difficult by 14 (2.59%) teachers and Unit 13 being **“E-learning; Its mechanisms and Classroom Applications”** was felt as very difficult by 15 (2.77%) teachers. Similarly, Unit 14 known as **“Mastery Learning for Effective Teaching”** was found difficult by 37 (06.85%) teachers, and Unit 16 entitled as **“Assessment, Measurement and Evaluation; Meaning and Utility for Examinations”** was also found as difficult by 11 (2.03%) teachers.

iii) Steps to make Orientation session more effective and user friendly

There were many suggestions with a flavour of personal interests while some were really worth and applicable too. These have been grouped as Acceptable recommendations and Non-acceptable recommendations and are reproduce below.

Acceptable Recommendations

Highlights of each unit must be given during orientation. Explain importance and objectives of each Unit. Participants be given time to form the groups. Entering behaviour should be checked before entering the Unit. Participants may be asked about the problems they face during teaching. There should be a Handout on SQ3R Technique. Encourage the teachers to use smart phone to access the material. Some past participants be asked to motivate new participants during orientation. The teachers should be grouped as per their academic status and abilities. It was done perfectly as necessary steps were taken to ensure teachers participation during whole programme. Examinations must be conducted at the end of this programme. It should be conducted at the Regional Level. Loud speaker sound should be clear to understand. Maintaining time in every session is important. It should be done in smaller groups. Half day Orientation Programme was too short. Group work must be

given after briefly explaining each unit. It should be organised when the schools are closed for vacation. Modules, programme copy and Handouts covering important points of each unit as well as a soft copy of the modules should have been supplied to participants at least 05 days prior to orientation programme. LCD projector should have been used to explain Unit content. Email ID and social media account and a Blog may be opened for the participants. After orientation, the teachers should be grouped homogeneously. School Principals / Head Teachers be consulted for marketing this programme among other teachers. Regional Education Officers should be involved in this programme. Follow up should be done after the task is given to participants. Find ways to ensure that every participant reads all modules and also uses technology in classrooms. Ministry of Education should be involved in this programme. Head Teachers / Principals should be trained first through this programme. Motivation to participants and content clarity must be covered. Simple English language should be used during orientation session. Participants may be asked for their expectations of this programme before orientation session. Participants may be given a chance to interact with the resource persons during orientation programme.

Non-acceptable Recommendations

Units may be divided into two parts enabling the participants

to understand importance of the course. Facilitators should brief in 5 minutes during orientation session about activities during contact sessions and its schedule. The course period must be extended to 6 months period with monthly contact sessions. The participants must be supplied Electronic Gadgets for practice at home. It should be conducted at the end of every month. It should be conducted in schools enabling all teachers to participate. Units should be written precisely. Radio, SMS, and, Whats App be used for making contacts with the participants. Facilitators must take 30 minutes to explain the Unit under discussion. It should be conducted during weekend. A unit about online courses and their assessment should be added. Mid-orientation may be organised to update any new information. Ultimate goal of this programme be explained during Orientation. Resource persons should apply all techniques given in the Handbook. Time lines be prescribed to cover the programme. Reference material should be suggested during Orientation for a deep study. Word pronunciation was not clear from some resource persons. All schools must have internet accessibility. It should be with Breakfast, Lunch, Accommodation and Transport money as well as a good voice projection. It should not be organised on Sunday due to transport problem. Few speakers can summarize the course in one hour in place of many speakers. Introduction of Units was too short to understand the content in the unit. Speakers were very fast during their presentation. Inform participants well in

advance. School wise programmes must be conducted to cover all teachers. Closing time to orientation should not be late. Videography should be done and be shown to other. A break in between two speakers must be given. E-learning technology may be used during programme to save time and cost. Background information about this Programme must be given to participants. One week orientation should be conducted. The orientation programme should not be too long. Add more activities to the participants. Resource persons should be competent in all subjects. Each speaker should be brief and specific.

iv) Self-study and Peer Group interaction using various media

Acceptable Recommendations

Enough time was given for studying the Module. One toll free number must be set for this purpose. Follow up for implementation status of this programme must be done. Top level authorities must also be trained about how to implement this programme. Time allocation must be for contacting the resource persons. Questions raised through email should be promptly answered by the Resource persons. How to study in Distance Education setting was essential before registering for the programme. The Oriented / Trained teachers should train other teachers. Programme guide should be developed to help the participants about how to study in distance education

scenario. Head teachers / Principals should also be informed about various activities to avoid a delay. Some reference material may be suggested to enhance understanding. Trainer team from among the oriented teachers may be developed. National Curriculum Centre may be involved in this programme. Facilitators should always keep in touch with participants. Participants must get a chance to interact within the group. Resource persons were helpful whenever needed. Group discussion was not possible as the participants were from different locations. Provide contact details of other participants for group interaction. Participants must be given some group work and individual activities also. Region wise groups must be formed after an introduction of each other during orientation. Divide them into Primary school group and High school group in each region. Assignments may be sent using email and the respondents should answer them either through email or by post. Participants must make a report of what they have gained in group interactions. Participants should be involved in an activity based programme rather than mere lecturing. Resource Persons should visit teachers in schools to assess problems they face and follow up after training programme.

Participants should be given Audio CDs of all lectures. Soft copy of the course material should be supplied to the participants. Inspectors should make a follow up to ensure that what is learnt is implemented in classrooms. It was difficult to

interact with other participants as they have very little knowledge about emails, SMS etc. Groups must be formed by taking teachers from neighbouring schools. Group leaders should present progress. Ministry of Education & Training should organise another workshop for rest teachers. Whatsapp & Blog may be used for interaction. Group discussion should be supervised by any one resource person. Present setup was O.K. and needs no change. Some tests must be conducted for outcome evaluation. Email may be used for interaction with fellow participants as well as with resource persons. Participants must use Smart phone/Tablet etc. for interaction purpose. Monthly/Weekly checks for progress would be more valuable.

Non-acceptable Recommendations

Air time should be given to participants for group interaction. Subject content may be also mixed with this content. More computer lessons should be included in course material. One toll free number must be set for this purpose. Weekly discussions should take place. Contact sessions should be for 4 days in place of just 2 days. Study centers may be established for participants in Regional areas. This should be a one year Programme. Two weeks contact session may be conducted. Interaction with other participants was limited due to work load. This kind of in service programme can be done after every 05 years. Resource persons and participants should

fix one day for a discussion. The Sound was not clear to participants. Govt. of Swaziland may supply every school with electronic gadgets to be used in class. The participants may be called during weekends to make their presentations. Between two sessions there should be interactions with the presenters / resource persons. Contact session should be for 3 days in place of 2 days. At least three teachers from same school should be allowed to participate enabling them to interact among them. Contact sessions should be at least twice every month. Six months' time should be given for this programme. They should also follow what is there in the Course material given to participants. Exposure to computers through practical sessions may be done. Shorter contact sessions may be with enough time to follow up activities.

Video conferencing may be used as mode of interaction. Every session should have a longer duration. Only 2 months period for study was sufficient in place of 3 months. Another group of same number wants this study period be increased as 3 months' time is very short time. Contact session may be conducted every month. Talk the participants on phone in place of SMS or E-mail. All teachers from same school must be admitted to this training programme. Schools must be equipped with all kinds of ICT devices. A Videography should be done and shown to rest teachers. Role play should be done by resource persons. Involve all stake holders in education field. Exam writing work must be through e-mail/SMS. Group

discussion may take place before the training starts. This programme may be included in the PGCE programme. This should be launched as a degree programme by University of Swaziland. Number of contact sessions should be increased as face to face sessions may be more useful.

v) Ways and means to making two days contact programme more useful and fruitful

Acceptable recommendations

Feedback must be taken after each presentation. Participants should be allowed to present their difficulties / problems in understanding the content and the Resource Persons should help in meeting the same. Some presenters were very fast during presentation and it was difficult to follow. It should have more Audio / Visual presentations. Encouragement for further study should be given to participants. It should be learner centered. Presenters should include how to make use of Unit 11 & 12 in rural areas. Practical experience in E-learning must be organised during contact sessions. Presentations in summarised forms may follow question answers during contact sessions. Questions given in modules may be discussed during contact sessions. Participants must submit written answer to questions given in every Unit. It was up to the mark and beneficial as it brought a clear understanding of the concepts.

Activities / Assignments, being essential, should be included and discussed during contact programme. There should be group work after each presentation. More time duration should be with every session. Participants should explain what they have learnt during this programme. Tests and Assignments should be included to assess the understanding level among the participants. Participants should be grouped as per their job status. (High School / Primary School). Handouts may be supplied to participants at the end of every presentation. Follow up programme should be organised. During contact session the groups should be small. Some participants may be taken as resource persons for coming programmes.

Presenters should collect Questions from participants and answer them during contact sessions. On line group discussions should be facilitated by the Resource persons. Sponsors should provide such programmes in future also. These contact sessions should be during Holidays or during weekends. These contact sessions should be organised in rural area of all four Regions of Swaziland. Interactive skills should be used than lecturing. Power point Presentation used by facilitators must be given to participants. Students should also be oriented regarding use of Technology in classroom situation. Involve Regional Education officers, Ministry of Education and the School Principals / Head Teachers in such programmes.

Non-acceptable Recommendations

Such programmes should be conducted thrice in a year. Contact programme should be twice in a month during the training programme. Schools should upgrade technology of Learning. Skill development should be covered in next training programme. Parents should also be oriented for using technology. The participants be consulted the methodology during contact sessions. Travel cost must be increased. Some presenters were not time cautious. The participants must bring their own teaching aids. Give at least two examples per Unit for content clarity. The opinion scale should be given on the first day itself to have a precise opinion about various activities. Units may be broken down into smaller pieces by task analysis. Registration must take only 30 minutes. Internet should be used to understand ICT Programme. Provide a bigger venue for this programme. The University should offer a Diploma programme in this course material. Provide Refreshment to Participants. Such contact sessions should have been organised every month during Training programme. The Resource persons' voice should be clear to understand. Transport money should not be same for all participants. The contact sessions should be either on Saturday or on Sunday. Number of facilitators may be more. Ensure time management by the participants. Some incentives must be given to students to motivate them about use of technology in classroom. Electronic gadgets may be made

available to teachers and students. The parents may be convinced about the application of the same.

Provide a short break in time table to refresh. Sound from one facilitator was not clear. More demonstrations were expected from the Resource persons. End Lecture sessions at 14.30 hours. Contact sessions should be for more than 2 days as it will allow more time for interaction. Accommodation and Food should be arranged for the participants. Time management was essential. Lunch time should be reduced to finish early. Detailed explanations of each unit should be given during contact sessions. Contact sessions should be conducted on working days. Only 3 Units per day should be taken for discussion. Lunch and Transport money may be paid day to day at the end of the session every day. This programme should be for one year through IDE at UNISWA. Contact sessions should start early to avoid late ending.

vi) Any other suggestion or opinion not covered above

Acceptable Recommendations

Peer group interaction must be managed by making groups from same locality. At the end of the book, please state problems faced by the teachers in classroom. There should be revision of this course material after 5 years due to technological changes. There should be presentation by the participants on certain topics. Full time line should be provided

before the programme starts. Module wise evaluation should be done at the end of the module presentation. Ministry of Education should formulate policy to enhance ICT. Literature should be provided on how to deal with large number of students in a class. Modules may be put online for an access of the same. Ministry of education should recognise it as one of the qualifications. Problems faced by rural learners may be included in opinion Scale. The programme is important and will enhance learners' self-esteem. Ensure that all teachers are involved in this programme. Test the effectiveness of the programme in four to five schools.

Curriculum designers should be invited for this training programme. Include how ICT can be used in lower grade. Academic support must be given even after the training is over. Feedback collected through opinion scale may be circulated among participants. The participants must implement knowledge gained. Local level discussion at school level must take place about what has been done during training programme. Individual instruction in school setting must be added to syllabus. Presenters should discuss some technology which can be used in rural area schools. The opinion scale has covered everything. Role of other stakeholders like parents, learners and teachers must be discussed. Email the soft copy of the handbook and Power Point presentations to all participants. This programme should be made compulsory for all teachers. Unit 11, 12, and 13 should have more information. Please

explain how gained knowledge can be applied in classroom situation. Government of Swaziland must fund the programme. Practical; activities should be organised to gain competency. Participants may be given opportunity for interaction with Resource Persons. Ensure that the programme is implemented. Participants should state the problems they face in the course and the changes to be made accordingly. Implementation of this programme should have been discussed. Use of Power Point presentation was interesting to participants. The teachers should have options for selecting dates of their suitability from among many options for contact programme.

Teachers should make a presentation in their schools about benefits of this training programme. Deeper information must be given on how Pedagogy and Andragogy can be used in teaching. Opinion Scale should cover difficulties and challenges faced by the teachers in implementation. The Resource persons should visit the schools to check the progress. Institute of Distance Education and Ministry of Education should work together in this matter in future. Every year this programme should be organised to cover all teachers. The programme should be conducted at Regional level. All teachers must be given such opportunity.

Non-acceptable Recommendations

Dealing with learners, having a negative attitude towards study, should be covered in this training programme.

Accounting courses may be started for the administrators for controlling misappropriation. Schools can assist teachers with loans to purchase Electronic Gadgets. Empowerment topics should be added in this course. Examples should be given from local situation. Orientation programme is not necessary. Teachers may start learning from first day. In book, e-marking was not covered. Experienced persons should cover E-learning unit. There should be a better marketing for teachers' selection. Incorporate new format of Lesson Planning. Some teachers present during orientation, were absent during contact sessions. Provide a common format of Lesson Plan. Old and younger teachers should attend separately. Field trips may be organised. School libraries should provide internet facility to teachers. High schools should charge some rent for using technology by students. E-learning may be used for an effective communication. E-learning had to be practiced during contact session. One lesson on how to use E-learning must have been added. Money should be paid in advance to participants. Grading of presentations should be done. Opinion Scale should be given one day before the last day of contact programme. On line presentation can help teachers to listen at a time of their own choice. Activities cited in the handbook were difficult to answer. More attention should be given to the use of Technology in teaching-learning process. On line tests should be organised to cover up knowledge gained. NGOs must fund schools for technological Gadgets. There should be similar

programmes on other issues also. Teachers can ask the students to bring Cell Phone and download the needy information. Time for study should not clash with examination time. We should add 'Curriculum development' and 'Programme implementation' in day to day routine work as course material. Sign language booklet should also be developed and may be used hand in hand with manual. Participants must be informed that the payment will be made at the end of the programme. Value and importance of this training programme must be included in the course material. Opinion Scale should have multiple choice type items. Practice on computers was essential. More relevant examples are needed to accommodate the concept of individual difference in class. Theories of learning need more explanation. Online video should be made available to participants. Various types of incentives to students may also be discussed. There should be Tea break. This programme should be repeated 2 or 3 times in a year. The content should have been drafted as per primary school level teachers. Role of other stakeholders like parents, learners and teachers must be discussed. DVDs of all modules should be provided to all participants. They may be allowed to learn use of Tablet / Smart phone. Orientation day money was not given. Modules should be converted to eLearning format. Career Guidance may be included in the course material. Comfortable chairs in an air conditioned room may be provided for this programme. Another such workshop being part 2 for skill

development should be organised. The teachers may be motivated to use technology in place of paper. Ensure that every school should purchase a Laptop and LCD Projector. Transport should be provided to take participants back to their places. Programme should be online and discussion should be at contact sessions. An award may be given for best performer. High achievers must be facilitated. Inclusive education, Education policies must be included in the syllabus. Dramatisation / Demo should also be included during Contact Programmes. There should be a lesson for reducing stress among teachers and motivate them for application of Technology. Session should not continue after 04.00 p.m. due to transport problem. Add content and discuss about making learning phenomenon in practice in all schools. Handling and dealing with learners having special needs in classroom should be added in this programme. One tablet and one computer should be supplied to each school. One Unit about positive discipline should be added.

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ANNEXURE ONE

UNIVERSITY OF SWAZILAND
INSTITUTE OF DISTANCE EDUCATION

Project Title: Empowering School Teachers with Educational Technology using the Distance Education mode

ONLY FOR RESEARCH PURPOSE

OPINION SCALE

CONFIDENTIAL

Dear Participant,

It is a matter of pleasure that you have successfully participated in a Training Programme entitled "**Empowering School Teachers with Educational Technology using Distance Education mode**". This was your training programme in the field of Educational Technology applications to a classroom situation. During this training programme, you have attended one Orientation Session and have read one book entitled "**Educational Technology for Effective Teaching**". You have interacted with other participants as well as with the Resource Persons and participated in a two days "**Contact programme**" to meet your Queries, Confusions, and Questions, if any.

Before reading this book, you had attended an Orientation Session about your role in classroom. Today, you have

completed a Two days Contact programme covering same areas. **This Opinion scale is given to you now to seek your opinion regarding various activities associated with this Training Programme.**

It will help us to make necessary changes for making this 'Training Programme' user friendly among other school teachers. Your opinion and suggestions expressed in this scale will help us to increase the quality of this training programme by making some changes based on your valuable opinion expressed in this scale.

Please fill in some essential entries on page 2 and try to answer on every page after reading the Questions/Statements carefully. You may submit this Opinion Scale as and when you complete the same. **There is no time limit for writing answers.** Your co-operation in writing the answers shall be a matter of appreciation because it would help in making this training programme user friendly. **Your views will be kept as confidential and will not be shown to anyone. We will use it for research purpose only.**

Wishing you all the best for a nice performance and thanking you in anticipation with sincere regards,
Yours sincerely,

SATISH RASTOGI,
Project Manager

Please complete this page and write your personal details below.

Name & Surname: -----

Qualifications: -----

Gender: Male / Female; Teaching Experience: ----Years

Designation: -----

Teaching at: Primary School / High School (Please Tick)

School Address: -----**P.O. Box** -----

Post Office: ----- **Region** -----

Residential Postal Address :-----

P.O. Box: ----- **P.O. :**-----

Office Phone No. **Cell No.** -----

Email ID **Fax No.** -----

-

Any other information if you wish to give here about you.

Date of Examination -----

Attempt all questions.

1) There were 17 Units in the book "Educational Technology for Effective Teaching". Which of these Units were found 'Very Useful', 'Useful' and 'Not useful' for you in managing your classroom activities effectively? Pl. tick in anyone of the columns below for each Unit.

Unit No.	Unit Name	Very Useful	Useful	Not Useful
1	The Nature and Scope of Educational Technology.			
2	Managerial Approach to Classroom Communication.			
3	Systems Approach to Teaching and Learning Process.			
4	Bloom's Taxonomy of Educational Objectives: It's Utility to Classroom Communication.			
5	Pedagogy and Andragogy in the Teaching and 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 Teaching and Learning Process.			
12	Roles of Computers in the teaching-learning process.			
13	ELearning – Its Mechanism and Classroom Applications			
14	Mastery Learning for Effective Teaching.			
15	Individual Differences among Learners.			
16	Assessment, Measurement and Evaluation: Meaning and Utility for Examinations.			
17	Various Types of Test Items and Their Application in Examinations.			

1) There were 17 Units in the Book entitled "Educational Technology for Effective Teaching". Please mention the Unit title and page number of some Units where you had some difficulty in understanding the content. We will make it more simple and easy to grasp by school teachers.

Unit No.	Unit Name	Page Nos.
1	The Nature and Scope of Educational Technology.	
2	Managerial Approach to Classroom Communication.	
3	Systems Approach to Teaching and Learning Process.	
4.	Bloom's Taxonomy of Educational Objectives: It's Utility to Classroom Communication.	
5	Pedagogy and Andragogy in the Teaching and 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.	
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14	Mastery Learning for Effective Teaching.	
15	Individual Differences among Learners.	
16	Assessment, Measurement and Evaluation: Meaning and Utility for Examinations.	
17	Various Types of Test Items and Their Application in Examinations	

3) You must have participated in Orientation Session in April 2016. There was a short description about the Course Content and also about How to Study through Distance Education mode. SQ 3 R Technique was also explained to you. Please suggest some steps for making this orientation Session more effective and user friendly.

4) You were asked for Self -Study for 3 months, and also for interactions with other Participants as well as with Resource Persons using Email / Phone / SMS / Fax / In person etc. Kindly suggest how can this activity be strengthened for making an academic interaction.

5) You have attended a two days Contact Programme covering all Seventeen (17) Units. There were interactions between the presenters and participants as well as among participants too. Please suggest some steps to make this two days Contact Programme more useful and fruitful to the participants.

6) Any other suggestion or opinion which you want to mention and is not covered in this Opinion Scale.

ANNEXURE TWO

FOREWORD

Quality control and Total Quality Management are major concerns in every field. Mastery learning is essential to every teacher. Every teacher in Swaziland needs mastery of some technologies for managing classroom activities effectively. This requires a staff development programme about educational technology for school teachers.

The distance education mode has been found potent enough to impart education to disadvantaged persons at global level. Can the Distance Education mode be used for ‘Staff Development’ purposes or not? This is a major question for academics working within the system of distance education. The present book entitled “EDUCATIONAL TECHNOLOGY FOR EFFECTIVE TEACHING” presented in Self-Instructional Material (SIM) format is, in my view, perfect for staff development regarding educational technology among school teachers.

I have carefully examined every Unit of this book and have found it useful for school teachers. In my opinion, it will help you, the teacher, in performing your role as a classroom manager. Educational technology- Its meaning & scope” may create a desire in you to master some new techniques for successful classroom communication. The teacher as a ‘Classroom Manager ‘and the Systems Approach to the teaching-learning process will help you manage classroom activities successfully. Bloom’s Taxonomy will remind you of the importance of knowing the ultimate aim of

classroom communication. Knowledge of Pedagogy and Andragogy may be useful in differentiating between ‘teacher-centred education’ and ‘learner-centred education’. An idea of different instructional modes will compel you, the teacher, to lecture less and use other modes of communication for making learners active and lively persons in the classroom. Knowledge of various Strategies, Techniques and Methods is very useful in ensuring the information reaches the learner’s mind easily and can be retained for a longer time.

Learning Theories will tell you about the functions of the mind in accepting information and turning it into knowledge by retaining it. The knowledge of catalytic functions of the mind in generating Motivation, Interest and Emotions or feelings is very essential for you, as a teacher who is supposed to create an enabling learning environment. Recognition of Verbal & Non-verbal Communication between teachers and learners makes both parties understand each other better and allow an easy information flow from both sides. E-learning has entered school education and the teacher must get advantage of the same. Knowledge and competence of audio-visual aids may help you to manage learning by listening, by viewing and by doing. Learning by doing helps for developing various skills through drill and practice. Analysing the role of computers in the classroom will assist your students when they learn some difficult concepts which you, as their teacher, alone may not be able to explain. The concepts of ‘Mastery learning’ and ‘Individual Differences’ among learners are essential

for every teacher. Learner evaluation and different types of test items for learner evaluation will be beneficial to teachers who wish to examine learning outcome among students.

In all, I feel that this book will empower school teachers in different educational fields. I wish the research project success and appreciate the work done by Professor Satish Rastogi and his research team in bringing this literature in Self-Instructional Material (SIM) format as a part and parcel of the research project.

18 November 2015

Prof. C. W. S. Sukati
Director,
Institute of Distance Education
University of Swaziland

Acknowledgements

The Institute of Distance Education wishes to thank those below for their contribution to this MODULE:

Professor S Rastogi

Author

Dr N Nsibande

Content Reviewer

Dr K Ferreira-Meyers

Editor

Dr BS Dlamini

Proof-Reader

N Vilakati

Typesetting and formatting

I take this opportunity to express my gratitude to Professor C.W.S. Sukati, Director, Institute of Distance Education, University of Swaziland for his constant inspiration and necessary support to the course team for bringing this literature in Self Instructional Material (SIM) format. I also wish to express my gratitude to my course team colleague Dr. Karen Ferreira-Meyers, Senior Lecturer and Coordinator, Linguistics and Modern Languages at IDE, UNISWA for her expertise in language editing and content input to enhance the beauty of this literature. I feel that I would have failed in bringing this publication in real Self-Instructional Material (SIM) format in the absence of necessary changes and additions by a learned expert in Material Design and Development Miss Nokuthula Vilakati, Coordinator for Material Design and Development, at IDE, UNISWA. I take this opportunity to further express my sense of obligation to Dr. N.H. Nsibande, Lecturer, Faculty of Education, UNISWA for her valuable suggestions in making this book more useful and learner-friendly for the target group, you, our school teachers. Distance education material is the product of course team's wisdom. This combined wisdom improves the quality of material and brings a local flavour to the classroom situation. I express my sense of obligation to Dr. Boyie Dlamini, Lecturer, Faculty of Education, UNISWA, for course editing and input of valuable comments from time to time. The efforts by Mr P.L. Biswalo and Ms N. Vilakati for co-writing and editing an additional Unit entitled "E-learning - Its mechanism and classroom applications" within a short space of

time, which is a matter for appreciation. Last, but not least, I am indebted and express my sincere thanks to Mr S.P. Maphanga, Manager, Printing, Production and Distribution, IDE, UNISWA for his expertise in ‘Graphic Design’ and production. Without his assistance, you would not have received this module in time. I shall feel myself much obliged to you all, the school teachers in Swaziland for making a sincere study this book and render your comments in the form of confusions/questions/queries, if any.

Professor Satish Rastogi

Coordinator (Research & Evaluation)

Institute of Distance Education

University of Swaziland

About this HANDBOOK

Educational Technology for Effective Teaching: A Handbook for Educators has been produced by INSTITUTE OF DISTANCE EDUCATION. All HANDBOOKS produced by INSTITUTE OF DISTANCE EDUCATION are structured in the same way, as outlined below.

How this HANDBOOK is structured

The course overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- If the course is suitable for you.
- What you will already need to know.
- What you can expect from the course.
- How much time you will need to invest to complete the course.

The overview also provides guidance on:

- Study skills.
- Where to get help.
- Course assignments and assessments.

Activity icons.

Units.

We strongly recommend that you read the overview carefully before starting your study.

The course content

The course is broken down into units. Each unit comprises:

An introduction to the unit content.

Unit outcomes.

New terminology.

Core content of the unit with a variety of learning activities.

A unit summary.

Assignments and/or assessments, as applicable.

Your comments

After completing Educational Technology for Effective Teaching we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

Course content and structure.

Course reading materials and resources.

Course assignments.

- Course assessments.
- Course duration.
- Course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.

Course overview

Welcome to Educational Technology for Effective Teaching A Handbook for Educators

This course on educational technology comprises of 16 units covering different aspects of educational technology as a field of study. Educational technology is a combined application of three major sciences for classroom activities. These are Physical Sciences, Social Sciences, and Managerial Sciences. Educational technology plays a complementary role to the teacher's effort to manage effective classroom communication. Recent developments have turned teachers into classroom managers and the phrase teaching-learning has been replaced by classroom communication.

The purpose of these changes is to achieve mastery learning by every student so that s/he becomes a competent person fit to serve the society. Of course, learners have individual differences. Because of these differences, the objective of mastery learning is not always easy to achieve, especially among students in the classroom. You, the teacher as classroom manager, have to assist

your students to become educated human beings. In general, you do this by using the same method at the same time for a large number of students in your classroom.

This is a big challenge for you. Educational Technology is a solution to this problem. This book in Self-Instructional Material (SIM) format has been designed by the course team to provide an ‘Educational Technology Bible’ to you, the teacher who sometimes faces classroom challenges. As such, it may be found useful to every teacher as it can be used for:

- upgrading your knowledge,
- strengthening some skills, and
- enhancing a favourable positive attitude towards your managerial role in the classroom.

Educational Technology for Effective Teaching: A Handbook for Educators—is this course for you?

Though the course is primarily aimed at teachers, teacher educators, and student teachers, we hope that researchers, educational administrators and anybody interested in understanding the technology of education and the applications of emerging technologies in education will also find it suitable.

Course outcomes

Upon completion of Educational Technology for Effective Teaching A Handbook for Educators you will be able to:

Outcomes

- Explain the meaning and nature of Educational Technology
- Differentiate various approaches to educational technology
- Explain the evolution of various educational media
- Understand ICT and its application in education.

Timeframe

How long? You are expected to allocate about three months to complete this course. You are also advised to study about one unit per week, which translates to about 7 hours per week. You need to allocate formal study time for independent, self-study, but where possible interaction with fellow students is encouraged.

Study skills

As an adult learner your approach to learning will be different to that from your school days: you will choose what you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic responsibilities.

Essentially you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress

management, etc. Perhaps you will also need to reacquaint yourself in areas such as essay planning, coping with exams and using the web as a learning resource.

Your most significant considerations will be time and space i.e. the time you dedicate to your learning and the environment in which you engage in that learning.

We recommend that you take time now—before starting your self-study—to familiarize yourself with these issues. There are a number of excellent resources on the web. A few suggested links are:

□ <http://www.how-to-study.com/>

The “How to study” web site is dedicated to study skills resources. You will find links to study preparation (a list of nine essentials for a good study place), taking notes, strategies for reading text books, using reference sources, test anxiety.

□ <http://www.ucc.vt.edu/stdysk/stdyhlp.html>

This is the web site of the Virginia Tech, Division of Student Affairs. You will find links to time scheduling (including a “where does time go?” link), a study skill checklist, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis, memory skills (“remembering”).

□ <http://www.howtostudy.org/resources.php>

Another “How to study” web site with useful links to time management, efficient reading, questioning/listening/observing skills, getting the most out of doing (“hands-on” learning), memory building, tips for staying motivated, developing a learning plan.

