CHAPTER I

INTRODUCTION

1.1. INTRODUCTION

The term “Education” emphasizes classroom education and over all development of body and behavior. The real teacher must work for drawing out the best from the child body, mind and spirit. The end of all knowledge must be building up of character and personality. The education not only prepares the child for higher education, but also shapes him in to a useful citizen to the society. Education is the tool to evolve moulds the students for various professions and vocations.

Today’s children are citizens of tomorrow. It helps to become aware of oneself and our environment and also imbibe the ethical, moral, cultural, social and spiritual values. Education is the process whereby human kind is working out in to fruition of its own inner nature, it is a man’s mean of realizing his destination of reaching his goal of largest power, joy and service, Truth, Charity, Righteousness, Honesty, Sacrifice, Tolerance, Punctuality, Loyalty and Faithfulness are also virtues which should be inculcated in the young generation. Mahatma Gandhi emphatically stresses about “Truth is the ultimate aim of education” (Aggarwal, 1985, P-5).

Education in a narrow sense is the modification of behavior of children in a controlled environment. The developmental stages of children and characteristics are very essential factors which the teacher must know in order to be a successful teacher.
According to Aristotle “The creation of a sound mind in a sound body” (Aggarwal, 1985, p-6).

According to Shankaracharya “Education is realization of the self” (Aggarwal 1985, p-6).

According to Plato “Education develops in the body and in the soul all the beauty and all the perfection which he is capable of” (Aggarwal, 1985, P-6).

According to Tagore “The widest road leading to the solution of all our problems is education”. (Dash, 2002, P-4).

According to Gandhi “By Education, I Mean an all round drawing out of the best in the child and man, body mind and spirit”. (Dash, 2002, P-4)

1.2. STRUCTURE OF EDUCATION

For the progress of the country, Education is very important. In any country education shapes the character and develops the intelligence of the individual. In India formal education is given to individuals through primary, secondary and higher secondary stage. The present pattern of higher secondary education follows 10+2+3 pattern.

1.2.1 PRIMARY EDUCATION

The stage in which 6 to 10 year old children being their regular education is called primary education. In primary school boys and girls are given free education for
five years. Reading, writing and arithmetic are learnt through the mother tongue. In addition children learn subjects like science and social science.

1.2.2 SECONDARY EDUCATION

As primary education is intended to provide the minimum essential to children, the secondary education helps children to become full members of a complex society. All round development of the child takes place at this stage.

1.2.3 STUDENTS STRUGGLE WITH MATHEMATICS

A major component of the child-centered, systematic teaching approach is content. The discipline of mathematics presents many challenges to dissimilar learners. Mathematics has often been termed the “gatekeeper” of success or failure for high school graduation and career success (National Research Council [NRC], 1989). It is essential that “mathematics . . . become a pump rather than filter in the pipeline of American education” (NRC, 1989, p. 7). A lack of sufficient mathematical skill and understanding affects one’s ability to make critically important educational, life, and career decisions.

Another difference in mathematic abilities often explored in research concerns gender disparities. There has been research examining gender difference in performance on standardized tests across various countries. Beller and Gafni’s (2006), have shown that children at approximately nine years of age do not show consistent gender difference in relation to mathematics skills. However, in 17 out of the 20 countries examined in this study, 13-year-old boys tended to score higher than girls. Moreover, mathematics is often labeled as
a masculine ability; as a result, girls often have low confidence in their mathematics capabilities. These gender stereotypes can reinforce low confidence in girls and can cause mathematics phobia as research has shown that performance on standardized mathematics tests is affected by one’s confidence (Dar-Nimrod & Heine, 2006). As a result, educators have been trying to abolish this stereotype by fostering confidence in math in all students in order to avoid mathematics phobia.

1.3. OBJECTIVES OF SECONDARY EDUCATION

The following are the main objectives of secondary education. Secondary education should provide the learner with opportunities to:

- acquire necessary knowledge, skills and attitudes for the development of the self and the nation
- promote love for and loyalty to the nation
- promote harmonious co-existence among the peoples of Kenya
- develop mentally, socially, morally, physically and spiritually
- enhance understanding and respect for own and other people's cultures and their place in contemporary society
- enhance understanding and appreciation of interrelationships among nations
- promote positive environmental and health practices
- build a firm foundation for further education and training
- develop ability for enquiry, critical thinking and rational judgment
- develop into a responsible and socially well adjusted person
- promote acceptance and respect for all persons
- enhance enjoyment in learning
➢ identify individual talents and develop them
➢ build a foundation for technological and industrial development
➢ develop into a self-disciplined individual who appreciates work and manages time properly

1.4. PLACE OF MATHEMATICS IN SECONDARY SCHOOLS

Mathematics is an essential part of our everyday life now. Therefore denial of its fundamental education to a modern citizen will be a great handicap for him. Mathematics will stay compulsory during the compulsory and universal education.

The place of a subject in the school curriculum depends upon its contribution towards the fulfillment of educational aims. The position of mathematics is to be determined on purely utilitarian and cultural grounds.

In our educational system, there are two clear stages. One being the stage of compulsory education and the other the stage of diversified or specialized education. Compulsory education is bound to be the same for all where as the diversified will vary from individual to individual. Mathematics too, will be compulsory, so long as education is compulsory. As soon as there is diversification or education according to the capability and interest of individuals. Mathematics will become optional like all other subjects of the curriculum. Mathematics is a part of this general education for ten years of schooling. When diversification starts at higher secondary stage, it
becomes the option of the student to take up either mathematics or any other subjects. The knowledge of mathematics is an asset, which everyone would like to possess. A sufficient knowledge of mathematics is an essential ingredient of the maturity of a person.

### 1.5. NATURE OF MATHEMATICS

Mathematics has got a number of characteristics such as abstractness, objectivity, symbolism, logical structure and brevity. These characteristics are described below.

#### 1.5.1 OBJECTIVE

Mathematics is known as an exact science because of its precision. There is no place for subjectivity and personal equation in mathematics. Mathematically obtained results are either correct or incorrect not allowing any stand to be taken in between.

There should be no difference of opinion between the teacher and the student regarding the solution of the problem. The student can verify the result by reverse process. It is possible for the student to remove the difficulties by self-effort and to be sure of the removal. The success of personal effort is a source of pleasure for the student and develops faith in self-support which is the secret of success in life. So the teacher of mathematics should develop accuracy among the students in solving problems.
1.5.2 ABSTRACTNESS

Mathematics is mostly theoretical in nature. It is difficult to understand. Some concepts have non-representational quantities. They are not based on the practical experiences. Most of the concepts in mathematics can be studied through imagination. Sometimes the abstract concept in mathematics can be explained through concretization and practical activities. For example, the concept of number in mathematics is abstract. Since it does not refer to any particular quantity. That is, the number ‘five’ does not refer to five objects. The symbol ‘5’ refers to abstract concept of ‘five’ whenever these is five pens, it shows the pens but never the ‘five’. The fiveness is an abstraction, which the mind makes out of similar situations like five pencils, five chairs or five apples. All the number and operations such as union and intersection of sets are abstract in nature concretization helps to develop abstract thinking among the students in learning mathematics.

