

Effectiveness of Modular Approach in Teaching at University Level

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Abstract.

The key purpose of this research was to find out the effectiveness of modular approach in teaching in order to assess the student learning, performance and achievement and to determine whether the modular teaching is more effective than traditional methods. The study was experimental type. Equivalent group study design was used. Population was university students of Master in educational planning and management. Sample size was consisted on 30 students. The data were collected from both groups (controlled and experimental) analyzed and interpreted by using mean, standard deviation and t-test through the use of statistical package SPSS. The result' scores were in the favor of usage of modular teaching approach. So it is recommended that the modular approach should be widely used at various levels of education.

Key words: Modular Approach, Self learning, Individualized Instructions

Introduction

In the course of last fifty years the education of third level enlarged and diversified the requirements and wait being put on the establishments of higher education are consequently great, with changes in the body of the pupil and a pressure augmented by the government on expenses, procedures and results. For academic staff, there are incremented pressures through incremented teaching loads, growing reporting and administrative requisites and pressure to develop and invigorate their research profile. Amongst academic staff surveys consistently report that edifying is a source of reward but staff verbally express that they are working longer hours and dealing with a more diverse student group. McInnis (2000)

Barnett et al (2004) argued that the curriculum receives scant regard in current debates about teaching and learning in higher inculcation but suggests that this may vicissitude in the context of quality assurance mechanisms and benchmarking. In teaching there are many methods which are being used. Some of them are assignment method, discovery method, lecture method, discussion method, programmed learning, project method, field trip, case study method, demonstration method, modularized instruction. Modular teaching is a new approach in classroom settings, for experience taking in encounters in instruction also it has been getting much consideration. The system of taking in modules has turned into a piece of all level of instructions. Teaching through module is a self - taking in bundle managing one particular topic/ unit. It could be utilized within any setting helpful to the learner and may be finished at the learner's own particular pace. Sufficient hypotheses further more practices are accessible for the useful requisition of secluded educating in our classrooms. Consequently a study was directed so as to check the adequacy of modular teaching. Got information was investigated, analyzed and results were drawn.

It's clear that many university students with a certain level of interactive technology embraced, but at the same time continually demanding more to fulfill their diversified needs of learning. Embrace the technology demands of their own class. According to the curve can be applied to today's generation of time university use technology every day and classes. The real challenge faced by university students is that higher inculcation is different from school and students cannot expect spoon-feeding. Increasingly, university heads are keen to verbalize about a partnership between institution and students. Knight (2002) points out that material on design work for edifiers orchestrating Programmes in higher inculcation are insubstantial. He suggests that there is a desideratum for advice on programme design and argues for texts to be developed to target concrete learning skills. The focus is the design of modules which form part of Programmes in higher inculcation. This study was focused to find out the effectiveness of modular approach in teaching in order to assess the student learning, performance and achievement.

Literature Review

Toohy (1999) Biggs (1999) Roisin Donnelly and Marian Fitzmaurice (2005) designed a module to forge educationally sound and logical links between learner's needs, aims, learning outcomes, resources, learning and teaching techniques and strategies, criteria of assessment and evaluation.