The above links are our suggestions to start you on your way. At the time of writing these web links were active. If you want to look for more go to www.google.com and type “self-study basics”, “self-study tips”, “self-study skills” or similar.

Unit 1

The nature and scope of Educational Technology

Contents

1.0 Objectives

1.1 Introduction

1.2 Foundation and Types of Educational Technology

1.2.1 Technology of Education

1.2.2 Technology in Education

1.2.3 Managerial Techniques

1.3 Educational Technology in Classroom – Benefits

1.4 Let us sum up

1.5 Check your progress: Model Answers

Overview

You are likely to be already familiar with Educational Technology which you already integrate into your teaching. The purpose of this Unit is to acquaint you with the concept of Educational Technology and its role in managing your classroom activities effectively. There are many problems in your classroom situation like Individual Differences among your students, their

varying learning rates, their interests, whether optimum learning can exist among all students seen that they each have their capacity to learn and capabilities; etc.

In this unit you will find introductory information about various aspects of Educational Technology and their applications in a classroom situation. Also, it may create a curiosity in your mind to know more about these technologies.

Upon completion of this unit you will be able to:

1.0) Objectives

- discuss the role of teaching aids in the classroom..
- explain the benefits of social sciences for effective classroom communication..
- outline the various steps that are essential for a teacher to also become a classroom manager.

1.1 Introduction

Science and Technology have an intimate relationship with each other. They play a complementary role to each other in serving the society. In fact, the findings of various scientific researches are used to frame techniques. The combination of these techniques is known as Technology, when it is used to help mankind get an easy and comfortable life. This Technology has entered the field of education and in particular the classroom too.

Its name is Educational Technology which can be defined as a combined gift by three major sciences known as communication and media technologies drawn from physical sciences, behavioural & social sciences, and managerial sciences.

In earlier days, the teaching-learning process was teacher-centred and it was assumed that the teacher's responsibility was to spread the course content over the different classes. The learner and his/her learning abilities were not taken into account. During 19th century, there was much development in the name of educational psychology and it was felt that the teaching-learning process should be a learner-centred process and that every teacher had to take care of individual differences, learning abilities, etc. while teaching in the class. About 50 years back, the birth of Managerial Sciences compelled human society to accept the principles of Management in every field and apply them in our day to day work. This revolution had teachers work as classroom managers while delivering content to their students. This turned teaching-learning into classroom communication. It included feedback activities from both parties to each other in order to ensure an easy flow of course content in the classroom situation.

Thus, we see that Educational Technology is the science of techniques in education to enhance the effectiveness of the teaching-learning process. Principles and practices of educational

technology have direct relevance to the process of education in increasing the learner's knowledge and skills.

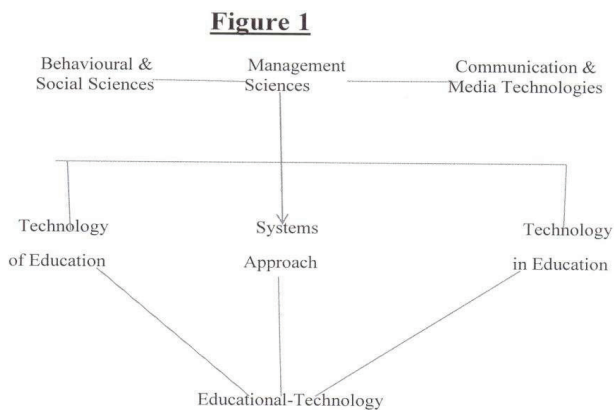
1.2 Foundation and Types of Educational Technology

You have seen that Educational Technology, as mentioned earlier, is the science of techniques in education. It utilizes the most efficient principles and practices of education to evolve newer techniques in a systematic way. It is concerned with methodologies of devising techniques and procedures to conduct objective-based teaching-learning processes. It deals with defining overall and specific objectives, analysis of learning situations, selection of methods and media, development of educational materials and evaluation tools, and implementing and validating teaching-learning processes at all the levels and in all the sectors of education ranging from elementary to university levels. Educational Technology makes use of knowledge obtained in various streams of physical sciences and behavioural sciences relevant to its purpose.

Physical sciences like chemistry and physics have given rise to various engineering technologies which have, in turn, provided an enormous amount of tools and machines to education, starting from the blackboard to the printing press, the slide projector, the overhead projector, film projector, radio, television and the computer. Thus, the tremendous growth in engineering and communication media technologies is being utilized by Educational Technology.

Behavioural sciences like psychology, sociology, and education have produced knowledge in the areas of learning, motivation, individual differences, group processes and leadership. Management sciences have gained knowledge in organizational behaviours and use a systems-approach to bring together all the available resources - human, material and financial - in a systematic manner in order to maximize educational output quantitatively as well as qualitatively.

Thus, there are three major components of educational technology. One is technology of education which has emerged from behavioural and social sciences. The other is technology in education which has emerged from communication and media technologies. The third is the systems-approach which has emerged from management sciences. These components and their sources are shown diagrammatically in the following figure.



In short, Educational Technology is the process of utilising all available knowledge regarding human learning and communication to improve teaching and learning using human and non-human resources. It will be useful to have a closer look at the three components of educational technology and then discuss their potential in a classroom situation.

Activity 1.1

**Your students want to know meaning of Educational Technology.
How will you explain them this concept?**

1.2.1 Technology of Education

The goal of education is to help learners learn, i.e. to change their behaviour in a relatively permanent way. Thus, education involves arrangement of situations which facilitate acquisition of intended learning. This learning is of various kinds. It may consist of development of conditioned responses, verbal and motor skills and problem-solving behaviours. Technology of Education deals with questions like: what kinds of situations will lead to what kinds of learning?

Different groups of educational and social scientists have different approaches to offer. Depending on the objectives of learning and the kind of resources available, a teacher may generate situations by adopting these approaches. There are six major

clusters of ideas which help an educational technologist to design appropriate situations to impart learning. They are: Behaviourism, Humanism, Cognitive theories, Gestalt theory, Cybernetics and Psychometrics. We will discuss these situations and their applications in detail in coming units.

Strategies, Techniques and Methods during classroom interaction play an important role with a teacher in classroom. Taxonomy of educational objectives and their utility to classroom Communication makes our classroom presentation systematic as per the objectives of the Course content. The taxonomy of educational objectives tells us basic purpose of a study around which our course objectives and learning strategies move. Knowledge of Verbal and Non-Verbal Communication in the classroom, Optimum Learning as well as Individual differences among learners are also essential for a successful teacher. Knowledge of various types of test items and their application in examinations, Motivation, Interest and Emotions also play an important role in performing your duty as a teacher. The Assessment, Measurement and Evaluation of learning outcomes as well as the difference between Pedagogy and Andragogy are also important aspects for a teacher. You will learn about all this in the other units of this module.

1.2.2 Technology in Education

This branch refers to an application of various instruments/aids in the field of education. Technology

developments are an extension of man's power over nature. As Marshal McLuhan (1964) explains: "A shovel extends man's arms: a bow and arrow extends his reach in another way, clothing extends his skin: an automobile extends his leg: the telephone extends his voice and hearing: and writing extends his memory and now computers, extend man's central nervous system". In other words, technology provides man with powers which could possibly be attributed to Superman. In this context, today's teachers have enormous opportunities to transmit knowledge and skills to students with the help of educational technology materials, most of which are in the form of audio-visual materials. These may be the blackboard, slides, filmstrip, overhead transparencies, audiotape, tape slides, videotape, CDs, DVDs, film, etc.

In fact, the learning takes place at three stages of our human body. Learning by listening is the first stage, through which our mind (Cognitive Domain) receives information and retains the same for some time. Learning by viewing is the second stage, through which information affects our heart (Affective Domain) and it strikes our feelings/sentiments. Learning by doing is the third and last stage which affects our whole body (Psycho-motor Domain) as it helps to learn through drill and practice.

Various technologies have a number of educational functions such as to enhance the student's motivation to learn, to recall earlier learning, to provide new learning material, to activate the learner's response, to provide feedback, to encourage appropriate

practice. Television, video, films and DVDs are generally preferred to radio programmes and audiotape, because TV, video and DVDs give sound as well as images. Learning by listening, viewing and doing is met by TV, video and DVDs. A person can copy and do what is shown on TV, in a video clip and on DVD. In its simplest form, the computer can present information to a learner and can put a question to the learner to verify his understanding. The learner types out the response. With appropriate software, the computer analyses the answer and provides feedback to the learner along with a corrective message, if required. The computer can perform this work when it is specially programmed to do so. The Computer Assisted Instruction (CAI) programmes are to be written by specialists and stored in the computer.

1.2.3 Managerial Techniques

The Science of management has entered the field of classroom communication. The Systems Approach is the most important educational technology tool to solve problems in a classroom situation. A classroom as a system has various components like the Teacher (Man), Teaching aids (Machine), Money, (Art of teaching) Methods, Students (Material). These five 'M' jointly decide the quality of the classroom input. Quality input will show a quality process which will have quality output as its result. Cybernetics is another gift of this science. It means control of flow. In a classroom situation, the teacher must know how to

control the flow of information so that his efforts are not in vain. The teacher as a classroom manager has to pay attention to various activities like Planning (before going to class), Organisation (in classroom), Leading (in class) and Evaluation (outcome of his classroom activities).

Activity 1.2

You have read Man, Machine, Money, Material, and, Method as Five components of every work at its input stage. Please explain this Five M (5M) as input components of your classroom situation.

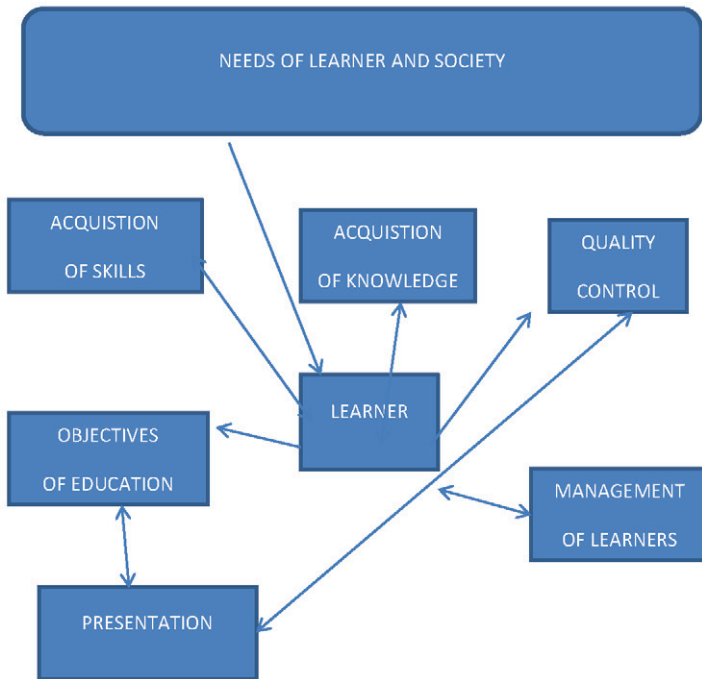
Check Your Progress (One)

Explain the basic differences of three types of technologies used in a classroom situation?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

1.3 Educational Technology in Classroom – Benefits



The purpose of the teaching-learning process is to make learners reach their optimum level of learning. This may be achieved if a teacher pays due attention to the various components of an Educational System Model as shown below. All teachers have to see to it that all subsystems function properly to achieve the goal of optimum learning. Educational Technology may help these subsystems to achieve that.

Learning will occur when the subsystems of this model perform the following functions:

1. Acquisition of knowledge,
2. Acquisition of skills,
3. Presentation of knowledge,
4. Management of learners, and
5. Quality control.

Activity 1.3

Take any one problem experienced by you in your classroom situation and explain how Educational Technology can help you in meeting the same.

1.4 Let us sum up

Summary

The purpose of Educational Technology is to help the teacher to achieve his goal of optimum learning in class room situation. Three major sciences have contributed lot of innovative ideas. These are Communication & Media Technologies, Behavioural & Social Sciences, and, Management Sciences. The combined gift of these innovative ideas from three sciences when used in the field of education is called as educational technology.

Various learning theories, Individual differences, Teaching methods, Taxonomy of Educational Objectives, Verbal & non Verbal Communication, Classroom Management, Systems Approach, Role of Audio/Video aids, Optimum learning, Role of Computers, Different type of test items, Motivation, Interest, Emotions, Assessment-Measurement & Evaluation, Pedagogy & Andragogy in the teaching learning process etc. are some of the important issues to be discussed with you under the banner of Educational Technology. It will help you to become a classroom manager for managing various classroom activities effectively.

Learning will occur when the subsystems of this model perform the following functions:

Acquisition of knowledge, Acquisition of skills,

Presentation of knowledge, Management of learners, and, Quality control.

1.5 Check Your Progress: Model Answers

a) Three technologies are gifts of three major sciences. Technology of Education is a gift from Social Sciences which tells us about contributions made by Educational Psychology, Education, and Sociology etc. to the teaching learning process. Similarly, Technology in Education is an application of Communication & Media Technologies in the form of some teaching aids to be used for various purposes in a classroom

situation. The last one is Management Sciences which makes a teacher as a classroom manager for getting optimum results from his efforts.

b) By using educational technologies in your classroom situation, you will be able to upgrade your classroom environment by applying various learning theories, understanding individual differences among your students, use various teaching aids to make them learn, make best possible evaluation of their learning outcome and involve learners in learning process.

Unit 2

Managerial approach to classroom communication

Contents

2.0 Objectives

2.1 Introduction

2.2 Managing Role and a Teacher

2.2.1 Planning

2.2.2 Organising

2.2.3 Leading

2.2.4 Controlling

2.3 Effect of Employing such an Approach

2.4 Let Us Sum Up

2.5 Check your progress: Model Answers

Overview

The purpose of this unit is to allow you to get to know more about the concept of the Managerial role of a Teacher and its benefits to you and your classroom. In fact, Education is an Industry where students come in eager to learn and leave as individuals with new knowledge, attitudes and skills. This industry

is different from a goods producing industry where the raw material is of the same type and so, the end products are also of same type. In a classroom situation, students are different from each other due to individual differences among them. You will find out about your role as a Classroom Manager, which is different from that of a Factory Manager. In this unit you will learn about the various steps to be followed by you in a classroom.

2.0 Objectives

Upon completion of this unit, you will be able to:

- Describe the various steps to be followed in a classroom situation to optimise learning.
- Identify and describe the benefits of this new role as classroom manager.
- Assess a changed scenario after implementing this role in your classroom.

2.1 Introduction

Chuang-Tse (a Chinese philosopher) has rightly used the following saying: "of the five vices, the vice of the mind is the worst". What is the vice of the mind? The vice of the mind is self-satisfaction. This saying is true in the case of a teacher, if s/he is self-satisfied with what s/he did last year and wants to repeat the

same this year and in the future too, s/he does not deserve to be called a teacher but should be named a recorded cassette or video-recording and so s/he is not a resource but merely a source of knowledge.

In the changed age of technology, our aims in life are changing and so is the aim of education. The last decade, however, has witnessed profound changes, and there has been an increasing concern with, and emphasis upon, the achievement of educational goals or objectives. For this, teaching methods are now being more effectively exploited, so as to improve' the overall quality of the learning experience. In fact, technology has been speeding things up rapidly, so much so that ideas may change within a generation, instead of between generations.

A manager does a certain kind of work that enables him to command the future and not be commanded by it. Since the time available and the capacities of teachers are always limited, it follows that they must concentrate, as far as possible, upon doing that work which stems from their unique organisational role as managers of resources for learning.

2.2 Managing role and a teacher

Ivor K. Davies (1967) in his book “The Management of Learning” isolated and identified the four broad functions that characterise the work of a teacher-manager.

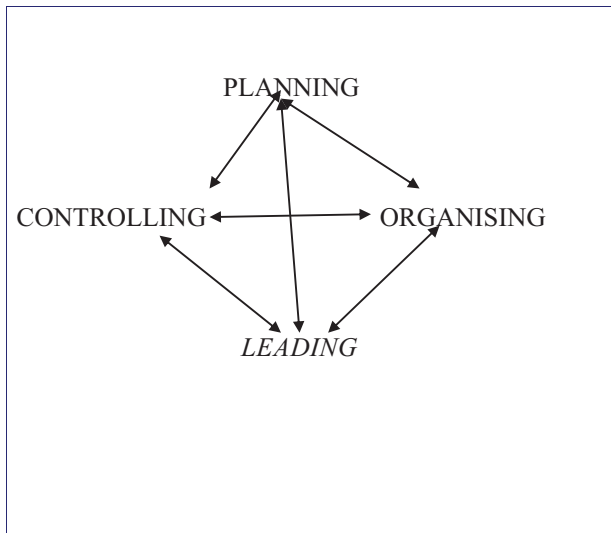


Figure 1: Managerial functions of a teacher-manager

Although these four managerial functions are separate and disparate activities, they must be viewed as a cycle of related activities. Together, they define the specialised area of a teacher's professional competence and expertise; together, they make up the education and training management process. However, there is another side to the manager's role, for the task of 'deciding' is just as important to the management process as the task of 'doing'. This is what you'll find out in the next sections.

2.2.1 Planning

Planning is the work a teacher does to establish learning objectives. When a teacher- manager plans, s/he attempts to (a) analyse the task, (b) identify the training/learning need, and, (c) decide the learning objectives. In Fig. 2 activities 1, 2, 3, 4, 5, 6, 14, and 15 are related to planning.

All the steps identified in the figure above are important when you deal with your classroom situation. Can you explain, in your own words, how these steps can be “translated” to refer to what you do inside and outside your classroom to plan for you’re and your learners’ teaching/learning experience? Compare your thoughts with those of your teacher colleagues.

Activity 2.1

**Take some course content to be taught by you in some class.
Explain below your Planning for the same.**

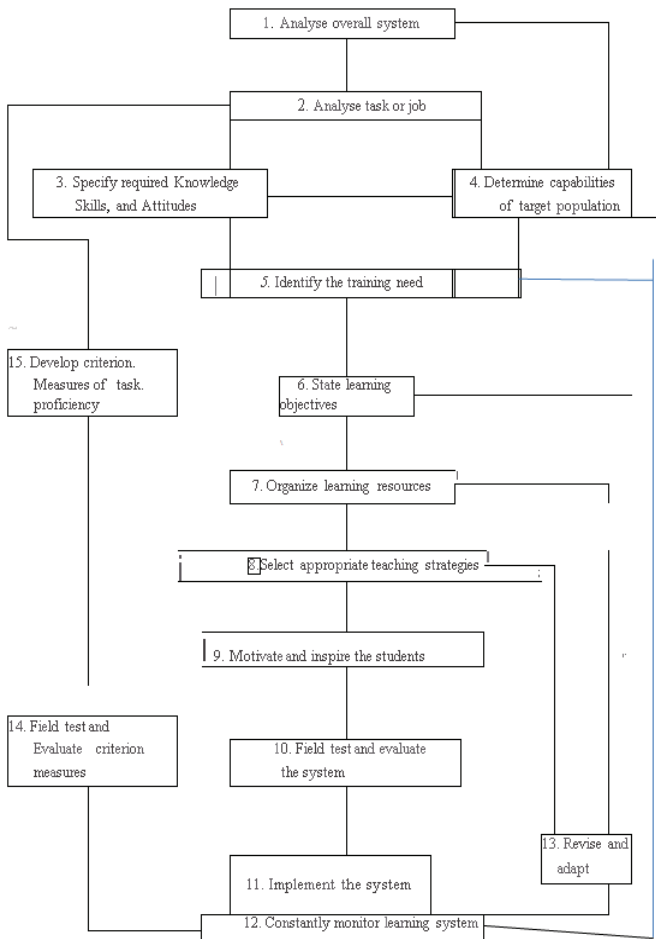


Fig. 2: Steps involved in developing a learning system

2.2.2 Organising

Organising is the work a teacher does to arrange and relate learning resources, so as to realise agreed learning objectives in the most effective, efficient and economical way possible.

When a teacher-manager organises, s/he attempts to

- (a) Select an appropriate teaching tactic,
- (b) Select appropriate audio visual learning aids,
- (c) Select an appropriate class size,
- (d) Select an appropriate strategy for communicating complex rules, procedures and instructions.

In this way, the teacher-manager is able to create the optimal learning environment for realising the educational objectives s/he has planned.

Activity 2.2

Imagine that some students do not like to study your subject. How will you motivate and inspire them towards study of this subject?

This organisation of learning resources is not an end in itself, but a tool to aid, not dictate, what has to be accomplished. In Fig. 2, you can easily note that activities 7 and 11 deal with the way in which learning and teaching resources are arranged in accordance with the plans that have been agreed upon.

2.2.3 Leading

Leading is the work a teacher does to motivate, encourage, and guide students, so that they will readily realize agreed learning objectives. When a teacher manager leads, he attempts to (a) harness student motivation and (b) select an appropriate teaching strategy, for all ages, so as to realise cognitive, affective and psychomotor objectives. In this role, leadership is not so much a personal quality but an aspect of organisation. As a leader and manager, a teacher is obliged to be effective and his effectiveness depends, to a very large extent upon his sensitivity and style. S/he must balance the needs of the learners and the demands of the learning task and still get the right things done. This involves activities 8 and 9 stated in Figure 2 and concerns the way in which the teacher adds himself to the system so as to guide, help, and inspire his/her students.

2.2.4 Controlling

Controlling is the work a teacher does to determine whether his organising and leading functions are successfully realising the objectives which have been set. If the objectives are not being realised, then a teacher must reassess and regulate the situation, but he should not completely change his objectives. When a teacher-manager controls, he attempts to (a) evaluate the learning process (b) measure learning (c) manage the learning objectives. In this way, the teacher-manager tries to determine whether events

conform to plans, and to change failure into success. Only his effectiveness can convert resources into results. This involves activities 10, 12 and 13. All of these are concerned with evaluating the success of the learning system in realizing its objectives.

Check your Progress (One)

Justify the inter-relationship among the four steps of the Managerial Technique – see Figure 1.

Notes-

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

2.3 Effect of Employing such an Approach

The effects of employing such an approach can be very great indeed, for not only is the role of the teacher affected, but also the role of the student.

- It offers the possibility of developing a theory of teaching, changes the teacher's function in the learning process and encourages the use of teacher auxiliaries for the more routine and mundane operating duties. It changes the architectural basis of the school from a teaching to a learning design by allowing the use of more informal teaching methods.
- It capitalises upon the advantages of allowing students to progress at their own individual rates of learning.
- It changes the nature of administrative and financial controls and also encourages the development of working partnerships between educators and government, educators and industry as well as, educators and society.
- It catalyses the development of more learning aids appropriate to the needs of the learning situation.

Activity 2.3

Imagine you are a classroom manager. What will you do as a classroom manager?

This does not mean that all these changes will be realised at once. But, it does mean that the necessary conceptual frame work is available for their development and standards of effectiveness introduced. The concept of a teacher-manager, with the four

functions of planning, organising, controlling and leading offers a degree of renewed professionalism to a teacher and instructor.

At the same time, it provides for the possibility of improving the overall effectiveness and quality of a student's learning experience. This management approach towards learning and learning resources explain the learning phenomenon for education and training. Such a technique is not an extension of past practices, but, it is a difference in kind. How quickly this will be realised depends less on the money available and more on teachers themselves. Earlier the emphasis was on teaching and now is on the both teaching and managing a learning environment to achieve educational goals or objectives. A detailed discussion about educational objectives is in Unit 4.

The concept of teacher-manager gives you the opportunity to work in a limited classroom time for your unique organisational role as manager of resources essential for learning. In fact, there is communication problem and not a learning disability. The task of learning is so organised that students obtain a sense of achievement, recognition, responsibility, advancement and personal growth. This role fulfils the continuing need of every teacher for ensuring that plans are being carried out effectively in the classroom situation where organisation is sound and the teacher's role as leader is effective.

Check Your Progress (Two)

In one classroom the managerial approach was applied while in another one it was not applied. Compare two classroom situations.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

2.4 Let Us Sum Up

Summary

In this unit you learned that like a goods factory manager, a teacher is also a classroom manager. A teacher has to follow all four steps, namely Planning, Organising, Leading, and, Controlling for making the classroom activities a success. The raw material for a factory manager is non-living goods while for a classroom manager the main subjects are the students. These students, after a successful training/learning session, go back into society and do a particular job. They are quite different from each other due to

individual differences. A classroom manager has to deal with different types of students and ensure that they come out better persons after being involved in the learning process. If you adopt managerial techniques, you may successfully meet this objective.

The Flow chart in Figure 2 covers 15 steps involved in developing a learning system or process. A teacher has to follow these steps in given order. Steps 1, 2, 3, 4, 5, 6, 14 and 15 are related to planning, while steps 7 and 11 deal with organising. Similarly, steps 8 and 9 are related to the leading role and, steps 10, 12, and 13 are related to a controlling activity. If this process is implemented in a classroom, it will change the role of, not only, the teacher, but also that of the student(s). Such a technique is not an extension of past practices; it is a difference in kind. How quickly this will be realised depends less on the money available and more on teachers themselves. Earlier the emphasis was on teaching and now it is on teaching AND managing a learning environment to achieve educational goals or objectives.

2.5 Check your progress: Model Answers

Answers

1) Planning, Organising, Leading, and Controlling are four steps of a teacher manager. These are steps of a ladder. But these are interrelated to each other. Good planning will help for organising and leading as well as controlling the classroom situation.

Similarly, organising affects planning and also other two steps. For example, if tomorrow there will be no electricity, then planning for tomorrow's class will be different than the other one with electricity for using electronic gadgets in classroom. Like this, the effect of classroom situation affects leading and finally controlling too in classroom. All these four factors affect each other as shown in Figure 1 in this unit.

2) The classroom with the managerial approach will give a teacher satisfaction of his efforts in profession. It will improve overall effectiveness in classroom performance and quality of students' learning experiences. It gives an overall analysis and accordingly planning is done. This appropriate planning helps in properly organising classroom activities and finally helps the teacher in leading and controlling the situation. How quickly this will be realised depends less on the money available and more on teachers themselves.

Unit 3

Systems approach to teaching and learning process

Contents

3.0 Objectives

3.1 Introduction

3.2 Systems Approach- Its Definition and explanation.

3.2.1 What is Systems Approach?

3.2.2 Systemic Analysis of a classroom.

3.2.3 Systems Approach in a classroom situation.

3.3 Benefits of seeing the classroom as a System.

3.4 Let Us Sum Up

3.5 Check Your Progress: Model Answers

Overview

In this unit you will learn about the concept of the Systems Approach and discover some examples. Also, you will know its applications in your classroom situation. The classroom as a system has many components like the teacher, the students, the teaching material/aids, the learning environment, etc.

The job of a teacher is to analyse this whole system and assess its components. S/he should adjust these components in such

a way that optimum learning takes place. The concept of the Systems Approach has been taken from Management Sciences. This unit will discuss its use in a classroom situation.

Upon completion of this unit you will be able to:

3.0 Objectives

- Explain the concept of Systems Approach.
- Describe the benefits of using this concept in a classroom.
- Want to use this concept while managing your classroom activities.

3.1 Introduction

Today, learners have to continue learning throughout their lives in order to add to the quality of their own lives and the lives of those with whom they engage. Since teaching and learning are both on-going, it is likely to be worthwhile to adopt a systematic approach to their continuous improvement. Schools and school systems want to provide improved educational services. As professionals teachers want to improve their classroom practices and, accordingly, learners want to benefit by becoming better learners.

The idea of the systems approach came about when the Management Sciences evolved. Aggarwal (2004, p. 34-37) indicates that a system is a combination of many independent items, factors or components which have their independent

functions, but also have a common function to achieve a desired target, if these components are arranged in some definite prescribed order. Can you think of an example of a system? Yes indeed, a car is a system, our body is a system. Why? Well, the answer is quite simple: the different components of the car or our body have their independent functions, but when they are combined in a prescribed order, they have a common target. The car has a common target of carrying people from one place to other, while that of the human body is to perform some work wisely to achieve success. All the components of the car or the human body have a common target to be achieved jointly, at the same time, with the same work speed.

Content in this unit may introduce the concept of educational systems analysis, and may show the way. The systems approach can be applied to the teaching-learning process; it indicates how the teaching-learning process, as a system, can be optimised by using factor analysis techniques. The teaching-learning process is viewed as a highly complex learning control system with the purpose of initiating and monitoring the learning process of the students, under optimal systems conditions, until the goal is reached. This concept can be helpful to the teacher in the classroom if s/he considers a classroom as a system and applies the systems approach to achieve the target of optimum learning.

Activities 3.1

Please select any system available around you and explain its components.

3.2 Systems approach: its definition and explanation

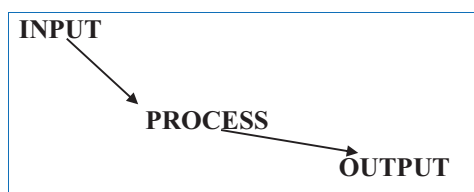
In this part of the Unit you will find out more about the Systems Approach in the classroom. You will discover how this idea may be used in the classroom in order to meet optimum learning goals.