1.5.3. SYMBOLISM

According to Kasner and Newton (1970) “Mathematics have a universal language, valid useful, intelligence, everywhere in place and time”.

The language of mathematics is international in character. This is helpful for expressing the ideas in a technical form. This is useful for developing reasoning power among the people. Man has the ability to assign symbols for objects and ideas. Mathematics language is free from verbosity. It helps us to understand the facts correctly. For an example, instead of writing the complement of union of the sets A and B equals to the complement of A and the intersection of the complement of B, it
can be written as \((A \cup B)' = A' \cap B'\). Mathematical results in their symbolic form help in solving complicated problems. Most of the results, scientific inventions and discoveries are stated through mathematical language and symbolism. The numbers are represented by the symbols 0, 1, 2…9. The set are denoted by A, B, C…. and the elements of the sets are represented by a, b, c….

In geometry, the symbol is used for triangle and the symbol // for parallel lines. In writing mathematical formula and sentences we are using symbols \(a + b = 9\), \(a \times b = 0\), \(A \cup B = B \cup A\). for explaining the relations between the elements we may use the symbols <, >, =, \(\neq\). The symbols +, -, \(\times\), \(\div\), represent operations performed on the elements such as addition, subtraction, multiplication, division, percentage. The student must be made familiar with these symbols so that they can clearly understand the mathematical process and conclusion.

1.5.4. LOGICAL STRUCTURE

Mathematics has a logical structure. Mathematics is mode of thinking. According to Summer (1923, P-1), “Arithmetic demands the power to reason and to concentrate”. Thus mathematics is a way of thinking and it is a deductive science. Here all the facts are deduced from the general principles. Thus deductive reasoning plays an important role in studying mathematics. Deductive recognizing is based on self-evident truths, postulates axioms etc. It proceeds from premise. Here the statements are the product of mind. This reasoning consists of computing the statement and drawing conclusion. According to White Head (1673), “mathematics in its widest sense is the development of all type of deductive reasoning”.

Mathematics is the only field of knowledge in which the logical laws can be applied. The results are verified without any personal bias or prejudice in mathematics. According to D’Alembert (1868, P-19), the geometry is a practical logic. Geometrical tools are the most simple and most sensible of all. Therefore reasoning can be applied in studying geometry. Every piece of deduction constitutes three parts namely, the premises the process of reasoning and the conclusion are drawn from correct premises. Mathematics is a symbolic logic because it provides all the three parts of deductions and the conclusions are verifiable by independent means.

1.5.5. BREVITY

Mathematics has got so many formulae. These formulae are the shortcuts for solving problems. This is a great blessing for the humanity, mathematics is primarily a skill. It requires speed and accuracy. The shortcuts are helpful for developing speed and accuracy in solving problems. If we want to multiply 67 and 63 we can use the shortcut “100 × n (n+1) + product of the digits in the unit places”. Here n is the tenth place digit. Thus we get 67× 63 = 100 ×6(6+1) + 7 × 3 = 4221, the above formula can be applied with the assumption that the sum of the unit digits must be ten and the tenth digits are identical. These algebraic formulas leads to speed and accuracy in arithmetical calculations and also make teaching of algebra meaningful. Since mathematics has the characteristics of objectivity, logical structure, symbolism, abstractness and brevity the teacher of mathematics has to teach the subject in consistent with its nature.
1.6. OBJECTIVES OF TEACHING MATHEMATICS AT SECONDARY LEVEL

The pupil understands and uses efficiently different mathematical languages.

By the end of the course, the learner should be able to:

- develop a positive attitude towards learning Mathematics
- perform mathematical operations and manipulations with confidence, speed and accuracy
- think and reason precisely, logically and critically in any given situation
- develop investigative skills in Mathematics
- identify, concretize, symbolize and use mathematical relationships in everyday life
- comprehend, analyze, synthesize, evaluate, and make generalizations so as to solve mathematical problems
- Collect, organize, represent, analyses, interpret data and make conclusions and predictions from its results
- apply mathematical knowledge and skills to familiar and unfamiliar situations
- appreciate the role, value and use of Mathematics in society
- develop willingness to work collaboratively
- acquire knowledge and skills for further education and training
- communicate mathematical ideas
- gain skill in translating mathematical data from one language to another.
- understand the quantitative aspects of his environment for active participation.
collect organizes and interpret mathematical data.

draw logical conclusions after trying and testing his guesses.

extend the idea of numbers to imaginary number and irrationals.

understand and appreciates the use of indices in logarithm and develops skill in using logarithm tables in calculations.

develop skill in using functional relations and variables in solving problems.

develop the concept of infinity and develops further the concepts as limits, probability.

develop skill in using higher geometrical instruments for practical and fieldwork.

understand the need and procedure of deductive proof for geometrical as well as algebraic propositions.

use his knowledge of algebra in solving geometrical problems and vice versa.

gain reasonable speed accuracy and self-reliance in calculations and also in using mathematical symbolism.

apply integrated knowledge of mathematics is solving real problems.

1.7. ACHIEVEMENT IN MATHEMATICS

The phrase ‘achieves’ signifies the level of educational development of an individual as determined by the score of a test designed to measure the knowledge or proficiency in theoretical study acquired by formal education.
Achievement tests as the name signifies are employed for measuring the amount of success or achievement of individual in a specific field or area or accomplishment. In the school situations an achievement test is used as a tool for measuring the nature and extent of students’ learning in a particular subject or a group of subjects. How far a particular student has been benefited from the learning experiences given to him is ascertained with the help of these tests. Therefore, achievement tests are essentially past-oriented. They give evidence of what has been learnt or acquired by an individual by testing his present ability.

The achievement tests are of mainly two types, standardized test and teacher made informal test. The standardized test is usually written test with objective type of questions. The teacher made informal tests are constructed by a teacher himself to measure the achievement of his pupil from time to time. They may be oral, practical and written (essay and objective type questions) tests. The teacher made tests have an advantage over standardized tests because they can be constructed to measure the outcomes directly related to the classroom specific objectives and particular class situations. They are within the means of every teacher and most economical.

Achievement in mathematics refers to marks secured by the students in the formal test which was conducted by the school. But in this study, achievement test constructed by the investigator.
1.7.1. FACTORS AFFECTING ACHIEVEMENT

There are many factors that affect the academic achievement of the adolescents. (Campbell et al. 2000; Epstein 1991; Fennema & Sherman, 1976; Fluty 1997)

Cultural factors

➢ The adolescent pupil may belong to different cultural groups and hence they have different attitudes about the values of education.

Social class value

➢ The academic achievement of the adolescent will depend to some extent upon the social class background of his family. If members of his social class think higher education is important he will also feel that it is more important to concentrate more on practical than on cultural subjects. He will accept this value and this will influence his academic achievement.

Parental attitude

➢ The academic achievement of the adolescent students depends upon the encouragement and interest shown by the parents in their children. The parents are pleased when their children do well and they show their displeasure when the children fall below their expectation. Therefore, parental aspiration plays a vital role in shaping the academic talents of the students.
Peer group activities

- It is one among the prominent factors influencing the academic achievement of the adolescent students. The adolescent students’ values are greatly influenced by those with whom he is mostly identified or whose acceptance he is most anxious to have in the school with which he is identified.