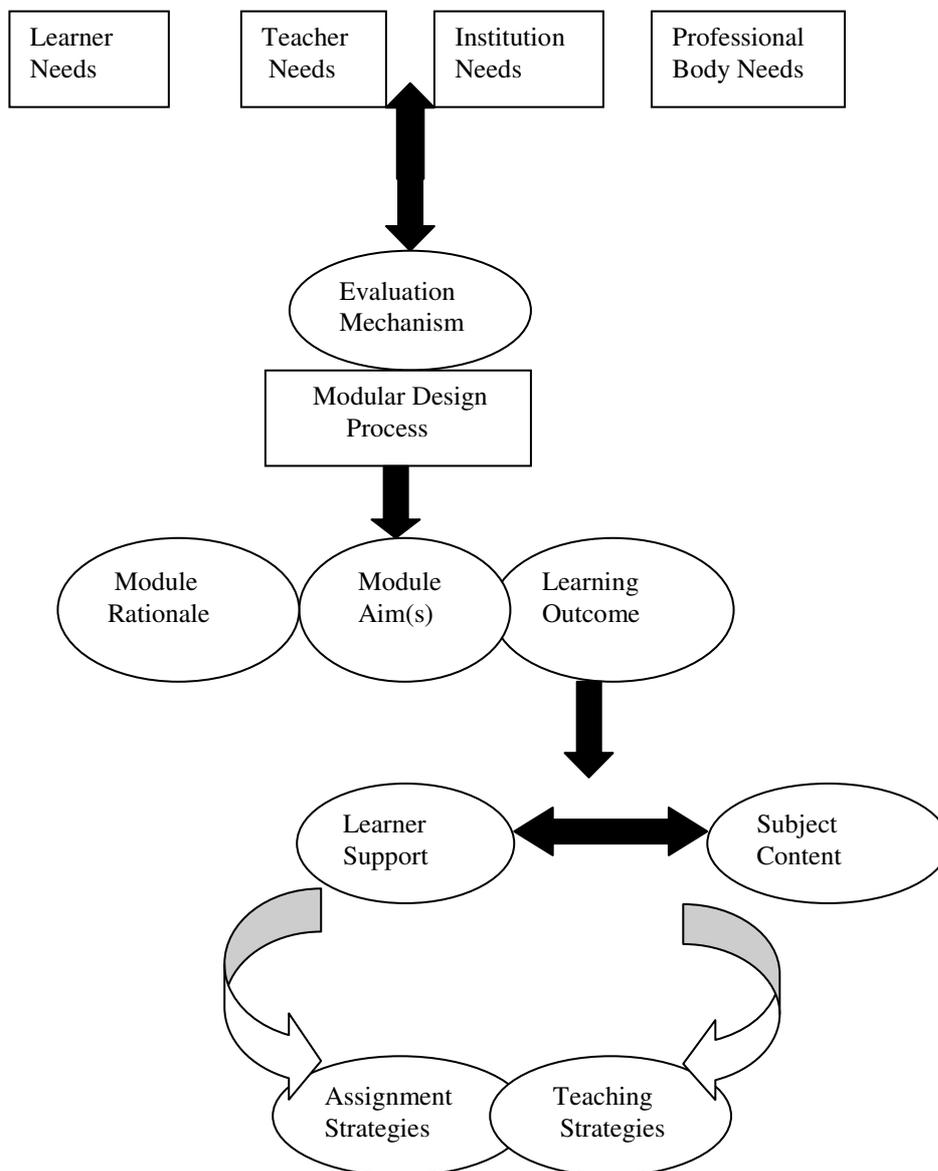


Fig. 1: Framework for Module Design and Development

There is an outlined of module Design and Development. This provides brief overview of the process, highlighting the crucial variables in module design and finding the relationships between them; however it is important to stress that it is not a linear process. Seeking to incorporate the following to your module design can offer a more preponderant likelihood of fostering a deep approach to learning.

continuous interaction with content and others;

- relating new ideas to previous existing knowledge;
- providing clear explanations and cognizance base knowledge to students;
- structuring in a balanced student workload;

- providing opportunities for students to pursue topics in depth so that they can understand the material for themselves;
- ensuring an appropriate formative and comprehensive assessment strategy.

These ideas vibrate with teachers in today's higher education environment and have implications both for our choice of learning and teaching strategies and how we assess learning. An awareness of these approaches to learning is fundamental to the entire module design process.

[Roisin Donnelly](#) and [Marian Fitzmaurice](#) (2005) for academic staff, there are incremented pressures through incremented edifying loads, growing reporting and administrative requisites and pressure to develop and reinforce their research profile. McInnis (2000) they still wish to amend and innovate their practice by designing and distributing efficacious courses and modules. The incremented size and diversity of the student group has impacted on the process of course design. Biggs(1999) offers worthwhile suggestions for course design strategies in the context of a growing student population and Knight (2002) argues for courses in higher inculcation to be designed in order to maximize the chance that learners will experience coherence and progression. Barnett et al(2004) argued that the curriculum receives scant regard in current debates about edifying and learning in higher inculcation but suggest that this may transmutation in the context of quality assurance mechanisms. According to Knight (2002) material on design work for edifiers orchestrating Programmes in higher edification is insubstantial.