3.2.1 What is Systems Approach?

In order to understand the Systems Approach, you have to understand the word system. As you have seen above, in fact, a system is a combination of various components, parts or equipment which has their independent functions. But, when they are combined in a definite order, they have some combined unique function and they work jointly to perform that function. Remember, our body is a system because it is a combination of various components like the heart, hands, eyes, ears, legs, etc. These components have independent functions, but, when they are combined in a proper order (see our body), they have a combined function to do some assigned work. It is the combined performance of our mind, hands, legs, mouth, etc. that we use to successfully teach in a class or go to the market and purchase the necessary goods to meet our family needs and come back.

In a system, order is important because if the components are not in order, they cannot meet the desired combined function, like going to the market to purchase necessary goods or successfully teach in a class. Therefore, combining the components in some fixed

Let us discuss your classroom as a system. There are many components in this system, like the teacher, students, teaching aids, teaching strategies, teaching environment, etc. All these are to be fitted properly to achieve the target. The managerial sciences have described these components as classroom input. This input will decide the quality of the classroom communication, being your process. A good process will surely make quality output, being the product of your efforts. This relationship is shown below.

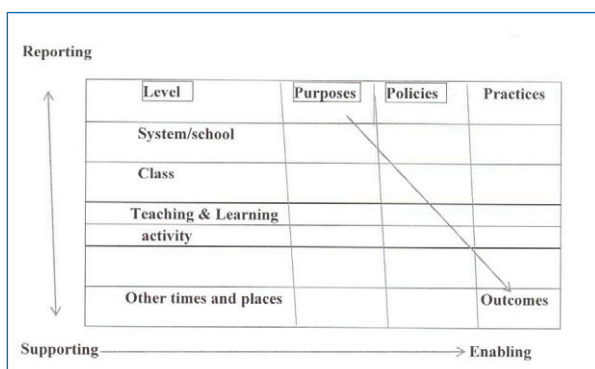


The above flowchart explains the need for good quality input for good quality output, being your students who will come out of your school after their successful completion of the programme.

3.2.2 Systemic Analysis of a classroom.

Classroom communication must be purposeful, desirable, acceptable, feasible and done within the available window of opportunity as per times, places, interests & attention of teachers and students. For productive activities, it is essential to align purposes, policies and practices. For educational reasons, the ideal practices will take into consideration learning needs, learning

styles, and new technologies. The purposes, policies and practices exist at, across, and between all levels of any organisation. Any system exists to (support) help ensure the success of all its components and the achievement of the outcomes that match its goals and purposes. Thus, it is essential to achieve alignment throughout the organisation. This alignment will assist in reporting, enabling as well as supporting. Thus, insightful system alignment can lead to creation of useful products meaningful experiences, and valuable learning for all. Below is flow chart to explain the same.



As a teacher your aims (purposes & outcomes) should be clear and have to be shared with your students in the classroom. As a teacher you must be competent. This competency requires three things as 1) Knowledge, 2) Skills and 3) Attitude. Your mastery of the content you are going to teach is essential. Your own art of teaching must enrich the students with information you are communicating with them. Finally, your perception is very

important. You should have a favourable positive attitude / perception towards your job.

Your students are unique as no two students are same or similar. They are different physically as well as mentally. Your communication using one method may not be helpful to all of them. Therefore, you also have to encourage a learner-learner interaction which will help them learn from each other.

You must apply various teaching strategies in order to meet optimum learning goal among students. A choice of appropriate teaching aids helps for an easy information flow. Learning by listening is more temporary than learning by viewing, but, learning by doing makes it permanent with students. Therefore, a suitable selection and use of teaching aids during classroom communication will help the students to make learning permanently. This all requires procurement of necessary equipment/teaching aids, etc.

3.2.3 Systems Approach in a Classroom situation

This approach entails analysis of problems and synthesis of solutions. In the analysis phase, a given situation is examined to identify the forces affecting it. The situation is viewed as a system composed of interconnected parts and related to other systems. For example, a classroom may be portrayed as a system in which teachers collaborate with students in the shared construction of meaning, in the context of community expectations, under the

constraints of limited time and resources. Analyses are undertaken to determine the sorts of knowledge and skills most useful to students and the order in which these should be learned. In the synthesis phase, modifications to the system (inventions) are designed to overcome forces that interfere with the achievement of the system's goals. In a classroom, such modifications generally take the form of instructional programmes.

Check Your Progress 1

Explain the various conditions essential for making a system.

Notes

- a) Write your answer in the space given below
- b) Compare your answer with the one given at the end of this Unit.

3.3 Benefits of seeing the classroom as a system

In fact, the systems approach is a problem-solving method which helps to:

- Define the problem as clearly as possible.
- Analyse the problem and identify alternative solutions.
- Select from the alternatives and develop most viable solution.
- Implement and test the solution.
- Evaluate the effectiveness and worth of the solution.

A systems approach is an overall approach which involves tackling problems in a disciplined manner keeping priorities in mind. The classroom components are subsystems of a big system. It makes the overall system, which can be designed, fitted, checked and operated so as to achieve the overall objective efficiently. Properties of inputs, outputs and processes are defined in relation to each of these subsystems. A change in one part will affect all other parts. Each decision is justified in terms of pre-planned objectives.

Systems models are used which show how each phase fits into the next and feedback loops facilitate revision of the course content. In fact, it alarms the teacher regarding effectiveness of his teaching strategies. Environmental constraints which impinge on the school or classroom situation are considered. Systematic consideration of the suitability of solutions to problems as compared to their alternatives is carried out. For example, if a student is unable to understand Solar Eclipse and Lunar Eclipse, a model or a chart for the same may bring clarity.

Activity 3.2

A classroom is a system. Please give your arguments either in favour or against this statement.

Check Your Progress 2

How can the systems approach help to manage classroom activities effectively?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

Activity 3.3

Some students are in a practical session where there is no teacher but a demonstrator giving demonstration of various stages of performing a practical. How will you justify this practical class as a system?

3.4 Let Us Sum Up

Summary

In this unit you learned about the idea of systems approach is a discovery by Management Sciences. It helps in doing some activity systematically/in a particular order. It is a combination of different components in some fixed order. These components are also small systems of the big system. If a classroom situation is a system, then its subsystems are the teacher, students, teaching aids, teaching techniques, classroom environment, etc.

The teacher has to see that all these components are fitted properly in such a way that optimum learning can take place. The teacher evaluates these subsystems from time to time and gears them up as per their potential. Feedback is needed, from the students to their teacher about their learning difficulties and also from the teacher to the learners in the form of solutions to these difficulties. This is an essential condition for a system to work. Also, it helps the teacher control information flow in the classroom, so that it can be well received and retained by the students.

3.5 Check your progress: Model Answers

Answers

A) There are three essential conditions for anything to be called as a system.

1) It should be a combination of various small components having independent functions.

2) These components should be assembled in some definite order.

3) This combination of components must have a combined objective/function to be achieved.

B) It helps us in the following ways-

1) It helps in defining the problem as clearly as possible.

2) It analyses the problem and helps in thinking about various alternative solutions.

3) A selection of most viable and fit solution for solving the problem.

4) It helps in implementing and testing the solution.

5) It helps in evaluation and deciding a worth to the solution.

Unit 4

Bloom's taxonomy of educational objectives: its utility to classroom communication

Contents

4.0 Objectives

4.1 Introduction

4.2 Bloom's Taxonomy of Educational Objectives

4.2.1 Bloom's Taxonomy of the Cognitive Domain

4.2.2 Essay-type questions as per Bloom's Taxonomy.

4.2.3 Bloom's Taxonomy for Multiple Choice type questions.

4.3 Benefits from using Bloom's Taxonomy

4.4 Let us Sum Up

4.5 Check Your Progress: Model Answers

Overview

In this unit you will re-discover the concept of Bloom's Taxonomy of Educational Objectives and its utility in classroom situation.

Remember Bloom? Surely, you do. But if you don't you'll quickly remember if you read through the paragraphs on next page.

Benjamin S. Bloom developed his taxonomy for the Cognitive Domain which acts as a backbone in our classroom system. Our physical body has three stages where learning takes place. Accordingly, we have three taxonomies for these three domains. These domains are the Cognitive Domain, Affective Domain and Psychomotor Domain.

In this unit you will read a brief description of a Taxonomy which works for our Cognitive Domain. Other domains are not of immediate concern to you while managing the classroom situation. You will wonder to see an application of this taxonomy in preparing a comprehensive Question paper for examination.

4.0 Objectives

At the end of this unit, you will be able to:

- Differentiate between the various stages of Bloom's Taxonomy of Educational Objectives for classroom communication.
- Apply this taxonomy in all activities related to your role as a teacher.
- Evaluate the utility of Bloom's Taxonomy of Educational Objectives in the educational process.

4.1 Introduction

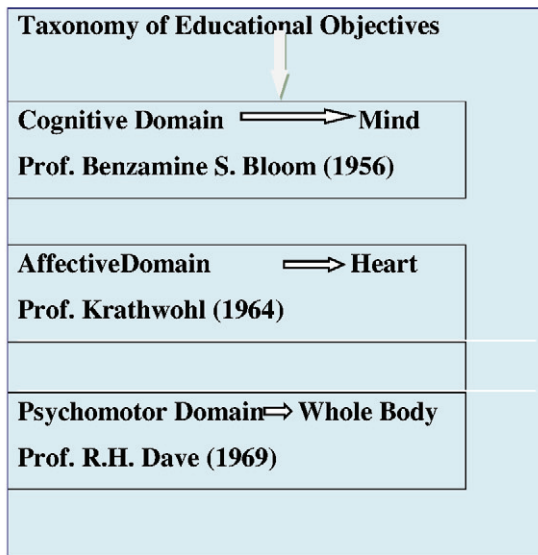
While working as a teacher, you must have recognised three domains (stages) in our body where learning takes place. These stages are known as the Cognitive Domain, Affective domain, and Psychomotor Domain. When you receive information or learn something, the information comes to you first in mind and is retained for a longer time. This mind is known as the Cognitive Domain. Next stage is our heart, known as the Affective Domain. The third stage is whole body in action known as the Psychomotor Domain. Accordingly, learning takes place in three stages. Learning by listening makes information reach the mind only, learning by viewing helps the information reach our heart and affects our sentiments. Finally, learning by doing brings the whole body into action as per the directions from our mind which controls whole body.

In a classroom situation, you will study and apply the Cognitive domain related to the mind mainly. Benzamine S. Bloom was the first psychologist who made a classification of our Cognitive Domain and described six stages (in a particular order) where information reaches and finally makes a person capable of taking a decision. In this unit, you will discover how these stages are useful to you while you help your learners learn. This taxonomy decides and affects our actions at each and every stage, from curriculum development to result declaration.

Activity 4.1

A truck was coming from opposite side when you were driving your car on the Highway at a speed of 120 Kms per hour. Explain the role of your mind, heart and whole body in taking an action to avoid an accident.

Below is a flow chart for these stages.



When you teach in your classroom and communicate course content to your students, you try to inject information in the learner's mind. Therefore, you are mainly concerned with the Cognitive Domain.

We will discuss its further classifications of this domain and how various questions can be framed for the various stages of this taxonomy.

4.2 Bloom's Taxonomy of Educational Objectives

Taxonomy of educational objectives is a hierarchical classification of human growth in a given domain of development. Like biological taxonomies, educational taxonomies provide classification of objectives which can be used in the field of education for various purposes. The classification is based: on educational and psychological organising principles. From the psychological point of view, taxonomy is a hierarchical classification of human behaviour. One of the most important purposes of taxonomy is to establish accuracy of communication regarding instructional objectives and related matters. Education as a field of study is often criticized for having a large number of loosely defined terms and concepts. A taxonomic framework of educational objectives should reduce this vagueness at least to a certain extent and become a means of more precise communication within the field of education.

4.2.1 Bloom's Taxonomy of the Cognitive Domain

Taxonomy of educational objectives was first developed during the period 1948 and 1956 by a committee of college and university examiners in the United States under the leadership of Dr. Bloom. It was developed according to the tripartite classification of educational development and the cognitive domain

was tackled first, it being the most central in formal education: The taxonomy for cognitive domain, containing six major classes or categories as proposed by Bloom and others is as follows:

A) **Knowledge** – It covers knowledge of specifics, knowledge of ways and means of dealing with specifics and knowledge of universals and abstraction in a field.

B) **Comprehension** – It covers an explanation by a person in his own words. It may cover like a translation, interpretation and Extrapolation of the knowledge gained by a person.

C) **Application** – It is a wise use of the knowledge gained (in one situation), in some other situation for solving a similar problem but in other situation. For example, if square of two is four and square of four is sixteen, then, what will be Square of three? This is an application of knowledge gained in other two cases for finding value of square of three.

D) **Analysis** – This is an ability to analyse any matter, incident, accident, situation etc. into its fine components, so that, the actual cause may be traced out for any incident.

E) **Synthesis** – It is a combining activity of various components in such a way that the combination becomes a successful group of activities, parts or components. In fact, it refers to production of a unique communication, production of a plan, or proposed set of operations, or a derivation of a set of abstract relations.

F) **Evaluation** – It indicates towards your judgment after reading/observing whole situation. This is judgment in terms of internal evidence, or external criteria. This is a test of your ability to judge.

This classification is used at each and every stage from curriculum development till result declaration in the process of education. While teaching you have to see to it that these six abilities are developed. In examination also, you have to set a comprehensive question paper covering these six stages and in evaluation of answer script, you have to check the extent to which these stages have been attained by the students. Thus, we see that these stages are like our shadow and will remain everywhere with us. Next two sub sections will show as to how we can frame examination question papers by inserting various types of questions.

4.2.2 Essay type Questions as per Bloom’s Taxonomy.

One question framed by you may be converted into various six types of items just by twisting its language. For example – we take one question as below-

A good stimulus provides desired response. Explain the process of ‘Learning’ on the basis of this theory.

This is an item of Knowledge level. We can transfer this item into five other types of items as below.

1. **Knowledge (Essay Type)**

A good stimulus provides desired response. Explain the process of 'Learning' on the basis of this theory.

2. **Comprehension (Essay Type)**

Explain utility of 'Stimulus-Response' theory to understanding the causes for slow learning.

3. **Application (Essay Type)**

11 students are feeling Mathematics as a boring subject in your class. How can you apply 'Stimulus-Response' theory for motivating them towards Mathematics?

4. **Analysis (Essay Type)**

A boy attends his classes daily. He finds himself very dull in comparison to other student. Analyse the probable causes for providing stimulus in order to get normal response.

5. **Synthesis (Essay Type)**

A boy seems as lazy during Mathematics classes. He never does his homework, remains mentally absent during classroom communication. He is good in English and normal in Social studies. Make a synthesis of various situations in order to prescribe a proper stimulus for getting a normal response from this boy.

6. **Evaluation/ Judgment (Essay type)**

'Stimulus-Response' theory by B.F. Skinner, and, 'Mental-Readiness'

theory by Bruner explain the learning process in different ways. Express the merits of that theory which is more useful in your view, for understanding 'child learning' phenomena.

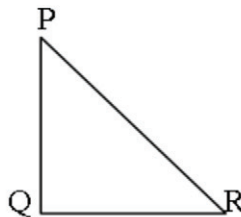
4.2.3 Bloom's Taxonomy for Multiple Choice type questions.

We can also convert a multiple choice type item into six different types of items as shown below.

1. Knowledge (Multiple Choice type)

The Pythagoras theorem is correct if in a triangle we see that

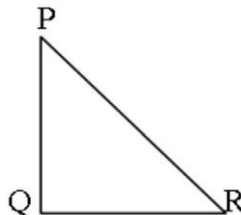
- A) Only one angle is 90° .
- B) Two angles are 90° each.
- C) All angles are 90° each.
- D) All angles are less than 90° .



2. Comprehension (Multiple Choice type)

Use the Pythagoras theorem to show that in a right angled isosceles triangle PQR, $PR^2 = 2QR^2$. Choose the correct option for this relationship.

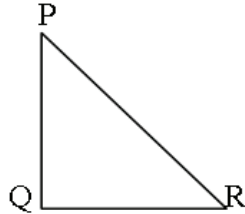
- A) This is right angled Triangle
- B) $PQ = QR$
- C) It is a small Triangle.
- D) PR is the longest side.



3. **Application (Multiple Choice type)**

The Pythagoras theorem stands correct if in a triangle

- A) Only one angle is 90 degree.
- B) Two angles are 90degree each.
- C) All angles are 90degree each.
- D) All angles are less than 90 degree.

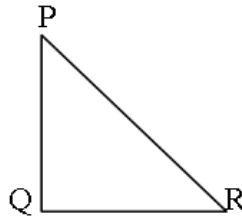


4. **Analysis (Multiple Choice type)**

In a triangle PQR, $RP^2 = 2PQ^2$. Which of the following are not essential conditions for the same?

- A) $PQ = QR$
- B) Angle $PQR = 90$ degree
- C) PR is the diagonal
- D) Angle R is not equal to Angle P

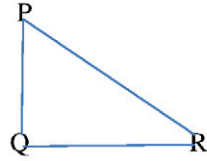
- a) All except A.
- b) All except B.
- c) All except C.
- d) All except D. *



5. **Synthesis (Multiple Choice type)**

In the triangle PQR as shown in figure $PR^2 = 2PQ^2$. Following may be the reasons for the same.

- 1) Angle $Q = 90$ degree.
- 2) $PQ = QR$.
- 3) Angle P = Angle R.
- 4) PR is longest side.



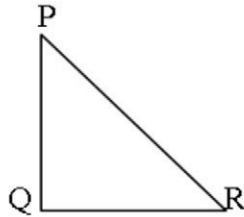
Which of these combinations is essential for the same?

- a) 1 & 2 *
- b) 3 & 4
- c) 2 & 3
- d) 1 & 4

6. Evaluation/Judgment (Essay Type)

In an isosceles triangle PQR, $\angle PQR = 90^\circ$. Which of the following is not correct in case of this Triangle?

- A) $RP^2 = 2PQ^2$ C) $RP^2 = RQ^2 + PQ^2$
- B) $RP^2 = 2PQ^2$
- C) $RP^2 = RQ^2 + PQ^2$
- D) $RP^2 = 3RQ^2$ *



Activity 4.2

Select a question from some course content of your choice and convert it into various stages of Bloom's Taxonomy.

Check Your Progress 1

Explain various stages in Bloom's Taxonomy of the Cognitive Domain.

Notes - a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

4.3 Benefits from using Bloom's Taxonomy

Can you think of some of the advantages of using Bloom's taxonomy in our work? You can sit with your peers and try to make a list of these advantages. Here are possible advantages, if we follow Bloom's Taxonomy in our day to day routine work and particularly in test construction:

1) Comprehensive teaching and learning in the classroom situation.

If you keep in mind Bloom’s Taxonomy, you may make your teaching more comprehensive based on these six stages. Remember the six stages? Quickly write them down here:

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....
- 6.....

The students will also take care of knowledge, comprehension, application, analysis, synthesis and evaluation of the content read by them. When they know that the exam questions will be based on these six stages, they will prepare accordingly for examination.

2) Building logic in testing

The adoption of Bloom’s Taxonomy will help you build logic (argument) in a question paper. Thus every test item will be based on (i) a specific learning objective under evaluation and its level in the taxonomic hierarchy which clearly indicates the kind and quality of human modification that is to be assessed, (ii) a

content element associated with this learning objective, and (iii) the form or format of the test item which may be objective-type, short-answer-type or essay-type.

3) **Making evaluation more comprehensive**

With the understanding of the organisational structure of educational objectives in terms of domain, class and sub-class, it should be possible to make evaluation devices more comprehensive and multi-dimensional. On the basis of taxonomic categories of educational objectives, it is possible to construct evaluation instruments for collecting evidence about many and varied objectives. The coverage of more objectives and objectives belonging to different domains will make evaluation more comprehensive and holistic.

4) **Criterion for evaluating an evaluation device itself.**

Taxonomies provide one of the most significant criteria for judging the value of the evaluation material itself. In educational testing, it is first necessary to select appropriate techniques for collecting evidence about pupils' achievement. In order to do so, the nature and level of the objective must be taken into account. Then, when a technique is selected in a given evaluation programme, the taxonomic classification can be used to evaluate the potentiality of the technique to bring forth desired evidences.

5) Developing a new typology of test items.

With the addition of a new dimension of instructional objectives, it is possible to develop a more meaningful and comprehensive classification. For example, an item prepared on a given topic may be knowledge-based and objective-type, application-based and short-answer-type, or analysis-based and essay-type, and so forth. Such a two-dimensional classification of test material would make testing more meaningful and precise. What is more, it would establish a better communication among evaluators which is one of the functions of a good taxonomy.

6) Aid to constructing objective-based test items.

Test items are often constructed without conscious effort to base them on pre-determined instructional objectives. Emphasis on form and subject matter in constructing a test item, without consciously taking into account a specific instructional objective, is likely to result into information-ridden test material. Taxonomic classification alerts the item writer to take into consideration this important base of an item.

7) Aid to planning tests and interpreting results.

At the stage of planning a test, it is essential to decide weightage of different objectives under testing. Such plan or

blueprint can be prepared well, if the evaluator has a clear understanding of the hierarchical classification of objectives. The hierarchy can be used as one of the aids to decide the value and significance of the test. Similarly, at the time of interpreting test results, objectives along with their relative standing in the hierarchical structure should be taken into account. Scores can be analysed on the scale of objectives, and thus the value of achievement on the part of the learner can be appraised more meaningfully.

Activity 4.3

Select some course content of your choice and prepare five questions from this content. These questions should not test memory level of the students.

Check Your Progress 2

Please write some applications of Bloom's Taxonomy in student assessment.

Notes- a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this Unit.



4.4 Let Us Sum Up

Summary

In this unit you learned that the purpose of education is to make a learner learn course content comprehensively. This word comprehensively means it should cover all stages of learning. Our body has three learning stages known as the mind (Cognitive Domain), the heart (Affective Domain) and the whole body (Psychomotor Domain). B.S. Bloom made a classification of the Cognitive Domain as- Knowledge, Comprehension, Application, Analysis and Judgement. These six stages are taken care of at all the stages of education. You can now prepare test items covering these stages. These items will help in preparing a comprehensive test paper for formative and summative assessment. Bloom's taxonomy helps us with comprehensive teaching and learning in the classroom situation, building logic in testing, making evaluation more comprehensive. It can be a criterion for evaluating an evaluation device itself, developing a new typology of test items; it can also be an aid to constructing objective-based test items to planning tests and interpreting results.

4.5 Check your progress: Model Answers

Answers

A) The six stages of Bloom's Taxonomy are knowledge, comprehension, application, analysis, synthesis, and judgement. Knowledge means retaining information as it is received in the mind and expresses it when needed. Comprehension means translation or explanation in your own language of the information received. Application is applying the knowledge gained to another situation. Analysis is breaking the whole situation, knowledge, incident or accident into its components. Synthesis is opposite to Analysis. It means joining the components to make some meaningful whole. Judgment is person's own opinion based on study of the whole situation.

B) Major applications are - comprehensive teaching and learning in classroom situation, building logic in testing, making evaluation more comprehensive. It can be used as a criterion for evaluating an evaluation device itself or for developing a new typology of test items. It is also an aid to constructing objective-based test items, to planning tests and interpreting results.

Unit 5

Pedagogy and Andragogy in the teaching and learning process

Content

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5.2 Pedagogy & Andragogy – Meaning and difference

5.2.1 Pedagogy and classroom communication

5.2.2 Andragogy and classroom communication

5.2.3 Pedagogy and Andragogy – A difference

5.3 Pedagogy and Andragogy- combined role in adult learning.

5.4 Let Us Sum Up

5.5 Check Your Progress: Model Answers

Overview

The purpose of this unit is to acquaint you with the concepts and applications of pedagogy and andragogy as a science of teaching and learning. Dealing with small children in a class is different than dealing with teenagers in a High School or Adults in

a University. Sometimes we use pedagogy only while other times Andragogy only. But, there are situation when we have to use a blend of the two for a smooth conduct of classroom activities. This unit will convince you that a judicial blend of the two will help for a successful classroom communication.

5.0 Objectives

At the end of this unit, you will be able to:

- discuss the concepts of pedagogy and andragogy as well as propose some applications in a classroom situation.
- understand and explain the benefits of using a blend of Pedagogy and Andragogy for making learning more permanent.
- use pedagogy or andragogy or a blend of these two in your classroom, as required.

5.1 Introduction

All formal education institutions in modern society were initially established exclusively for the education of children and youth. At the time they were established, there was only one model of assumptions about learners and learning: The pedagogical model (derived from the Greek words, ped meaning "child" and agogus meaning "science", so "pedagogy" means literally "the art and science of teaching children").

The backbone of pedagogy is transmission techniques. At first (in history) the teacher played an active and dominating role

while students looked like passive listeners accepting all information. Later on “Adult education” as a discipline came into practice and Eduard C. Lindeman proposed that adults were not just grown-up children and that they learned best when they were actively involved in determining what, how, and when they learned.

But it was not until 1950 when we began getting empirical research on adults as learners that the notion that there are differences between youth and adults as learners began being taken seriously. A new approach came into existence known as andragogy, being teaching-learning which advocates involvement of learners at each and every stage of learning process.

What does this mean in practice?

The teacher works as facilitator and most of the learning effort is done by the student him- or herself.

However, none of these approaches is complete in offering a perfect model for learning. A blend of the two becomes more powerful and potent in making a learner learn. This unit will not discuss pedagogy versus andragogy, but will throw some light on the combination of the two.

5.2 Pedagogy & Andragogy: Meaning and difference

A small child needs frequent instructions about what to do and what not to. It is because the mind of a child is immature and s/he cannot take decisions alone. S/he needs full support from

her/his teachers, parents and other elderly persons for making a decision. The teacher plays a dominant role in decision-making. Such an approach is called a pedagogical approach.

All learning and teaching strategies, regardless of age are used in pedagogy. It is used in shaping thought process possibilities in children. It is applicable to adults also, where the adult mind is unable to take a decision and becomes confused as to what should be done.

For example, a gathering in church listens silently the pastor who speaks continuously for a very long time and the gathering listens silently without interrupting him or her. No one argues with the pastor or shares his/her views with the pastor. The pastor plays a dominant role during his whole speech. This is a pedagogical approach to make the gathering learn something new.

On the other hand, adult learners are mature; they may take a decision and participate in the decision-making process. Here they get enough chance for self-learning and involve themselves in the decision-making process. The teacher then works as mentor or facilitator and most of the decisions are taken by students themselves. The teacher helps when the students need her/his help. This is often interpreted as the process of engaging adult learners with the structure of learning experience. Learning strategies often focus on adults. For example, a person learns to drive a car. He operates it himself and tries to understand the situation and takes his own decisions. His teacher, sitting on the adjacent seat gives his

opinion only when it is urgently needed to avoid an accident or some other ugly situation. So long as the learner is driving by his own effort, normally, the teacher-driver appreciates that but does not change the decisions taken by the trainee-driver.

Activity 5.1

Imagine that you are a student of class Twelve. How will you use a blend of Andragogy and Pedagogy for understanding teacher's lecture?

5.2.1 Pedagogy and classroom communication

In the olden days, pedagogical assumptions made about learning and learners were based on observations by monks in teaching simple skills to children. These assumptions were further adopted and reinforced with the spread of elementary schools throughout world in the 18th and 19th centuries. When educational psychologists started to scientifically study learning around the 20th century, they limited their research mostly to the reactions of children and animals to systematic instruction. This reinforced the pedagogical model. The pedagogical model is a content model concerned with the transmitting of information and skills. For example, the teacher decides in advance what knowledge or skill needs to be transmitted, arranges this body of content into logical units, selects the most efficient means for transmitting this content

(lectures, readings, lab exercises, films, tapes, for example), and then develops a plan for presenting these units in some sequence.

5.2.2 Andragogy and classroom communication

Please refer to the beginning of this unit if you have forgotten what andragogy stands for. Make sure that you can explain this to your peers before continuing to read the paragraphs below.

By contrast, the andragogical model is a process concerned with providing procedures and resources for helping learners acquire information and skills. In this model, the teacher (facilitator, change-agent, consultant) prepares a set of procedures for involving the learners in a process that includes (a) establishing a climate conducive to learning, (b) creating a mechanism for mutual planning, (c) diagnosing the needs of learning, (d) formulating program objectives (content) that will satisfy these needs, (e) designing a pattern of learning experiences, (f) conducting these learning experiences with suitable techniques and materials, and (g) evaluating the learning outcomes and re-diagnosing learning needs.

5.2.3 Pedagogy and Andragogy – A difference

Andragogy has become popular both within and outside adult education circles and andragogical approaches are commonly employed in adult education, nursing, social work, business,

religion, agriculture, and even law. It has had its opponents as well as its proponents. Much of the controversy stems from a difference in philosophy, classification, and the underlying values attached to the term adult education.

It is better to view education as a single fundamental human process and remember that, even though there are differences between children and adults, the learning activities of men and women are essentially the same as those of boys and girls. In fact, andragogy may be perceived as a useful technique. You can look at last page of this unit for a further comparison between pedagogy and andragogy.

Activity 5.2

Please select a class where all students are below 10 years of Age. How will you teach them Mathematics with the help of Andragogy?