Gender role

- Boys are encouraged by their parents to continue their education than girls. Adolescence has been assumed to be a period of ‘storm and stress’. It is a period between childhood and adulthood. Specific age ranges, i.e., from 11 to 20, to the teenage years (13 to 19). Some authors say adolescent may extend through the mid-twenties especially for people who stay in school. It’s a period marked by numerous psychological, social and physical developments.

1.8. MATHEMATICAL PHOBIA

Mathematical phobia, which is exhibited by many students, is the persistent, illogical, intense fear of not succeeding in mathematics. It is the belief that one is unable to handle the difficulty associated with learning mathematics. Many people incorrectly assume that math phobia and an inability to be successful in mathematics are inherited from one's parents. Several legitimate factors contribute to, and increase the severity of, this perception.
Mathematics phobia is 'fear' of mathematics. It is usually defined as a persistent fear of mathematical problems in which the sufferer commits to great lengths in avoiding, typically disproportional to the actual danger posed, often being recognized as irrational. In the event the phobia cannot be avoided entirely, the sufferer will endure the mathematical problem with marked distress and significant interference in social or occupational activities.

1.8.1. CAUSES

For instance, gender and ethnic backgrounds are not determining factors in mathematical competence, but peers' and teachers' attitudes toward gender and ethnicity may increase or decrease one's confidence in mathematical skills. The methods used to teach mathematics skills may affect whether a student feels successful and develops mathematical self-confidence. Finally, family and peer attitudes may positively or negatively influence students' attitudes toward mathematics, which in turn affect their levels of confidence. Unless someone is diagnosed with a specific learning disability associated with processing numbers or learning intuitive concepts, math phobia is not a permanent condition. Math phobia can be overcome with the patience of an experienced and enthusiastic teacher, parent, coach, or therapist. Once a person gains even minimal amounts of success with mathematical concepts, the phobia usually abates.

Students often develop mathematical phobia in schools, often as a result of learning from teachers who are themselves anxious about their mathematical abilities in certain areas. Typical examples of areas where mathematics teachers are often
incompetent or semi-competent include fractions, (long) division, algebra, geometry” with proofs", calculus, and topology. In many countries, would-be math teachers are required only to obtain passing grades of 51% in mathematics exams, so that a math student who has failed to understand 49% of the math syllabus throughout his or her education can, and often does, become a math teacher. His or her fears and lack of understanding then pass naturally to his or her student.

Mathematics is usually taught as a right and wrong subject and as if getting the right answer were paramount. In contrast to most subjects, mathematics problems almost always have a right answer. Additionally, the subject is often taught as if there were a right way to solve the problem and any other approaches would be wrong, even if students got the right answer. When learning, understanding the concepts should be paramount, but with a right/wrong approach to teaching math, students are encouraged not to try, not to experiment, not to find algorithms that work for them, and not to take risks. While teaching of many subjects has changed from rote memorization to the current Constructivist approach, mathematics is frequently taught with a rote learning behaviorist approach.

1.9. SELF EFFICACY

A person's belief about his or her ability and capacity to accomplish a task or to deal with the challenges of life.

1.9.1. IMPORTANCE OF SELF EFFICACY
Self-efficacy is a person's judgment about being able to perform a particular activity. It is a student's "I can" or "I cannot" belief. Unlike self-esteem, which reflects how students feel about their worth or value, self-efficacy reflects how confident students are about performing specific tasks. High self-efficacy in one area may not coincide with high self-efficacy in another area. Just as high confidence in snow skiing may not be matched with high confidence in baseball, high self-efficacy in mathematics does not necessarily accompany high self-efficacy in spelling. Self-efficacy is specific to the task being attempted. However, having high self-efficacy does not necessarily mean that students believe they will be successful. While self-efficacy indicates how strongly students believe they have the skills to do well, they may believe other factors will keep them from succeeding.

A growing body of research reveals that there is a positive, significant relationship between students' self-efficacy beliefs and their academic performance. Our goal with this project is to increase the self-efficacy of the student you are working with. People with low self-efficacy toward a task are more likely to avoid it, while those with high self-efficacy are not only more likely to attempt the task, but they also will work harder and persist longer in the face of difficulties.

1.9.2. INFLUENCES OF SELF EFFICACY

Self-efficacy influences: (1) what activities students select, (2) how much effort they put forth, (3) how persistent they are in the face of difficulties, and (4) the difficulty of the goals they set. Students with low self-efficacy do not expect to do
well, and they often do not achieve at a level that is commensurate with their abilities. They do not believe they have the skills to do well so they don't try.

The connection between self-efficacy and achievement gets stronger as students advance through school. By the time students are in college, their self-efficacy beliefs are more strongly related to their achievement than any measure of their ability. If we wish to develop high educational achievement among our students, it is essential that we begin building stronger self-efficacy as early as possible.

Self-efficacy is the extent or strength of one's belief in one's own ability to complete tasks and reach goals. Psychologists have studied self-efficacy from several perspectives, noting various paths in the development of self-efficacy; the dynamics of self-efficacy, and lack thereof, in many different settings; interactions between self-efficacy and self-concept; and habits of attribution that contribute to, or detract from, self-efficacy.

This can be seen as the ability to persist and a person's ability to succeed with a task. As an example, self-efficacy directly relates to how long someone will stick to a workout regimen or a diet. High and low self-efficacy determine whether or not someone will choose to take on a challenging task or "write it off" as impossible.

Self-efficacy affects every area of human endeavor. By determining the beliefs a person holds regarding his or her power to affect situations, it strongly influences both the power a person actually has to face challenges competently and the choices a person is most likely to make. These effects are particularly apparent, and compelling, with regard to behaviors affecting health.
1.9.3. FUNCTIONS OF SELF EFFICACY

People generally avoid tasks where self-efficacy is low, but undertake tasks where self-efficacy is high. When self-efficacy is significantly beyond actual ability, it leads to an overestimation of the ability to complete tasks. On the other hand, when self-efficacy is significantly lower than actual ability, it discourages growth and skill development. Research shows that the optimum level of self-efficacy is slightly above ability; in this situation, people are most encouraged to tackle challenging tasks and gain experience.

Motivation

High self-efficacy can affect motivation in both positive and negative ways. In general, people with high self-efficacy are more likely to make efforts to complete a task, and to persist longer in those efforts, than those with low self-efficacy. The stronger the self-efficacy or mastery expectations, the more active the efforts. However, those with low self-efficacy sometimes experience incentive to learn more about an unfamiliar subject, where someone with a high self-efficacy may not prepare as well for a task.

Thought patterns & responses

Self-efficacy has several effects on thought patterns and responses:

- Low self-efficacy can lead people to believe tasks to be harder than they actually are.[15] This often results in poor task planning, as well as increased stress.
People become erratic and unpredictable when engaging in a task in which they have low self-efficacy.

People with high self-efficacy tend to take a wider view of a task in order to determine the best plan.

Obstacles often stimulate people with high self-efficacy to greater efforts, where someone with low self-efficacy will tend toward discouragement and giving up.

