

# **Are Course Books for Distance Learners different from Conventional Learners? (A Case Study Based on Students and Faculty Perceptions)**

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## ***Abstract***

*The purpose of the study was to find out the perceptions of students and faculty about the course books of teaching Mathematics at Bachelor level of Education at Allama Iqbal Open University. Another objective was to find out its difference from conventional text books. Main findings were that course book of teaching Mathematics is different from text book being used in conventional education system. Contents of book are simple, easy, and understandable according to the objective of open and distance learning. Subject matter is according to the mental level of the students. The main recommendations were; revision / improvement in the course, practical application of mathematics in daily life, book may be bi-lingual (English as well as Urdu). The book should be more like guidebook providing techniques of teaching in different environments and levels rather than solving the questions.*

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**Keywords:** Content Analysis, Teaching of Mathematics, Open University

## **Introduction**

Education is the lifeline of the vibrant and dynamic society. Education is the base on which the edifice of the progress and prosperity of a nation is erected. Therefore, the process of imparting education is of great importance. The system of education of any country squarely depends upon the teacher as he is responsible for preparing the young ones for the future. That's why the specialization in the field of education is of paramount importance. The increase in the population of students demands the better educated teachers. According to Richery (1958) "The teacher occupies a major position in which he can be of service. The school's primary function in the society is to transmit and progressively refines our cultural heritage to the young. The effectiveness of this process rests especially in the hands of the teacher".

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For many years, another consideration for the experts in the field of education is the Curriculum. According to Besto (1955) the curriculum must have five categories i.e. (i) authority over the native language, grammar, literature and skill of writing(ii ) Study of arithmetic (iii) study of sciences (iv) study of history and (v) foreign language. “The curriculum is considered to be increasingly wide range of possible modes of thinking about men’s experience not the conclusions but the models from which the conclusion is derived and in the context of which these conclusions, so called truths are grounded and validated.” Content is the most crucial element of any curriculum. For this purpose, it may be kept in mind that the content fulfills the existing and future requirements of the pupils, is an important point that one watch as the proper goals and objectives of a curriculum. Variations remain among different persons as per their priorities” (Belth, 1965).

Galileo (1564-1642) describes that Mathematics is the language in which God has written the Universe. Mathematics is an important subject for the growth and enhancement of an individual’s intellectual proficiency in logical reasoning. Mathematics should be taught on compulsory basis to all pupils as part of general education during the first ten years of school. Through the learning and application of Mathematics, students develop expertise, reasoning, ability to think logically and find out the solution of the problems which they are likely to face in the school or outside the classroom environment. These skills are valued not only in science and technology, but also in daily routines of life. Understanding Mathematics is a pleasure and increases the creativity of the students. Creativity is probably best viewed by the teacher as a very complex dimension covering all aspects of behavior. It involves reinterpreting ideas induced by variety of stimuli as well as the abilities required for innovating ideas (Foster, 1971).

The importance of course books for the distant learner students is manifold as these students are separated from the teacher in space and time.

These students have to rely on the contents of the books provided to them from the university. Allama Iqbal Open University is playing significant role in the promotion of education throughout the country. It is providing its services not only in settled area but also in the remote area of the country where formal systems are not available. It is providing educational facilities to all. In far-off areas the availability of teacher to every student or access to the teacher remains a challenge. It is the reason why the course book is so important. Therefore, the course books should be self explanatory, interesting and attractive for the students to get maximum benefits from them without any assistance. The course content of any book should be in line with the objectives of the course. The contents of the course books should be valid and the tutors or students should be satisfied with the contents of the course book (<http://mathoverflow.net/questions/5497/what-are-the-qualities-of-a-good-math-teacher> retrieved on 13 December 13). Subjects like Mathematics in which students always require the guidance of teachers. Keeping above in view, the study on “Content validation of Teaching of Mathematics Course Book for B.Ed. of Allama Iqbal Open University” is undertaken to analyze the problems faced by the students (future teachers) and tutors about the contents during their course of study.

Content analysis of any course book of distance learning is of paramount importance as the distant learners do not have a frequent interaction with the teacher or tutor. Students of AIOU are scattered throughout the country and by compulsion they have to rely on the course book provided to them by the university. The intended study on “Content analysis of Teaching of Mathematics Course Book for B.Ed. of Allama Iqbal Open University” analyzed that how far contents of the course book for the students of B.Ed., studying at Allama Open University meet the defined objectives of open and distance learning system. Following objectives were developed to complete this study:

1. To conduct the content analysis of the course contents of book 'Teaching of Mathematics' prescribed for B.Ed. level at AIOU
2. To find out the views of Course Coordinator / curriculum developer of Course Book of "Teaching of Mathematics" at B.Ed. level of Allama Iqbal Open University
3. To explore the view of tutors of Mathematics at B.Ed. level regarding the course contents of 'Teaching Mathematics' Course Book for B.Ed. of Allama Iqbal Open University
4. To find out the opinion of the students of B.Ed. studying the course of 'Teaching Mathematics' Course Book for B.Ed. of Allama Iqbal Open University.
5. To propose the measures to improve the content of 'Teaching of Mathematics' Course Book for B. Ed. at AIOU

The study was focused on the following research questions:-

1. Is there any difference in book designing for distance learners and conventional learners?
2. Do contents of Course Book of "Teaching Mathematics" at B.Ed. level of Allama Iqbal Open University fulfill the objectives set in for distance learners?
3. What is the opinion of the tutors of course of "Teaching of Mathematics" at B. Ed. about the contents of the course book?