Use of self learning modules in teaching is another form of individual used instructions. This is called modular approach of teaching and learning (k.Jaya sree,2004) if self learning modules are available on some topics they can b given to the students as assignments for self learning .scientific attitude refers to an individual's outlook towards life. Attitude is a method condition / a stabilized method set which express itself in a tendency to react to any member of the class of stimuli in the same general way. Robert Ebel (1997)

Modules are increasingly being used in many countries as a way of organising a language curriculum. As a consequence, many course books are now structured on the basis of "modules" rather than "units". The concept of "module" is strictly linked to the idea of a *flexible* language curriculum.Taneja(1989) defined module as a unit of work in a course of instruction that is virtually self-contained and a method of teaching that is based on the concept of building up skills and knowledge in discrete. A module is a set of learning opportunities organized around a well - defined topic which contains the elements of ordinate dictation, categorical objectives, edifying cognition activities, and evaluation utilizing criterion - referenced measures UNESCO (1988)

A module covers either a single element of subject matter content or a group of content elements composing a discrete unit of subject matter or area of adeptness. A module has placidly defined, objectives; preferably in behavioural form (Daries, 1981).

Varieties of teaching methods that will fixate on cumulating methods that can best realize the creative and constructive engagement with learning activities that leads to understanding Ramsden (1992). Even very good designed modules, with very well defined learning outcomes, can fail if the edification strategies employed are infelicitous to inspirit and support the learners towards meeting the desired learning outcomes. Toohey (1999) offers the following definition:

"A teaching strategy is a plan for learning, and it includes the presentations which the teacher might make, the exercises and learning activities designed for students, av-aids which will be supplied or suggested for students to work with, in which they show of their growing understanding and capability will be collected."

Modular teaching is one of the most widespread and recognizes teaching learning techniques in many countries including other Western countries and Asian region. Modular approach is used almost in all subjects like natural science, specifically in biology and medical education and even in social sciences as well as in computers education. Manlove and David (1985).It considering the individual differences among the learners which necessitate the planning for adoption of the most appropriate teaching techniques in order to help the individual grow and develop at her/his own pace. Kandarp Sejpal (2013)

The utilization of such packages takes into account individual differences and sanctions students to work at their own pace. That is why Loughran and Berry (2000) pointed out that individual learnt more at their own pace, because "Telling is not edifying and heedfully aurally perceiving is not learning. However it is a process of first

understand and then express the idea or knowledge. One of the largest changes in recent years has been the addition of technology education facilities with individualized instructional modules. D LeBrun (2001)

Each module has a distinct training element; it covers either a single element of subject matter content or a group of content elements objectives; preferably in behavioral form Daries (1981) A recognized level of proficiency or a qualification can be achieved through the completion of a series of modules. Zuga (1999) stated that when vendors sell individualized instructional modules “the ability to manage the classroom” was mentioned frequently. Daugherty and Foster (1996) found that using individualized instructional modules reduces the time it takes teachers to develop a technology-based program.

Module developments promote practice to plan and develop modular materials. Module writers develop a common frame work for the design and development of modular materials. [Brown and Atkins \(1991\)](#) state that when designing modules, it is essential for teachers to be aware of concepts of deep and surface approaches to learning. Many researches have previously been conducted on the relationship between courses and the approach students take to learning. [Martn,Saljo \(1976\)](#), [Entwistle\(1981\)](#), [Gibbs\(1992\)](#), [Ramsden\(1992\)](#), [Biggs\(1999\)](#).they found positive relationship between curriculum and learning approaches.