A person with high self-efficacy will attribute failure to external factors, where a person with low self-efficacy will blame low ability. For example, someone with high self-efficacy in regards to mathematics may attribute a poor test grade to a harder-than-usual test, illness, lack of effort, or insufficient preparation. A person with a low self-efficacy will attribute the result to poor mathematical ability. See Attribution Theory.

**Health Behaviors**

Choices affecting health, such as smoking, physical exercise, dieting, condom use, dental hygiene, seat belt uses, and breast self-examination, are dependent on self-efficacy. Self-efficacy beliefs are cognitions that determine whether health behavior change will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and failures. Self-efficacy influences how high people set their health goals. A number of studies on the adoption of health practices have measured self-efficacy to assess its potential to initiate behavior change.

**Academic Productivity**
Students showed that those with high self-efficacy showed better academic performance than those with low self-efficacy. Confident individuals typically took control over their own learning experiences, were more likely to participate in class, and preferred hands-on learning experiences. Those with low self-efficacy typically shied away from academic interactions.

1.9.4. FACTORS AFFECTING SELF-EFFICACY

Bandura identifies four factors affecting self-efficacy.

Experience or Enactive Attainment

The experience of mastery is the most important factor determining a person's self-efficacy. Success raises self-efficacy, while failure lowers it.

Modeling or Vicarious Experience

Modeling is experienced as, "If they can do it, I can do it as well." When we see someone succeeding, our own self-efficacy increases; where we see people failing, our self-efficacy decreases. This process is most effectual when we see ourselves as similar to the model. Although not as influential as direct experience, modeling is particularly useful for people who are particularly unsure of themselves.

Social Persuasion

Social persuasion generally manifests as direct encouragement or discouragement from another person. Discouragement is generally more effective at decreasing a person's self-efficacy than encouragement is at increasing it.
**Physiological Factors**

In stressful situations, people commonly exhibit signs of distress: shakes, aches and pains, fatigue, fear, nausea, etc. Perceptions of these responses in oneself can markedly alter self-efficacy. Getting 'butterflies in the stomach' before public speaking will be interpreted by someone with low self-efficacy as a sign of inability, thus decreasing self-efficacy further, where high self-efficacy would lead to interpreting such physiological signs as normal and unrelated to ability. It is one's belief in the implications of physiological response that alters self-efficacy, rather than the physiological response itself.

**1.10. FAMILY ACCEPTANCE**

Family acceptance of the child refers to the extent to which the child is accepted in the family. This covers the nature of the child’s relationship with the members of the family such as acceptance –rejection, dependence-independence, autocracy-democracy, mutual trust and approval of parents and the degree of family warmth towards children.

**1.10.1. CHARACTERISTICS OF PARENTING THAT PROMOTE ACADEMIC SUCCESS**

The following three approaches to parenting are key to promoting academic success in children. While all parents fall somewhere between the extremes, research strongly indicates that parents who are closer to acceptance, firmness, and autonomy have children who are more successful in school.
Three Ranges of Parenting Approaches

Acceptance <----------------- Rejection

Accepting parents are affectionate, liberal with their praise, involved in their child's life, and responsive to their child's emotional needs.

Children raised by accepting parents feel that they can turn to their parents when they have problems, that their parents encourage them, that their parents enjoy spending time with them, and that their parents are dependable sources of guidance or assistance.

Firmness <--------------- Leniency

Firm parents have clear rules that the child is expected to follow, and set clear expectations that the child will behave in a mature and responsible fashion. They are consistent.

Children raised by firm parents know what their parents expect of them and that there are consequences for violating their expectations.

Support of Autonomy <--------------- Control

Parents who support autonomy in their child tolerate and encourage their child's sense of individuality. They encourage their child to express herself and enjoy watching her develop into a separate and autonomous individual.
Children raised to be autonomous feel that self-expression is a valued trait, and that their parents' love and respect for them is not contingent on having the same opinions and ideas as their parents. They know that it's important for a person to speak up for what he believes.

1.10.2. IMPACT OF FAMILY ACCEPTANCE

Educational Attainment

Family structure is related to educational attainment. Individuals from intact families completed, on average, more years of schooling and were also more likely to graduate from high school, attend college, and complete college compared to peers raised in blended or single-parent families.

School Behavior.

Adolescents in intact families are less likely to exhibit problem behavior in school and tend to have higher levels of academic achievement. Compared to children living in intact families, peers living in (1) single mother families, (2) single-mother families with cohabiting partners, and (3) married families with stepfathers were more likely to have ever been suspended or expelled from school; more likely to have engaged in delinquent activities in the past twelve months; more likely to have problems getting along with their teachers, doing homework, and paying attention in school; and more likely to have lower grade point averages. On the Peabody Vocabulary Test (PPVT), an indicator of cognitive development, children living in married-parent families with stepfathers and those living with married biological
parents performed similarly; however, compared to adolescents in married biological-parent families, those living in single mother families or those living with single mothers and their cohabiting partners tended to fare worse on the PPVT.

**Mathematical and Science Proficiency.**

Children who do not live in intact families tend to be less proficient in math and science. Compared with peers in intact families, children in single-parent families, stepparent families, or non-parent guardian families scored, on average, lower on math and science achievement tests, according to a large international survey. Family resources only partially explained the relationship between family structure and math and science achievement.

**Divorce and Academic Achievement**

Youths who experienced parental divorce tend to have lower grade point averages and are more likely to be held back a grade in school. When socio-economic standing, race, and gender are controlled for, (1) remarriage, more than divorce or widowhood, exerts a downward pressure on the achievement of these children on standardized tests; (2) divorce and widowhood, more than remarriage, exert downward pressure on GPA and increase the likelihood of being left back one grade.
Family Disruption and Attendance

Compared with peers whose parents divorced or separated, students from intact families are more likely to attend college. Students from intact families were 9 percent more likely to apply to college than students from disrupted families. Students from intact families were also more likely to be admitted to college (as a proportion of those who applied, 92 percent compared with 89 percent), more likely to attend a four-year college immediately after high school graduation (as a proportion of those who were admitted, 62 percent compared with 52 percent), and more likely to ever attend a four-year college (as a proportion of those who ever attended college, 51 percent compared with 37 percent) than those who did not live with their biological parents.

Need for Special Classes.

On average, a greater proportion of children who are in special education classes come from single-parent households. Children in special-education classes were more likely to come from single-parent households (58 percent) than from two-parent households (31 percent) and were somewhat more likely to be of an ethnic minority. Black children in special-education classes were the least likely to have intact families; 70 percent lived with a single parent while 16 percent lived with two parents.
Preschoolers’ Cognitive Development.

Family structure is related to preschool children’s verbal reasoning skills. Children of single mothers had lower scores than children from two-parent families.

Parental Marital Disruption and Academic Achievement.

Parental divorce or separation is related to youths’ academic performance and educational expectations. Compared with their peers from intact families, students who had experienced parental marital disruptions scored lower on academic tests and had lower educational aspirations both before and after the disruptions.

