

DEVELOPMENT AND VALIDATION OF MODULE IN ENGLISH AT SECONDARY LEVEL IN PAKISTAN

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Abstract

This study was conducted to develop and validate module in English at secondary level. Therefore, the researcher developed a module consisting of six units on the first five lessons of the textbook of 9th class. It was developed following the guidelines given by UNESCO. The pre-test, post-test and retention test were used as the instruments of the study. The pre-test was used to find out the competencies of the students to deal with the material presented in the module. The validation of the module was checked by administering the same pre-test as a post-test to the subjects of both experimental and control groups by changing the arrangement of the items on the pattern of "Even Odd Numbers". The views of the experts were also obtained and incorporated in the final draft of the module. The students of secondary classes studying in government public secondary schools were the population of study. The control group as well as the experimental group was of equal size, each having 30 students of 9th class. The scores of pretest, posttest and retention test were the data of study. The significance of difference between the scores of groups at 0.05 levels was tested applying t-test and analysis of variance. The study revealed that the material designed as a module promoted independent learning habits in the learner, provided opportunity to proceed at his own pace, ensured active participation, useful for slow as well as of bright student and, enabled the students to comprehend difficult concepts. For this purpose, it was recommended that the policy makers should take steps for providing professional and financial support to the teacher training institutions for the development and validation of the modules. Textbook Board should arrange workshops for writing of the books on modular pattern and the school libraries should be enriched with the books on the topics of development and validation of modules.

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Keywords

Development, Validation, Module, English Language

Introduction

In the 20th century, a number of researches have been conducted in the area of language teaching and they have brought revolutionary changes in the classroom practices and in the material of the study. Module based learning resource is one of them which highlights an accuracy and fluency in language learning. It (module) is being used successfully at all levels of education from elementary to university. According to Ali (2005), "Module is defined as a self-contained, self-instructional package that allows the learner to proceed in his/her studies in accordance with his/her own capacities and abilities". According to Rumpus, (2003), "module is a self-contained, independent unit of a planned series of learning activities designed to help the student to accomplish certain well-defined objectives" (P.15). According to Husen (1995), "A module is unit of curricular material, complete in itself, to which further units may be added for the achievements of larger tasks or long term goals" (p.386). McNeil (1990) says: "A module is short course, between 20 and 60 hours, designed in terms of objectives, content, skills requires an entry behaviour and at the end of the course, assessment techniques and suggestions for methodologies and resources. Modules are not mere chunks of contents; they develop knowledge and skills in a balanced way (p. 170)." According to Pareek and Rao (1981), "module is a set of learning opportunities organized around a well defined topic that contains the learning activities and criterion reference measures of evaluation" (p.63).

It can be used individually or in small group-settings, suitable to the learner's own pace of work. It is designed on the patterns that make the learner able to identify the objectives He/She is going to achieve, select the appropriate content, follow a learning sequence of his/her own choice from a variety of methods of presentation and able to evaluate his/her own achievements. The teacher's role in using the module-based material is that of a facilitator and guide. He does not play a didactic role to fill the empty vessels but interacts with living organisms that have their own specific backgrounds.

The major characteristics identified by Loughran and Berry, (2000); Ali, (2005, p.37); Husen, (1995); Rumpus, A. (2003),; Axman, (2005) Pareek and Rao (1981) are as follows:

- i. Module is a self-paced learning resource. It does not drive all the learners at the same rate, but allow them to think, reflect and adjust information on the basis of their own abilities and

capacities. The level of intelligence, style of work and pattern of manipulating the things vary from man to man. It has been rightly pointed out by Loughran and Berry (2000) that telling is not teaching and listening is not learning. It is a two-way traffic that also needs a reaction from the other side. The pace and intensity of this reaction vary from individual to individual. It is one of the important features of module based learning that it fully respects the individual differences and brings the learning at the level learner.