Check Your Progress -1

Pedagogy and Andragogy play a complementary role in learning. Justify this statement with some example.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

5.3 Pedagogy and Andragogy: A combined role in adult learning

Adults have mental maturity with a decision-making capability. They have a need to know why they should learn something. They have a deep need to be self-directing. In fact, the psychological definition of an adult is one who has achieved the self-concept of being in charge of his or her own life, of being responsible for making his or her own decisions and living with the consequences. Adults have a greater volume and different quality of experience than youth. Adults become ready to learn when they experience specific situations in their life, when they feel the need to know or be able to do something in order to perform more effectively and satisfyingly. The pedagogical model makes the opposite assumption – that people become ready to learn what they are told by some authority figure (teacher, trainer, boss), that they have to learn because it is good for them or the authority figure demands it.

Adults enter into a learning experience with a task-centred (or problem-centred or life-centred) orientation to learning. Children and youth have been conditioned by their school experience to have a subject-centred orientation to learning. They

see learning as a process of acquiring the subject matter necessary to pass tests. Once that is done, their mission is accomplished. This difference in orientation calls for different ways to organising the content to be learned. In traditional education content is organised into subject-matter or courses such as Composition II, in which sentence and paragraph structures are memorised and Composition III, in which rules of outlining syntax and the like are memorised. In adult education the content is organised around life tasks: Composition II becomes “Writing for pleasure and profit” and Composition III becomes “Improving your Professional Communication Skills”.

Adults are motivated to learn by both extrinsic and intrinsic motivators. They are motivated by others, but learn themselves. For an andragogical design climate setting is essential. A climate of mutual respect, collaborativeness, supportiveness, mutual trust, fun and humanity is essential.

Activity 5.3

Prepare a self-explanatory chart for learning Solar Eclipse and Lunar Eclipse among class ten students. A student has raised some queries and confusions in understanding the same. How will you take the help of Andragogy in meeting his queries and confusions?

Check Your Progress - 2

What are essential features of an adult learner?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

5.4 Let Us Sum Up

Summary

In this unit, you learned that physical growth brings a mental maturity as age increases. Children being immature try to follow instructions from their teachers. They learn what their teachers/parents dictate them to learn. This model is known as the pedagogical model. The teacher plays a dominant role in dictating students what to learn. The student has no voice of his own but has only to follow.

The andragogy model is the reverse of the pedagogy one. The student decides his training needs and how to meet them. The teacher plays the role of a mentor and not a dictator. S/he is a

facilitator of learning and motivates the students to proceed with learning/training.

Both these approaches are not complete in meeting the learning needs of a learner. A blend of the two is essential for optimum learning. This is not a debate about pedagogy versus andragogy, but is a unique effort to blend or mix both and use both as per the main educational needs to achieve the learning objectives.

5.5 Check your progress: Model Answers

A) An adult, while learning driving a car has to follow instructions of his trainer in the beginning (pedagogical model), but he uses his own mind for making a mastery through drill and practice on road. His trainer works as facilitator and motivates the trainee who decides his target and makes his own efforts to achieve the same. If he has to overtake another vehicle, the trainer motivates him, but it is trainee's mind, skills and confidence which bring success.

B) Adults have mental maturity with a decision-making capability. They have a need to know why they should learn something. They have a self-directing need.

Pedagogy vs. Andragogy

	Pedagogical	Andragogical
The Learner	<ul style="list-style-type: none"> •The learner is dependent upon the instructor for all learning •The teacher/instructor assumes full responsibility for what is taught and how it is learned •The teacher/instructor evaluates learning 	<ul style="list-style-type: none"> •Learner is self-directed •The learner is responsible for his/her own learning •Self-evaluation is characteristic of this approach.
Role of the Learner's Experience	<ul style="list-style-type: none"> •The learner comes to the activity with little experience that could be tapped as a resource for learning •The experience of the instructor is most influential 	<ul style="list-style-type: none"> •The learner brings a greater volume and quality of experience •Adults are a rich resource for one another •Different experiences assure diversity in groups of adults •Experience becomes the source of self-identify
Readiness to Learn	<ul style="list-style-type: none"> •Students are told what they have to learn in order to advance to the next level of mastery 	<ul style="list-style-type: none"> •Any change is likely to trigger a readiness to learn •The need to know in order to perform more effectively in some aspect of one's life is important •Ability to assess gaps between where one is now and where one wants and needs to be
Orientation to Learning	<ul style="list-style-type: none"> •Learning is a process of acquiring prescribed subject matter •Content units are sequenced according to the logic of the subject matter 	<ul style="list-style-type: none"> •Learners want to perform a task, solve a problem, live in a more satisfying way •Learning must have relevance to real-life tasks •Learning is organized around life/work situations rather than subject matter units
Motivation for Learning	<ul style="list-style-type: none"> •Primarily motivated by external pressures, competition for grades, and the consequences of failure 	<ul style="list-style-type: none"> •Internal motivators: self-esteem, recognition, better quality of life, self-confidence, self-actualisation

Unit 6

Instructional modes for classroom interaction

Contents

6.0 Objectives

6.1 Introduction

6.2 Instructional modes and learning stages.

6.2.1 Learning by listening

6.2.2 Learning by viewing

6.2.3 Learning by doing

6.3 Instructional modes and syllabus coverage - a challenge

6.4 Let Us Sum Up

6.5 Check Your Progress: Model Answers

Overview

The purpose of this unit is to acquaint you with the concept of instruction and its difference with teaching and learning. Instruction may be defined as “the purposeful direction of the learning process”. The teacher teaches and the learner learns with a purpose to retain the knowledge gained and to use an application of this knowledge as and when needed. If this purpose is achieved, the whole process is known as instruction.

We use different modes to make this instruction easy and meaningful. We will discuss various modes which facilitate learning at various stages of our body. In this unit you will discover that the modes for facilitating learning at cognitive (mind), affective (heart), and psychomotor (whole body) levels are different from each other. Via this unit you will also discuss a challenge of covering whole syllabus in a prescribed time limit by making a balance between speed and accuracy.

6.0 Objectives

Upon completion of this unit you will be able to:

- List various devices and techniques of instructional processes.
- Recognise and use an appropriate application of devices and techniques to meet your purpose.
- Think of some ways to make a balance between speed and accuracy in covering the entire syllabus.

6.1 Introduction

Instruction is a two-way process which covers teaching, learning and a verification of their success in terms of achieving the objectives. It covers feedback from both sides. After learning a small portion of the content, the students express either satisfaction or dissatisfaction to the teacher. S/he gives answers to the students about their queries.

Different models and methods of instruction have been developed based on specific interpretations of concepts and principles of teaching and learning. While it is important to learn and practice the approaches developed by others, it is even more important to understand the concepts and principles upon which they are based. Searching a suitable model for helping people retain information at different learning stages is a matter of your wisdom. Instruction (the purposeful guidance of the learning process) is complex and can take many forms. It is a vitally important classroom activity, but must be considered in the context of such factors as measures of desired student learning objectives, controlling student behaviour in classrooms, individual differences among students, and school processes and characteristics.

Under the best conditions it takes many years of experience for most teachers to meet the ideals of instructional practice that they set for themselves. Speed is an essential factor in completing the course content within a prescribed time frame; however, accuracy is also very important. Students must learn properly and retain the information for a long time. This is possible if proper attention is paid by the teacher to every individual. The teacher tries to keep them individually satisfied. Individual differences are a major hurdle in the way of dealing with students. The teacher cannot satisfy all students in the class for their queries, confusions and questions possibly came about due to limitations of time in a busy schedule. What strategies can you think of that would enable you to deal with some of these challenges? Group discussions after

class may make students satisfied about their queries and thus everyone will be satisfied and clear about the content taught in the class by the teacher. We will discuss all these issues which are related to instructional modes in the classroom situation.

Activity 6.1

Imagine that there were six students who failed to understand some concept taught by you. What will you do to make them understand without disturbing your teaching plan?

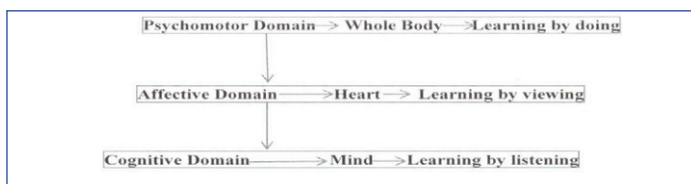
6.2 Instructional modes and learning stages

Ancient history is a witness of having no or very little use of teaching aids by teacher while teaching. At that time the teacher was telling or narrating something before the students who had neither pen nor pencil and paper to note down the information. They simply had to store the information in their mind. Thus learning by listening was the primary and only medium to learn. The teacher received feedback from students. Those who were unable to understand were marked as duffer and were asked to stop learning.

Later on educational psychology paid attention to individual differences among students and communication technology invented many media from the blackboard to modern electronic

gadgets and advocated for their use in the teaching-learning process.

It was also discovered that learning takes place in three domains of our body. Do you remember them from unit 4 known as the Cognitive Domain (mind), the Affective Domain (heart) and the Psychomotor Domain (whole body)? Learning at the cognitive level only is temporary and a person may forget what was learned after some time. But, learning at the second stage being the affective level is retained for a longer time, while learning at in the psychomotor domain is permanent and a person develops competency to perform the work him- or herself with very little help from others. This should be your aim when you teach therefore!



There are some activities which cannot be acquired by listening alone or by listening and viewing only. It is essential to learn by doing to acquire the competency of doing the work independently. For example, to be a competent car driver or a good swimmer it is essential for a person to go for drill and practice.

How is snake in shape? For this, it is essential to view its shape either from a picture or a living snake.

Thus, learning at every stage has its own importance and can be achieved only when a proper domain is selected. You will study various instructional modes which make learning effective in different domains.

Sit and reflect: how do you learn? Does this involve one domain only? Two domains or all three domains?

6.2.1 Learning by listening

This is oldest mode of learning. In ancient times there was no blackboard or chalk. Also, the knowledge was very limited and one teacher was supposed to teach everything known to him. The teacher, with his few students, used to sit beneath a tree. S/he would speak to his students who tried to grasp and store the information in their mind. Learning by listening remained for a very long time as a source of knowledge gain.

This is still prevailing as one of the modes for gaining knowledge. Normally it is a one-way process with the flow of information going from teacher to student with little care for learner reactions. The audio-recorder, radio, Sunday meetings at church, etc. are examples of learning by listening.

For a pretty long period, the teaching-learning process has been, by and large, a process dominated by the institution of professional teachers. Now, the process is being replaced to a great

extent by a process in which the individual learner is expected to take up challenges through an inevitable intellectual revolution. The intellectual revolution has been set in motion by forces of hardware technologies at low cost, socialization process due to interdependence upon each other. Besides, projects, farms, factories, markets, excursions and playgrounds will become classrooms in the new teaching-learning process.

Teacher-learner interaction as well as learner-learner interaction (Peer group interaction) will be used in a problem-solving approach in this learning-by-listening method. It will be better if a teacher combines other modes and make a mix media for an optimum learning among students. What do you feel about this shift towards other forms of interactions?

6.2.2 Learning by viewing

A popular saying about audio-visual aids is “I hear, I forget. I see, I remember. I do, I understand”. Learning by viewing is more effective and permanent than that by listening. The teacher writes on the blackboard and sometimes demonstrates some charts/models in the class. This approach makes learning reach the next stage, being the domain of the heart. It affects the psychological traits of the learner. His/her interest, motivation, etc. are affected when s/he learns something new and stores in the heart. What other means can a teacher use to “show”, “demonstrate”?

Apart from charts and models, a teacher may use a computer-generated presentation, some films, drama on an

academic issue related to course content, etc. In fact, every teacher while selecting a teaching aid should see to it that it is meaningful and purposeful, accurate in every respect, simple, cheap and sometimes improvised as well as large enough to be properly seen by the students for whom they are meant. They should be up-to-date, easily portable, at the mental level of the students and they should motivate the learners to learn.

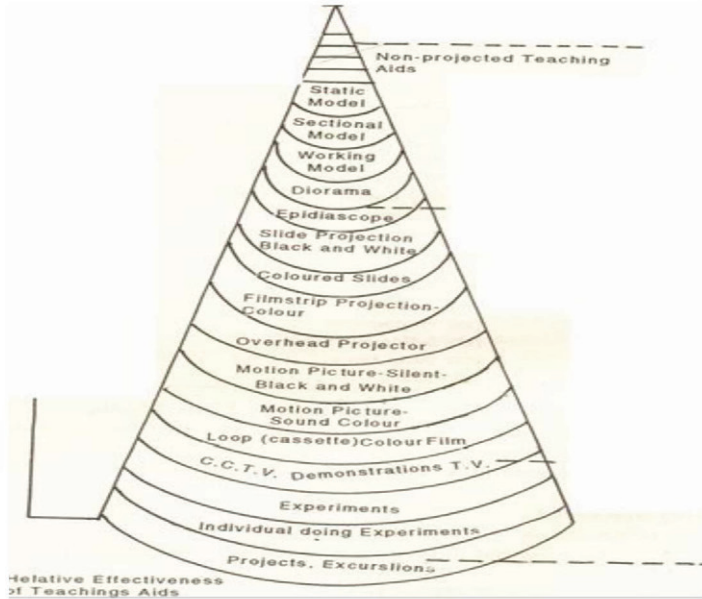
6.2.3 Learning by doing

This mode makes learning permanent and brings clarity of thought. There are some skills (art of doing the work) which can be gained or acquired only through drill and practice. A good car driver has learnt by driving the car under supervision of a trained driver. In a similar way, a good football player has a lot of drill and practice behind him. So, learning by doing is essential for students. A good teacher gives assignments to students. Writing answers to these assignments is learning by doing. It helps students understand their weaknesses and positive points while writing the answer to a given question.

Activity 6.2

One small group of students have read a book about car driving. Another similar group has seen others driving a car. The third similar group is making drill and practice with the help of some instructor. Examine all these groups and explain which group will emerge as a group of competent car drivers.

The cone given on next page indicates a diagrammatic presentation of the experiences gained through various modes.



Check Your Progress 1

Explain any instructional mode for learning by doing.

Notes-

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

6.3 Instructional modes and syllabus coverage: A challenge

There is a big challenge of maintaining speed and accuracy while using various instructional modes by a teacher. S/he has to finish the course in time (speed) as well as know that the students understand the topics well (accuracy) up to their optimum level of learning. Speed and accuracy can be contradictory to each other. A balance is essential. It depends upon the wisdom of the teacher how to keep the balance between the two. Her/his role is like a vehicle driver who has to maintain speed as well as accuracy to reach the destination in time and safely too.

If you do not use various instructional modes, you will fail to facilitate learning. But, if you devote much time on the instructional mode you may not be able to finish your classroom work in time. This is a big challenge for every teacher: to keep a balance between the two. It depends upon her/his past experiences and wisdom too.

Many activities can be learnt by peer group interaction or even teacher-learner interaction after class is over. Self-instruction also may cover most of the knowledge to be gained. The teacher may cover queries, confusions, questions which have come in the mind of the learner after self-learning the content. It will save time which can be utilised for using instructional modes. You know from experience that there are slow learners as well as high achievers in every class. If these two groups interact with one another, they can learn a lot without help from the teacher. This type of interaction may take place any time after class teaching is over.

Activity 6.3

Select some students being academically weak in your class. What will you do for an effective teaching among them?

Check Your Progress 2

How do you meet the problem of speed and accuracy in your classroom?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

6.4) Let Us Sum Up

Summary

An important point noted in this unit is that the different models and methods of instruction have been developed based on specific interpretations of concepts and principles of teaching and learning. While it is important to learn and practice the approaches developed by others, it is even more important to understand the concepts and principles upon which they are based. It is true that if you learn only methods, you'll be tied to your methods, but if you learn principles you can devise your own methods.

As you review each of the models or methods of instruction, ask yourself "Why is this being done?" and "Why is this being done now?". See if you can determine the underlying principles that are being advocated. You will then be in a better position to make modifications as your competency as a teacher grows. You may seek advice of your fellow teachers from time to time to solve the problem of speed and accuracy. Too much speed may help you finish the course content even before the prescribed time. But, learner satisfaction also has to be achieved by you. Therefore, a balance between the two is your success and as a good car driver

you have to reach the destination in time without accidents along the way. This will be the symbol of a successful teacher.

6.5 Check your progress: Model answers

1) Here you can explain the advantage of some mode, like the lecture or the group discussion, or students doing a practical in the laboratory. Write a short paragraph about the advantages of the particular mode you chose.

2) The problem of speed and accuracy can be met by keeping a balance between the two in the same way as a car driver does for reaching the destination after covering a long journey.

Unit 7

Learning Activity

Contents

7.0 Objectives

7.1 Introduction

7.2 Essence and Structure of a Learning Activity

7.2.1 Major Principles of Learning Activities

7.2.2 Conditions of Learning Activity

7.2.3 Moving from Theory to Practice

7.3 Teacher role in student learning

7.4 Let Us Sum Up

7.5 Check Your Progress: Model Answers

Overview

In this unit is you will find out more about the concept of “learning as an activity” and the various steps taking place in learning a concept. You will also discover more about your role as a teacher with students. This unit also discusses the gap between theory and practice as well as how this gap may be bridged to implement theories discussed here and put them into practice.

In fact, learning takes place when our mind is toned and tuned to receive information. Whatever information is stored in our mind is known as knowledge. It is called wisdom when the mind uses this knowledge in future with the help of intelligence to solve social problems. The teaching/learning activity is a bipolar (teacher-learner) process. Like a magnet, these poles perform and remain together. The meaning and presence of one pole is meaningless in absence of the other. You probably remember that your role is to be a facilitator and not a preacher or pastor when assisting your students in learning.

7.0 Objectives

Upon completion of this unit you will be able to:

- Describe the structure of Learning Activity.
- Realise your role as a facilitator in learning activity and apply it to situations that arise in your daily life as a professional in education.
- Know and explain the conditions of Learning Activity formation.
- Learn how theoretical concept may be brought into practice.

7.1 Introduction

The concept of “learning activity” is part of activity theory to learning approach elaborated in the framework of the cultural-historical tradition. This “learning activity” is understood as a fundamental form of human existence, as interaction between humans and the world presupposing an active, goal-oriented, conscious, societal person.

Using certain means under certain conditions, a person performs actions on different material and mental levels, directed toward the modification or generation of activity objects which may also be human beings. Interrelations between person and object are mediated by other persons, just as interrelations between persons are mediated by objects known as teaching aids.

Learning activity results may not coincide with the intended goals of an activity. Results consist in modifications of the person, often unintended and unnoticed by him or her. This indicates that learning is a behaviour modification process. The learner’s mind interacts with the situation and makes modifications in his knowledge valley. S/he also gains new information which was not in his valley (mind) and stores the same for further use.

In fact, there are some steps essential for a learning activity to be successful. The learners themselves, at a specific level of personality development, perform learning actions in order to reach certain learning goals. The learning objects are to be acquired. Learning tools are necessary for attaining certain learning goals.

The conditions under which a learning activity takes place have to be analysed by the teacher.

Can you give examples of the steps you undertake when designing and implementing learner activities? How do these relate to the ones described above?

Also, some major principles determine learning activities like

- unity of 'learning activity' and 'learning object';
- unity of 'Zone of actual performance' and 'Zone of Proximal Development', and
- unity of 'learning activity' and 'teaching activity'.

You will learn more about these in this unit and some of the other units in your module. Perhaps, however, you already know what these mean. If that is the case, get back to your learning group and discuss them with your fellow learners.

There are some conditions for the formation of learning activity like:

- Learning goal formation,
- Formation of Learning Actions,
- Formation of Initial Abstractions and Learning Models, Formation of Concretizations.

It is essential for every teacher to take care of these principles and conditions. Also, there may be some obstacles in bringing these theoretical aspects into practice. As a teacher, you have to use your wisdom to understand the full situation and then decide how to overcome these obstacles so that these theoretical situations are brought into practice in your classroom. The moment this theory comes in practice, the gap between theory and practice will be bridged. This can be seen as a way of bringing quality into classroom activities.

Activity 7.1

Imagine a classroom situation where a teacher is speaking facing towards blackboard and is writing simultaneously. What is wrong with this type of teaching?

7.2 Essence and structure of learning activity

Learning has an effect on an individual at three stages. Surely, you remember these three domains. First it affects the cognitive domain (mind), then the affective domain (heart) and, finally, the psychomotor domain (whole body). Learning effects are produced, on the one hand, by activities directed toward other goals (such as play, work, and communication) and, on the other hand, by activities especially directed toward learning goals.

Therefore, a distinction can be made between learning through activity and learning as a special activity.

Let us develop this a bit more. From a historical perspective, the concept “learning activity” has developed from work activity, but many times it emerges from play and everyday activity. As a special activity, learning has to be acquired by the individual concerned. In other words, learning has to be learned. “Learning activity” therefore assumes a pre-dominant position in a person's activity system over a certain period - as a rule, under conditions of schooling. When it has been acquired in some measure, it loses this position. It has much contribution to the personality development: acquisition of knowledge and competence remains an important task throughout life (through extensions of general education, vocational training, and the acquisition of further or higher qualifications). Learning activities differ from other kinds of activity by being directed toward a person's self-modification or self-improvement, namely toward the formation of the subjective pre-requisites necessary to accomplish new, ever more complex and difficult classes of tasks. In this activity, the whole person is involved and s/he develops him/herself as a whole.

Learning results are, as a rule, broader than learning goals directed toward knowledge and competence. In this process the interrelations with the social and material worlds become increasingly indirect and complicated, entailing the formation of a theoretical approach toward the world. New motivational and

emotional characteristics develop, and cognitive and metacognitive structures and strategies are elaborated. The psychic activity regulation operates as a whole and must be analysed and formed in all its complexity and interrelations. If we analyse learning activity, we find that learners at a specific level of personality development perform learning actions in order to reach certain learning goals. Learning results are not obtained by the actions of learning objects upon learners, but, on the contrary, by the learners' own actions upon the objects. There are the learning tools necessary for attaining certain learning goals. Material or other objects become learning tools only by including them in the structure of appropriate learning actions. Political, institutional and family conditions, social climate and material situations may promote or hinder the learning activity. Indeed, the optimisation of learning conditions is the real aim of every teacher.

7.2.1 Major principles of learning activities.

Below are three major principles behind the design of a learning activity.

i) Unity of Learning Activity and Learning Object (Why to learn)

The learning activity necessary for the acquisition of a certain learning object must be formed in the process of acquiring that object; in other words, what is required is the promotion of

development through organisation and formation of activities according to the demands of learning objects or purpose.

ii) Unity between Known and Unknown

A zone of known performance involves the tasks already mastered independently by the learner. It opens up a zone for developing the unknown by actions to be performed with support and under guidance of a teacher. The discrepancy between what is known and what is unknown opens up directions and possibilities for the next steps to be carried out, and for the conditions that must be created to achieve this aim. If there is no discrepancy at all, no learning and developmental effect is possible. If this discrepancy is too large and the learner cannot bridge the gap, no learning and developmental effect is possible.

What does this mean in practical terms? Can you relate the notions of known and unknown to what you know of learning? Discuss this with your fellow learners.

iii) Unity of Learning Activity and Teaching Activity

Learning activity emerges and develops in permanent interaction with teaching activity under instructional conditions. Learners and teachers both influence each other. Both are mutually dependent upon each other. Learning takes place under conditions created and organized by teachers. The decisive matter is how the teacher is able to analyse level and structure of learning activity and to organize conditions for the same.

Activity 7.2

Select a class of grade one students and teach them addition of numbers. You have to follow ‘Known to Unknown’ strategy. List below what should be as known among these students.

7.2.2 Conditions of learning activity

There are four conditions for forming a learning activity as herewith.

i) Learning Goal Formation

Objects and tasks corresponding to learners' needs and motives produce concrete learning goals under the following conditions: if the learning abilities are sufficient to understand the demands and if the learners' actions in this task situation are directed, not only toward attempts to solve the task, but also toward the analysis of the demand structure in relation to their own abilities. Evaluation of and reflection on this interrelationship makes a learner aware of what is to be learnt.

So, how can you as a learner be more aware of what you learn?

It is important to know this as you can then assist your students to do the same.

ii) **Formation of Learning Actions**

Sometimes, the activities to be done to reach the goal are not known to the learner. The teacher must systematically form such activities. In my mind, the learner should always be made aware of how a particular activity is there because of the ultimate learning goal, how this activity fits in reaching the goal is very important, the learner needs to be aware of that. The verbal dictation of such activities to students or a demo by teacher may help them to learn new things. In this process complex actions may have to be subdivided first into partial actions, in order to form them separately and then to integrate them into complex actions.

iii) **Formation of Initial actions and Learning Models**

Learners need a form of crystallization of what they have found out during an experiment or theoretical learning. An appropriate form for this purpose is a learning model that embodies only the most essential features and relations of the learning object, analysed so far in a simple graphic, verbal, or other format or models. Such learning models, representing initial abstractions, are significant results of learning activity. At the same time they are starting points and tools of further activity.

iv) **Formation of a summary of what has been done**

As a learner you do initial activities to obtain new knowledge in a learning domain. This process can be organised in such a way that ever more complex learning tasks are tackled. Complex

phenomena must be analysed by means of systemic analysis and should be injected in the learner's mind in part.

7.2.3 Moving from Theory to Practice

Formation of learning activity can be done successfully through problem-solving, co-operation, communication, reflection, and social relations between teacher and learners. This can be achieved in different subjects where both are in a face-to-face situation at different school levels (from primary to higher education level) as well as in vocational education. It may produce strong effects with respect to the formation of learning motivation, of concepts and strategies, of theoretical thinking and of domain-specific competence. The learning activity approach corresponds to other approaches to learning and instruction in such crucial points as orientation toward the active learner and the creation of situations appropriate for active learning. A combination of different approaches may promote scientific understanding and practical effectiveness in learning and instruction.

Check Your Progress 1

Explain the main conditions of learning activity formation.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

7.3 Teacher role in student learning

The main role of a teacher is to provide necessary support to students in learning. The learner learns himself. No person, material or object goes inside the learner's mind. The teacher works as facilitator in this process. S/he has to observe that the student accepts and has the necessary responsibility for learning behaviours and outcomes, and, during learning process, the learner must have the ability to be strategic and self-regulating.

The teacher has to help students to develop competences and attitudes that enable them to learn in an active and deliberate manner. Since there are individual differences among students, the teacher has to motivate them for peer group interaction to make them learn from each other. The teacher has to help students become active learner so that they become active processors, interpreters and synthesizers of information. The teachers have to see that students take responsibility for managing, monitoring and evaluating their own learning, and for playing an instrumental role

in adapting the learning environment to the demands of the instructional learning process. The teacher has to create communication environments, information transmission environments, problem-solving environments, training environments, performance environments, recitation and testing environments.

Activity 7.3

List below the activities done by you while teaching in classroom.

Check Your Progress 2

Critically examine your role as a teacher in student learning.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

7.4 Let Us Sum Up

Summary

In this unit you learned about the ability of students to use what they know in learning new tasks and to apply what they know in new situations is considered essential to their active learning role. Where does that leave you, as a teacher? What are you there for? The teacher has to create an environment for the learners so that they can apply what they've learned in new situations. The main problem with every teacher is to face a situation of individual differences among students in classroom. S/he cannot meet the learning needs of every individual student. The best possible solution to this problem is peer group interaction. This learner-learner interaction will make your work as a teacher easier and more comfortable as most of the students' queries may be solved by them through group interaction.

The learning activity consists of four major elements as

- 1) learners perform learning actions themselves,
- 2) learning objects are to be acquired,
- 3) learning tools are necessary for attaining certain learning goals,
- 4) learning takes place under political, institutional, social, familial and material conditions.

There are some major principles for learning activity formation, such as

- 1) Unity of learning activity and learning object,
- 2) Unity of zone of actual performance and zone of proximal development,
- 3) Unity of learning activity and teaching activity.

Similarly, there are some conditions of learning activity formation.

- 1) learning goal formation,
- 2) formation of learning actions,
- 3) formation of initial abstractions and learning models,
- 4) formation of concretizations.

The other main conditions of the formation of learning activity may be problem-solving, cooperation, communication, reflection, and social relations.

7.5 Check your progress: Model answers

Answers

- A) The main conditions of learning activity formation are
- 1) learning goal formation,
 - 2) formation of learning actions,
 - 3) formation of initial abstractions and learning models,
 - 4) formation of concretisations.

B) Your role as a teacher in students' learning is that of a facilitator who creates a learning environment and encourages them to have peer group interactions. You turn the student into an active learner. You motivate them for an active learning role. You, as their teacher, create communication environments, information transmission environments, problem-solving environments, training environments, performance environments, and recitation and testing environments.

Unit 8

Learning theories for classroom communication

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8.5 Check Your Progress: Model Answers

Overview

Within this unit you will refresh your knowledge of the concept of learning theories and their application to classroom communication. In fact, it is very essential for a teacher to understand these theories and try to apply them as and when needed in a classroom situation. Teachers may be learned persons in their field, but, it is also essential for them to see that learners are

learning well in the classroom situation. There has been a debate among educational psychologists about how we learn. Some educationalists have devised their own learning theory and have had a large group of followers.

There is this layman's idea that a hungry person searches a source of food and rushes to a restaurant for food. When his stomach is full, he leaves the restaurant and diverts his attention to other activities. Similarly, a person in need of some new information rushes to its source (teacher or books or newspaper or friend). He tries to seek the desired information and once he has it he goes back to do some other work. Therefore, a strong need or desire to learn directs us to reach out for an information source and learn.

Every theory describes the role of the mind in learning.