Parental Involvement in Education

Family structure was associated with parents’ educational expectations and involvement with their children’s schoolwork. Children of single or stepparents reported that their parents had lower educational expectations for them compared to reports from children in intact families. The former group also reported that their parents are less likely to monitor schoolwork and provide “less overall supervision of social activities” compared to reports from children in intact families.
**Divorce and School Attendance.**

Compared with peers in intact families, adolescents from divorced single-parent households tend to have greater levels of absenteeism, tardiness, and truancy in school. Parental divorce altered daily routines and work schedules while imposing additional demands on both adults and children living in single-parent households. Most adolescents had to assume extra domestic and childcare responsibilities; financial conditions required some adolescents to work part-time. These burdens resulted in children from single parent households having greater levels of absenteeism, tardiness, and truancy in school.

### 1.10.3. THE BENEFITS OF FAMILY ACCEPTANCE

Researchers have evidence for the positive effects of parent involvement on children, families, and school when schools and parents continuously support and encourage the children's learning and development (Eccles & Harold, 1993; Illinois State Board of Education, 1993). According to Henderson and Berla (1994), "the most accurate predictor of a student's achievement in school is not income or social status but the extent to which that student's family is able to Create a home environment that encourages learning, Express high (but not unrealistic) expectations for their children's achievement and future careers and Become involved in their children's education at school and in the community."
Benefits for the Children

- Children tend to achieve more, regardless of ethnic or racial background, socioeconomic status, or parents' education level.
- Children generally achieve better grades, test scores, and attendance.
- Children consistently complete their homework.
- Children have better self-esteem, are more self-disciplined, and show higher aspirations and motivation toward school.
- Children's positive attitude about school often results in improved behavior in school and less suspension for disciplinary reasons.
- Fewer children are being placed in special education and remedial classes.
- Children from diverse cultural backgrounds tend to do better when parents and professionals work together to bridge the gap between the culture at home and the culture in school.
- Junior high and high school students whose parents remain involved usually make better transitions and are less likely to drop out of school.

1.11. NEED AND IMPORTANCE OF THE STUDY

Many external factors which affect the achievement of students, family acceptance is the important factors which affect achievement of the students. In the academic setting, many studies have shown that there is a positive and significant correlation between self-efficacy, anxiety, and stress. Etc with academic achievement. Mathematics phobia is a feeling of tension and phobia that interfere with the manipulation of number and the solving of mathematical problems in a wide variety
of ordinary life and academic situations. Mathematics Phobia can cause one to forget and lose one’s self-confidence. Three practices that are a regular part of the traditional mathematics classroom and cause great Phobia in many students are imposed authority, public exposure and time deadlines.

Mathematics Phobia is very real and occurs among thousands of people. Much of this Phobia happens in the classroom due to the lack of consideration of different learning styles of students. Today the needs of society require a greater need for mathematics. Mathematics must be looked upon in a positive light to reduce mathematics Phobia.

Therefore teachers must re-examine traditional teaching methods which often do not match students’ learning styles and skills needed in the society. Lessons must be presented in a variety of ways. For instance, a new concept can be taught through play acting, cooperative groups, visual aids, hands on activities and technology. As a result young children see math as fun and they will enjoy it, and the joy of mathematics could remain with them throughout the rest of their lives.

Researchers had found that self-efficacy beliefs could significantly affect academic achievement and the persistence in the field of engineering. Self-efficacy is “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments. Albert Bundara hypothesized that the level of self-efficacy can determine whether a task will be initiated, the amount of effort that will be expanded and the level of persistence to complete the task when face with obstacles and aversive experiences. The lack of self-efficacy will not enable the learner to
persist and complete the task within a specific time. On the other hand, if he had acquired a high level of self-efficacy belief, he would have motivated himself to put in more effort, persisted longer and completed the task in his best timing. Ever since Bandura theorized self-efficacy in his seminar, article, extensive studies were done to extend the role of self-efficacy as a mechanism to better understand behavioral change in the area of academic performance, cognitive functioning.

Mathematics is a subject very abstract in nature and the performance will be affected by his/her self-efficacy. A student with higher sense of self-efficacy and family acceptance will achieve better in mathematics performance. Keeping the above mind set, yet there is no such study regarding mathematical phobia, self-efficacy and family acceptance effect on achievement in mathematics. Based on the above background the investigator had undertaken a study on the secondary school students’ achievement in mathematics in relation to their mathematical phobia, self efficacy, and family acceptance.

1.12. STATEMENT OF THE PROBLEM

Mathematics can be looked upon in a positive right to reduce mathematics phobia, Whenever there is mathematical phobia, then the student lose self confidence. Tobias as cited in Olatoye and Afuwape (2003) suggested that mathematical phobia may be a function of poor study habits or deficient skills of test-taking which themselves have harmful effects on performance. Students with high self efficacy showed better academic performance than those with low self efficacy. It is found that there is a relationship between self efficacy and achievement in mathematics (Shaileela 2012). Self efficacy motivates one to complete the task in the best timings. Family acceptance is the important factor enhancing the achievement of the students. It is assumed that Students with less mathematical phobia, high level of self
efficacy and family acceptance achieve more marks in their achievement test in mathematics. Children are benefitted if the teacher and school, parents are involved in the education of children. As no research had been carried out by taking these variables in cuddalore educational district, the researcher is intended to study the secondary school students’ achievement in mathematics in relation to their mathematical phobia, self efficacy, and family acceptance.

1.13. VARIABLES OF THE STUDY

1. Dependent variable

- Achievement in mathematics

2. Independent variable

- Mathematical phobia
- Self efficacy
- Family acceptance

3. Demographic Variables:

a. Gender

Male / Female. This item is included since students may differ in their achievement due to sex.

b. Locality of school

Urban / Rural. The facilities available in Rural and Urban schools vary.

c. Type of managements


d. Religion
Hindu / Christian/ Muslim. This items is included since student’s may differ their achievement due to their religion.

e. **Type of families**

Joint / Nuclear. Family situation play certain in their study. So it is included.

f. **Parents’ Educational qualifications.**

Illiterate / School education / College education. This item is included since the education of the parents may influence the achievement of the children. The type of coaching given to the children by the parents may differ according to their educational qualification.

g. **Parents’ occupations**

Coolie / Government / Private. Occupation of the parents may influence the achievement of their children. The child rearing practices of the parents depend on their occupation.

h. **Parents’ annual income**

Low /Middle /High. The educational facilities given by the parents depend on their income.

1.14. **DEFINITIONS OF THE VARIABLES**

(I) **Achievement in mathematics**

Achievement in mathematics is the expectancy of finding satisfaction in mastering challenging and difficult performances in mathematics. *(De Cecco & Crawford 1977).*

(II) **Mathematical phobia**
Mathematical phobia is a feeling of tension apprehension or fear about one’s ability to do maths which subsequently interferes with performance thereof (Segen’s Dictionary 2012).

(III) Self efficacy

Self-efficacy as one’s ability to succeed in specific situation (Albert Bandura 1994).

IV) Family acceptance

Family acceptance is the degree to which a child (or) adolescent is socially accepted by family (Chirelstein 2001).
1.15. OPERATIONAL DEFINITIONS OF THE VARIABLES

(I) Achievement in mathematics

Achievement in mathematics refers to marks secured by the students in achievement test constructed and administered by the investigator.