- ii. The module-based programme places the responsibility of learning on the students, which results in improved motivation for learning, and the development of self-concept about the personal world. It is fully oriented to student centered teaching that respects the interests, background experiences and socio-economic status of the students sitting in the classroom. It accommodates of the unique abilities, goals, learning rates and learning styles of each student.
- iii. A module is a unit of curricular material, complete in itself, to which further units may be added for the achievements of larger tasks or long-term goals. It does not mean that module is limited to the achievement of some skills, but has the capacity for achieving long term, broad based objectives of conceptual nature. It is also used in the study of all kinds of subjects such as Biology, Chemistry, Information technology, Education, and languages (Husen, 1995).
- iv. It provides opportunity of open learning and workshop system where the students and instructor arrange the meeting after their working hours. Peer group teaching can be utilized and the slow learner is provided the chance to be facilitated by the classmates. It has room to accommodate a large number of students as well as small groups.
- v. The focus of the module is to achieve mastery learning and the learning process is entirely based on the concept of mastery learning. The pattern of the organization of instruction is neither on the prescribed amount of class time nor on the achievement of specific objectives but on the overall competency of the student. It is not the question how and when the competency occurs but to what extent it has been obtained. The challenge that is faced by the school is the promotion of all of the students sitting in the classroom having different socio-economic background and intelligence (low, average, bright) on the basis of some certifiable standard. It is very difficult to set unified standard for all of the

students, and to develop all of them to the required level. In this respect, module based programme is more appropriate to meet this challenge.

- vi. Modules have their own built-in assessment of progress. They provide the student with immediate and continuing feedback.
- vii. The deficiency on the part of students has been made up through deficiency module that provides greater motivation to students.
- viii. The content that might be included in instructional units is in the shape of printed materials e.g. books, essays, bibliographies, additional resource lists, charts, and graphs. Audiovisual materials e.g. audio and video tapes, transparencies, films, film strips, photographs and charts. Verbal materials e.g. Lectures, discussion groups, simulation, gaming, role-playing. It also includes field exercises or projects, study questions, problems to be solved, self-administered tests and other materials.
- ix. The objectives and the learning activities should be proper sequenced.
- x. The subject matter should be correct, concise and presented in an interesting manner

Pareek and Rao (1981, p.66) and Ali (2005) listed the following problems and weaknesses of module based learning resource. It creates problem when the learning activities are not well planned and challenging, lack of localized material, fragmentation and break up inhibits conceptual learning. The students are not habitual of following self-discipline in pursuing independent study and select a learning mode among the given options. Time required for designing and implementing module is considered one of the major problems. There is a need of greater length of time for the preparation of the necessary material to conduct modular teaching in the classroom as compared to the traditional course of study. The person who develops the module always remains behind the scene and He/She does not earn any recognition and reward through Research and publications for optimizing learning. There is a need of additional clerical staff and time to record the performance of the students and the completion pace of their work.

Objectives of the Study

The objectives of the study were as under:

1. To develop a sample module from the textbook of English for the 9th class.

2. To validate module determining its effectiveness by teaching in the classroom.
3. To validate module determining its effectiveness from the performance of low and high achievers in the classroom

Research Questions

Following were the research questions of the study:

1. Is module based learning resource more useful for learning a second language than the traditional study material (textbook)?
2. Is module based learning resource more useful in learning a second language for the high achievers?
3. Is module based learning resource more useful in learning a second language for the low achievers?
4. Is module based learning resource increase retention rate of the students in learning a second language?

Procedure of the Study

a) Population of the study

The aim of this study was to develop and validate module in English at secondary level. It was validated by conducting lessons in the classroom. Therefore, the students studying at lower secondary level constituted the population of the study. These students belonged to middle class and lower middle class families having almost similar socio-economic background who were actually benefited from the material developed as a module. They were studying in public sector institutions where unified system of enrolment, teaching and assessment were practiced. The curriculum and facilities available to the students were also the same. Therefore, the population was entirely homogenous that were used for validation purposes.

(b) Delimitation of Study

The study was delimited to:

- a. Only the Urdu medium schools of Punjab Government, situated in Rawalpindi city, were included for sample selection for the validation of a module.
- b. During the experiment the following four units of English for 9th class were covered for the purpose of validation:
 - i. The Glory of the Muslims
 - ii. Hazrat Khalid Bin Waleed
 - iii. Kindness to living things
 - iv. Little things

c) Sample of students

Two sections A and B of 9th class from randomly selected schools of Rawalpindi district were taken as a sample of the study. The school and the subjects of the study were chosen randomly to control the internal and external validity threats identified by Stanely and Campbell. The population of the study was homogeneous, therefore, random sampling technique was considered most useful. The sample students were re-divided into two groups, i.e. experimental and control groups for the validation of a module. Both the groups were equated on the basis of pre-test. In this way, every student was equated with the other student on the basis of scores. Each group consisted on 30 students each.