8.0 Objectives

Upon completion of this unit you will be able to:

- Identify and describe various learning theories and their role in learning.
- Analyse the differences between various learning theories.
- Apply these theories in your classroom situation.

8.1 Introduction

Learning brings about a permanent change in behaviour and this behavioural change may be started by using a suitable 'stimulus' to get a proper 'response'. The followers of this idea were labelled as 'Behaviourists' and they gave birth to the 'Behaviouristic Theory' of learning (also called Behaviourism).

Other psychologists thought that learning depended upon mental readiness of a person. If the mind is ready to learn, it will receive and retain information quickly, otherwise not. These psychologists gave birth to the 'Cognitive Theory' of learning.

Later on, when a debate between these two groups arose, a different idea came out with a compromising formula known as 'Gagne's views on learning'. He advocated eight types of learning which can be seen as the stages of a ladder. He formulated a middle way to keep both groups silent on this issue.

Therefore, we see that there are three major theories of learning in practice. They are: Behaviouristic Theory, Cognitive Theory, and Gagne's views on Learning.

After that, many other theories were drafted, but we can safely say that they are branches of the main three theories. In this unit you will find out more about these three theories and their implications to learning. Do you remember what learning is? It is an active process in which the learner interacts in a given situation. Learning can be made effective by observing a few conditions like

motivation, psychological safety, experimentation, feedback and practice. If these factors are strong, there will be more and better learning.

What about the teacher's role? Remember that important part? The role of a teacher is to motivate students for learning, ensure students that this learning will help them for their future. The students are given an opportunity to learn by doing through experiments. The teacher must collect feedback from the students about their difficulties in learning and should give them a chance to use drill and practice activities to make learning more permanent.

8.2 Major Learning Theories

It is assumed by psychologists that the learning activity brings about a relatively permanent change in behaviour, and it is the result of reinforced practice. This definition of the learning assumes that certain conditions in the environment bring about fundamental changes in our behaviour that persist for a long time. Learning is not directly observable but is inferred from one's performance. We can infer that a person has learnt something, when s/he does something which s/he could not do before. There are three main theories of learning as stated below:

8.2.1 Behaviouristic Theory

The behaviouristic theory is very comprehensive and it includes a variety of thoughts. All these thoughts suggest a

common approach to learning in terms of the development of connections between stimuli and responses. Based in laboratory experiments with animals, behaviourists concluded that learning is a process by which Stimulus and Response bonds are established (S-R bond), when a successful response immediately and frequently follows a stimulus.

They have established three laws of learning known as

- (i) **Law of effect,**
- (ii) **Law of Readiness and**
- (iii) **Law of Exercise.**

The law of effect stresses the importance of the effect of a response. Satisfying results reinforce the response while annoying results weaken it. Reward and punishment are, therefore, important ingredients in the process of learning.

The law of readiness indicates the student's willingness to make the S-R bond connection, while the law of exercise relates to strengthening the connection through practice.

8.2.2 Cognitive Theory

"Cognitive Psychology" has taken an important place in psychology of learning over the last three decades. This theory takes into consideration activities such as perception, concept formation, language use, thinking, understanding, problem-solving, attention and memory. Thus, the cognitive approach is concerned

with an individual's inner psychological functioning, and it opposes strongly the behaviourist's emphasis on overt behaviour. Cognitive theorists have shown that people learn by perceiving, comprehending and conceptualising problems. The comprehension of concepts and rules, etc. is transferable to the solution of new problems. The cognitivists argue that people grasp things as a whole. They believe learning is both a process of 'insight' formation and successful problem-solving, and not a mechanical sequence of stimuli and responses. Therefore, teaching according to cognitive theory, should encourage understanding based on problem-solving and insight formation.

Learning Type	Brief Description
1. Signal learning	The individual acquires a conditioned response to a given signal, the learning is involuntary.
2. Stimulus-Response	The individual makes a response to specific learning stimuli; the desired response is rewarded.
3. Chaining	Two or more previously learned stimulus response connections are linked together.
4. Verbal Association	Chains that are verbal e.g. a child identifies an object and calls it by its proper name(e.g. 'the red ball'), or he finds a Swazi word equivalent to an English word.
5. Multiple Discrimination	The learner learns to distinguish between psychomotor and verbal chains he has already acquired.
6. Concept learning	A common response to a class of stimuli; in learning a concept the learner responds to stimuli by identifying its abstract characteristics like shape, colour etc.
7. Rule Learning	In learning a rule we relate two or more concepts. For Example, at the temperature 100 degree Centigrade, the water will boil. Here temperature and boiling point are concepts.
8. Problem solving	Learner uses the rules learned to achieve some goals; problem solving is the combined product of two or more lower-order rules; it thus requires internal events

8.2.3 Gagne’s views on Learning

Robert M. Gagne is a famous educational psychologist whose “Conditions of Learning” are generally employed when looking at the teaching-learning process. He identifies the factors that account for the complex nature of human learning. He has described eight types of learning as given below.

Check Your Progress 1

Compare and contrast the cognitive theory with the behaviouristic theory.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

Activity 8.1

Imagine you have taught some course content to your students of any grade. Some of them are still confused with your explanation. How will you use your knowledge of learning theories to meet this problem?

8.3 Learning Theories Application- Classroom situations

Educational Implications of the Behaviouristic theory

The behaviouristic approach to learning has tremendously influenced modern education. Psychologists have suggested the adoption of following three principles in the teaching-learning process:

- (i) Knowledge of result and use of positive reinforcement.
- (ii) Minimum delay in reinforcement.
- (iii) Elaboration of complex behaviour by dividing learning into a series of small steps.

Educational Implications of the Cognitive theory

The major emphasis of this approach is on how to design educational activities to promote cognitive learning. Below are the major educational implications of this approach:

1. The most important aspect of the cognitive approach to education relates to promoting retention of knowledge acquired through learning. The ability to retain knowledge acquired through learning depends on how best it is understood and stored in the mind for long-term use.

2. Teaching materials should be planned on the basis of the theory of discovery. Instructional methods, therefore, should emphasise spontaneous discovery, and competency by the learner. It indicates that active learning methods should be adopted to motivate the learner to rediscover the facts or find solutions to the problems.
3. This approach emphasises appropriate decisions regarding the instructional objectives, analysis of prerequisite behaviour and teaching methods.
4. It also stresses problem-oriented learning. It gives a detailed description of how to teach in a reflective way by raising problems and solving them.
5. Lastly, it emphasises the study of learner characteristics which can be used by the teacher to expand the quality of student's insights.

Activity 8.2

Which learning theory is most suitable to your class for teaching some course content of your choice? Explain the reason for the same.

Educational Implications of Gagne's learning stages

There are three broad educational implications of this theory:

1. **Pre-requisite behaviour:** Gagne advocated that processes of learning move from the simple to the complex. The learner has to develop pre-requisite capabilities before s/he acquires new terminal behaviour. Thus, the use of a hierarchy of learning and task analysis is an integral part of instructional activities.

2. **Learners' characteristics:** Learners' individual differences, readiness and motivation to learn are the important issues to be considered before designing instructional activities.

3. **Cognitive process and instruction:** Transfer of learning, student's self-management skills, and teaching students the skills of problem-solving are integral parts of internal conditions of learning, applicable to the instruction. The skill of learning "how to learn" should be developed in the learner. The emphasis should be on the individuality of the learner.

Activity 8.3

Study the Educational Implications of various learning theories in your book. Which of these theories will be most useful for teaching English to class two students? Explain the reasons for the same.

Check Your Progress 2

Explain the educational implications of the theory you like most.

Notes

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

8.4 Let US Sum Up

Summary

In this unit you learned about the process of learning in ancient days was deeply concerned with memorisation of certain important sayings from pious books like the Bible, the Koran, etc. The explosion of psychological research developed the idea of individual differences and various learning theories.

It was observed that learning is a product of interaction between mind and situation. It takes place when a learner is motivated and feels psychologically safe. S/he is given a chance for experimentation and gets feedback about information drawn from

the act of learning. Practice is another important condition for learning. The behaviouristic theory of learning puts emphasis on the stimulus-response bond (S-R bond). Cognitive theory puts emphasis on the conditioning of the mind as essential for learning. The third important view is of Robert M. Gagne, who proposes eight stages of learning. His work is an attempt to amalgamate the cognitive and behaviouristic theories of learning.

8.5 Check your progress: Model answers

Answers

A) The behaviouristic theory talks about change of behaviour by giving proper stimuli. This behavioural change will be reflected in the response from the learner. This stimulus-response theory is good for small children who learn under strict guidance and supervision. On the other hand, the cognitive theory advocates for readiness of the mind. If the mind is ready to receive some information, there will be learning. Toning and tuning the mind is known as conditioning. This theory is good for adults who have ability to condition their mind towards some object/topic/situation, etc. In fact, both theories talk about mental concentration. This is done among children through some proper stimulus while adults have the ability to do the same by conditioning their mind.

B) You may read 8.3 above and select educational implications of any theory of your choice.

Unit 9

Motivation, Interest and Emotions: Meaning and Role in Learning

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9.4 Let Us Sum Up

9.5 Check Your Progress: Model Answers

Overview

In this unit you will learn more about some important psychological variables like motivation, interest and emotions, and their effect on learning. You will also discover what your role as a teacher is when it comes to generating motivation and interest and dealing with various emotions. Some persons think that learning takes place only in the classroom. This is a narrow view of

thinking. In fact, learning is the outcome of an interaction with the environment.

Various psychological variables boost this learning.

Motivation is an internal force generated in the mind by our motives. Strong and clear motives will generate motivation of a high intensity.

Interest is a catalyst which increases speed of learning or grasping the content.

Emotions are feelings which divert tendencies of a person towards learning. Various tendencies have different effects on a person's learning rate.

You will study in detail the effect of these three psychological variables on a person's learning rate and style.

9.0 Objectives

Upon completion of this unit you will be able to:

- Understand and explain the meaning and role of motivation, interests and emotions in learning.
- Demonstrate the effect of motivation, interest and emotions on learning.
- Motivate your students, create an interest and generate emotions among your students in the classroom.

9.1 Introduction

You probably remember that a learning activity is the product of many elements working together. A child is to learn and, therefore, his age, abilities, aptitudes and interests should be taken note of by all those who are charged with the learning of the child. The child must be allowed to play an active role in the learning process. S/he learns broadly from the teacher and textbooks (including other teaching-learning materials). Therefore, a teacher must present good models of teaching-learning. Likewise, textbooks and other instructional materials should be of good quality. Learning goals must be very clear, should be broad based and should go beyond bookish knowledge.

Every learner is concerned with acquisition of knowledge, skills and attitudes. Learning takes place in the classroom, outside during break, in the workshop, on the farm, in the neighbourhood, etc. It has to be stressed that school, though an important place of learning, is not the only learning place.

You already know that the process of learning involves various principles of learning, methods of learning, techniques of learning as well as a motivation too. Emotions play a vital role in learning. These emotions are feelings affecting learning. In fact our mind remains in a neutral state only about a quarter of time. The rest of the time, we are experiencing lots of feelings like surprise, delight, engagement, confusion, boredom, frustration, etc.

We may observe that we have eight emotions are fear, anger, sadness, joy, disgust, trust, anticipation and surprise. The effect of these emotional variables on learning and, accordingly, on the teacher's role when dealing with students will now be discussed in detail.

Interest is a temporary phenomenon which is also related to motives or goals. If our motives are strong enough, they will generate interest to achieve these goals. The mind will be anxious and interested to do so. The moment we achieve them, the interest towards them will automatically vanish. We then look for another goal or motif.

9.2 Psychological variables affecting learning

You have seen above that motivation, interest and emotions play a vital role as a catalyst in learning and you as a teacher must take care of these catalysts for easy and smooth transfer of information to the learner's mind from the textbooks, from the teacher or from some other source.

How you can do this successfully is what you will find below. You will discover how to implement motivation and interest in your classroom. In fact, learning shows mental growth and helps us adjust within our society. It is reorganisation of experiences. It is a purposeful activity in which efforts are made intelligently to have lasting effects to achieve the learner's purpose by the learner

himself/herself. It is an individual as well as a social phenomenon being the product of the environment. It affects the conduct of the learner who uses insight to make efforts through trial and error.

In short, motivation arouses interest, interest is the mother of attention and attention is the mother of learning. Thus, to secure learning you as a teacher must include the mother, grandmother and great-grandmother.

9.2.1 Motivation and learning

Motivation is the very heart of the learning process. Can you remember a situation where you were asked to complete a task but you were not motivated? How did this affect you? Now, remember a situation where the opposite was true, where you were truly motivated to achieve something. How was this different?

Surely, your memories went something like this: motivation energised and accelerated me. In a similar way, it affects the behaviour of the learner. No learning is possible without motivation. The intensity of the learners' motivation determines the effectiveness of their learning, just as it affects yours. The word motivation is derived from a Latin word 'movere' which means to move. It is thus an internal force which accelerates a response or behaviour. The learners vary in the extent to which they are willing to direct their energies in the attainment of goals; this is mainly due to difference in motivation. It is the stimulation of actions towards a particular objective where previously there was little or no attraction to that goal. The following are functions of motivation:

- 1. To arouse students' interest in learning.**
- 2. To direct students' interest in learning.**
- 3. To initiate interest among the students in learning.**
- 4. To sustain students' interest in learning.**
- 5. To energise students' activity when learning.**
- 6. To arouse, accelerate, direct and sustain the learners' behaviour.**
- 7. To arouse the tendency to act and produce result by the learner.**
- 8. To release learners' tension.**

Do you feel there are other functions you want to see in this list? If there are, feel free to add them. Also discuss these functions with your fellow participants in this project, you might find they have interesting ideas about this list of motivational functions.

Activity 9.1

A person said that motivation is an internal force generated from within the student. The other person contradicted this statement and stated that motivation is an external force which comes from teacher or fellow students. Give your opinion about the same with the help of some examples.

9.2.2 Interest and learning

Interests are our likes and dislikes. What interests one may not interest another person though they live together. One of you might like to watch cricket while your brother would prefer watching tennis. How do we deal with such diversity of interests? While two brothers in a family could differ so much in their interests, what would be the range of interests in school with hundreds of students? One of the cardinal aims of education is fostering many-sided interests of students. You can define an interest as a tendency to seek out an activity or object, or a tendency to choose it rather than some alternative. These are acquired behaviour patterns. Everyone has to have an exposure to a spectrum of activities at school so that each one could choose what interests him or her most. We are not born with specific interests. We acquire them due to environmental stimulation. It can be generated by creating a learning environment.

9.2.3 Emotions and learning

Emotions are feelings of a person about any aspect, activity, concept or even subject matter. There are basic eight emotions as you can see below:

1. Fear → feeling afraid. Synonyms are terror (strong fear), shock, phobia.

2. Anger → feeling angry. A stronger word to describe this feeling is rage.
3. Sadness → feeling sad. Other words expressing the same are sorrow, grief (a stronger feeling, for example when someone has died) or depression (feeling sad for a long time). Some people think depression is a different emotion.
4. Joy → feeling happy. Other words are happiness, gladness.
5. Disgust → feeling something is wrong or dirty.
6. Trust → a positive emotion; admiration is stronger; acceptance is weaker.
7. Anticipation → in the sense of looking forward positively to something which is going to happen. Expectation is more neutral.
8. Surprise → how one feels when something unexpected happens.

Aristotle had described a separate list of emotions as below.

1. Anger, opposite calmness (not feeling excited)
2. Friendship (Love), opposite enmity (feeling hate)
3. Fear, opposite confidence (having no fear)
4. Shame, opposite shamelessness (shame: how one feels about one's past bad actions or thoughts; shamelessness: one does not feel shame, but others think one should.)

5. Kindness (benevolence), opposite unkindness (kindness: when people are good to other people)
6. Pity (when people feel sorry for other people)
7. Indignation (feeling angry because something is not fair, such as undeserved bad fortune)
8. Envy, jealous (pain when people have something that one wishes for oneself)

Activity 9.2

Select any two functions of motivation as stated in your book and explain how these can be verified in our day to day situation?

Check Your Progress 1

Describe the combined effect of motivation, interest and emotions on learning.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

9.3 Techniques for development of motivation in the classroom

In the classroom students need constant motivation from the teachers so that optimum use of their talent may be made for their development. The needs are the basis of motivation. Therefore, techniques employed by the teachers to arouse and maintain motivation will be successful only if they make sure that progress is being made towards need-satisfaction. Since individual children differ in regard to their specific needs, according to their personality patterns and socio-economic background, you as their teacher will have to vary your motivational techniques and employ them judiciously. Extrinsic or external and intrinsic or internal motivations are the two types of motivation. External motivation is based on the use of rewards and punishments. Intrinsic motivation is that which is aroused in the learning process itself.

In other words, every individual pupil should be led towards the goals that he is aware of and will want to attain. Secondly, goals should be within each pupil's reach, and should seem attainable to him or her. Thirdly, s/he should be able to judge whether or not s/he is attaining his/her goals and how, perhaps, s/he is falling short. Fourthly, a teacher should not rigidly and strictly adhere to one motivational but should make use of all techniques judiciously and scientifically. Important techniques are given here:

- 1. Attractive physical and environmental conditions.**
- 2. Sublimation of innate impulses.**
- 3. Stimulus variation by the teacher.**
- 4. Reinforcement: Praise and Blame.**
- 5. Rewards and punishment.**
- 6. Pleasure and pain.**
- 7. Attainable goal.**
- 8. Experience of success.**
- 9. Competition and co-operation.**
- 10. Knowledge of progress.**
- 11. Novelty.**
- 12. Individual differences of the children.**
- 13. Active involvement of the students.**
- 14. Linking with environment.**
- 15. Use of teaching aids.**
- 16. Teaching skills.**
- 17. Teacher's own motivation and interest in teaching.**

Perhaps you can think of other techniques? If so, please share them with your colleagues. Also, give a concrete example of each of the techniques set out above and reflect on whether you use them in your teaching or not.

Activity 9.3

There are Seventeen (17) techniques for class motivation as stated above. Select any two of them and explain how you will use them to motivate students of your class.

Check Your Progress 2

How can emotions be diverted towards learning?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

9.4 Let Us Sum Up

Summary

In this unit you learned that motivation in school learning involves arousing, persisting, sustaining and directing desirable behaviour. This is the central factor in the effective management of the learning process. Extrinsic or external and intrinsic or internal motivations are the two types of motivation. External motivation is based on the use of rewards and punishments. Intrinsic motivation is that which is aroused in the learning process itself. It arises out of the students' interests which are related to their attempts to solve their own problems. It is admitted that intrinsic motivation is by far the best type because it is accompanied by a desirable pleasantness which flows out to other related activities. Apart from their own motivation, learners also need motivation, not only from their teachers, but also from their parents and learning materials. Presentation plays a key role in generating interest among students. You know that interests differ from person to person. You may be interested in playing football but your friend may be in basketball. You, as the teacher, have to take note of this situation and accordingly teach every learner by making them interested in the lesson of the day.

Emotions are internal feelings which might have arisen due to some situation or incident. Fear, anger, sadness, joy, disgust, trust, anticipation and surprise are the eight main emotions affecting learning in the classroom. As a teacher, you have to

diagnose a particular emotion affecting a student and accordingly tone and tune his strategy for helping him or her learn.

9.5 Check your progress: Model Answers

Answers

A) Motivation forces the learner to initiate and finish a learning activity in the prescribed and proper way. Interest works as catalyst in this. An interested person will perform the learning activity at a much faster rate than a disinterested person. Negative emotions will create obstacles while positive emotions will accelerate the speed of learning. Your role as a teacher is to convert negative emotions into positive ones so that their effect can be neutralised.

B) At first the particular emotion/feeling which is a hindrance to learning needs to be diagnosed. The teacher should assist the very student to neutralise the effect of this emotion. For example, if a student has a fear of low achievement in maths and is unable to pay attention to the subject, this learner should be given examples from fellow students who are high achievers in maths. This fear may be removed if the learner answers questions correctly.

Unit 10

Verbal and non-verbal communication

Contents

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10.2 Classroom Communication- Its meaning and role.

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10.2.2 Non-verbal communication and the teacher's role.

10.2.3 The student's role in the classroom.

10.3 Making classroom communication effective.

10.4 Let Us Sum Up

10.5 Check Your Progress: Model Answers

Overview

In this unit you will discover the concept of classroom communication and its channels like verbal and non-verbal communication. Also, you find out more about the role of these types of communications in the classroom. Earlier in your studies and in your professional life, you were using words like teaching and learning, but now these two words will be replaced by a single word: communication. It covers teaching, learning and feedback.

This feedback is important to know the effectiveness of teaching-learning process. In fact, the effectiveness of teaching depends upon the learning by the students and the learning effectiveness depends upon the teaching. Both can be assessed through feedback from each other.

Communication is a personal process that involves the transfer of information and also involves some behavioural input.

10.0 Objectives

Upon completion of this unit you will be able to:

- Analyse and describe the importance of verbal and non-verbal communication in classroom.
- Explain the role of feedback between teacher and learner.
- Take care of verbal and non-verbal communication from students.

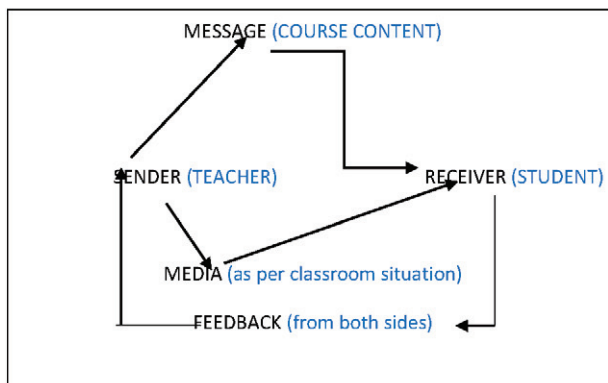
10.1 Introduction

Communication from students to their teachers and vice versa is a continuous process in the classroom. Sometimes a student speaks and asks questions, queries and talks about confusions to the teacher, while, many times s/he does not speak or hesitates to speak, but his/her facial expression indicates feelings and emotions to the teacher. This process also works in the reverse

direction: learners can see the teacher's emotions too, even when the teacher doesn't speak.

Communication using words is known as verbal communication, while communication without words is called as non-verbal communication. As a teacher, you must be competent to understand the meaning of verbal and non-verbal communication. You may then treat, in a proper way, the student's problems and provide an amicable solution.

Galloy (1966, 10) explained the importance of non-verbal communication and its role in classroom learning. Here your student gives you feedback regarding his questions/confusions/queries, while you give feedback in the form of a solution to these questions/confusions/queries. As a teacher, you must know the effect of verbal as well as non-verbal communication for optimum learning by your students. Most common classroom communication models are as shown below.



It can vary from very simple to very complex depending upon the nature of the message to be passed. Teaching aids make it communication simpler. Various modes and media are involved in making classroom communication effective. Selection of modes and media depends upon the nature of the course content to be communicated.

Activity 10.1

You have taken a class for one hour and taught some course content to your students. Please explain various elements based on communication cycle stated above in this book.

10.2 Classroom communication: Its meaning and role

Four types of communications are in practice as shown below.

- 1) **Intra communication** - It takes place within the person. A person raises a question and answers it him- or herself.
- 2) **Inter communication** – This communication is between two persons. One person raises a question and the other answers it and vice versa.

3) **Group communication** – This is communication where everyone has a right to express his/her views in a small group. Classroom communication is an example.

4) **Mass communication** – This is communication at the same time to a very large number of persons living at different places. A broadcast by radio or TV is a good example. Normally this is one-way communication, but it can be made two-way communication by using technology.

Classroom communication normally falls under the third type of communication where you (teacher), as a leader, communicate with students. Your students give their reactions both verbally and non-verbally to you, the teacher. The teacher as a sender has to take stock of the mental levels of all the receivers, being the students. You have to decide why you communicate and also the content you want to communicate. Here the receiver (your students) must be fully attentive to the sender or teacher. They should listen actively to the message being sent and ask for clarification and repetition where necessary. The students or receivers should keep in close contact with the sender, being you, the teacher. In this setup, we observe both verbal and non-verbal communication from both sides to each other. As a good and efficient teacher, you take into account both verbal and non-verbal communication.

10.2.1 Verbal communication and the teacher's role

The sharing of information between individuals using speech is known as verbal communication. It is an exchange of views using words. Here both parties should use a language known to both. If they use different languages, there will be no communication between them. Also, it requires courage to speak. If the parties to the communication hesitate or feel shy, there will be no communication. Individuals working within a business need to effectively use verbal communication that employs readily understood spoken words, as well as ensuring that the enunciation, stress and tone of voice with which the words are expressed are appropriate. Can you think of a situation where communication posed a problem in your classroom? Write short notes on what happened and how you, as the teacher, dealt with the situation. Share this experience with the other participants in this module.

The problem comes when a student from one race goes for higher studies to a country following other race. There pronunciations are different and even a student being alone from his race finds it difficult to communicate with other fellow learners or with his teachers. It takes for him a long time to adjust in a new situation. But, on the other side, this verbal communication is helpful for the whole class. The question raised by one student and its answer by the teacher benefits all students present in the class. Also, it brings a satisfaction with all students because effort by one

student helps all. Thus we see that verbal communication plays a vital role in meeting confusions/queries among students.

10.2.2 Non-verbal communication and the teacher's role

Basically in non-verbal communication the parties involved are sending and receiving messages in a variety of ways without the use of verbal codes (words). It is both intentional and unintentional. Most speakers/listeners are not conscious of this. As a little experiment, sit in a group of people who are communication, do not observe the speakers, but look at the people present that do not speak, look at their facial expressions and analyse these. You may find that the non-verbal communication involves more than facial expressions. What other types of communication have you noticed?

In general, you probably saw that non-verbal communication includes touch, glance, eye contact (gaze), volume, vocal nuance, proximity, gestures, facial expression, pause (silence), intonation, dress, posture, smell, word choice and syntax, and sounds. Note the implications of the proverb: **“Actions speak louder than words.”** In essence, this underscores the importance of non-verbal communication. Non-verbal communication is especially significant in intercultural situations as well as in the classroom (which can also be an intercultural situation) where students hesitate in putting their confusions, difficulties, etc. before you, as their teacher.

Probably non-verbal differences account for typical difficulties in communicating. Non-verbal communication is often used when there are difficulties in communication: when you don't understand what is going on, you may raise your eyebrows, or look around you in a bewildered state. It can also be used to repeat the verbal message (e.g. point in a direction while stating directions). Non-verbal communication is often used to complement the verbal message but also may contradict it. We all use non-verbal communication to regulate interactions (non-verbal cues convey when the other person should speak or not speak). It may substitute for the verbal message (especially if it is blocked by noise, interruption, etc.) for example by using gestures (finger to lips to indicate need for quiet), facial expressions (i.e. a nod instead of a yes).

Your role as a teacher is to understand and draw correct meaning from these gestures. Also, students must correctly translate their reply in the form of non-verbal communication to their teacher. Non-verbal communication may save both parties time and energy.

Activity 10.2

Imagine in your classroom, there are five students who remain inactive and are paying no attention to your words as well as your blackboard writings. Explain the meaning of the Non- verbal communication coming from them.

10.2.3 The Student's role in the classroom

The students are the customers of education and they have every right to get mental satisfaction by asking for clarifications from you, their teacher, in the classroom situation or outside regarding their questions/queries/confusions which might have arisen at the time of learning. They can use both verbal and non-verbal communication for this purpose. Also, while teaching in class you need to be sure that students understand the course content and satisfied with your efforts to make your teaching effective.

Both you and your learners are eager to see that effective teaching takes place in the classroom. You and your students must be aware of the meaning of verbal and non-verbal communication and respond accordingly to these forms of communication. Normally, as stated above, non-verbal communications include touch, glance, eye contact (gaze), proximity, gestures, facial expression , pause (silence), dress, posture, smell and sounds.

Check Your Progress 1

Explain the main differences between verbal and non-verbal communication as used in the classroom.

Notes

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

10.3 Making classroom communication effective

The purpose of a classroom activity is to transfer information successfully, to teach new skills and instil positive attitudes. Effectiveness of teaching and learning depends upon feedback coming from you, the teacher, and your learners in the form of verbal and non-verbal communication.

Remember, you must be capable of decoding the meaning of verbal and non-verbal communication and accordingly decide your strategy to share the course content in a cordial atmosphere. The purpose is not to make the learner memorise the information, but is to make the learner learn. This is somehow like a hungry person taking a meal. The learner must feel the urgency and need to grasp the information shared by the teacher. If this need is really strong, the learner will be active to learn in the classroom. For this purpose, it is better if every learner learns the lesson under

reference one day in advance at his residence and then comes next day in classroom with his queries/ confusions/ questions.

When the learners put their questions and concerns before you, the teacher, who will reply one after the other, this effort will benefit the whole class. Some students will get some courage to put their questions before you after seeing their colleagues comment or ask questions in the same class on different occasions. Thus, fear among students will disappear and a good rapport between teacher and students will be formed for the future. Also, verbal and non-verbal communication among students must be strengthened so that all continue to communicate even after the class. You know that, because of time limitations, you may not be able to cover all the questions raised by different students. In this situation, a learner-learner interaction in the absence of the teacher may benefit the whole class.

In short, learners play a vital role in learning by using verbal and non-verbal communication with you, their teacher, as well as among themselves.

Activity 10.3

Effective learning is based on an effective communication in classroom. Please mention your views either in favour or against this statement.