(II) Mathematical phobia

Math phobia is 'fear' of mathematics. It is usually defined as a persistent fear of mathematical problems in which the sufferer commits to great lengths in avoiding, typically disproportional to the actual danger posed, often being recognized as irrational.

(III) Self efficacy

A person's belief about his or her ability and capacity to accomplish a task or to deal with the challenges of life.

(IV) Family acceptance

Family acceptance of the child refers to the extent to which the child is accepted in the family. This covers the nature of the child’s relationship with the members of the family.
1.16. OBJECTIVES OF THE STUDY

1. To find out the level of achievement in mathematics of secondary school students.

2. To find out the level of achievement in mathematics of secondary school students with regard to different sub-samples.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

3. To find out the level of mathematical phobia of secondary school students.

4. To find out the level of mathematical phobia of secondary school students with regard to different sub-samples.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
5. To find out the level of self efficacy of secondary school students.

6. To find out the level of self efficacy of secondary school students with regard to different sub-samples.

   a) Gender       [(i) Male (ii) Female]
   b) Locality of schools  [(i) Rural (ii) Urban]
   c) Type of managements  [(i) Government (ii) Self finance (iii) Aided]
   d) Religions         [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families   [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications  [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations   [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups  [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

7. To find out the level of family acceptance of secondary school students.

8. To find out the level of family acceptance of secondary school students with regard to different sub-samples.

   a) Gender       [(i) Male (ii) Female]
   b) Locality of schools  [(i) Rural (ii) Urban]
   c) Type of managements  [(i) Government (ii) Self finance (iii) Aided]
   d) Religions         [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families   [(i) Joint (ii) Nuclear]
9. To find out whether there is any significant difference between the mean achievement scores in mathematics of secondary school students with regard to different sub-samples.

   a) Gender  [(i) Male  (ii) Female]
   b) Locality of schools  [(i) Rural  (ii) Urban]
   c) Type of managements  [(i) Government (ii) Self finance (iii) Aided]
   d) Religions  [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families  [(i) Joint  (ii) Nuclear]
   f) Parents’ educational qualifications  [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations  [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups  [(i) Below ₹36000  (ii) Between ₹36001-₹72000  (iii) Above ₹72001]

10. To find out whether there is any significant difference between the mean mathematical phobia scores of secondary school students with regard to different sub-samples.

   a) Gender  [(i) Male  (ii) Female]
   b) Locality of schools  [(i) Rural  (ii) Urban]
   c) Type of managements  [(i) Government (ii) Self finance (iii) Aided]
   d) Religions  [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families  [(i) Joint  (ii) Nuclear]
f) Parents’ educational qualifications
   [(i) Illiterate (ii) School education (iii) College education]

g) Parents’ occupations
   [(i) Coolie (ii) Government (iii) Private]

h) Parents’ annual income groups
   [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

11. To find out whether there is any significant difference between the mean self-efficacy scores of secondary school students with regard to different sub-samples.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

12. To find out whether there is any significant difference between the mean family acceptance scores of secondary school students with regard to different sub-samples.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
f) Parents’ educational qualifications
   [(i) Illiterate (ii) School education (iii) College education]

g) Parents’ occupations
   [(i) Coolie (ii) Government (iii) Private]

h) Parents’ annual income groups
   [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

13. To find out whether there is any significant relationship between achievement in mathematics and mathematical phobia of secondary school students.

14. To find out whether there is any significant relationship between achievement in mathematics and mathematical phobia of secondary school students, with regard to different sub-samples.
   a) Male students studying in secondary schools.
   b) Female students studying in secondary schools.
   c) Secondary school students studying in rural schools.
   d) Secondary school students studying in urban schools.
   e) Secondary school students studying in government schools.
   f) Secondary school students studying in self finance schools.
   g) Secondary school students studying in aided schools.
   h) Secondary school students belonging to hindu religion.
   i) Secondary school students belonging to christian religion.
   j) Secondary school students belonging to muslim religion.
   k) Secondary school students from joint family.
   l) Secondary school students from nuclear family.
   m) Secondary school students whose parents’ educational qualification is illiterate.
n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income groups is below ₹36000.

t) Secondary school students whose parents’ annual income groups is between ₹36001 - ₹72000.

u) Secondary school students whose parents’ annual income groups is above ₹72001.

15. To find out whether there is any significant relationship between achievement in mathematics and self efficacy of secondary school students.

16. To find out whether there is any significant relationship between achievement in mathematics and self efficacy of secondary school students, with regard to different sub-samples.

a) Male students studying in secondary schools.

b) Female students studying in secondary schools.

c) Secondary school students studying in rural schools.

d) Secondary school students studying in urban schools.

e) Secondary school students studying in government schools.
f) Secondary school students studying in self finance schools.
g) Secondary school students studying in aided schools.
h) Secondary school students belonging to hindu religion.
i) Secondary school students belonging to christian religion.
j) Secondary school students belonging to muslim religion.
k) Secondary school students from joint family.
l) Secondary school students from nuclear family.
m) Secondary school students whose parents’ educational qualification is illiterate.
n) Secondary school students whose parents’ educational qualification is school education.
o) Secondary school students whose parents’ educational qualification is college education.
p) Secondary school students whose parents’ occupation is coolie.
q) Secondary school students whose parents’ occupation is government.
r) Secondary school students whose parents’ occupation is private.
s) Secondary school students whose parents’ annual income group is below ₹36000.
t) Secondary school students whose parents’ annual income group is between ₹36001 - ₹72000.
u) Secondary school students whose parents’ annual income groups is above ₹72001.
17. To find out whether there is any significant relationship between achievement in mathematics and family acceptance of secondary school students.

18. To find out whether there is any significant relationship between achievement in mathematics and family acceptance of secondary school students, with regard to different sub-samples.

a) Male students studying in secondary schools.
b) Female students studying in secondary schools.
c) Secondary school students studying in rural schools.
d) Secondary school students studying in urban schools.
e) Secondary school students studying in government schools.
f) Secondary school students studying in self finance schools.
g) Secondary school students studying in aided schools.
h) Secondary school students belonging to hindu religion.
i) Secondary school students belonging to christian religion.
j) Secondary school students belonging to muslim religion.
k) Secondary school students from joint family.
l) Secondary school students from nuclear family.
m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.
o) Secondary school students whose parents’ educational qualification is college education.
p) Secondary school students whose parents’ occupation is coolie.
q) Secondary school students whose parents’ occupation is government.
r) Secondary school students whose parents’ occupation is private.
s) Secondary school students whose parents’ annual income groups is below ₹ 36000.
t) Secondary school students whose parents’ annual income groups is between ₹ 36001 - ₹ 72000.
u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

19. To find out whether there is any significant relationship between mathematical phobia and self efficacy of secondary school students.
20. To find out whether there is any significant relationship between mathematical phobia and self efficacy of secondary school students, with regard to different sub-samples.

a) Male students studying in secondary schools.
b) Female students studying in secondary schools.
c) Secondary school students studying in rural schools.
d) Secondary school students studying in urban schools.
e) Secondary school students studying in government schools.
f) Secondary school students studying in self finance schools.
g) Secondary school students studying in aided schools.
h) Secondary school students belonging to hindu religion.
i) Secondary school students belonging to christian religion.
j) Secondary school students belonging to muslim religion.

k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income groups is below ₹36000.

t) Secondary school students whose parents’ annual income groups is between ₹36001 - ₹72000.

u) Secondary school students whose parents’ annual income groups is above ₹72001.

