RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACHIEVEMENT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS

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DECLARATION

I, Nimisha P, do hereby declare that this dissertation "**RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACHIEVEMENT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS**" has not been submitted by me for the award of any Degree, Diploma, Title or Recognition before.

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CERTIFICATE

I, Dr. P. REKHA., do hereby certify that this dissertation entitled "**RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACHIEVEMENT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS**" is a record of bonafide study and research carried out by **NIMISHA P,** under my supervision and guidance.

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Knowledge is power. A child gets knowledge from different sources. From the womb itself he/she gets knowledge and this process is continuing till the last breath. Thus the education is a lifelong process. Through the process of education the inner potentialities of an individual develop. In this process all the agencies like family, school, community, and nation contribute immensely. Whatever may be the agency the task of education is to lead people out of darkness into light.

Many factors affect the educational process. When a child reach the school, the teachers, curriculum, teaching methods, environment of the school, attitude and aptitude of the students etc plays a significant role in the educational process. A general curriculum in the lower classes helps to keep interest in their study among students. When the children are going up the interest may change with respect to the subjects, or with respect to the teacher who teach that subject. A diversified curriculum develops a basic knowledge among the children in the elementary level.

In the secondary stage the things may change. The secondary stage of education is crucial as it posses maximum challenge to students. This is the stage in which they have to take important decisions about their future. Academic achievement plays better for the upward movement of the student. In this stage the child understands their particular interest and if it nourishes by the environment the child spurt to the aim very easily.

Education is the most powerful weapon that one can be use to become successful person in life. According to Gandhiji education is a drawing out process.

'Drawing out of best' is recognized a great potentiality coiled up in the child that can be realized and developed to its perfection through education. It is through self-effort one can attain his/her goal. The effort taken by the individual to each subject depends upon their interest to that subject. Whatever it may be, the aim of education in this stage is to push the child into a horizon with large opportunities.

Modern society is more competitive. Academic achievement is very much contributing to the upward movement of the child. Intellectual development is very important as other aspect such as personal and spiritual development especially in present world. A very few people believe in the element of luck in their achievement. The genuine attempt of the child surely pushes him to the aim. In this stage the child learns many subjects and it is the recommendation of Secondary education commission to include languages, Social studies, General science, Mathematics, Art and Music, Craft and Physical education. Each subject is included in the curriculum with particular aim. Languages develop imagination in the students. Science improves the observation skills, Mathematics develops logical thinking, and Social science develops a value for developing our culture or what we have. Thus the diversified curriculum in this stage helps the overall development of a child to lead a successful life.

Mathematics is a subject of paramount importance in one's daily life. There is mathematics in each and every aspects of the Universe. Tondeur has observed that the 21st century is going to witness greater opportunities for mathematical sciences. Mathematical thought and concepts will become the primary route-finding tools in

the technical world. Therefore it is essential that everyone should have a basic knowledge of mathematics.   .

There are many factors which influence the achievement in mathematics among students, such as interest of students, attitude of students as well as teachers towards mathematics, mathematics anxiety, mathematics phobia, certain beliefs and other personal factors. One of such personal factors include locus of control.

For success in higher education and beyond, a strong foundation in secondary school mathematics is essential. Despite the importance of mathematics in life and in the study of other science subjects, there has been a deterioration in the number of students enrolled in the higher mathematics courses in India as well as in western countries

Need and significance of the study

"Mathematics is the language in which God has written the universe."

Galileo Galilei

Mathematics is a nightmare for most of the children in their school life. They already built a mindset that they can't learn mathematics and their abilities are not enough to learn and understand mathematics and also they possess negative attitude towards mathematics that they cannot achieve good marks in examinations. Studies revealed that there is a positive relationship between attitude and achievement in mathematics (Sing,Granville&Dika,2002). That is, if a learner possesses positive attitudes towards the subject, that will help him/her to achieve good marks in the subject, because he/she possess a mentality to work hard and try to get high

achievements. Conversely, if a learner believes that, scoring high marks in examinations is a difficult task, and the success and failures in the life are the result of one's luck or fate, that leads the person to put less effort in learning. This may cause low achievement in examinations, especially in the case of subject like mathematics which needs more efforts from the part of the learner.

Rotter (1954) in his social learning theory, developed a concept of 'locus of control'. It is the degree to which people believe that they have control over the outcome of events in their lives. Locus of control refers to people's very general, cross-sectional beliefs about what determines whether or not they get reinforced in life. People can be classified along a continuum from very internal to very external. People with a strong internal locus of control believe that the responsibility for whether or not they get reinforced ultimately lies with themselves. Internals believe that success or failure is due to their own efforts. In contrast, externals believe that the reinforcers in life are controlled by luck, chance, or powerful others. Therefore, they see little impact of their own efforts on the amount of reinforcement they receive.