Check Your Progress 2

Explain the role of learners for an effective communication in classroom.

Notes

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

10.4 Let Us Sum Up

Summary

In this unit you learned about the classroom environment has to see an easy flow of information from teacher to learner and from learner to teacher or among learners. Both parties must know the role of verbal and non-verbal communication in the classroom. It may be pre-fixed or ex tempore (immediately without proper information) as the case may be.

For verbal communication to exist both parties must have a common language because they will use words to communicate with each other. This will benefit the whole class as every student will listen to the conversation and draw meaning from that. Non-verbal signals are actions which speak louder than words. Basically both teacher and students are sending and receiving messages in a variety of ways without the use of verbal codes (words). It is both intentional and unintentional. Sometimes the stakeholders are not conscious of this. It includes touch, glance, eye contact (gaze), proximity, gestures, facial expression, pause (silence), dress, posture, smell, and sounds.

10.5 Check Your Progress: Model Answers

Answers

A) Verbal communication relates to expression through words. When a person speaks, s/he transmits his/her message to someone else in a common language. It benefits all students in the same classroom because they listen to this conversation. On the other hand, non-verbal communication is an expression of body gestures. These may be touch, glance, eye contact (gaze), proximity, gestures, facial expression, pause (silence), dress, posture, smell, and sounds. Sometimes this non-verbal communication is more effective than verbal communication. The purpose of both is to help the learner learn.

B) Learners should not be passive listeners only. They are supposed to be active and creative in class. This is possible when they study the lesson in advance and bring their questions/queries/confusions to the teacher. The reply by the teacher and learner-learner interaction can solve their problems and the learners will learn smoothly to their optimum level of learning.

Unit 11

Role of Audio/ Video aids in teaching-learning process

Contents

11.0 Objectives

11.1 Introduction

11.2 Audio/Video aids – Advantages in the classroom

11.2.1 Principles in the use of teaching aids.

11.2.2 Electronic aids and their classroom application.

11.2.3 Non-electronic aids and their classroom application.

11.3 Problems in the use of Audio/Video aids

11.4 Let Us Sum Up

11.5 Check Your Progress: Model Answers

Overview

In this unit you will deepen your knowledge of the concept of teaching aids in education. These aids sometimes play a complementary and sometimes a supplementary role to your task as a teacher.

In the first unit of this module you read about learning by listening, learning by viewing and learning by doing which are the three learning stages in our body. The evolutions in the fields of educational psychology, information and communication technology, and the science of management have necessitated the use of teaching aids for making classroom communication effective.

Audio-visual aids, audio-visual material, 'audio-visual media'/communication technology', 'educational or instructional media' and 'learning resources' - all these terms, broadly speaking, mean the same thing. Earlier the term used was audio-visual aids in education. With the advancement in the means of communication and that of technology, educators coined new terms.

11.0 Objectives

Upon completion of this unit you will be able to:

- Describe different Audio/Video aids and decide which ones are to be used in your classroom.
- Analyse and discuss problems in the use of Audio/Video aids.
- Experience and list the benefits from using Audio/Video aids.

11.1 Introduction

The teaching process must be directed to the learner's natural curiosity. Instruction is a process based on sense perception. It requires pictures and other play materials/objects.

We may experience four revolutions in education:

- i) Education from home to school,
- ii) Written words as tool of education,
- iii) Invention of printing and use of books, and lastly
- iv) Electronic media i.e. radio, television, tape recorder and computer in education.

Audio-visual aids or devices and technological media or learning devices are added devices that help you as the teacher clarify, establish, co-relate and co-ordinate accurate concepts, interpretations and appreciations. These devices also enable you to make learning more concrete, effective, interesting, inspirational, meaningful and vivid. They help in completing the triangular process of learning viz. motivation-clarification-stimulation. The aim of teaching with technological media is 'clearing the channel between the learner and the things that are worth learning'. The basic assumption underlying audio-visual aids is that they make learning clearer and stimulate our psychological instincts/feelings.

Popular sayings on audio-visual aids are – I hear, I forget; I see, I remember; I do, I understand. Good teaching aids should be

meaningful and purposeful, accurate in every respect, simple, cheap and large enough to be properly seen by the students for whom they are meant. These aids should be up to date, easily portable, suitable to the mental level of the students, and they should motivate the learners.

11.2 Audio/Video Aids: Advantages in the classroom

These aids help to reduce use of words and provide clear concepts and thus help to bring accuracy in learning. They motivate students to work with more interest and zeal and become more attentive. Clear images are formed when we see, hear, touch, taste and smell as our experiences are direct, concrete and more or less permanent. These aids provide different tools in the hands of a teacher. They give students the freedom to talk, laugh and comment. These aids help in retaining the information. The teaching aids help the teacher in providing a proper environment for capturing as well as sustaining the attention and interest of the students in the classroom. It saves time in the classroom. It develops a real image and detailed knowledge of the concept and reduces learning time.

You know well that there are wide individual differences among learners. Some are ear-oriented; some can be helped through visual demonstrations, while others learn better by doing. The use of a variety of audio-visual aids helps in meeting the needs of different types of students.

Encouragement to healthy classroom interaction and teaching to big groups is possible by using A/V aids. Students cultivate a scientific attitude since the aids increase the learners' imagination, thinking processes and reasoning power. These aids make a positive transfer of learning and create a positive environment for a creative discipline. It is possible because learning by listening and learning by doing are possible.

Activity 11.1

You have to teach Sunrise and Sunset to class five (5) students. They have no experience of witnessing the same. Select any non- electronic teaching aid and explain how it will help you in teaching the same concept.

11.2.1 Principles in the use of teaching aids

The teaching aids can be used at random. Below you'll find some principles that guide the use of teaching aids in the classroom. Read them carefully, then decide which one(s) you feel are most useful.

1. **Principle of selection.** Teaching aids prove effective only when they suit the teaching objectives and unique characteristics of a special group of learners. They should suit the age-level, grade-level and other learner characteristics and should have specific educational value besides being interesting and motivating as well

as true representatives of the real things. They should help in the realization of desired learning objectives.

2. **Principle of preparation.** This principle states that, as far as possible, locally available material should be used in the preparation of an aid. Teachers should be trained in the preparation of aids, and they should prepare some of the aids. Students may be associated in the preparation of aids.

3. **Preparation of physical control.** This principle relates to the arrangement of keeping aids safely and also to facilitate their lending to other teachers for use.

Activity: which audio-visual aids do you use? How do you keep them safe? Do you share them with your colleagues? Why? Why not? Discuss this in a teachers' group and think of solutions to the lack of audio-visual aids you might experience in your school.

Now that you have thought about this, continue with some other principles.

4. **Principle of proper presentation.** Teachers should carefully visualise the use of teaching aids before their actual presentation. As a teacher, you should fully acquaint yourself with the use and manipulation of the aids to be shown in the classroom. Adequate care should be taken to handle an aid in such a way as no damage is done to it. The aid should be displayed properly so that all the students are able to see it, observe it and derive maximum benefit

out of it. Distraction of all kinds should be eliminated so that full attention may be paid to the aid.

5. **Principle of response.** This principle demands that teachers should guide the students to respond actively to the stimulus of the audio-visual aid so that they derive the maximum benefit in learning.

6. **Principle of evaluation.** This principle stipulates that there should be continuous evaluation of both the audio-visual material and accompanying techniques in the light of the realisation of the desired objectives.

11.2.2 Electronic aids and their classroom application

Electronic Science has produced a series of electronic instruments and these are evolving very fast. These instruments can be used for classroom communication as they facilitate the flow of information from teacher to learner or supplement the other teaching aids, such as learner books for example. Distance education depends totally upon these instruments. Some of these are given below:

1) Overhead Projector (OHP). It is a device that can project a chart, a diagram, a map, a table or for that matter, anything written on transparent plates, upon a screen or the white wall before students in a class. This makes teaching illuminative, illustrative and impressive.

2) Slide Projector – With a slide projector, photographic slides can be projected on the screen or the wall before the class. Photographs of relevant matter meant for teaching in the class can be developed on celluloid slides and displayed with the help of such a projector.

3) Tape Recorder – The tape-recorder has proved to be a boon in teaching foreign languages like English. Pre-recorded tapes on English lessons can be played in the classroom to teach not only the contents of the lesson but also proper accent, pronunciation and intonation which an average English teacher very much lacks. We can use DVD's, CDs and other recent electronic aids like smart boards, tablets etc.

4) Video tapes played through TV - Pre-recorded video tapes can be played on TV in the classroom. Video films on educational topics shown through TV in the classroom have the same effect on the students as the ordinary cinematic educational films do. Video films have the added advantage over ordinary films in that the arrangement is compact and requires little space and time for manipulation. It is the most convenient of all audio-visual teaching-learning materials as it helps for learning by doing through copying from films.

11.2.3 Non-electronic aids and their classroom application

Teachers have been using these aids since long when there weren't any electronic aids yet. Nobody can deny the importance of these aids even today for effective communication.

1) Blackboard & Chalk – The blackboard and a piece of chalk prove very helpful in illustrating concepts and ideas to the students. These can be used for drawing diagrams and sketches, etc. The blackboard is a simple and unique device which, in spite of new devices and techniques in teaching, is irreplaceable as well as indispensable. It is the oldest and best friend of a teacher.

2) Charts – A chart is a combination of pictorial, graphic, numerical or vertical material which presents a clear visual summary. Ready-made charts are available for use in teaching in almost all areas in all subjects. But charts prepared by a teacher him- or herself incorporating his/her own ideas and lines of approach of the specific topic are more useful.

3) Diagrams – These are very helpful in supplementing vertical illustrations in teaching. Difficult operations may be explained with the help of diagrams. A teacher is expected to possess the skill of drawing diagrams easily, neatly, rapidly and readily on the blackboard.

4) Maps – In several subjects, especially social studies, the learning of many geographical, historical and economic concepts remains unreal, inadequate and incomplete without a map. Geographical details like location of mountains, rivers, altitude of a place, contours of the earth surface and important locations can also be represented accurately with reference to a convenient scale with suitable colour scheme.

5) Models – Models are substitutes for real things. A model is a three-dimensional representation of a real thing. Models are concrete objects to explain clearly the structure or functions of real things. A model is a replica of the original. Models enable students to have a correct concept of the object. Model can be prepared with several kinds of material like cardboard, plastic, plaster of Paris, wood, clay, Thermo Cole, etc.

6) Pictures – Pictures are very much liked by children especially of lower classes because pictures provide an environment of 'reality'. A history lesson can be made interesting and stimulating by showing the pictures of kings and queens, costumes and dresses, forts and weapons, monuments and tombs, etc.

Activity 11.2

Most of the primary schools in Swaziland lack electricity and teaching instruments both Electronic and non- electronic. Make a plan to use Blackboard for teaching science to class four students in your school?

Check Your Progress 1

Explain the utility of blackboard & chalk in your classroom.

Notes

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

11.3 Problems in the use of Audio/ Video aids

While all these aids are becoming more and more popular day by day, there are still some problems to be faced and solved. These are:

1. Apathy of the teachers. Teachers in general are yet to be convinced that teaching with words alone is tedious, wasteful and ineffective.
2. Indifference of students. The judicious use of aids arouses interest but when used without a definite purpose they lose their significance and importance.
3. Ineffectiveness of the aids. Due to the absence of proper planning and the lethargy of the teacher, and without proper preparation, correct presentation, appropriate application and discussion, and the essential follow-up work, the aids do not prove their full usefulness.
4. Financial hurdles. The government expresses many times a lack of finances for the procurement of teaching aids.

5. Absence of electricity. Most of the Projectors, Radio and TV cannot work without the electric current which may not be available in a large number of schools.
6. Lack of facilities for training. Training colleges or specialised agencies should make special provision to train teachers in the use of these aids.
7. Language difficulty. Most educational films are in English. We should have these in siSwati when possible.
8. Not catering to local needs. Little attention is paid to the production of audio-visual aids focussing on the local sociological, psychological and pedagogical factors.
9. Improper selection of teaching aids. Many times these aids are purchased in bulk by the Government without taking into consideration the specific classroom needs.

Activity 11.3

You have to explain Pythagoras Theorem to class Seven (7) students in your school. Select any teaching aid and explain how you can use to teach this theorem.

Check Your Progress 2

Explain the future of using audio-visual aids in the classroom.

Notes

a) Write your answer in the space given below.

b) Compare your answer with the one given at the end of this unit.

11.4 Let Us Sum Up

Summary

In this unit you learned that Audio-visual aids play a complementary role to the teacher in the classroom. The teacher may use teaching aids like the blackboard, actual objects, charts, diagrams, models, film strips, graphs, globes, maps, etc. S/he may take the students to a museum. There are pictures which are liked by children, especially of lower classes. These pictures provide an environment of reality. Overhead projectors (OHP), slide projectors, puppets, tape recorders, videotapes, video cassettes, etc. may be successfully used by you as the teacher in the classroom. You may have noticed that there can be problems with the use of teaching aids. These may be – apathy of the teachers, indifference of the students, ineffectiveness of the aids, financial hurdles, absence of electricity, lack of facilities for training to teachers for

using these aids, language difficulties among students in understanding the content of teaching aid. The purchased aids may not cater to the local needs of students. Also, the improper selection of a teaching aid may hamper its very purpose. It is advisable that, as far as possible, the teaching aid is developed by the teacher him- or herself as it will suit the local needs of the students and it will be fit and proper to the content taught in class by the teacher.

11.5 Check Your Progress: Model Answers

Answers

A) The teacher can illustrate the main points of the lesson on the blackboard. A summary containing the salient features can be given at the last stage of the lesson. Questions and problems can be listed on the blackboard. Pupils' interest in classwork can be stimulated by blackboard writings and drawings. A teacher can use the blackboard for graphs, graphics, sketches, maps and statistics, etc. A blackboard provides a lot of scope for creative and decorative work. The teacher can erase writings and drawings and start afresh. It helps the teacher to focus the attention of his students on the lesson. It gives a chance to students of varying capacities and rates of grasping due to individual differences among them. A teacher can review the whole lesson for the benefit of the class with the help of the blackboard.

B) The place of audio-visual aids in classroom has been recognised long ago. These are like weapons with a soldier in the battle field. A soldier without weapons can do nothing and may lose his life. Like that, a teacher in the classroom without teaching aids may not bring clarity of content among his students. The problem, now, is that of extending the benefits of these aids to all teachers and all children. The future can be bright if there is proper planning on the part of the Government and co-ordination between producers, teachers and students. Useful and effective aids can be produced after getting the reaction of the audience and doing research in the field. A great deal is being done already but a lot more still remains to be done.

Unit 12

Roles of computers in Teaching- Learning Process

Contents

12.0 Objectives

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12.2.2 Integrating Computers into the School

12.2.3 The Computer in the Classroom

12.3 Computer as Multimedia

12.4 Let Us Sum Up

12.5 Check Your Progress: Model Answers

Overview

In this unit you will get some basic knowledge and skills on computers. Computers were first introduced to us about 25 years ago; they were Disc Operating System (DOS) based and quite difficult to work on. A revolution came in 1995 when it became Windows-based and the first version of the Software was called

Windows 95. Later on, there were many improvements and now we witness Windows 2010 in use. This software version is more user-friendly and with very little skills a person can develop a competency to use a computer that runs on Windows 2010.

Computers have also come to the field of education and are now present in the classroom with a variety of uses. Education has therefore made a jump from traditional teaching- reliance on books – to learning through computers. Computers and the programmes installed on them give a rapid response to a learner’s action and thus provide quick reinforcement of good ideas which the learner has and misconceptions may be corrected immediately.

12.0 Objectives

Upon completion of this unit you will be able to:

- Know various applications of a computer in the classroom.
- Use computers playing a role complementary to the teacher.
- Understand and describe various uses of a computer in education.

12.1 Introduction

Many motor skills can be learnt only by direct use of the equipment concerned. Computers serve a dual purpose. They

expose students to modern technology while inculcating in them a new and scientific approach to learning. Computers may aid the learning process in many ways like by providing information and instruction, by asking questions, by being not tireless and repetitive, by stimulating processes, by selecting the right speed for providing information to individual learners, by providing opportunities to try different things, by doing difficult calculations, by checking up how well a learner understands a topic through questions.

Computers help in preparing question papers for various examinations. As teachers, we can develop question banks. Software is developed and used to print the question paper. We can print parallel question papers for same course at the same time.

There are some micro level influences on the use of computers in Education. The characteristics of a teacher and students in a situation where computers are used include background experiences, attitudes and capabilities. In general, there is agreement that the meaningful implementation of computers in educational settings is a complex, difficult and time-consuming process requiring much insight and support, in which you, as the teacher, play a critical and central role.

As a school teacher you may use it for Computer Assisted Learning and for sending emails to your students in the form of answers to their queries. It can help students as well as teachers to search definitions, explanations and even very detailed information

about various concepts with which they are confronted from time to time. Computers connected to the Internet may be as good as a teacher because this gives students access to various websites. Thus computers are wonderful machines which work as multimedia for presenting information in a wide variety of ways.

12.2 Computers and Learning

One approach to categorising computers educational functions is to identify the type of use in terms of the software used. The following description of learner-oriented and teacher-oriented uses is not exhaustive, and some types of use can be classified in more than one way. Learner-oriented uses include structured, pre-determined learning tasks such as:

- Drill and practice and testing;
- Tutorials,
- Educational games;
- Simulations;
- "Problem-solving" software (some varieties); and
- Learning about the computer and its functions as goals in themselves.

Despite the widespread and varied use of computers in society and the growing number of personal or home computers,

many people still view computers with a great deal of suspicion. For teachers this suspicion may be magnified by some of the ways in which a computer conflicts with classroom culture. For example, unlike most classroom problem-solving situations, computer-based problem-solving often involves no right or wrong answer, but instead a choice of the most appropriate or elegant or efficient solution. As a teacher you may not be comfortable with such a view of problem-solving, since you are generally used to problems with single answers: answers, moreover, that you know.

Activity 12.1

**Suppose you are given a Computer with internet facility.
In what way will you use the same for teaching your students?**

12.2.1 Introducing Computers into the School

Teachers across Swaziland, including both those who have been computer users for some time and relatively new computer users, are reporting that the introduction of computers into schools is happening relatively smoothly. Some of you are now using computers in your classrooms, and many more of you are likely to become interested in learning about computers in the near future. Some teachers are going to great personal lengths to get information and training about computers in education.

It is clear, from the Swaziland schools scenario, that most pre-adolescent learners can be easily taught about computers and how to use them. Schools are reporting strong student interest. For both students and teachers, the major element to successful computer use seems to be time. The Windows-based software has made it simple usable use computers just by drill and practice. Now, the fear that "One cannot read about it and learn it" has almost gone and a majority of the teachers are in favour of using it. At present Windows 2010 software is in use and it is user-friendly as well as very easy to operate. Now is the time when all teachers in Swaziland must take a pledge to get mastery in using computers in their day-to-day activities.

You can do so: I, ..., pledge to make an additional effort to use computers when preparing my lessons, when teaching, when interacting with my learners, etc.

12.2.2 Integrating Computers into the School

The usefulness and continued existence of computers in a school require that there be a set of reasonable rules and guidelines for fair and appropriate use. These guidelines should address such issues as

- Length of time allowed for one person to sit at a station when there is a demand from others

- Priority of usage such as administrative programs versus instructional programmes, time-consuming programmes like word-processing versus time-efficient drill-and-practice programmes, and classroom assignments versus games as entertainment.
- Number of students per station, as it affects the noise level and general atmosphere of the room, maintenance of order in the computer room.

The length of time appropriate for one sitting is task-dependent. One problem encountered by teachers who are developing a computer-related curriculum is determining what reasonable is an assignment for a traditional-length class period. There never seems to be enough hands-on time. One way to cut down on student time at the computer facility is to forbid game-playing. Noise level is often a difficult issue in a central computer room, or even in a classroom with one terminal, because the atmosphere of working together, asking for help, and sharing ideas is so important in computer projects. How else can contagious excitement be created?

However, limits are always needed. A number of high schools are coping with this problem by having their computer users' society determine and enforce all rules relating to the computer and computer room.

12.2.3 The Computer in the Classroom

Broadly speaking computers in education are used for some important purposes like:

- Instructional/learning,
- Curriculum development,
- Educational administration and management,
- Educational documentation,
- Educational planning,
- Educational test construction,
- Scoring and processing of examination results,
- Educational research,
- Educational surveys.

Commonly used terms for the use of computers in education are:

- Computer Assisted Instruction (CAI),
- Computer Assisted Learning (CAL),
- Computer Assisted Training (CAT),
- Computer Based Training (CBT),
- Computer Managed Instruction (CMI),
- Computer Managed Learning (CML).

By and large all the above mentioned terms connote the same meaning. Computer assisted instruction implies the systematic control of instruction by computer. It is characterised by testing, diagnosing, learning, prescription and record-keeping. It can help learners learn and get immediate feedback. After study, students are expected to do some exercises. A successful attempt directs them to proceed further, while an unsuccessful performance guides them to correct their mistakes. Thus, immediate feedback makes them sure about success or failure in their efforts.

The machine can help students even in the absence of their teacher and the students can solve similar problems alone. It will develop a confidence among the students through drill and practice. Computer Managed Instruction is a wonderful way of solving those problems which cannot be solved manually. For example, the square root of $1/7$ or the cubic root of $1/7$. Such problems can be dealt very quickly and correctly with the help of computers. If proper programming is loaded, computers can solve similar problems within no time.

Activity 12.2

Your students have asked you about an interrelationship between Hardware and Software in a computer. Please explain the same.

Check Your Progress 1

Express the scope of computer use in your school.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

12.3 Computers as Multimedia

Computer programmes can fulfil a variety of functions in teaching-learning processes, such as:

- (a) drill and practice,
- (b) tutorials,
- (c) instructional computer games,
- (d) simulations,
- (e) spread sheet,
- (f) word-processing,

(g) database management, and

(h) computer programming.

The first four types involve the computer as a tutor; in types (e) to (g) the computer is used as a tool, while in type (h) the computer is considered as a tutor. These different computer uses can be ranked in a hierarchical order from low to high, according to several dimensions:

1. the level of cognitive/mental thinking evoked,
2. the degree of learner-computer interaction, and
3. the amount of learner initiative allowed.

Computers have arrived in primary schools. That is an incontestable fact. Whether they should be there is still a matter of opinion. Various reasons have been put forward for having computers in primary schools. You might like to consider the following, some of which have a grain of truth, but none of which are sufficient in itself. Primary and high schools in Swaziland must have computers

- to train learners to be skilled computer operatives,
- to introduce children to an important facet of the world outside school,
- to motivate children by giving them tasks they enjoy, and
- to prepare children for the next stage in education.

Which of these reasons do you feel are valid reasons for having computers in primary, secondary and high schools?

These reasons are mainly to do with learning about computers. Perhaps the real justification for having computers in primary and high schools is that they can be used as one resource, among many, to support and extend what already goes on in the classroom and provide new opportunities for young children to learn through activity. Appropriate software at the primary stage of education may be:

- Programmes that support specific teaching points through drill and practice, games of skill and strategy, problem solving;
- Programmes that can stimulate activities across the curriculum over a period of time;
- Content-free programmes that provide a flexible tool for teaching and learning through graphics,
- Information retrieval, and
- Word-processing.

Activity 12.3

A student has asked you about role of Computers for Multimedia functions. How will you explain him about the same?

Check Your Progress 2

How can you justify use of computers in your classroom?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.-

12.4 Let Us Sum Up

Summary

In this unit you learned that a computer is a multimedia machine which receives information, stores and reproduces in different forms. It can generate the information in language form, graphic presentation, pictures and charts, etc. It provides help in solving those problems which manually cannot be solved easily or comfortably. Also, it has a potential of solving very tedious problems which cannot be done manually.

All these operations are possible with the help of suitable software. Earlier computers were Disc Operating System (DOS) based and it was tedious to operate them. But, now since 1995 it has become Windows-based and is user-friendly. Computer

programmes can fulfil a variety of functions in teaching-learning processes, such as: (a) drill and practice, (b) tutorials, (c) instructional computer games, (d) simulations, (e) spread sheet, (f) word processing, (g) database management, and (h) computer programming. A school teacher may use it for Computer Assisted Learning and for sending emails to his students being answers to the queries raised by the students through email. It can help students as well as teachers to search definitions, explanations and even very detailed information about various concepts with which they are confronted from time to time. Computers connected to the Internet may be as good as a teacher because they give students access to various websites. Thus this is a wonderful machine which works as multimedia for presenting information in a wide variety of ways.

12.5 Check your progress: Model Answers

Answers

A) There are several possible ways of using a computer in the classroom.

Whole class use of one computer: The computer may be used as a visual aid; as an aid to skill-and-drill, e.g. to generate questions at random; to run a simulation in which the whole class can be involved; or to act as a database.

Whole class use of several computers: This may involve small groups of pupils, or even individuals, working on a programme at the same time. They may be working on the same programme.

B) Computers play a complementary role to the teacher. It can provide a chance for drill and practice, remedial measures, communicating with students after class hours, solving problems being difficult to solve manually, storing necessary information for future use and recording students' opinion on some issues.

Unit 13

E-Learning - Its Mechanism and Classroom Applications

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13.5 Let Us Sum Up

13.6 Check Your Progress: Model Answers

Overview

In this unit we are going to look at e-learning and how it has made it possible for teaching and learning to be enhanced. Since e-learning depends on the use of some technology, you will be exposed to technologies related to e-learning and how some of these can be used in the school or in the classroom.

13.0 Objectives

Upon completion of this unit you will be able to:

- State and explain the various connotations or meanings ascribed to e-learning
- Demonstrate how the Internet has impacted the teaching and learning process through e-learning and mobile learning.
- Describe systems requirements for managing e-learning;
- Discuss the benefits of e-learning to school teachers and to pupils;
- Describe different tools and technologies used in e-learning.
- Delineate the scope of e-learning in Swaziland;
- Assess the hurdles in implementation of e-learning to enhance teaching and learning in Swaziland.
- Propose interventions towards how to utilise e-learning in your school and/or classroom.

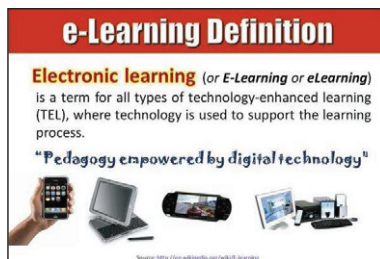
13.1 Introduction

There are many examples of e-learning practices in schools. In some schools, e-learning is part of everyday learning across the curriculum in every classroom. This unit exposes you to e-learning as a way of planning and delivering instruction to your pupils. In this unit, we will explore various terms and ways of thinking about what e-learning is all about. The unit will also serve as a means of helping you to develop your knowledge, skills and attitudes on the scope and prospect of Internet in education as well as on the potential benefits of e-learning towards enhancement of teaching and learning. You will then be exposed to a wide array of tools and technologies that you can choose from as you decide to implement e-learning. After that, you will explore enablers and constraints in the wider national and local environments. To benefit from a study of this chapter, we have provided interactive activities such as a case study and visuals.

13.1.2 The e-learning concept

When one thinks of the term e-learning, many thoughts, ideas, images or characterizations come to mind. There is no singular thought or idea that can fully describe, capture, or give a complete picture of what e-learning is. Therefore, coming up with a clear definition that encompasses all that is involved in or associated with e-learning would be a mammoth if not an elusive task.

The letter “e” in e-learning stands for the word “electronic”, e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or stand-alone computers and other electronic devices. In its broadest sense, e-learning entails learning using Information and Communication Technology (ICTs) to mediate teaching and learning. E-learning is also commonly referred to as the intentional use of networked information and communication technology in teaching and learning. The graphic below shows how e-learning is linked to/or accomplished via other technologies.



You may be aware of the fact that much of e-learning is about the dissemination of educational knowledge over the Internet. This makes e-learning a subset of technology-based learning. It also incorporates a number of learning activities some of which are conducted on the Internet, of which mobile learning is one part.

13.2 E-learning System Requirements

The successful deployment of e-learning requires careful and

persistent work or effort in its planning, management and implementation that is necessary in setting up any other educational system. In fact, e-learning has added elements such as the technology infrastructure that requires attention far beyond that which is necessary in conventional educational settings. For e-learning to succeed in any setting, there has to be complete support for the initiative from the highest levels. This is important not only because it will have implications for funding allocation for any such new initiative, but also because of its implications for the mind-set of the rest of the school.

The School Principal, Deputy Principal and you as teachers need to buy into the initiative and be committed to its success. Like any organized educational activity, e-learning needs to be very systemically (i.e. from a systems level) managed. Foremost, this will include attention to the technology and the infrastructure that is necessary to support it. For example, you as a teacher and your students may need to be taught to operate the technology, which means that there should be processes and programmes in place for this training to occur, routinely.

Other key systems requirements are Internet technologies which have begun to be widely used in the management of education due to the reorganization of local computer networks. Such networks have been named Intranet– a private computer network based on the communication standards of the Internet. Intranet is a smaller version of the Internet that only the members

of an organization can see. In recent years Internet technologies have been widely applied in the management practice of educational institutions, including schools. The Internet can be described as a vast collection of computer networks that link millions of computers and tens of millions of people worldwide. Computers on the Internet are linked together by a maze of interconnections that are sort of like a spider's web. This web (www – or World-Wide Web) is composed of many separately administered computer networks with many different computers that are linked together.