### **Review of Literature**

The quest for the perfect textbook is universal among those who teach. Several checklists and scales of different types have appeared for rating the textbook in various fields. Majority of experts analyzes the textbooks keeping in view the needs of teachers and the students. Bernard Berelson defined Content Analysis as "a research technique for the objective, systematic, and quantitative description of manifest content of communications" (p.74). Content analysis is a research tool that emphasizes the actual text and its inner

characteristics. It is meant to quantify the text, concepts and phrases, keeping in view their objectivity. To analyze the textbooks, it may be divided into convenient parts and then they may be analyzed by different valuable techniques. The inferences can be drawn within the text, author, publisher, and comprehensiveness of coverage or the people accountable for it.

### **Selection of Contents**

The main concern of curriculum makers remains the content selection. Indeed, some countries follow the external system of examination. In it, a team outside the school determines the experiences through which students have to go. The resultant document is known as curriculum. Taking a perspective, it can be wrong in both terms i.e., logically and educationally. Generally the following criteria for the selection of contents are adopted:

1. **Significance.** The criterion of significance is applied where the content is judged in term of theme and context of the subject area. Something considered significant, is worthy of being included in the curriculum. For most curriculum developers, this criterion involves a suitable balance among concept, ideas and facts. The significance may be useful for anybody to consider some content for including in the curriculum.
2. **Validity.** One of the most important criterion to apply when selecting the content, is the validity. Content is regarded as valid when it is true. To a large measure, this means whether the context is precise and accurate in information. It says what it is supposed to say.
3. **Social relevance.** Social relevance suggests that the content should be selected on the grounds of its relevance to the social development of the individual. It should be a common oriented perspective in content.
4. **Utility.** Utility is a related criterion to be considered when selecting the contents. This criterion appears similar to the criteria of social relevance and significance, but it is rather defined in more definite way in term of individual learner when applied to select the content for curriculum. The

criteria of utility apply to the effectiveness of the contents to the students in adult life. It implies a very direct relevance and functional approach to the selection of contents that will lead to desired outcome on behalf of the students.

5. **Learnability.** This criterion is suitable to the curricula that have to meet the needs of group of large students with various backgrounds and a wide range of ability. In these cases, if the contents are to be acquired by all the students, then difficult content should be considered for this group of learners; gifted and talented students. Learners may find material challenging. The learnability criterion is different for different students. However, it is often complex to take account of the individual differences and hence aspect of content material by adding more advanced content for the brilliant students.
6. **Students' Interest.** Student's interest is one of the most important criteria for the judgment of selection of contents. This is more theoretical concept. It is given the lowest in the priority in practice. To avoid the boredom of the students, the students' interest must be kept in mind. The curriculum content selected largely depends upon the students' interests. Criteria, possibly, suffer from whim, immature development and individualistic emphasis. The range of students' interest may be unlimited and they are frequently transitory in nature. On the other hand, content selected by a professional or experts may lose the potential of a strong student's motivational force. But these arguments must be taken into account when constructing the curricula (Allied Martial of curricula development and instruction, pp.122-27).

Content analysis is used in various fields to examine text or textbooks, or any piece of writing; literature, culture studies, political science etc. The following list (adapted from Berelson, 1952) provides more possibilities for the uses of content analysis. Find out international dissimilarity in communication

content. Notice any existence of misinformation in the text. Discover the purpose, focus, intentions or trend of a person, group or an organization. Explain attitudinal and behavioral responses to communications. Determine mental or emotional state of an individual or class. Generally content analysis is divided into two categories i.e. conceptual analysis and relational analysis. Conceptual analysis can be considered as establishing the existence and frequency of concepts in a text. In this case, a particular concept is selected for analysis and it may be coded. Once divided information into manageable pieces, it may be analyzed and interpreted accordingly.

Following are the main advantages of content analysis of books to be used in open and distance mode.

1. It can be used for both kind of operations i.e. quantitative and qualitative.
2. It can help in finding old facts and figures with the help of analysis of textbooks.
3. It also allows closeness to text which can be an alternate between specific categories and relationships and also statistically analyzes the coded form of the text.
4. Content analysis can be used to interpret texts for purposes such as the development of expert systems, as knowledge and rules can both be coded in terms of explicit statements about the relationships among concepts.
5. It provides insight into complex models of human thought and language used in the texts.
6. When it is completed in a befitting manner, it is considered as a relatively "exact" research method (based on hard facts).