Two teachers, almost similar in respect of educational qualification, age, training and teaching experience were selected from the sample school. One teacher was randomly assigned to the control group for teaching with the textbook material whereas the experimental group was taught with the material developed as a module. All the other condition remained the same except 07 days training provided to the teacher on the concept of modular teaching, activity based learning, Lesson planning and Learner centered environment.

d) Instrument of the Study

The validation and effectiveness of the module, consisting on five units, were checked by conducting lessons in the classroom. The experimental group was taught with the developed material as module whereas the control group was taught with the textbook learning resource. The module was validated by administering pre-test, post-test and incorporating the views of the experts in the final draft of the material developed as module. Pre-test was used to find out the competencies of the students to deal with the material presented in the module and to collect the base line data of the study. The post-test was used to find out the difference between the performance of control and experimental groups taught with the developed material as a module and textbook learning resource. The test was constructed by the researcher and revised in the light of the opinion of the experts. The experts approved the content validity of the test. The items were distributed in accordance with the Bloom's taxonomy of "knowledge, understanding and application domains". The reliability of the test was checked by applying split half method. Spearman-Brown prophecy formula was applied to determine the coefficient of reliability, which was found 0.75. The test carried completion items, multiple choice items, true false items, short questions and matching items and closed descriptive writing. These items of the test were focused on the listening skill, semantic aspects of vocabulary, forming words from the given alphabets, stylistics, syntax and use of verbal phrases.

Grammatical area included nouns, verbs, adjectives, spellings, rearranging the sentence, preposition, transform sentences from present into past and future tenses and descriptive writing with the help of given information.

Time allotted for the test was one hour and 20 minutes and total score of the test was 100. The test was pilot tested in three institutions and some of the items were modified on the basis of difficulty index and indiscrimination index to make them valid, clear, direct and targeted.

e) Collection of Data

The experimental group was taught with the resource material developed as a module and control group was taught with the textbook by using traditional method. There were 30 students in control and 30 students in the experimental group. The experiment continued for 14 weeks. After five weeks the same pre-test was administered as a surprise test to measure the retention level of students. At the end of experiment pre-test was administered as a post-test by changing the arrangements of the item numbers. The scores of pre-test, post-test and retention test were the data of the study.

f) Analysis of Data

Raw scores obtained from pre-test, retention-test and post-test were presented in a tabular form for the purpose of interpretation. For the manipulation of data, the means, standard deviations and differences of means were computed for each group. Significance of difference between the mean scores of both the experimental and control groups on the scores of pre-test and post-test were tested at 0.05 level by applying t test. To examine the treatment effects on high and low achievers of both the groups, analysis of variance was applied. For this purpose the students of both groups were divided into two halves i.e. high achievers (above the mean score, Appendix E) and low achievers (below the mean score, Appendix F). This division was made on the basis of pre-test scores.

Table – 1

Significance of difference between mean scores of experimental and Control Groups as whole, high achievers of control and experimental groups, and low achievers of the experimental and control groups on pre-test

Retention test	Levene's test		t.test				
	F	Sig	t	df	p-value	Mean Difference	SE _D
Ex+Congroup	.077	.78	3.15	58	.003	11.46	3.63
High.A of ex+con Group	.590	.449	3.76	28	.001	11.20	2.97
Low.A of ex+con Group	.075	.786	3.28	28	.001	11.73	3.08

Discussion and Analysis

The table 1 revealed the difference between the mean scores of experimental and control groups as a whole, difference between the high achievers and the low achievers of control and experimental groups on pre-test. The degree of freedom of the control and experimental groups as a whole was 58, of high achievers of the control and experimental groups was 28 and the low achievers were also 28. The mean difference were found .66, 1.13 and .2 respectively on 0.05 level. The standard error means of the control and experimental groups as a whole was 3.12, of the high achievers of the control and experimental groups was 2.42 and of the low achievers of the control and experimental groups was 2.4. The p-value was found .832 of the control and experimental groups as a whole, .644 of the high achievers of the experimental and control groups and .934 of the low achievers of the control and experimental groups on 0.05 level that are highly insignificant. The significance of the levene's test proved the appropriateness of the application of the t-test. Hence, the p. value obtained from the scores of the control and experimental groups revealed that there is no significant difference between the control and experimental groups as a whole, high achievers of the control and experimental groups and the low achievers of the control and experimental groups were found.