The Internet is capable of integrating a number of tasks all at the same time. Through different websites (where information and data are stored), you and your students will be able to access information, participate in collaborative activities (real-time or at different times) as well as communicate and take online courses. The first step is usually the creation of a web page, later a WWW site performing representation, advertising-information functions – informing on the subjects taught, conditions of students' admission and retention, contacts, etc. A website therefore is a collection of web pages that are maintained by an organization, school, university, government agency, company or individual. Each web page has a unique Internet address called a Uniform Resource Locator (URL). A common url is <http://www.google.com>.

Communications have improved whereby other forms of communication (e.g. short messages and social media – Facebook,

Twitter, WhatsApp, etc) have made it easier for people to communicate (chat) in real time. This is made possible by the Internet.

Activity 13.1

Discuss with fellow teachers on how the Internet has made it possible for pupils to learn from anywhere and at any time.

Check your Progress 1

Explain the difference between Internet and Intranet with the help of some example.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

13.3 Benefits of E-learning

Information and communications technologies, afford us a wide range of opportunities to capture, store and distribute

information and resources of all types and formats. Along with text, pictures and illustrations, these include multimedia-based simulations of complex processes from all sorts of domains such as the biological and physical sciences, agriculture and other subjects. For example, e-learning makes it possible to access open educational resources that can be used to enhance teaching and learning in the school.

Let us look at an open textbook initiative from South Africa, which is a new project of the Shuttleworth Foundation to help primary and secondary school teachers to access and share teaching and learning resources. Sample primary school open textbooks from Siyavula, accessible at <http://www.siyavula.com/work-oer.html>

The screenshot shows a web browser window with the URL www.siyavula.com/work-oer.html. The page title is "OPEN CATALOGUE". Below the title, there is a paragraph of text: "Download our textbooks in different formats. The various folders contain the relevant learner book(s) and teacher's guide(s) in English and Afrikaans. Refer to the different Licenses for each download and below for explanations of the Licensing. Find out more [here](#) about the sponsorships and partnerships with others that made the production of each of the open textbooks possible." Below the text are three identical illustrations of a group of diverse children holding up a book titled "With the Smartest Girl". The illustrations have different background colors: green, yellow, and blue. At the bottom of the page, there is a Windows taskbar showing several open applications: "Grade 10 Maths Teach...pdf", "Handbook Educational T...", "D1. ANALYSIS OF INTRO...", "e-learning_guidebook.pdf", and "Work - Google Chrome". The system tray shows the date and time as "1:26 PM Friday".

Activity 13.2 (a)

The following example of a case study is adapted from **Infusing Technology in Teacher Education: How Does Learning Guide Design?** by Cheryl L. Rosaen and Sharon Hobson, of Michigan State University. Below are Miranda's comments about her learning during an integrated language arts and mathematics methods course: 1

I hadn't thought about technology until the first day [of class] when we walked in and you said that we were getting laptops and would be integrating computers into the classroom. I was so excited. The most I thought [is] that the kids play games on computers and learn how to type. So I had no idea to the extent that students could search the Internet for answers and go other places, create electronic portfolios, but what a tool it could be in my own teaching; in both organization of a resource file, my own Web page, to market myself to future employers, as well as a tool to use in my own lessons like PowerPoint presentations for every lesson. It's incredible. I know that there are so many more ways to use it that I want to keep exploring. (Miranda, Interview #1)

1. What new knowledge did Miranda learn from her course?
2. Describe any change in Miranda's skills and attitude as a result of studying the course.

Activity 13.2 (b)

Later on, Miranda found ways to integrate technology into her teaching of social studies and language arts. She explained,

[In language arts] the students wrote an acrostic poem and then we took those poems into the computer lab and they had to use Kids Pix to illustrate the background and then we pasted the poem on top of it. [In social studies] I was teaching about families in France and the culture in France and so we pulled up Internet sites and showed the Eiffel Tower and you could take a walk through the Louvre and see different pictures in the Louvre. (Miranda, Interview #2)

1. How did Miranda integrate technology into the way she taught social studies and language arts?
2. Discuss how you would integrate technology into teaching a topic in your subject.

For you as a teacher, there are several ways of using technologies to learn or to teach a subject to your learners. Through e-learning / online learning you can be able to do the following:

- Teach your own designed subject;
- Have learners do assignments as well as take tests;
- Access learning and/or teaching materials online or offline;

- Teach a course or subject to pupils using different tools and technologies.
- Access free/paid courses from a remote site at any time.

13.3.1 Tools and Technologies that support e-learning

In this section we discuss tools and technologies that support or complement e-learning or make e-learning accessible from anywhere and at any time. These can be easily applied in the classroom. We will also look at their benefits and how they can be utilised by teachers. We will look at mobile learning, social media, Wikis, Blogs, and Skype. All these make e-learning to be accessed easily and with more interactivity between teachers and students.

13.3.2 Mobile Learning

Mobile learning or m-learning is any form of learning that happens when mediated through a mobile device. It could be any learning that happens when the learner is not at a fixed, predetermined location. What this means is that mobile learning decreases limitation of learning location with the mobility of general portable devices.



Examples of Mobile Technologies

Application of M-Learning

1. They can deliver the education or training.
2. They foster communication and/or collaboration between learners and teachers.

With M-Learning, some schools have created Intranet platforms where pupils can access resources, chat and participate in discussion forums. Some schools are also using e-books.

13.3.3 Social Media

Social media is an Internet-based form of communication. Social media focuses on integration, collaboration and interaction. The platforms allow users to have conversations, share information and create web content. Teachers using e-learning platforms utilise social media by linking certain activities on the main platform (e.g. Moodle) to social media activities. Below you are given examples.

Uses of Social Media in the Classroom

You can use social media as stand-alone activities or link them to e-learning activities. For example, you can create a group and post updates, ask questions, play games, and share videos, photos, and links in Facebook. In this case you can have your students access the page directly or put a link on your e-learning page.

Like Facebook, Twitter is a micro-blogging site that allows users to communicate and share links, videos and photos. You can have students join twitter and have them communicate with one another.

Google Docs (docs.google.com)

Google Docs is a Web-based suite of office applications that includes a word processor, a presentation tool, and a spread sheet tool. With this tool, you can create, edit and share documents online. For example, you can post a document on Google docs and then have your students access it and make comments. Because the documents are stored online (See Google Drive above), they are available on any computer or portable device connected to the Internet at any time.

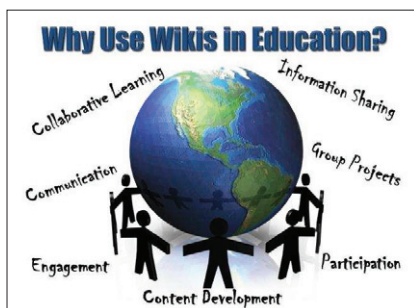
YouTube (www.youtube.com)

YouTube is a video sharing website that enables users to upload video clips to the Web. Videos uploaded to YouTube can be accessed and viewed by a select group of users or open for anyone

to view. You can create a link on the course page (e.g. in Moodle) or on a wiki page or blog and play educational videos which are freely available.

13.3.4 Wikis, Blogs and Skype

A wiki is a free online writing space that allows users to add, modify and update its pages. With wiki, you can edit, or easily add your thoughts or make changes. It is a fully editable website which you and your pupils can use in the classroom.



Different ways of using Wikis in the Classroom

You can post subject information or notes/handouts; also have pupils participate in adding or modifying the wiki pages. You can post PowerPoint slides, or audio and video files. You can also create a discussion environment for a particular topic.

Another term related to wiki is Wikispaces. These are wikis or wiki pages under the umbrella of Wikispaces which host a

number of wiki projects in different areas. Through Wikispaces, you can create your own Wiki website and use it with your pupils. Other free websites for creating Wikis exist but in this handbook we present Wikispaces as an example.

Getting Started with Wikis

Signing Up

Go to www.wikispaces.com

We now look at a Blog which is also used extensively as an e-learning tool.

A Blog

A Blog is a website on which an individual or group of users record opinions, information, etc. on a regular basis.

Definition of Blog 

Blog (short of Weblog):

- Is a Web site, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video.
- Entries are commonly displayed in reverse-chronological order.
- "Blog" can also be used as a verb, meaning to maintain or add content to a blog.

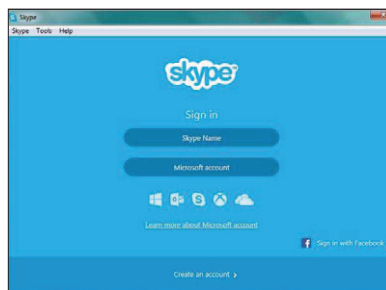
Source: <http://en.wikipedia.org/wiki/Blog>

For example, you can create a blog for your class and have the pupils access it (reading and posting information/materials).

For you to create your own blog, go to <http://www.blogger.com> which is a free site. You will see instructions on how to create your Blog. One main requirement with this site is that you need to have a Gmail account created. E.g. safari123@gmail.com To create your account, go to Google.com and search for Gmail.

Let us now take a look at Skype which is a powerful tool you can use personally as well as with your students.

Skype



Skype is a video and voice application. Skype allows users to make free telephone calls over the Internet (Skype to Skype).

Using Skype in education is popular as you can connect to classrooms worldwide. Below are other features of Skype.

1. Video Conferencing - Skype users can talk to each other using a web camera.

2. Audio Conferencing - Participants can conduct an audio conference call.
3. Skype In - Skype users can receive phone calls on their computer from a regular landline phone.
4. Skype-Out - Skype users can call any landline or mobile phone for a small fee.
5. Chat - Skype contacts can use the chat feature to communicate with each other.
6. SMS - Skype user can send an SMS text message to a cell phone number.

Ways of using Skype in the Classroom

1. Virtual field trips: trips that are not possible due to financial reasons or distance can still be taken using Skype to transport learners to another country or area.
2. Interviewing: connecting with and speaking to an author or celebrity can bring classroom theory alive and make it real for learners.
3. Homework help or extra lessons: teachers can offer help with homework, long-term projects or give extra lessons to learners who are lagging behind through Skype.
4. Guest appearances: guest teachers or experts on a subject can teach learners through Skype or give an explanation directly from their work environment.

Skype Requirements

For Skype to work, the software must be installed in your computer, laptop, notebook, tablet or mobile phone. The person you want to communicate with must also have Skype installed in their gadgets. To download Skype go to www.skype.com

Check your Progress : 2

Please explain use of social media in the classroom.

Notes-

- a) Write your answer in the space given below.**
- b) Compare your answer with the one given at the end of this unit.**

13.4 E-learning in Swaziland - Scope and Hurdles

In the National Education Policy, provision is made through the Education Sector Strategic Plan (2010-2022) for the development of an all-embracing education sector ICT policy.

Some of the outlined strategic objectives include using computer in the classroom for self-paced learning, after a few initial lessons on Internet access or the basics of a software programme.

Another objective is that more creative educational ways for the use of computers should be devised. Further, teachers are to integrate the use of computers into their regular teaching. It is for this reason that one of the main targets and indicators is that by 2015, all secondary schools with ICT facilities should have at least a qualified ICT subject teacher.

Further, one of the objectives of ‘Swaziland Education and Training Sector Policy (2011)’ is to periodically review emerging developmental issues that include, but are not limited to ICT, gender and other emergent developmental issues. In the medium term, one of the programme development strategic framework deliverables is to develop and offer ICT as one of the primary and secondary school subjects.

However, since Swaziland is a developing country, certain technological developments are moving at a slow pace. A number of institutions and schools have just begun to introduce e-learning. For example, through an initiative by the network service provider (MTN – Swaziland), e-learning activities have been introduced in some schools. The initiative is to help schools access courses and other materials via technologies. A number of teachers have been introduced to e-learning through this initiative. Other schools have taken the route of doing away with ordinary textbooks and using e-

books. Tablets and e-book readers come to play in this regard. It is therefore a matter of time before many schools have access to e-learning programmes.

13.4.1 Hurdles in implementation of e-learning

The implementation of e-learning has been possible in some of the institutions and schools in rural and urban areas. Some of these schools have good access to Internet services. However, there are hurdles in implementing e-learning initiatives which include:

- There is a limited number of ICT work stations and restricted computer laboratory opening times in most schools;
- Not all schools have access to the internet. Where such access exists, there is restricted Internet connectivity for students
- ICT in schools is not guided by any Ministry of Education and Training (MoET) syllabus. For example, in some schools, students follow an ICT literacy programme that is not validated by the MoET
- There is a lack of good telecommunication infrastructure (more especially in rural areas);
- Cost of internet connectivity services is very high;
- There is a lack of electricity in some areas;
- There is a lack of training in computer usage and use of current technologies for most teachers; most of whom do not keep abreast with new teaching and learning methods.

You may now pause to work on the activity below.

Activity 13.3

Go to the Internet (www.google.com) and conduct research on how e-learning is used in the classroom. Report on at least four ways which are used by teachers.

13.4.2 How to plan for e-learning implementation

Let us look at the following suggestions by Naidu (2006:70) on how to avoid e-learning implementation challenges.

- E-learning is neither a quick fix nor a cheap option for educational problems.
- Effective implementation of e-learning requires planning at the strategic and operational levels consistent with the mission of the educational organization or school.
- A positive disposition in the organization or school towards technology is a must for the successful deployment of e-learning.
- Think about educational function of the technology, before its implementation.
- Putting in place robust, reliable and affordable technology is essential for creating a comfortable teaching and learning environment.

- Consider adoption of team approach in course design and development for e-learning. Subject matter experts need assistance with course design, copyright clearances and host of other issues.

Check your Progress 3

How can hurdles of E-learning implementation be tackled in Swaziland?

Notes-

- a) Write your answer in the space given below.**
- b) Compare your answer with the one given at the end of this unit.**

13.5 Let Us Sum Up

Summary

This unit covered the basics of e-learning and how it is used in the teaching/learning process. We saw that the Internet was a catalyst for most of the technologies which require the use of

communication devices as well as e-learning and social media. E-learning was seen as a way of providing teaching and learning experiences via some technology. We also saw that storage of documents and other materials/resources is possible via the “cloud” technology which allows people to store them on their own devices as well as on remote servers.

The unit also covered mobile devices which enable mobile learning to take place. Mobile learning and other tools were seen to support or complement e-learning. Social media was also presented and its impact in the teaching learning process explained. Finally, we lay more emphasis that for e-learning implementation to be smooth, we need careful planning at the school level.

13.6 Check your progress: Model Answers

Answers

1. Internet is dependent on the World-Wide Web while Intranet is a local network e.g. school Intranet.
2. Uses of social media include providing notes and materials, and participating in forums/discussions/chats.
3. Planning and improvement of infrastructure; training of teachers and putting in place new technologies.

Unit 14

Mastery learning for effective teaching

Contents

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14.3 Programmed Instruction Approach for Mastery Learning

14.4 Let Us Sum Up

14.5 Check Your Progress: Model Answers

Overview

The concept of Mastery Learning and its role in effective teaching is the focus of this unit. In fact, mastery learning is a framework for planning instructional sequences. It provides a compact and interesting way of increasing the likelihood that more students will attain a satisfactory level of performance in school subjects. Recent scholarly work has sharpened the idea of mastery

learning, and contemporary instructional technology has made it even more feasible.

Benjamin Bloom (1971) very rightly stated “If we can allow them (learners) time to learn one thing at a time, and then another, and another, until they can get their feet under them, we can break the cycle of failure”. Thus, we see that mastery learning is an approach suggested by psychologists for learning a concept in parts, one after another, at a slow speed, so that it is well mastered by the student. It is an independent way of learning at the student’s own rate. Emphasis is on mastery and not on speed to cover the content.

14.0 Objectives

Upon completion of this unit you will be able to:

- Evaluate the concept of mastery learning.
- Realise the role of drill and practice in learning.
- Create a scenario in your classroom for mastery learning.

14.1 Introduction

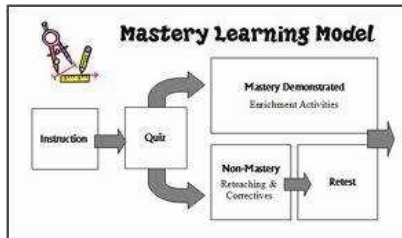
Students with very low aptitude with respect to a particular kind of learning simply take a much longer time to reach mastery than students with a higher aptitude. This view is optimistic in the

sense that it suggests that it is possible for nearly all students to master any given set of objectives, if sufficient time (the opportunity to learn) is provided along with appropriate materials and instruction.

Aptitude becomes primarily a guide of how much time a learner will need. Aptitude also suggests how to instruct, because learners of different aptitudes will learn more efficiently if the style of instruction is suited to their configurations. The degree of learning achieved by any given student will be a function of the time allowed, the perseverance of the student, the quality of instruction, the student's ability to understand instruction, and his or her aptitude.

The problem in managing instruction is deciding how to organise the curriculum and the classroom so that students will have optimal time and benefit from good instruction. Thus, we see that mastery learning is a systematic effort and mastery of any subject is defined in terms of sets of major objectives that represent the purposes of the course or unit. The larger substance is then divided into sets of relatively small learning units, each one accompanied by its own objectives, which are parts of the larger ones or thought essential to their mastery.

Image below shows clearly how mastery learning operates:



Learning materials are then identified and the instructional strategy or model of teaching is selected. Each unit is accompanied by brief diagnostic tests that measure the student's developing progress (the formative evaluation) and identify the particular problems each student is having. Knowledge of progress is feedback to the students to act as reinforcement. The data obtained from administering the tests are used to provide supplementary instruction to the student to help overcome problems.

If instruction is managed in this way, the time to learn can be adjusted to fit the learner's aptitude. Students of lesser aptitude can be given more time and more feedback while everyone's progress is monitored with the assistance of the tests.

Activity 14.1

Prepare a lesson for 'Mastery learning' in any course content of your choice for weak students in your class and explain how will these students use this material in mastering the content?

14.2 Mastery Learning as Individually Prescribed Instruction

The idea of individually prescribed instruction can be implemented by you, as the teacher, through modifying traditional group instructional procedures to ensure that some students have more time and that they receive appropriate individual instruction according to the results of tests taken from time to time.

However, modern instructional technology, especially the development of self-administering multimedia units and the application of programmed learning procedures, has encouraged curriculum developers to invent comprehensive curricular systems and to reorganize schools to provide for a much greater degree of individualized instruction than is generally possible under conventional school organizations.

An early and important example of an application of systems planning to elementary and secondary school instruction is the individually prescribed instructional programme. It is prescribed daily for the next few days to students, depending on their demonstrated level of competence, learning style and particular learning needs.

Can you see this being implemented in the school where you are at present employed? What would be the advantages or disadvantages of such a mastery learning programme?

14.2.1 Steps in the programme

To implement a programme of mastery learning, you, the teacher, and your students have to work in a different way than you do in traditional classroom teaching. At first a modular curriculum is developed by applying systems analysis procedures to curriculum materials development. This system is designed to enable each pupil to work at his or her own rate through the units of study in a learning sequence. It develops in each pupil a demonstrable degree of mastery and self-initiation as well as self-direction of learning. It helps with problem-solving through drill and practice.

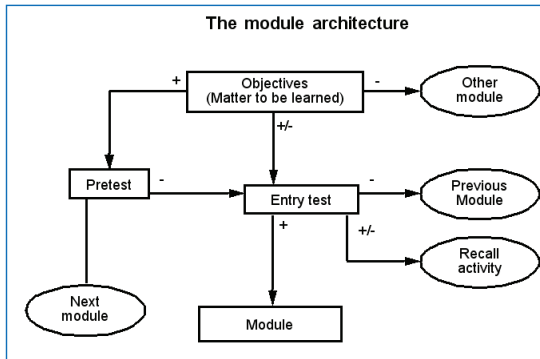
The teacher has to encourage self-evaluation and motivation for learning. It is assumed that pupils differ in the amount of time and practice that it takes them to master given instructional objectives. Due to individual differences, you, the teacher, have to arrange conditions so that each of your students can work through the sequence of instructional units at his or her own pace and with the amount of practice s/he needs.

However, a few key ideas can be found in many designs, e.g.:

- course modularity
- definition of objectives for each module
- entry tests
- individual Learning pace

- feedback after learning task with some remediation
- assessment

The following picture shows a typical design of distance teaching module architecture (minus the assessment component).



14.2.2 Model lesson development

Development of a model lesson is a crucial process. At first the objectives are created. You are capable of doing so, since you have already studied the previous units.

After this, the performance model is analysed into a set of sequentially organised behavioural objectives. Each objective should tell exactly what a pupil should be able to do to exhibit his/her mastery of the given content and skill. This should typically be something the average student can master in such a relatively short period as one class period.

Objectives should involve such action verbs as solve, state, explain, list, describe and so on, rather than general terms such as understand, appreciate, know, and comprehend. These objectives should be grouped in meaningful streams of content. Such grouping helps in the meaningful development of instructional materials and in the diagnosis of pupil achievement. At the same time, this grouping does not preclude the possibility of having objectives that cut across areas. These objectives should, to the extent possible, be sequenced in such an order that each will build on those that precede it and, in turn, be a prerequisite to those that follow. The goal here is to let the objectives constitute a "scale" of abilities. Within the sequence of objectives in each area the objectives should be grouped into meaningful subsequence or units. Such units can be designated as representing different levels in progress and can provide break points so that when a student finishes a unit in that area, he may either go on to next unit in that area or may switch to a unit in another area.

Activity 14.2

Select some course content of your choice and explain various steps about development of a model lesson.

14.2.3 Programme development - A Crucial Approach

Mastery learning programmes require special planning,

materials and procedures. As a teacher you must be prepared to:

- Identify the components of instruction,
- Develop assessment strategies so that individual students are appropriately placed in the instructional continuum, and
- Provide reinforcement and corrective feedback during the process of continuously engaging students in lessons.

Because of its emphasis on outcomes and careful monitoring of progress, mastery learning can save learners' time. It allows more time and remediation for students who need it. It also enables faster learners to skip material they already know. Since mastery learning suits instruction to the needs of each student, it can work better than giving the whole class the same lesson at the same time. Such whole-class teaching may be too hard for some learners and too easy for others. Professionally trained teachers employ themselves most productively when they are performing such tasks as instructing classes, individual pupils or small groups, diagnosing pupil needs, and planning instructional programs rather than carrying out such clerical duties as keeping records, scoring tests and so on. The efficiency and economy of a school programme can be increased by employing clerical help to relieve teachers of many non-teaching duties.

Check Your Progress 1

Explain the characteristics of a mastery learning programme.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

14.3 Programmed Instruction Approach for Mastery Learning

Many mastery learning programmes use programmed instruction being a system for designing self-instructional materials. It provides for highly systematic stimulus control and immediate reinforcement.

Mostly three essential features are found in all such materials. These are:

1. an ordered sequence of items, either questions or statements to which the student is asked to respond;
2. the student's response, which may be in the form of filling in a blank, recalling the answer to a question, selecting from among a series of answers, or solving a problem and,

3. A provision for immediate response confirmation, sometimes within the programme frame itself but usually in a different location.

After much effort, some "branching" programmes were developed. An idea in branching is that slower students, unable to respond correctly to a particular frame or sequence of frames, may need additional information or review of background information. On the other hand, the more advanced students could benefit by additional and more difficult material.

At various points the branching programme directs students to the appropriate material depending on their answer to a particular frame or the number of correct responses within a particular frame sequence. Branching programmes will automatically direct the student to a special section depending on his or her choice. If the student selects any of the wrong responses, the particular mistake in reasoning is pointed out; if s/he chooses the correct response, a more difficult example may appear. Programmed instruction has been successfully employed for a variety of subject matters, including English, maths, statistics, geography and science. It has been used at every school level from preschool through college. Programmed instructional techniques have been applied to a great variety of behaviours like concept formation, rote learning, creativity, and problem-solving.

Does a quick Internet search at this point, find at least two examples of programmed instruction and discuss the benefits with your colleagues.

Activity 14.3

Imagine in your class, there are five (5) students having difficulty in understanding some content. Prepare a Programmed Instructional Material for teaching same course content to these weak students.

Check Your Progress 2

State some important principles behind programmed instruction.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

14.4 Let Us Sum Up

Summary

In this unit you learned that Mastery learning is straightforward, optimistic and clear. To create a mastery learning system takes careful development, but, in a positive social climate, this system directly approaches many of the learning problems that have vexed teacher-driven instruction. It also places the teacher in an encouraging, assisting role that has a positive effect on the self-esteem of the students. A careful sequencing, monitoring and control of the learning process raise the learning rate. Pretesting helps determine what should be studied; this allows you, the teacher, to avoid assigning material that has already been mastered or for which the student does not yet have the prerequisite skills. Ensuring that students achieve mastery of initial steps in the sequence helps ensure that they will make satisfactory progress in subsequent more advanced steps. Frequent assessment of progress informs teachers and students when additional time and corrective remedies are needed. Mastery learning appears to work best when the subject-matter is well organized.

14.5 Check your progress: Model Answers

Answers

A) Mastery learning refers to the idea that teaching should organize learning through ordered steps. In order to move to the next step, students have to master the prerequisite step. Mastery learning

engages the learner in multiple instructional methods, learning levels and multiple cognitive thinking types. To create a mastery learning system takes careful development, but in a positive social climate, this system directly approaches many of the learning problems that have vexed teacher-driven instruction. It also places the teacher in an encouraging, assisting role that has a positive effect on the self-esteem of the students.

B) Some essential features for programmed instruction are

(1) An ordered sequence of items, either questions or statements to which the student is asked to respond;

(2) The student's response, which may be in the form of filling in a blank, recalling the answer to a question, selecting from among a series of answers, or solving a problem; and

(3) Provision for immediate response confirmation, sometimes within the programme frame itself but usually in a different location, as on the next page in a programmed textbook or in a separate window in Computer Assisted Learning (CAL).

Unit 15

Individual differences among learners

Contents

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15.2 Individuality- A law of nature

15.2.1 Physical differences

15.2.2 Intellectual differences

15.2.3 Gender differences

15.3 Educational implications of individual differences

15.4 Let Us Sum Up

15.5 Check Your Progress: Model Answers

Overview

That all people are not the same is not a new concept to you. In the unit, you will get reacquainted with this notion and analyse it from a different point of view. You will learn about individual learning difference and the varied types of differences that exist among learners. Individual differences can be seen as a universal phenomenon. This unit will also discuss role of individual differences in classroom teaching.

As an effective teacher you desire that students develop higher and higher levels of competency in a variety of domains. These domains include intellectual, social, emotional and physical competencies demanded by society and by the community, employer, parent, and the student him- or herself. But, students differ from each other in their abilities. This is a big challenge before every teacher who has to deal with a variety of students with the help of same teaching strategy at the same time. Students differ in their grasping capacity also; some of them understand what you as their teacher have taught in class while others fail to understand it in spite of the many times you were teaching the same topic. As the teacher you have to maintain speed of teaching in order to finish the course content in prescribed time frame. On the other hand you have to take care of accuracy too. To maintain speed and accuracy at the same time is a big challenge for every teacher.

15.0 Objectives

Upon completion of this unit you will be able to:

- Identify various individual differences among your students.
- Follow suitable teaching strategies to face individual differences in class.
- Try to meet individual difficulties faced by your students in the classroom.

15.1 Introduction

It is a universal phenomenon that no two individuals are the same or similar in all aspects. They are different physically, in mental abilities and have gender differences. These differences affect the rate of learning. In fact, the physical characteristics and intelligence of individuals are determined by heredity. However, other human dimensions such as interests, gender differences, academic achievement and personality are the product of heredity and environment both.

Although people may have many things in common, no two people are identical in every respect. In the history of the world there was never anyone like you and, in all the infinity of time to come, there will never be another one.

Pupils, like any other group of people, are likely to differ in a number of ways such as appearance, temperament, anxiety, honesty, intelligence, learning styles, styles of perception, modes of thinking, rate of development, dexterity, co-ordination, conformity, creativity, background, values, motives, interests, and so on. Such differences are likely to have an impact on their attitudes towards themselves and learning, and therefore teachers should make the effort to familiarise themselves with individual differences so that they can be taken into consideration in the preparation and course of instruction.

15.2 Individuality: A law of nature

It is the law of nature that every individual is a unique identity in him/her. S/he is recognised and is differentiated from others because of many differences with others. This fact would be true even if it were possible to control the environment so rigidly that each person in our society would be exposed to an exact duplicate of every minute aspect of the environment experienced by every other member of society. Even with environmental influences controlled in this fashion, heredity alone would account for wide patterns of heterogeneity among people. Therefore, it is impossible to exactly duplicate individuals in any way. It is true that identical twins closely duplicate each other since both organisms are formed by a single egg; however, even in this situation wide variation exists in the individual characteristics of each twin because of different environmental experiences. Each of us differs from every other person according to genetic endowment as well as in terms of our environment. These variations result in different patterns of development among individuals in physical, social, intellectual and personal areas. The interaction of heredity and environment produces a unique organism which behaves in a certain way, and has certain capabilities for learning concepts. The interaction between heredity and environment results in an infinite variety of individuals who, as a group, display wide differences in physique, emotion, social behaviour, and, of course, learning.