The goal of the modules is to provide resources to instructors that will allow them to transform their classrooms into active, student-centered learning environments. Joanne L. Stewart, Valorie L. Wilkerson (1999). the following common characteristics of a module can be distinguished that it is self-contain , independent instruction unit, systematically organized, well defined have a means of evaluating the work. Kandarp Sejal (2013), *Brown et al (1977)*

The essential components of a module are (i) Rationale, An overview of the content of module and explanation of why the learner should study it. (ii) Objectives, What is expected outcomes of module? This is stated in behavioral or performance term (iii) Entry test, to determine if the learner has pre-requisite skills needed to enter the module and check. (iv) Multi-media materials, A wide variety of media is used so learner can involve actively and utilize their senses. Kochhar S.K (2008) Singh Y.K, SharmaT.K & Upadyay Brijesh (2008), Shivarajan K(1997), Riasat Ali(2010) [Knight 2002](#) points out those Modules are not developed in separate way, but within a course or programme structure. Marton and Saljo (1976), Entwistle (1981), Gibbs (1992), Ramsden, (1992), Biggs (1999) studies supported module design. There are a variety of modules for the design of courses in higher education [Toohey \(1999\)](#), [Biggs \(1999\)](#) many of the same issues are relevant in the context of designing modules. There are three major stages in preparing the design of a module. These stages are planning, preparing the draft of the module and revising the draft after trying it out

The module design process explained as to identify the needs of target population and choose the topic Pareek and Rao(1981);Gagne and Briggs(1973) have defined five elements as Situation, learned capacity, object, action, tools or other constraints. Collect relevant information on the topic and verified the necessity for developing a new program or module. Make plans for developing module. Formulate objectives of the module based on results of assessment of need.

Select the learning experiences. These can be best achieve the objectives and arrange them in logical order. Decide the format and component of the module. Write a draft module. Review the draft module and make revision. Select at least three students, each representing fast, slow and average learners from target population and test the module on them and revise the module according to the result obtained from test. Conduct further small scale or large scales try out to make suitable revisions. Pareek and Rao (1981)

Research Methodology

The purpose of this study was to examine the effectiveness of modular teaching approach on learning of university students. In order to test the relative effectiveness of independent variable, i.e. an instructional paradigm (Modular teaching), the selection of most suitable design for this experiment was the main step. Campbell and Stanley (1963) postulate a number of factors, which affect the internal and external validity of experimental designs. Relevant to internal validity, there are eight different factors (these include history, maturation, testing, instrumentation, statistical regression, differential selection, experimental mortality, and selection maturation interaction. The pretest-posttest equivalent group design was considered most useful design for this study.

The study was experimental type. Equivalent group study design was used. The collected data of both groups were analyzed and interpreted using mean, standard deviation and t-test, and conclusions were drawn. The results of the research were in the favor of modular teaching approach, therefore, it is suggested that this approach should be widely used in conventional classroom at various levels of education.

Population and Sample

The aim of this study was to investigate the relative impact of effectiveness of modular teaching on learning of university students. Therefore the students studying in M.A educational planning and management at university level constituted the population of study. 30 students from M.A Educational planning and management were taken as a sample of the study. Students sample were divided into two groups: the control group and the experimental group. Both of groups were equated on the basis of pre-test scores. Each group was comprised of 15 students.

Results

Table 1 Difference between mean scores of the experimental and control groups on pretest

Group	N	M	SD	df	t- value	Cohen's d	Effect Size
Experimental group	15	20.57	4.25557	28	0.31	0.11	0.05
Control group	15	18.42	4.25557				

Table 2 Difference between mean scores of the experimental and the control groups on posttest

Group	N	M	SD	df	t-value	Cohen's d	Effect Size
Experimental group	15	45.30	6.70	28	4.59	4.59	0.65
Control group	15	21.56	5.38				

Table 3 Percentage improvement after implementation of module on experimental group

Impact Factors	Pretest %	Posttest %
Students participation	39%	78%
Communication skills	42%	73%
Concept understanding	36 %	67%
Usage of vocabulary and examples	32%	71%
Pre-test Average scores results = $(39+42+36+32)/4 = 37.25 \%$		
Post-test Average scores results = $(78+73+67+71)/4 = 72.25 \%$		

Figure1: Percentage improvement after implementation of module on experimental group

