3.1 **Objectives of the Study**

The study was undertaken with the following two broad objectives -

i. To identify the causes of underachievement in secondary school mathematics; and

ii. To offer suggestions for the improvement of achievement of underachievers in mathematics in the light of identified causes of underachievement.

3.2 **Dependent and Independent Variables**

The dependent and independent variables considered in the study were:

(a) **Dependent Variable**

1. Underachievement in mathematics.
(b) **Independent Variable**

i. Unfavourable attitude towards mathematics,

ii. Lack of confidence,

iii. High emotion,

iv. Poor study habits,

v. Poor achievement-motivation,

vi. Poor educational adjustment,

vii. High general anxiety, and

viii. High examination anxiety.

The selection of the above mentioned independent variables is based on review of related literature and self experience.

**3.3 Specific Objectives of the Study**

The specific objectives of the study were:

i. To investigate if unfavourable attitude towards mathematics is the cause of underachievement in secondary school mathematics,

ii. To investigate if lack of self-confidence is the cause of underachievement in secondary school mathematics,
iii. To investigate if high emotion is the cause of underachievement in secondary school mathematics,

iv. To investigate if poor study habits is the cause of underachievement in secondary school mathematics,

v. To investigate if poor achievement motivation is the cause of underachievement in secondary school mathematics,

vi. To investigate if poor educational adjustment is the cause of underachievement in secondary school mathematics,

vii. To investigate if high general anxiety is the cause of underachievement in secondary school mathematics,

viii. To investigate if high examination anxiety is the cause of underachievement in secondary school mathematics,

ix. To offer concrete suggestions in the form of; and

(a) Guidance and counselling programmes,
(b) Instructional methodology, and
(c) Psychological treatment

with a view to improve the achievement of underachievers in mathematics.
3.4 Research Hypotheses

In pursuance of the specific objectives of the present study, the following research hypotheses were formulated.

i. Unfavourable attitude towards mathematics is the cause of underachievement in mathematics.

ii. Lack of self confidence is the cause of underachievement in mathematics.

iii. High emotion is the cause of underachievement in mathematics.

iv. 'Poor study habits' is the cause of underachievement in mathematics.

v. Poor achievement motivation is the cause of underachievement in mathematics.

vi. Poor educational adjustment is the cause of underachievement in mathematics.

vii. High general anxiety is the cause of underachievement in mathematics.

viii. High examination anxiety is the cause of underachievement in mathematics.

3.5 Scope of the Study

The study was limited to IX Standard Kannada medium students of Mysore City only. The X Standard students will
be busy in preparing for the S.S.L.C. public examination. As such heads of schools do not permit to select them for the study. The VIII Standard students, coming from the primary/elementary stage need some time to adjust with the new secondary school stage. For these two reasons, students of IX Standard were involved in the present study.

3.6 Definition of Technical Terms

A few terms appear frequently in the report of investigation and they have been used with specific meaning. They are as follows:

3.6.1 Achievement Motivation

The term motivation refers to any organismic state that mobilizes activity which is in some sense selective or directive. Achievement motivation which is acquired tendency is one of the social needs (McCelland et al., 1953).

Decharms (1968) defined it as a disposition to strive for success in competition with others with some standard of excellence, set by the individual.

'Achievement Motivation' is a disposition to strive for success in situations where an individual's performance is evaluated (2:1-3).
3.6.2 Achievement Test

Achievement test in mathematics is a test which is designed to assess what a student has learned as the result of undergoing a course in mathematics.

3.6.3 Attitude

Attitude has been defined and described in various ways. In the present study, it is used in the sense as defined by Thurstone as 'The degree of positive or negative affect associated with some psychological object'. The psychological object in this case is Mathematics subject towards which students may have either positive or negative affect (10:39-40).

3.6.4 Anxiety

Anxiety is the response of an individual to a hidden danger, a fear of possible failure or of punishment in future. 'Manifest Anxiety' is defined as a display of anxiety reactions in different spheres of life (8:1-5).

The anxiety of pupils with respect to examinations is considered as an examination anxiety.
3.6.5 **Educational Adjustment**

Educational adjustment is defined as the individuals' ability to have a feeling of satisfaction in the educational environment in which he is, and he feels most of his educational needs have been duly satisfied (met) \((7;1-8)\).

3.6.6 **Emotion**

It is differently described and explained by different psychologists, but all agree that, it is a complex state of the organism, involving bodily changes of a widespread character in breathing, pulse, gland secretion, etc. \((5;80)\).

3.6.7 **Intelligence**

Intelligence is defined as a composite or organisation of abilities to learn, to grasp broad and subtle facts, especially, abstract facts, with alertness and accuracy, to examine mental control, to display flexibility and ingenuity in seeking the solution to problems \((6;1-5)\).

3.6.8 **Numerical Ability**

The numerical ability is the ability to understand numerical relationships and facility in handling numerical concepts.
The numerical ability test is a measure of the student's ability to reason with numbers, to manipulate numerical relationships and to deal intelligently with quantitative materials (3:1.1-1.7).

3.6.9 Number Series

The mental ability involved here is the identification of relationship between numbers and applying it in new situation.

Number series is a mental test, where the subject is required to complete or continue a series of numbers related according to some definite principle or principles (5:185).

3.6.10 Study Habits

Study habits are typical methods practiced by students to learn, reading methods, habits of concentration, examination taking skill and avoidance of social and family distractions (4:1-6).

3.6.11 Underachievers and Normalachievers

Underachievers are defined as those with a marked discrepancy between potential (as shown by ability tests)
and performance as shown by grades or achievement test scores (1:41-49).

In this study, students who scored less than \(-1\) unit below mean of estimated scores were considered as underachievers. Students scoring between \(+1\) units of estimated scores constituted normal achievers in this study.
REFERENCES