21. To find out whether there is any significant relationship between mathematical phobia and family acceptance of secondary school students.

22. To find out whether there is any significant relationship between mathematical phobia and family acceptance of secondary school students, with regard to different sub-samples.
a) Male students studying in secondary schools.

b) Female students studying in secondary schools.

c) Secondary school students studying in rural schools.

d) Secondary school students studying in urban schools.

e) Secondary school students studying in government schools.

f) Secondary school students studying in self finance schools.

g) Secondary school students studying in aided schools.

h) Secondary school students belonging to hindu religion.

i) Secondary school students belonging to christian religion.

j) Secondary school students belonging to muslim religion.

k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income groups is below ₹ 36000.
t) Secondary school students whose parents’ annual income groups is between ₹36001 - ₹72000.

u) Secondary school students whose Parents’ annual income groups is above ₹72001.

23. To find out whether there is any significant relationship between self efficacy and family acceptance of secondary school students.

24. To find out whether there is any significant relationship between self efficacy and family acceptance of secondary school students, with regard to different sub-samples.

   a) Male students studying in secondary schools.
   b) Female students studying in secondary schools.
   c) Secondary school students studying in rural schools.
   d) Secondary school students studying in urban schools.
   e) Secondary school students studying in government schools.
   f) Secondary school students studying in self finance schools.
   g) Secondary school students studying in aided schools.
   h) Secondary school students belonging to hindu religion.
   i) Secondary school students belonging to christian religion.
   j) Secondary school students belonging to muslim religion.
   k) Secondary school students from joint family.
   l) Secondary school students from nuclear family.
   m) Secondary school students whose parents’ educational qualification is illiterate.
n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹ 36000.

t) Secondary school students whose parents’ annual income group is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

25. To find out whether there is any significant linear influence of mathematical phobia, self efficacy, and family acceptance about achievement in mathematics of secondary school students.

26. To find out whether there is any significant linear influence of achievement in mathematics of secondary school students with regard to different sub-samples.

27. To find out whether there is any significant linear influence of mathematical phobia of secondary school students with regard to different sub-samples.

28. To find out whether there is any significant linear influence of self efficacy of secondary school students with regard to different sub-samples.
29. To find out whether there is any significant linear influence of family acceptance of secondary school students with regard to different sub-samples.

1.17. HYPOTHESES OF THE STUDY

1. The level of achievement in mathematics of secondary school students is low.

2. The level of achievement in mathematics of secondary school students with regard to different sub-samples is low.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

3. The level of mathematical phobia of secondary school students is high.

4. The level of mathematical phobia of secondary school students with regard to different sub-samples is high.
   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
5. The level of self efficacy of secondary school students is low.

6. The level of self efficacy of secondary school students with regard to different sub-samples is low.

   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups [(i) Below ₹36000 (ii) Between ₹36001- ₹72000 (iii) Above ₹72001]

7. The level of family acceptance of secondary school students is low.

8. The level of family acceptance of secondary school students with regard to different sub-samples is low.

   a) Gender [(i) Male (ii) Female]
   b) Locality of schools [(i) Rural (ii) Urban]
   c) Type of managements [(i) Government (ii) Self finance (iii) Aided]
   d) Religions [(i) Hindu (ii) Christian (iii) Muslim]
9. There is no significant difference between the mean achievements scores in mathematics of secondary school students with regard to different sub-samples.

   a) Gender        [(i) Male (ii) Female]
   b) Locality of schools    [(i) Rural (ii) Urban]
   c) Type of managements    [(i) Government (ii) Self finance (iii) Aided]
   d) Religions     [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families    [(i) Joint (ii) Nuclear]
   f) Parents’ educational qualifications [(i) Illiterate (ii) School education (iii) College education]
   g) Parents’ occupations [(i) Coolie (ii) Government (iii) Private]
   h) Parents’ annual income groups [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

10. There is no significant difference between the mean mathematical phobia scores of secondary school students with regard to different sub-samples.

   a) Gender        [(i) Male (ii) Female]
   b) Locality of schools    [(i) Rural (ii) Urban]
   c) Type of managements    [(i) Government (ii) Self finance (iii) Aided]
   d) Religions     [(i) Hindu (ii) Christian (iii) Muslim]
   e) Type of families    [(i) Joint (ii) Nuclear]
f) Parents’ educational qualifications
   [(i) Illiterate (ii) School education (iii) College education]

11. There is no significant difference between the mean self efficacy scores of secondary school students with regard to different sub-samples.

   a) Gender
      [(i) Male (ii) Female]

   b) Locality of schools
      [(i) Rural (ii) Urban]

   c) Type of managements
      [(i) Government (ii) Self finance (iii) Aided]

   d) Religions
      [(i) Hindu (ii) Christian (iii) Muslim]

   e) Type of families
      [(i) Joint (ii) Nuclear]

   f) Parents’ educational qualifications
      [(i) Illiterate (ii) School education (iii) College education]

   g) Parents’ occupations
      [(i) Coolie (ii) Government (iii) Private]

   h) Parents’ annual income groups
      [(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

12. There is no significant difference between the mean family acceptance scores of secondary school students with regard to different sub-samples.

   a) Gender
      [(i) Male (ii) Female]

   b) Locality of schools
      [(i) Rural (ii) Urban]

   c) Type of managements
      [(i) Government (ii) Self finance (iii) Aided]

   d) Religions
      [(i) Hindu (ii) Christian (iii) Muslim]

   e) Type of families
      [(i) Joint (ii) Nuclear]

   f) Parents’ educational qualifications
      [(i) Illiterate (ii) School education (iii) College education]

   g) Parents’ occupations
      [(i) Coolie (ii) Government (iii) Private]
h) Parents’ annual income

[(i) Below ₹36000 (ii) Between ₹36001-₹72000 (iii) Above ₹72001]

13. There is no significant relationship between achievement in mathematics and mathematical phobia of secondary school students.

14. There is no significant relationship between the achievement in mathematics and mathematical phobia of secondary school students, with regard to different sub-samples.

a) Male students studying in secondary schools.

b) Female students studying in secondary schools.

c) Secondary school students studying in rural schools.

d) Secondary school students studying in urban schools.

e) Secondary school students studying in government schools.

f) Secondary school students studying in self finance schools.

g) Secondary school students studying in aided schools.

h) Secondary school students belonging to hindu religion.

i) Secondary school students belonging to christian religion.

j) Secondary school students belonging to muslim religion.

k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.
o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income groups is below ₹ 36000.

t) Secondary school students whose parents’ annual income groups is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

15. There is no significant relationship between achievements in mathematics and self efficacy of secondary school students.