### **Research Methodology**

The study is a document analysis and descriptive or survey study based on quantitative as well as qualitative analysis. The population of the study consisted of all the enrolled students of the course 'Teaching of Mathematics'

at B.Ed. level of Allama Iqbal Open University in the session, Spring 2015, from Rawalpindi and Islamabad. Two thousands (2000), appointed tutors of the course 'Teaching of Mathematics' at B.Ed. level of Allama Iqbal Open University in the session, Spring 2015, from Rawalpindi and Islamabad. Twenty (20) Course Coordinators or Curriculum developers of the course "Teaching of Mathematics" at B.Ed. level of Allama Iqbal Open University. (20) Detail of the Sample and sampling techniques of the study were as under:-

Sr.	Category of respondents	Population	Sample	Sample size	Sampling Technique
1	Students	2000	200	10%	Random
2.	Tutors	20	20	100%	Census
3.	Course developers/Course coordinator/Author	20	10	50%	Random

### **Research Instruments**

Instruments or tools of research were document analysis and questionnaire. Three questionnaires were developed for the students, tutors and course developers / course coordinators according to five point Likert scale which was pilot tested before final administration. The questionnaires were pilot tested on fifteen students, five tutors from two Course Developers / Course Coordinators. In the light of feedback received from pilot testing, minor changes were made in the questionnaires.

S. No	Statement	Students (Mean)	Tutors (Mean)	Coordinator (Mean)	Average (Means)
1.	The course book is according to the need of the students.	3.8	4.1	4.5	4.1
2.	The contents of book are simple and easy to understand.	4.3	3.8	4.0	4
3.	The contents of book are according to the objectives of the course.	4.1	3.8	4.1	4
4.	The subject matter is according to the mental level of the students.	4.1	4.2	3.5	3.9



5.	The title of the book is attractive.	1.7	2.2	2.1	2
6.	Brief introduction of each unit is given in the start of the	4.1	4.1	4	4
7.	Objective of each unit is well defined in the beginning of the unit.	3.8	4.3	4.2	4.1
8.	Length of each unit is of suitable size.	2	2	2.6	2.2
10.	The contents of the books may be changed according to SSC Syllabus.	4	4.1	4.2	4.1
11.	Simple and understandable language is used in the book.	4.1	4.4	4	4.2
12.	Contents are supplemented with examples.	3.8	3.7	3.7	3.8
13.	Self assessment questions at the end of each unit are given according to the subject matter.	3.8	4.3	4	4
14.	This course book is very useful for the teachers of Mathematics.	4.1	3.2	4	3.8
15.	Important points are given at the end of each unit.	1.8	1.7	1.8	1.8
16.	<b>Number of units of book are appropriate.</b>	<b>2</b>	<b>1.7</b>	<b>1.8</b>	<b>1.8</b>

## Findings

### Conclusions

1. Majority of the students tutors and course coordinators / curriculum developers agreed that the course book of 'Teaching of Mathematics' is different from conventional education system.
2. Majority of students and tutors agreed that the terminologies written in Urdu are difficult to understand.
3. Majority of students, tutors and course coordinators / curriculum developers agreed that the books should be in English instead of Urdu because, it is difficult to understand terminologies in Urdu
4. Majority of students, tutors and course coordinators / curriculum developers disagreed that the title of the book is attractive
5. Length of each unit is not of suitable size.

6. Majority of students, tutors and course coordinators / curriculum developers agreed that more figures should be given in the text.
7. Majority of students and tutors agreed that contents of the books should be reduced.
8. Majority of students, tutors and course coordinators / curriculum developers disagreed that all basic concepts of Mathematics are included in the book.
9. Majority of students, tutors and course coordinators / curriculum developers agreed that the students that the contents of the books may be changed.
10. Examples related to daily life may be included.
11. Objectives of some of the units may be revised
12. Most of the tutors agreed that students are unable to manage this syllabus in given time.

### **Recommendations**

On the bases of findings and conclusions of the study, following recommendations are offered:-

1. The course book of 'Teaching Mathematics' may be revised and subject experts of Mathematics, having experience of teaching it, may be called for revision. Syllabus may be divided into two semesters instead of one i.e. Teaching Maths I (Unit 1-9) & Teaching Maths II (Unit 10-18). Different teaching techniques for each topic may be introduced. Model lesson plan of all the contents may be included. Activities related to contents may be included in all units For better understanding, basic terminologies may written in both English and Urdu.
2. Contents of the all course books may be revised, at least, after five years.
3. Though the course book of 'Teaching Mathematics' at B.Ed. level of AIOU has a very useful textual information like teaching techniques and lesson planning of Mathematics but their detailed practical

implementation in subsequent units is hardly visible. Therefore, it is suggested that such book should be more like a guidebook and provide techniques of teaching in different environment and levels rather than solution of questions. The recommendations along with unit wise analysis may be forwarded to the concerned department for reference or revision. Similar type of studies may also be carried out for the other course books of B.Ed. for better implementation of these recommendations.

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