The findings of this table were used as a base line data of the study to find out the significance of the independent variable. These results helped to find out the validation and effectiveness of the material developed as a module on post-test and Retention test.

Table - 2

Significance of difference between mean score of experimental and Control Groups as whole, high achievers of control and experimental groups and low achievers of the experimental and control groups on post-test:

Retention test Group	Levene's test		t.test				
	F	Sig	t	df	p-value	Mean Difference	SE _D
Ex+Congroup	.061	.806	3.103	58	.003	11.26	3.63
High.A of ex+con Group	0.61	.806	3.751	28	.001	12.06	3.21
Low.A of ex+con Group	1.23	.27	3.52	28	.001	10.46	2.96

The table 2 shows the difference between the mean scores of experimental and control groups as a whole, difference between the high achievers and the low achievers of control and experimental groups on post-test. The degree of freedom of the control and experimental groups as a whole was 58, of high achievers of the control and experimental groups was 28 and the low achievers was 28. The mean difference were found 11.26, 12.06 and 10.46 respectively on 0.05 level. The standard error means of the control and experimental groups as a whole was 3.63, of the high achievers of the control and experimental groups was 3.21 and of the low achievers of the control and experimental groups was 2.96. The p-value was found .003 of the control and experimental group as a whole, .001 of the high achievers of the experimental and control groups and .001 of the low achievers of the control and experimental groups on 0.05 level that are highly significant. The significance of the levene's test proved the appropriateness of the application of the t-test. Hence, it was revealed that there is significant difference between the mean scores of experimental and control groups, high achievers of the control and experimental groups, and low achievers of the control and experimental groups. Therefore, it was declared that the performance of control and experimental as whole; low and high achievers on post-test was found highly significant. The performance of experimental group on post-test was better than the control group.

These results are also supported by the study conducted by Pareek and Rao (1981); and Ali (2005) that the modular approach creates and promotes interest for learning and they are able to demonstrate higher achievement as compared to the students taught by traditional methods of teaching with the textbook.

These result are also supported by Shipley *et al* (1989 and Ali (2005) that modular approach ahs equal benefits for high and low achievers. It is also

supported by Valletutti and Salpino (1985); Ali (2005) who have reported that low achievers are benefited most from the module based learning resource.

Table – 3
Significance of difference between mean scores of experimental and Control Groups, high achievers and low achievers on retention test

Retention test Group	Levene's test		t.test				
	F	Sig	t	df	p-value	Mean Difference	SE _D
Ex+Congroup	0.19	.89	3.15	58	.003	11.46	3.63
High.A of ex+con Group	.000	.984	3.76	28	.001	11.20	2.97
Low.A of ex+con Group	1.65	.209	3.80	28	.001	11.73	3.08

The table 3 shows the difference between the mean scores of experimental and control groups as whole, difference between the high achievers and the low achievers of control and experimental groups on retention test. The degree of freedom of the control and experimental groups as a whole was 58, of high achievers of the control and experimental groups was 28 and the low achievers was 28. The means difference were found 11.46, 11.20 and 11.73 respectively on 0.05 level. The standard error means of the control and experimental groups as a whole was 3.63, of the high achievers of the control and experimental groups was 2.97 and of the low achievers of the control and experimental groups was 3.08. The p-value was found .003 of the control and experimental groups as a whole, .001 of the high achievers of the experimental and control groups and .001 of the low achievers of the control and experimental groups on 0.05 level that are highly significant. The significance of the levene's test proved the appropriateness of the application of the t-test. Hence, it was revealed that there is significant difference between the mean scores of experimental and control groups, high achievers of the control and experimental groups, and low achievers of the control and experimental groups on retention test. It was also declared that the performance of experimental group as whole, low and high achievers on retention test was found highly significant.