15.2.1 Physical Differences

Differences in growth, height, weight and appearance may be due to genetics, environment, or an interaction of the two factors. Variations of this nature are likely to have corresponding social, intellectual and emotional effects. On the basis of physical development, children are admitted into school, and their performance on intelligence tests differs from one age to another. The physical activities children can engage in differ according to their physical development. On the basis of physical development, there is either a decline in intelligence or there is stability or lack of continuity so that without measuring IQ, we have certain expectations for certain age groups. On account of physical development, we are in a position to determine a child's stage of intellectual adjustment and therefore plan our instruction accordingly. Furthermore, the classroom seating plan is drawn up on the basis of physical characteristics: the shorter pupils are seated at the front so that they have an unobstructed view of the teacher and the chalkboard.

15.2.2 Intellectual Differences

Besides physical differences, there are individual differences in intelligence, so that among a group of 11-year-olds, mental ages of 6, 10 and 16 are likely to be found. These differences, just like the physical ones discussed above, may be due to the interaction of heredity and environment. The fact that children are of the same chronological age, or have reached the same level of physical

development does not mean that they have attained the same intellectual level.

As a teacher you should bear this in mind and provide your learners with suitable instruction that is neither below nor above their intellectual capacities.

In some cases streaming may be advisable, so that in each group pupils can progress at their optimum pace without being held back or rushed through the learning material to keep up with the others. Streaming means dividing students into groups as per their abilities and they should be allowed to study and progress at their own rate of learning.

These intellectual differences between learners can cause differences in school achievement, and differences in interests.

There are many reasons for variations in performance. These are some examples:

- Some pupils work harder than others and read extensively beyond the prescribed textbooks.
- A pupil's home background may be enriching in that he is provided with learning material in the form of books and newspapers, toys, and learning gadgets.
- There are individual differences in interests which should be fostered, since in society there are many types of occupations to match such interests.

- Some pupils have a special interest in languages, while others are interested in science and the social sciences.

Maybe you can think of others still. If you do, make sure you share them with your fellow participants in this course.

15.2.3 Gender Differences

Both biological and environmental factors play a role in gender differences. The nature of the assignments allocated to men and women and expectations regarding each gender are principally culturally determined. For example, there is no reason why women should be solely responsible for preparing meals and doing the household chores. If culture had assigned such a role to men, they would be able to carry it out just as well as women. However, there are tasks which cannot easily be exchanged for genetic and biological reasons. Here again, surely you can think of examples. When you have some, share them with your group or your facilitator.

Activity 15.1

Please list below the individual differences as experienced by you among students in your class. Suggest some means to meet the same.

Teachers can have an effect on socially/psychologically determined gender differences by encouraging their students to explore fields traditionally reserved to a particular gender. For example, there is no reason why there should not be more African women science and mathematics teachers in secondary schools. There may be many African women who have shown them to be quite capable of handling such subjects.

Can you think of ways to encourage women to take up more of the professions that are traditionally and culturally ‘assigned’ to men? Do not forget to share your experience and knowledge with others. If pupils' performance in school subjects does correspond with their gender, then the coaching offered should correspond with their academic strength. For example, girls may need and should receive more coaching in science and mathematics, while the same may hold for boys with regard to languages. It must always be borne in mind that, irrespective of gender, every pupil is entitled to fair treatment as a human being.

Activity 15.2

Kindly make a plan of action to meet Individual differences among students in your class.

Check Your Progress 1

Explain some individual differences observed by you among your students.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

15.3 Educational implications of individual differences

As a teacher you must deal with the situation created by heredity-environment interaction. Further, as an educator you must provide special environments to assist the learner who arrives in your classroom. Perhaps the most relevant aspects of this educational environment are the strategies and materials you as the educator choose to employ.

Which strategy and what materials, what special environment to provide for each child, are decisions that you must make and put into practice as a teacher. It would be just as ridiculous to provide each child with the same special instructional

environment as it would be to fit all children with the same eyeglasses or pair of shoes. Just as a particular optical prescription permits a child to have optimal vision, so must an individualized pedagogic programme be prescribed for each student's education.

Earlier prevailing notions of using a single method of instruction and identifying "homogeneous classes" are no longer tenable. The extreme heterogeneity manifested by children of the same age, located in the same classroom, demands more than lip-service for educational programming, if the intent is to be responsive to variation within the classroom and to the individual needs of every schoolchild.

What does this mean? For an effective educational programme, one must be aware of more than just the individual differences among children. As their teacher you must know each child's strengths and weaknesses. The degree to which you choose to accept and use a strategy of this type, based on data gathered from activities which check each child's progress, is dependent on the degree to which you view individual differences among and within children as being educationally relevant or significant.

As an effective teacher you must be aware of the characteristics of all of your students, and you must provide an environment that will allow them optimum development despite their differences.

You, as the teacher, in a typical classroom must be prepared to offer special instruction to children with learning difficulties.

The uniqueness of each child requires you to adjust instructional methods quickly and effectively when relevant diagnostic observations from formal and informal assessment procedures indicate a need for change.

Activity 15.3

List below the Educational implications of Individual Differences.

Check Your Progress 2

How will you meet the learning needs of low achievers in your class?

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

15.4 let Us Sum Up

Summary

In this unit you learned Human beings, although equal in their humanity and human dignity, are all unique individuals who differ from one another in a variety of ways.

The study of individual differences, traditionally referred to as differential psychology, is the study of the various ways in which individuals differ from one another in a relatively permanent manner. Some individual differences are a function of either heredity or environment, but the majority of them are a function of the interaction of heredity and environment over time.

Whatever the source of individual differences, they are of interest to the teaching profession, since they have a bearing on learning and teaching. Some of the individual differences identified in this chapter are physical characteristics, intellectual ability, academic achievement, interest, and gender. In fact, there is no uneducable child, no unteachable child. There are only children that we fail to teach in a way that benefits their individual condition. Remedial programme should be designed in such a manner that the differences will be remedied by providing children who need it with the extra assistance necessary.

15.5 Check your progress: Model Answers

Answers

A) These may be physical differences related to growth, height, weight and appearance, intellectual differences related to differences in school achievement, differences in interest, gender differences, etc.

B) It may be met by providing remedial programmes meant for weaker students. Individual differences in the process of learning can be accounted for by time factors. That is to say, if learners who are of different learning abilities are given time in terms of what is required based on their pace, then it should be possible for them to learn just as well as any other learner.

Unit 16

Assessment, Measurement, and, Evaluation: Meaning and Utility for Examinations

Contents

16.0 Objectives

16.1 Introduction

16.2 Learner Performance Evaluation - A challenge

16.2.1 Principles of Learner Evaluation

16.2.2 Evaluation and Improvement of Learning

16.2.3 Examination Reform – An urgent need

16.3 Teacher role in learner performance assessment

16.4 Let Us Sum Up

16.5 Check Your Progress: Model Answers

Overview

Within this unit you will delve deeper into the complexities of learner evaluation and your role in such a situation. Also, you will also discover the distinctions between assessment, measurement and evaluation as well as the reason for not making exact measurement of learner abilities and gains during study.

Whatever you do as a teacher is a mere assessment (guess) and then you declare official results at the end of the academic year. Most children in school undergo some form of intellectual assessment and are tested on a variety of achievement tests to determine their class placement, among other things. The results of these more formal measures are found in the child's cumulative folder, so that whenever necessary and appropriate, teachers can refer to the data to support their opinion about a student's performance. This "guessing" by a teacher is based on his/her mental perception about learner performance in the final examination as well as in different tests.

16.0 Objectives

Upon completion of this unit you will be able to:

- Explain the differences in assessment, measurement and evaluation.
- Use different strategies for learner performance.
- Analyse and use exam results for guiding students towards better performance.

16.1 Introduction

Examinations have a powerful role in stimulating learning, since in preparing for them the student is forced to organise his/her knowledge. It is this organisation of knowledge that is essential to

learning. If examination questions require students to have at their fingertips a large number of details, accurately remembered dates, then of course they will spend much of their time preparing for that examination by memorising these facts and figures. If the examination is one which requires the student to put forward the pros and cons of a theory, then s/he will spend a great deal of time studying theoretical issues from this point of view.

Therefore, by very carefully choosing the kind of questions we ask, we can control the behaviour of the students and guide them to study in the way we think desirable. It is, however, necessary to put the examination in its proper setting as something which contributes to the total purpose of education. It must not be regarded as an end in itself and allowed to dominate, as it so largely does at present the whole educational system.

Evaluation procedures should be used in an educational setting.

- Grouping for instruction,
- planning for guidance,
- identifying students in need of special diagnostic or remedial instruction,
- evaluating discrepancies between predicted and actual achievement, and
- promoting,

All represent functions of psychological and educational evaluation. Traditional areas are also examined, such as intelligence, achievement, aptitude, interests, personality, social maturity, perceptual-motor development, and the performance of children in certain subject areas.

The evaluation process attempts to ascertain

- (1) What a person might be able to do;
- (2) What a person is presently doing; and
- (3) Why and in what areas an individual is not performing.

The assessment depends on two assumptions as – Examiner Knowledge and Skill, and, Appropriateness of the Assessment Technique. The main problem here is that students are living human beings. You certainly recall that they have several psychological traits which affect their learning and learner performance is a product of these variables. Therefore, assessment in these cases is never perfect.

Activity 16.1

Please select a group of 10 examiners and give them photocopies of an answer sheet written by a student for some course. Ask them to give marks for each question. Prepare a chart showing question wise marks allotted by them. Observe the difference in marks and explain the reason for the same.

16.2 Learner Performance Evaluation: A challenge

As a teacher you are supposed to judge the student's learning outcomes in a variety of ways. These may be monthly tests, half yearly tests, and annual examinations. The teachers become handicapped in absence of evaluation scales to be used for this purpose. There are four scales of measurement which are problems in learner evaluation. These are:

- **Nominal scale,**
- **Ordinal scale,**
- **Interval scale, and,**
- **Ratio scale.**

Let us now look at an example of each of these scales.

When things are differentiated by their names, for example - 'Mbabane Football Team' and 'Manzini Football Team', the teams are differentiated by their symbol or name, we call that **Nominal Scale**.

When the data is not uniformly distributed and is clubbed into groups, it is called as **Ordinal Scale**. Can you think of an example?

Another type may be when data have no starting point or true zero (from where we measure); it is called as **Interval Scale**. In this case, the quantity of any variable in between two equal intervals is never same.

Lastly, there comes the **Ratio Scale** which has a true zero from where we can measure and the amount of variable in between two intervals is always same.

All this is called measurement. The Interval Scale is used when we deal with living beings. We convert learner performance into numbers after examination and that is totally guessing by our mind. It is called as Assessment and comes under Interval scale. The Ratio scale is used in physical sciences where object is material and we compare temperatures, length, mass time etc. Now it might be clear to you the reason why learner performance is assessment or guess and not measurement.

A comparison between two or among many performances is called evaluation. This evaluation or comparison can be done in interval scale data as well as in ratio scale data. A teacher as evaluator is facing the big challenge of accurate assessment of learner performance in fact learner performance data is not in ratio scale.

16.2.1 Principles of Learner Evaluation

Evaluation is the process of determining the extent to which the objectives are achieved. For this purpose, evaluation must encompass the entire range of students' activities and experiences, both curricular and co-curricular, and cover all the dimensions of growth - be it cognitive, affective or psychomotor. What follows below can be seen as the 4 general principles of evaluation:

1. Determining and clarifying what is to be evaluated.

No evaluation device should be selected or developed until the purposes of evaluation have been carefully defined.

2. Evaluation techniques should be selected in terms of the purposes to be served.

When the aspect of student behaviour to be evaluated has been precisely defined the evaluation technique which is most appropriate for evaluating that aspect of behaviour should be selected for use.

3. Comprehensive evaluation requires a variety of evaluation techniques.

No single evaluation technique is adequate for appraising student progress towards all of the important outcomes of education. Written tests, self-report techniques and various observational methods are needed to evaluate a variety of instructional outcomes.

4. Evaluation is a means to an end and not an end in itself.

Evaluation is the process of obtaining information upon which to base educational decisions. Thus, it is a means to an end.

You can surely understand that teaching-learning and evaluation are interdependent in nature. The objectives serve as the basis for developing learning experience and evaluation procedures. The learning experiences and evaluation procedures in

turn help to clarify the objectives. The evaluation procedures provide evidence on the effectiveness of the learning experiences.

16.2.2 Evaluation and Improvement of Learning

The evaluation process can facilitate student learning in a number of direct and indirect ways. In general, evaluation can help in clarifying the goals of learning, understanding the learners, motivating learning, increasing retention and transfer of learning and diagnosing and remedying learning difficulties.

1. Clarifying the Goals of Learning - A systematic approach to evaluation provides for the clarification of learning goals at several points:

- (a) During planning stage (where the goals are defined for evaluation purposes);
- (b) During instruction (where the goals are shared with students);
- (c) During evaluation (where the instrument provides students with an operational definition of the goals).

2. Understanding the Learner - One of the most readily apparent contribution that evaluation can make to improve teaching and learning, is that of providing increased information concerning the learner. A review of each student's cumulative record provides information concerning scholastic aptitude, record of growth in the basic skills and other areas of achievement, personal-social development, health, home background and the like.

Such information prior to instruction makes it possible to take into account the abilities and needs of students during the course planning. If some students are noted to be deficient in basic skills, for example, review or remedial work can be planned for them.

3. **Motivating Learning** - There are two major ways that the evaluation procedures can facilitate student motivation:

(a) by providing immediate attainable goals towards which to work, and

(b) by providing knowledge of learning progress. The mere expectation that a test will be given tends to stimulate learning activity.

There is also considerable evidence that the type of test anticipated influences how and what students study.

4. **Increasing Retention and Transfer of Learning** - Evaluation procedures can contribute to greater retention and transfer of learning by:

(a) focusing attention on those learning outcomes that are most permanent and most widely applicable; and

(b) providing practice in applying previously learnt skills and ideas in new situations.

5. **Diagnosing and Remediating Learning Difficulties** - There are four major steps in the diagnosing and remediating of learning difficulties:

- (a) determining which students are having learning difficulty;
- (b) determining the specific nature of the learning difficulty;
- (c) determining the factors causing learning difficulty; and
- (d) applying appropriate remedial procedure.

Testing and evaluation can make a significant contribution to each of these steps. The remedial programme results in the improved curriculum and more effective instructional methods.

16.2.3 Examination Reform – An urgent need

You remember reading about Bloom’s Taxonomy in some past lesson? Then you must remember this taxonomy showed that, by clearly defining the objectives of teaching and by organising the learning and testing processes in the light of these objectives, the examination system can be made more efficient.

Our schools in Swaziland should be helped to fulfil their task of imparting real education to the students. Examination reform thus entails a simultaneous improvement of the processes of teaching, learning and testing. The three functions are so interrelated that we cannot improve any one of them without at the same time improving the others. It is, therefore, necessary to make a shift from the examinations as the controlling force in our educational system, to the purposes of education as the guides to

learning and examining. Such a shift would make the examinations the means rather than the ends of education. This change in viewpoint would also enable teachers to become more creative in their teaching and students more active and enthusiastic in their learning.

To sum up, the incorporation of the evaluation concept in educational processes would go a long way in improving the instructional programme and help education better achieve its purposes. The main task of the education process is to change the learners in desirable ways.

Activity 16.2

Learner performances during examinations are kept under Interval scale and not under Ratio Scale. Give an argument either in favour or against this statement.

Check Your Progress 1

Differentiate among Assessment, Measurement and Evaluation.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

16.3 Teacher role in learner performance assessment

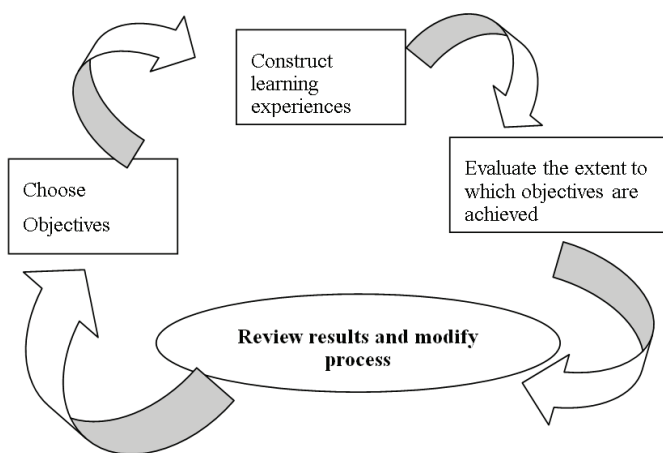
You, as a teacher, have to see to it that predetermined objectives are achieved through learning. You have to assess the extent to which these objectives have been achieved. The objectives serve as the basis for developing learning experience and evaluation procedures. The learning experiences and evaluation procedures, in turn, help to clarify the objectives. Correspondingly, the evaluation procedures provide evidence on the effectiveness of the learning experiences and ultimately on the attainability of the objectives themselves.

As a teacher you are thus supposed to perform the following four steps.

1. Identifying and defining objectives in terms of desired changes in student behaviour.
2. Planning and directing learning experiences in harmony with stated educational objectives.
3. Determining student progress towards stated educational objectives.

4. Using the results of evaluation to improve learning and instruction.

This clearly indicates that teaching-learning and evaluation are inter-dependent in nature. This inter-dependence of the teaching-learning and evaluation process can be seen from the following figure:



This indicates that you, as the teacher, have to state in precise terms the objectives that are the outcomes of learning a subject at a particular level. You have to plan appropriate learning experiences for students to attain these objectives. Later on, you are to check how far the learning experiences have actually produced the desired results in terms of stated objectives.

Activity 16.3

List below advantages of examinations in deciding merits and demerits among students.

Check Your Progress 2

Explain your teacher's role in student evaluation of classroom activities.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this unit.

16.4 Let Us Sum Up

Summary

In this unit you learned that evaluation is concerned not only with the appraisal of achievement but also with its improvement. This function of evaluation being the function of appraisal for improvement is of great significance. The very purpose of

evaluation is defeated, if steps are not taken to improve upon the present state of affairs in the educational programme. Although evaluation is primarily concerned with changes in individuals, it may be applied to the effects of a curriculum, a course, a teacher, a method of instruction, and so forth.

Another function of evaluation is the identification of learning experiences and educative environments that produce significant changes in individuals and for the creation of instruments and methods of testing that will best reveal these changes. Educational objectives relate to the total student growth. Obviously this involves a variety of experiences inside and outside the classroom for a proper assessment of this manifold growth of the students a variety of tools and techniques becomes necessary. Data about students may be either in the nominal, ordinal or interval scale, but will never be in the ratio scale. This may sometimes constitute a problem. Here comes a big responsibility of judging student's performance without an appropriate scale.

16.5 Check your progress: Model Answers

Answers

A) You have to judge the extent to which the predetermined objectives have been achieved by your student. There is no scale prescribed and the data are either in nominal, ordinal or interval scale but never in ratio scale. This challenge has made your job as a

teacher more tedious and challenging. You have to use your wisdom in guessing the extent to which learning objectives have been achieved.

B) You have to follow the following steps:

- Identifying and defining objectives in terms of desired changes in the student behaviour.
- Planning and directing learning experience in harmony with stated educational objectives.
- Determining the student progress towards stated educational objectives.
- Using the results of evaluation to improve the learning and instruction.

This clearly indicates that teaching-learning and evaluation are interdependent in nature. This inter-dependence of the teaching-learning and evaluation process of education can be seen from the figure stated in this unit.

Unit 17

Various types of test items and their Application in Examinations

Contents

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17.2.1 Long Answer type

17.2.2 Short Answer type

17.2.3 Multiple Choice type

17.3 Blueprint for a question paper

17.4 Let Us Sum Up

17.5 Check Your Progress: Model Answers

Overview

In this unit you will be further acquainted with learner assessment techniques. When your learners finish their studies, the course content is known more or less to every student. You then assess an ability to describe, an ability to summarise and an ability to judge.

The describing ability is verified through a speed test for writing a long answer by a student after giving his views in a prescribed time limit. Students with high writing speed may cover much space and give an appropriate answer to the question.

The ability to express views in a summarised form by using less words but covering everything is also to be assessed. Short Answer questions are used to assess this ability.

Apart from these two, the ability to judge is also very important. Selecting a best fit answer, out of given many answers, is a matter of judgement and thinking. In a Multiple choice item no memory is required, the student is supposed to examine all given answers and decide the best fit as per his views and thinking.

A balanced question paper for assessing the learning outcome must possess all these three types of questions.

17.0 Objectives

Upon completion of this unit you will be able to:

- Recognise various types of test items.
- Develop similar items in your teaching subject.
- Prepare a blueprint for a good quality question paper.

17.1 Introduction

Good achievement in education is fostered by the use of good tests of educational achievement. Most teachers recognize the essential role of measurement in education. Achievement tests are given under specially devised and carefully controlled conditions to improve the precision of measurement without impairing seriously its validity. Written tests provide an important basis, but not the only basis teachers should use in evaluating student achievement. The primary function of a classroom test is to measure student achievement. Classroom tests can help to motivate and direct student achievement, and can provide learning exercises. The development of a good classroom test requires the instructor to define the course objectives in specific, operational terms. Most classroom tests are and ought to be prepared by the course instructors. Competence in teaching is a necessary, but not a sufficient condition, for expert test construction. Construction of a good objective test requires special knowledge of testing techniques and special skill in the use of language. Some common weaknesses of teacher-made tests are attributable to:

- (1) Reliance on subjective judgments,
- (2) Reliance on absolute standards of judgment,
- (3) Hasty test preparation,
- (4) Use of short, inefficient tests,
- (5) Testing trivia,

- (6) Careless wording of questions,
- (7) Neglect of sampling errors, and
- (8) Failure to analyse the quality of the test.

To improve their testing, the teachers will have to work harder, longer, more cooperatively, and with more frequent reference to various types of test items and their improvement. The teacher prepares a test by covering the content he has taught. His students have individual differences. Some may have a good describing ability, while others may have a summarising ability. Few may have an ability to judge. It is essential to test all these three abilities among all students. This unit will explain you about three types of questions to be used in a question paper.

Activity 17.1

Discuss with your colleagues about some precautions while framing a question paper.

17.2 Types of Test Items

The form of a test gives no certain indication of the ability tested. Although they are extensively interchangeable, each type of objective test item possesses a few unique advantages and

disadvantages. Whatever form of test or type of item an examiner uses, he should seek to make his measurements as objective as possible. Most classroom tests of achievement should be short enough, in relation to the time available; so that almost all students have time to attempt all of the items. Items intended to test various aspects of achievement can ordinarily be classified more reliably on the basis of item characteristics. In most tests of achievement, items of moderate difficulty, which are answered correctly by from 40 to 70 per cent of the examinees, contribute the greatest amount of useful information. This section will deal with all three types of items as below.

17.2.1 Long Answer type

A question which requires a comparatively lengthy answer to a problem say, more than one or two paragraphs, is called an essay type question. There is no single correct response. Accuracy and quality of response can be evaluated by a person who knows the topic. These questions require the candidate to select relevant facts, organise them and write the answer in his own words. Essay type questions have been repeatedly criticised by those who are interested in the scientific measurement of achievement, but little effort has been made to improve their reliability in spite of the fact that are widely used by classroom teachers. If properly constructed, they can measure important outcomes of learning which cannot be measured otherwise. Essay type questions should be set to test only

those instructional objectives which cannot be tested so easily by other forms. Each question should test the specific mental processes or learning outcome as indicated by the objectives in view. Questions should be framed in such a way that their meanings are clear to the examiners. Questions should be constructed in such a manner that the scope of the expected answer is clear to all. Directional words like "what do you know of", "give an account of", "write short notes on", etc. should be avoided as far as possible or should be clearly defined to avoid vagueness of answers and consequent variations of markings by different examiners. Maturation and level of the examinees should be considered while framing an essay type question. Length and nature of an answer may differ from class to class. Marks should be clearly allocated part wise whenever there is more than one part in the same essay type question.

17.2.2 Short Answer type

A question in response to which a student is expected to give an answer in about 3 or 4 lines is generally called a short answer type question. Such a question should take 3 to 6 minutes to be answered by a student. In fact, limits of short-answer type questions cannot be clearly demarcated; still we have mentioned some criteria for the sake of convenience. It may be noted that a question whose answer may be a simple diagram is also considered to be a short answer type question. It has been observed that essay

type questions suffer from lack of objectivity and reliability while objective type questions, as explained later, are often inadequate to test certain aspects of growth. Short answer type questions are good via-media between the two extremes and serve a useful purpose in overcoming the shortcoming of either type, if understood and framed properly by the teachers. Such type of questions can be used profitably in our external and internal examinations. These questions also ensure better reliability, because such questions are more definite and specific and can be scored more objectively. These also cover more syllabus as a number of such questions can be made in place of one essay type question. Therefore, the short answer type questions draw upon a far wider range of a pupil's achievement than do the usual essay questions.

17.2.3 Multiple Choice type

Multiple Choice type questions can be classified as follows:

(1) only correct answer type and (2) only wrong answer type. In literature or other subjects, other types of Multiple Choice questions known as (3) Best answer type and (4) Mixed answer type or Master-list type can also be framed. In True false type questions, some statements are given to be correct and some are incorrect. Students are generally asked to put "T" against the correct statements and "F" against the incorrect statements. In matching type questions, generally two columns of statements or elements are given. Students are asked to match the statements or elements

in column I with those in column. In Sentence Completion type questions, one blank space in a statement is provided. Students are asked to fill up the blanks with appropriate answers which are given within a bracket. Generally, 2 to 4 answers are supplied and one of these is the correct answer. A Multiple Choice type question is composed of a stem in the form of a statement or a question followed by four alternative choices. The teacher should be sure that only one choice out of four is correct and the choices do not overlap with each other. The alternatives should not contain anything which could have been put in the stem. Give 4 or at most 5 choices, but not more than 5.

Both correct and incorrect choices should be homogeneous in their mode of expression, length and other external characteristics. The distracters should represent errors commonly made of the students who are to be tested. Avoid making the correct response consistently longer or consistently shorter than incorrect choices. Arrange the choices in logical order, if one exists. Otherwise, these should be arranged in alphabetical order. See that the position of the correct answer in the series is chosen entirely at random. Make all choices grammatically consistent with the form of the question. See that the uses of singular and plural numbers, tenses, etc. do not serve as clues to the students.

Activity 17.2

A good question paper must have some Long answer type questions, some short answer type questions and some multiple choice type questions. Write your comments either in favour or against this statement.

Check Your Progress 1

Explain utility of any type of questions in framing a question paper.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

17.3 Blueprint for a question paper

Planning of a question paper in steps or stages as indicated above can be given a more concrete shape by the development of a three-dimensional chart called a Blue Print. When the weightages to different objectives, content areas and the forms of questions

have been decided and also the number of questions to be asked is settled, the paper setter has to decide how all these questions should be distributed over different objectives and content areas so as to have the weightages decided above. The two dimensions of the blue print consist of content areas in horizontal rows and forms of questions in the vertical columns. Once the blueprint is ready, the paper-setter can select a frame item to fit into the blue print. Here is an example of the blue print for a subject having Ten Units. The question paper is to be solved by the students in three hours. It will have all three types of questions as discussed above.

S.No	Unit Name	Long Answer Questions	Short Answer Questions	Multiple Choice Questions	Total Marks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Activity 17.3

Prepare a Blueprint for a 100 marks question paper to be given for three hours to your students in a subject of your choice.

Check Your Progress 2

Discuss the role of Blue Print in preparing a Question Paper.

Notes

- a) Write your answer in the space given below.
- b) Compare your answer with the one given at the end of this Unit.

17.4 Let Us Sum Up

Summary

In this unit you learned that the construction of a good question paper requires a great deal of planning prior to the actual writing of questions. Good questions do not just happen nor are these the results of a few moments of high inspiration or exaltation.

On the contrary, the process is calm, deliberate and time consuming. The defects in the written tests of today might help in planning a good question paper, but the real guidance will have to be taken from the criteria of a good test having different type of questions from all units/lessons. These items may be Long answer type, Short answer type, and multiple choice types with a wide coverage of all units. The teacher may draw a Blue print before making a question paper. He should see that number of questions given in paper should be attempted by students in the prescribed time limit. These different types of questions have their merits and demerits. But, a combination of these overcomes demerit of each other.

17.5 Check your progress: Model Answers

Answers

A) Select any type from the three types stated above and explain its utility.

B) The Blue Print helps for a comprehensive coverage of curriculum. It helps to decide how many and from where the content be covered for framing a question. A wide coverage of Long Answer type questions, Short Answer type questions, and Multiple answer type questions may be ensured by making a Blue print before making a question paper.

PRACTICAL ACTIVITIES TO BE DONE

1) Develop some remedial learning material (Print / Audio / Video) for any level in any subject. You are free to prepare this in any format you choose.

2) Prepare a report about some slow learners or high achievers with recommendations for meeting their academic needs. This report can be submitted in print form or via email to any of the resource persons for this project. Please note that you should look at the learner characteristics of these slow learners or high achievers and make your recommendations as specific as possible. Your report should be two to three pages long. You can submit this as an individual assignment or as a group assignment. Be careful to indicate your name(s) and contact details so that we can get back to you with feedback.

3) Develop a test item based on Bloom's Taxonomy of the Cognitive Domain. Here again you can make a test for any of the subjects you teach and for any level of your choice.

4) Use various technologies for classroom communication. Here, again, you will submit a report (either in print or via email) discussing which technology you choose, why and how you implemented it. Please also indicate the advantages and disadvantages of this particular technology.

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