CHAPTER V: FINDINGS, EDUCATIONAL IMPLICATIONS AND SUGGESTIONS

This chapter deals with the important findings of the study, educational implications and suggestions for the further study.

5.1 MAJOR FINDINGS

After analysis of the data some of the major findings are drawn and are listed as follows:

1. The main outcome of this study is an asset which is the tried out course material for the Foundation Course in Mathematics for the first year undergraduate distance learners of Open University.

2. As the null hypothesis that, “there is no significant difference on the scores of comprehensive and that of combined criterion tests” was accepted, it reveals the effectiveness of the course content, by comparing the criterion test scores of two groups’ (Block wise and comprehensive scores) mean difference and by testing for significance by using ‘t’ test. It further reveals that, the developed course content has the internal validity.

3. As there is significant difference between pre-test and post-test mean scores of Experimental Group [i.e. the students of Non-formal stream (below SSC, SSC, Intermediate failed) and the students of formal stream (Intermediate qualification without Mathematics)] taught through Self-Instructional Course Material.

It shows that the performance of the experimental group’s mean post-test score in the achievement test in Mathematics was better when compared with their pre-test scores. It supports the research findings of Hatch (1959) who have found that a self-instructional device would promote learning. Hosmer & Nolan, 1962; Smith, 1962; Uttal, 1962; Wendt & Rust, 1962; studied to compare a traditional instruction to a programmed method of teaching spelling in the third grade, and found that the programmed group gained significantly better grade-equivalent scores than the control group by the end of the year.

Evans et al. (1959), who have found that the group using smaller steps produced significantly fewer errors on both immediate and delayed tests. Gropper (1966) found that larger the step size, the more errors were committed during practice. This finding was significant for lower ability students.
4. As the null hypothesis that, “there is no significant difference between mean scores of experimental [Students of Non-formal stream (below SSC, SSC, Inter failed, and Intermediate without Mathematics) and students of Formal Stream Intermediate qualification without Mathematics] and Reference [Students of formal stream having Intermediate qualification with Mathematics] groups in the achievement test in Mathematics” is accepted, it reveals that the performance of students who studied the developed Foundation Course in Mathematics is on par with those who studied intermediate with mathematics in conventional mode.

It supports the research findings of Silverman (1962), who have found that there were no significant differences in learning from the use of programmed materials or conventional texts. McNeil and Keisler (1962), Giese and Stockdale (1966), Alexander (1970), and Univin (1966) also found that there was no significance across method while comparing the two versions (programmed and conventional texts).

It supports the research findings of Briggs and Bernard (1956), who have found that an experimental group using the Subject Matter Trainer (SMT), study guides, and oral and written exams outperformed the control group who used only the study guides and quizzes on a performance exam. Little (1934), compared results from groups either using a testing machine, a drill machine, or neither (control group). Both experimental groups scored significantly higher than the control group. The group using the drill machine moved further ahead than did the test machine group.

It also supports the research findings of Freeman (1959), who have found that no significant effects related to achievement on learner performance in a class of students who received reinforcement for a portion of the class and no reinforcement for another portion of time. Holland (1959), found no significant differences as a result of practice techniques on college students studying psychology using machine instruction, required one group of students to space their practice versus another group of students who had to mass their practice. Alter & Silberman, 1962; Csanyi, Glaser, & Reynolds, 1962; Daniel & Murdock, 1968; Goldbeck & Campbell, 1962; Goldbeck, Camp- bell, & Llewellyn, 1960; Hartman, Morrison, & Carlson, 1963; Kormandy & VanAtta, 1962; Lambert, Miller, & Wiley, 1962; Roe, 1960; Stolurow & Walker, 1962; Tobias, 1969a, 1969b, 1973; Tobais & Weiner, 1963; Shimamune (1992) & Vunovick (1995) found no significant difference between the effectiveness of programmed materials requiring overt responses and those using
covert responses. Smith & Moore (1962) found no significant difference was found on achievement related to step size, but the larger step program took less time in a study in which step size and Programmed Instruction cues were varied in a spelling program. Burton & Goldbeck, 1962; Coulson & Silberman, 1960; Hough, 1962; Price, 1962; Roe, 1960; Williams, 1963) compared constructed response and multiple-choice responses but found no significant differences. Dessart (1962), found that there was no significant difference between the conventional group and the linear group or between the linear and branching groups. Holland (1965), Leith, (1966), & Anderson (1967), reported no significant difference in learning between linear and branching programs when compared, and indicated this was generally the case with older or intelligent learners, “younger children using linear programs were more likely to receive higher test scores. Keisler & McNeil (1962), reported and found that using programmed materials, one showing a significant difference favouring the individual approach over the group approach. Feldhusen & Birt (1962), found no significance between individual and group approach.

5.2 EDUCATIONAL IMPLICATIONS OF THE STUDY

1. There is significant difference between pre-test and post-test mean scores of (Experimental Group) students of Non-formal stream (below SSC, SSC, Intermediate failed) and students of formal stream Intermediate qualification without Mathematics taught through Self-Instructional Course Material. Therefore, the present course helps the non-formal stream students of open universities and also those having intermediate qualification without mathematics for developing mathematical skills and applications in day-to-day life such as counting, measurement, estimation, banking etc.

2. The course material covers the syllabus from school level to Intermediate level and connects the 2nd year B.Sc. Mathematics Syllabus of Dr.B.R.Ambedkar Open University. Hence, this Foundation Course in Mathematics enables both the students from non-formal stream and the students with Intermediate qualification without Mathematics to pursue B.Sc. with Mathematics.

3. The course covers all the basic concepts of mathematic and helps to prepare for higher learning mathematics. The present course would be useful for all disciplines for basic mathematics skills.

4. As the performance of the Experimental Group is on par with the students having Intermediate Qualification with Mathematics, it reveals that the self-Instructional
Course Material in Mathematics is equally effective with that of the Course Material studied by Intermediate students with Mathematics.

5. The Dr. B.R. Ambedkar Open University may include the developed self-instructional material to develop the mathematical skills in the first year undergraduate level, as the developed self-instructional material provides the opportunities to pursue the computer sciences and informatics courses (M.B.A and M.C.A courses etc.,) after completion of undergraduation, to fulfil the norms of APSHE and AICTE.

6. The open universities may use this developed self instruction material to offer a Certificate/ Diploma course in Mathematics to develop necessary mathematical concepts and skills in day to day life situations.

5.3 SUGGESTIONS FOR THE FURTHER RESEARCH

The investigator suggests the following for further research:

1. As the present study was restricted only to Dr. B.R. Ambedkar Open University, such studies covering other open universities may be taken up.

2. As the course was developed only in English medium for the present study, such studies may be conducted in other media of instruction.

3. As the present study was limited to the print material of the course and did not deal with other media, studies using other media is suggested.

5.4 CONCLUSION

The findings, educational implications and suggestions have been discussed in this chapter. In this chapter the major findings were drawn on the basis of data analysis which was discussed in the chapter 4. Based on the findings the educational implications were given. Some suggestions for further research were also given.