The subjects who were taught by module based learning resource retained more as compared to the students in the control group taught by the textbook learning resource. The low ability students are highly motivated and showed significant difference in the scores as compared to the low achievers in the control group. These results are also supported by Ali (2005), Preedy (1989), Barnes *et al* (2000) and Block (1987). The learners remained on the track and

focused to the objectives given at the start of the unit in module based learning resource. Their retention level was higher as compared to the students in the control group taught with the Textbook material.

Table – 4

ANOVA (2X2) showing difference between treatment affects for high and low achievers of experimental and control groups on the post-test and retention test

Sources of variation on post-test	Type III sum of squares	df	Mean squares	F	Sig
Experimental. G Control. G	1904.067	1	1904.067	26.49	.000
Lower achievers. High achievers	7437.067	1	7437.067	103.49	.000
Interaction	9.6	1	9.6	.134	.716
Error	4024.00	56	71.85		
Corrected total	13374.73	59			
Sources of variation on Retention test	Type III sum of squares	df	Mean squares	F	Sig
Experimental. G Control. G	1972.26	1	1972.26	28.67	.000
Lower achievers. High achievers	7661.40	1	7661.40	111.38	.000
Interaction	1.067	1	1.067	.016	.901
Error	3852.00	56	68.78		
Corrected total	13486.73	59			

Table 4 shows that the p-value obtained from both the sources of variation: between subject and within subject of the high and low achievers of control and experimental groups was found highly significant. It was found .000 between the experiment and control groups of the high achievers and low achievers on 0.05 level. The p-value of interaction affect was found .716 which is above the level of .005 level. It means that the performance of low achievers of the experimental group is significantly better than the performance of low achievers on the control group. In the same way the performance of high achievers on the experimental group was found significantly better than the high achievers in the control group. Hence, It was revealed that there is significant difference between treatment affects of high achievers and low achievers on post-test and it was declared that the performance of high and low achievers of the experimental groups was found highly significant. It is proved that the significant difference in the performance is outcome or the effects of independent variable.

Second part of the table shows that the p-value obtained from both the sources of variation – between subject and within subject of the high and low achievers of control and experimental group was highly significant. It was found .000 on 0.005 level of experiment and control groups. The p-value of interaction affect was found .901 which was above the level of .005 level. It means that the performance of low achievers of the experimental group was significantly better than the performance of low achievers in the control group on retention test. In the same way the performance of high achievers on the experimental group was significantly better than the high achievers in the control group. Hence, it was proved that the performance of the high and low achievers taught with the material developed as module is significantly different on the retention test. It was declared that there is significant difference between high and low achievers of experimental and control group on retention test.

Conclusions

Following were the conclusions of the study:

1. The designed material as a module was validated by teaching lessons in the classroom revealed significant difference in the performance of the students in the experimental and the control groups formed for the purpose of this study.
2. The learning style developed through the material under validation enabled the learners to take charge of the learning process by themselves. As a result, the students in the experimental group taught with the learning material designed for validation outscored the students who were in the control group on the post-test.
3. Readability, difficulty level and content organization of the material, developed as a module, was validated by teaching lessons in the classroom that proved valid and effective from the better performance of the students in the experimental group.
4. The low ability students were greatly motivated and inspired when taught with the help of material under this study for validation. They outscored the students who were in control group. It catered the needs of the average and low ability students and allowed to proceed at their own pace to complete the learning task set by them. In this way, the readability, difficulty level and content organization of the developed material as a module was validated by the performance of the low ability students. It stands proved that material under validation is more effective in public sector institutions where the students of mixed ability groups are enrolled.