16. There is no significant relationship between the achievements in mathematics and self efficacy of secondary school students, with regard to different sub-samples.

   a) Male students studying in secondary schools.
   b) Female students studying in secondary schools.
   c) Secondary school students studying in rural schools.
   d) Secondary school students studying in urban schools.
   e) Secondary school students studying in government schools.
   f) Secondary school students studying in self finance schools.
g) Secondary school students studying in aided schools.

h) Secondary school students belonging to Hindu religion.

i) Secondary school students belonging to Christian religion.

j) Secondary school students belonging to Muslim religion.

k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹36000.

t) Secondary school students whose parents’ annual income group is between ₹36001 - ₹72000.

u) Secondary school students whose parents’ annual income groups is above ₹72001.
17. There is no significant relationship between achievements in mathematics and family acceptance of secondary school students.

18. There is no significant relationship between the achievements in mathematics and family acceptance of secondary school students, with regard to different sub-samples.

   a) Male students studying in secondary schools.
   b) Female students studying in secondary schools.
   c) Secondary school students studying in rural schools.
   d) Secondary school students studying in urban schools.
   e) Secondary school students studying in government schools.
   f) Secondary school students studying in self finance schools.
   g) Secondary school students studying in aided schools.
   h) Secondary school students belonging to hindu religion.
   i) Secondary school students belonging to christian religion.
   j) Secondary school students belonging to muslim religion.
   k) Secondary school students from joint family.
   l) Secondary school students from nuclear family.
   m) Secondary school students whose parents’ educational qualification is illiterate.
   n) Secondary school students whose parents’ educational qualification is school education.
   o) Secondary school students whose parents’ educational qualification is college education.
p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹ 36000.

t) Secondary school students whose parents’ annual income group is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

19. There is no significant relationship between mathematical phobia and self efficacy of secondary school students.

20. There is no significant relationship between the mathematical phobia and self efficacy of secondary school students, with regard to different sub-samples.

   a) Male students studying in secondary schools.

   b) Female students studying in secondary schools.

   c) Secondary school students studying in rural schools.

   d) Secondary school students studying in urban schools.

   e) Secondary school students studying in government schools.

   f) Secondary school students studying in self finance schools.

   g) Secondary school students studying in aided schools.

   h) Secondary school students belonging to hindu religion.

   i) Secondary school students belonging to christian religion.

   j) Secondary school students belonging to muslim religion.
k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹ 36000.

t) Secondary school students whose parents’ annual income group is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income group is above ₹ 72001.

21. There is no significant relationship between mathematical phobia and family acceptance of secondary school students.

22. There is no significant relationship between the mathematical phobia and family acceptance of secondary school students, with regard to different sub-samples.

a) Male students studying in secondary schools.
b) Female students studying in secondary schools.

c) Secondary school students studying in rural schools.

d) Secondary school students studying in urban schools.

e) Secondary school students studying in government schools.

f) Secondary school students studying in self finance schools.

g) Secondary school students studying in aided schools.

h) Secondary school students belonging to hindu religion.

i) Secondary school students belonging to christian religion.

j) Secondary school students belonging to muslim religion.

k) Secondary school students from joint family.

l) Secondary school students from nuclear family.

m) Secondary school students whose parents’ educational qualification is illiterate.

n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹ 36000.
t) Secondary school students whose parents’ annual income group is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

23. There is no significant relationship between self efficacy and family acceptance of secondary school students.

24. There is no significant relationship between the self efficacy and family acceptance of secondary school students, with regard to different sub-samples.

   a) Male students studying in secondary schools.

   b) Female students studying in secondary schools.

   c) Secondary school students studying in rural schools.

   d) Secondary school students studying in urban schools.

   e) Secondary school students studying in government schools.

   f) Secondary school students studying in self finance schools.

   g) Secondary school students studying in aided schools.

   h) Secondary school students belonging to hindu religion.

   i) Secondary school students belonging to christian religion.

   j) Secondary school students belonging to muslim religion.

   k) Secondary school students from joint family.

   l) Secondary school students from nuclear family.

   m) Secondary school students whose parents’ educational qualification is illiterate.
n) Secondary school students whose parents’ educational qualification is school education.

o) Secondary school students whose parents’ educational qualification is college education.

p) Secondary school students whose parents’ occupation is coolie.

q) Secondary school students whose parents’ occupation is government.

r) Secondary school students whose parents’ occupation is private.

s) Secondary school students whose parents’ annual income group is below ₹ 36000.

t) Secondary school students whose parents’ annual income group is between ₹ 36001 - ₹ 72000.

u) Secondary school students whose parents’ annual income groups is above ₹ 72001.

25. There is no significant linear influence of mathematical phobia, self efficacy, and family acceptance about achievement in mathematics of secondary school students.

26. There is no significant linear influence of achievement in mathematics of secondary school students with regard to different sub-samples.

27. There is no significant linear influence of mathematical phobia of secondary school students with regard to different sub-samples.
28. There is no significant linear influence of self efficacy of secondary school students with regard to different sub-samples.

29. There is no significant linear influence of family acceptance of secondary school students with regard to different sub-samples.

1.18. METHOD OF STUDY

In this present study the normative survey research method is used. This method deals with both qualitative and quantitative aspects of reading peer pressure and social intelligence. The normative survey research attempts to measure the status quo or existing situations and its evaluation. In other words, the primary goal of the survey is an investigation of the present status of phenomenon.

1.19. TOOLS USED FOR THE STUDY

The tools used for the present study are:

- Achievement test in mathematics of secondary school students constructed and validated by the investigator, with the help of Guide (2014).

- Mathematical phobia scale for secondary school students constructed and validated by the investigator, with the help of Guide (2014).


- Family acceptance scale by Pillai & Usha (1991)

1.20. STATISTICAL TECHNIQUES USED

The following statistical techniques are used to analyse the data collected from the sample
- Descriptive analysis – mean and standard deviation
- Differential analysis – ‘t’ test and ‘f’ test
- Correlation analysis – coefficient of correlation ‘r’
- Regression analysis

The detailed description of the above mentioned statistical techniques were given in chapter III of the dissertation. The detailed description is given in the chapter-IV of the dissertation.

1.21. DELIMITATIONS OF THE STUDY

- The study has been conducted by taking 1000 secondary students from 22 schools located in cuddalore educational districts.
- Variables namely Achievement in mathematics, mathematical phobia, self efficacy and family acceptance alone are involved in the study.

1.22. BRIEF RESUME OF THE SUCCEEDING CHAPTERS

In chapter –II, a review of the studies relating to the present investigation has been done.

The details of description of tools, the sample used in the study and statistical techniques employed are described in detail in chapter – III methodology.

Chapter – IV gives the analysis and interpretations of data obtained by administering the various tools of the study to the higher secondary students.

In chapter – V the summary of findings and discussion of the present study and suggestions for further researchers in this area are given.

Bibliography and appendices attached after 5th chapter.
1.23. CONCLUSION

In this chapter problem of the present study has been discussed briefly bringing out the need and importance of the study, objectives of the study etc. The terms operationally defined in the study have been reviewed theoretically from the related literature available so as to give a broader theoretical perspective and hypotheses testing.