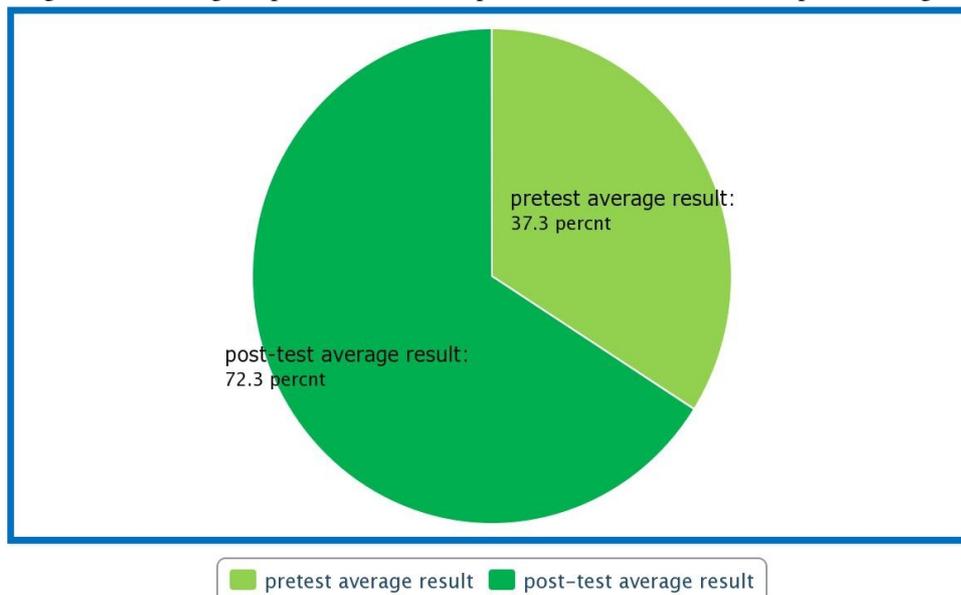


Figure 1 shows average “percentage improvement” in post test results of experimental group after 12 weeks teaching through modular approach.

Discussion

Table1 Indicates that the difference between the mean scores of the experimental group and control groups on pretest was found to be insignificant at 0.05 levels. The obtained t-value is 0.31 is less than the table value. So, the hypothesis, “there is significant difference between the mean scores of experimental and control groups on pretest” was rejected.

Table 2 indicates that the difference between mean scores of the experimental and the control groups on posttest was found to be significant at 0.05 levels. Hence, the hypothesis, “there is significant difference between the mean scores of experimental and control group on posttest”, was accepted, in the light of t-value obtained which is greater than the, table value at 0.05 levels which is significant at 0.05 levels. Hence, the hypothesis was accepted. At posttest performance of experimental group was better than control group. This study congruent with the study of D LeBrun (2001), Barnes *et al.* (2000) and Pareek and Rao(1981)

Table 3 indicates analysis of data of pre and post test results (averages) of experimental group’ overall improvement in these above four factors including student’s participation, communication skills, concept understandings and usage of new vocabulary and examples. Pretest average was about 37.25% before implementation of modular design after implementation of modular approach posttest average was increased 72.25%, which was quit encouraging.

Conclusions

In the light of results drawn from statistical analysis and findings of the research following conclusions can be drawn.

1. Modular teaching is more effective in teaching learning process as compared to ordinary teaching methods. Because in this modular approach the students learn at their own pace.
2. It is free self learning style in which immediate reinforcement, feed back is provided to practice exercise, which motivate the students and create interest in them.
3. Modular approach helps to maximize the chances of student participation in classroom in respect to fulfill the given tasks at the spot. So the students feel free to learn in their own style.

Recommendations

In the light of above conclusions, following recommendations are made

1. This research proved that the modular teaching is more effective approach in order to teach university students of Master in Educational Planning and Management. This method can be applied widely to

other fields and subjects as well as other level of education because this approach have the ability to fulfill the diversified needs of learning of students of all level.

2. Modular approach is a unique way of teaching so the teachers should be provided enough training about how to design and implement a module in classroom setting.

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