5. Feedback component of the material under validation consolidated the learning process and provided an opportunity to students to reflect on the material. As a result, the students in the experimental group outscored the students in the control group on a posttest. They were continuously evaluated by themselves through the developed material as a module and improved their performance.
6. The material developed for validation kept the students on the track and did not allow them to deviate from the topic. All the learning activities revolved around the objectives that were given at the start of the unit. And in this way, the appropriateness and suitability of objectives was validated by the significantly better performance of the students in the experimental group.
7. The designed material for the study can be administered in any social setting convenient to the learner. It has the advantages to be used anywhere outside the institution. It can be administered to single or group users, easily revised and upgraded. Included in the system, there is the provision for larger lecture session, small inquiry groups, and extensive independent study. In this way, it saves the financial resources of the country.
8. The developed material for the study allowed the teacher to perform his role as a guide, helper and a resource person instead of a tyrant. As a result, the students had a space to utilize their time and talent efficiently. The content organization of the material provided an opportunity to students of their deeper involvement and active participation in the lesson. In this way, the students taught with the help of designed material outscored the students taught with the textbook.
9. The developed material for validation under this study provided well-designed, carefully structured lesson material for the students. The learning tasks were graded from easy to difficult level. As a result, the students in the experimental group outscored the students in the control group. The highly significant performance of the students in the experimental group validated the organization and readability of the content of the modules.
10. The material developed for validation was focused on the success of the students' learning. The learning experiences were based on the performance of the students, and not on the performance of the teacher. It involved active participation of all the students in the learning task. As a result, the performance of the students in the experimental group was significantly better than the students in the control group.

11. Pre-test used in the study validated the readiness and prerequisite skills demanded from the students to deal with the material developed as a module. It determined the effectiveness and validity of the material for the secondary class students under this study.
12. The learning tasks in the developed material were repeated and graded from easy to difficult level. As a result, the retention level of the experimental group was higher than the control group. The students in the experimental group retained more of the material due to its focus on the Student Centred Approach (SCA) and structuring of the learning material in an organized way. It allowed the presentation of the teaching material in variety of media and modes that enhanced the retaining ability of the students.
13. The designed material as a module in this study measured the performance of the students on the basis of Criterion Reference Test (CRT). Therefore, there was no element of unhealthy competition and threat of failure among the students. They were required to complete the learning task until its achievement. This not only relieved the pressure of failure and competition, but also ensured the achievement of the objectives of the material developed as a module.
14. The study showed that the selected material as a module was proved valid and effective for the use of low and high achievers. The less intelligent students may repeat it and proceed at their own pace with the use of this material. The intelligent students did not sit idle but go for some extra reading material that was also proposed for them in the developed material as a module in this study. In this way, there was no wastage of time for intelligent and less intelligent students.
15. The material developed as a module under this study proved valid as far as the performances of the students in the experimental group were concerned. In spite of this, there is a need of further research on the topic by controlling some other variables such as attitude, level of intelligence, socio-economic status for more emphatically generalization of the results of the study.

Recommendations

Following are the recommendations of the study:

1. The policy makers should take steps in administrative and academic areas for the development and validation of modules in the system of education at secondary level in Pakistan. As the study revealed that module-based learning material is more effective which develops independent learning habits in the learners.
2. Teacher Training Institutions should conduct workshops for the training of the teachers for the development and validation of modules for the study of different subjects at secondary level.
3. The developed modules should be validated by teaching in the classroom on high, low and average ability students prior to organizing an actual session of teaching in any discipline at any level with the help of modules.
4. Senior teachers/subject specialists may be trained to revise and update module continuously to incorporate the new developments in the light of latest researches in the respective subjects.
5. Textbook Board should take for writing of the English textbooks and on modular patterns. These books may be validated by conducting lessons in the classrooms with their help as proposed in this study.
6. Ministry of Education should provide sufficient funding facilities and necessary administrative and academic help to develop and validate modules at secondary level within/outside institutions.
7. Libraries should be strengthened and enriched with sufficient books on the development and validation of module. The heads of the educational institutions should have been provided special funds to perform this responsibility.
8. Science teachers should use module based learning material in the teaching of science subjects for better learning and to discourage rote memorization.
9. The teachers should be trained to use the validated material as a module in teaching different subjects for enhancing the learning of the students.

Further Research

There is a need of further research studies in the subject of Physics, Chemistry, Mathematics, Computer science, Pakistan studies, Urdu, English and Islamic studies on the same pattern, and some other variables such as attitude, background status of the student, level of intelligence should be controlled.

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