Locus of control is often viewed as an inborn personality component. The major findings was that children with a more internal locus of control behave more healthily as adults because they have greater confidence in their ability to influence outcomes through their own actions. If a person has an internal locus of control, that person attributes success to his or her own efforts and abilities. A person who expects to succeed will be more motivated and more likely to learn. A person with an external locus of control, who attributes his or her success to luck or fate, will be

less likely to make the effort needed to learn. People with an external locus of control are also more likely to experience anxiety since they believe that they are not in control of their lives. This is not to say, however, that an internal locus of control is "good" and an external locus of control is "bad." Psychological research has found that people with a more internal locus of control seem to be better off.

Nodoushan,(2012) had conducted a study on ' The impact of locus of control on language achievement'.   This study concluded that internalizers were better achievers than externalizers. Therefore we can say that, there is an influence of locus of control on language achievement of students. Moreover, there is a positive correlation between achievement in motivation, locus of control and educational promotion (Fini&Yousefzadeh, 2011). Gujjar&Aijaz, (2014) also reported that locus of control and academic achievement are related positively to each other.

From the above references the investigator found that it is necessary to find out how locus of control is related to the achievement in mathematics as mathematics is considered difficult subject by many. Thus the statement of the problem is as follows.

Statement of the problem

The study is entitled as **"RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACHIEVEMENT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS".**

Definition of key terms

Relationship

Relationship is the way in which two or more people or things are connected, or the state of being connected (Oxford English Dictionary)

For the present study, Relationship means how locus of control and achievement in mathematics are related.

Locus of control

'The degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics'(Rotter, 1990)

For the present study, locus of control is how strongly pupils believe that they have control on success and failure in their life.

Achievement in mathematics

Achievement in mathematics is the relative accomplishment or proficiency of performance in a given skill or body of knowledge related to mathematics as a subject of study, which can be measured by standardized achievement test in mathematics(Good, 1973).

For the present study, achievement in mathematics is the score achieved by each student in first terminal mathematics examination.

Secondary school students

Secondary school students are the students pursuing their education after the primary level. For the present study, the pupils of standard IX from Kozhikode and Malappuram districts of Kerala was taken as representative of secondary school students.

Variables

The present study involves two variables. They are Locus of control with its two types external locus of control and internal locus of control and achievement in mathematics among secondary school students.

Objectives of the study

The objectives of the present study are the following,

1. To identify the type of locus of control pursued by secondary school students for total sample and sub samples based on gender, locale of residence and board of education.

2. To compare the locus of control among sub samples based on gender, locale of residence and board of education.

3. To find out the relationship between locus of control and achievement in mathematics among secondary school students.

Hypotheses

1. There exists significant difference in the mean scores of locus of control among subsample based on gender, locale of residence and board of education.

2. There is no significant relationship between locus of control and achievement in mathematics among secondary school students.

Methodology

Method used

The purpose of the present study is to investigate the relationship between locus of control and achievement in mathematics among secondary school students. Survey method was used by the investigator for data collection.

Sample

The sample of the study constituted 648 secondary school students studying in standard IX who were selected from Kozhikode and Malappuram districts of Kerala state. The sample were collected by giving due representation to gender, locale of residence and board of education.

Tool used for data collection

For the purpose of collecting data the investigator used 'Locus of control Inventory'.

Statistical techniques used

The following Statistical techniques are used for the present study

1.   Percentage

2.   Test of Significance of difference between Means

3.   One Way ANOVA

4.   Pearson's Coefficient of Correlation

5.   Chi-square test

Scope and Limitations of the study

Some of the students feel mathematics as a difficult subject. To many pupils such difficult subjects create more problems. In such cases they may do hard work or may think luck or chance is a factor. The present study was conducted to find out the 'relationship between Locus of control on Achievement in Mathematics among secondary school students'. The study was conducted on a representative sample of 648 secondary school students from Malappuram and Kozhikode districts of Kerala by using proportionate stratified random sampling technique giving due representation to factors like gender, locale of residence and board of examination. Locus of control and Achievement in Mathematics are the two variables considered in the study. The tool used for the study was Locus of control Inventory constructed by the investigator with the help of supervising teacher. Appropriate statistical techniques were used in the study. The investigator hopes that the study throws light

into the variable locus of control and its relationship with achievement in mathematics.

The investigator tried her best to make the study as free from errors and mistakes. Still certain limitations are crept into the study.

1. Only two districts were selected to collect data from students.

Organization of the Report

The report has been presented in five chapters.

Chapter I presents a brief introduction to the problem, need and significance, statement of the problem, definition of key terms, objectives, hypotheses, methodology, scope and limitations of the study.

Chapter II includes the theoretical overview of the concerned variables and review of related studies.

Chapter III gives an account of the methodology in detail used in the present study. It contains variables, sample for the study, description of tools used for measurement, data collection procedure, scoring and consolidation of data and statistical techniques used for analysis.

Chapter IV describes the analysis and its interpretations. It includes objectives, statistical analysis, tenability of hypotheses and conclusion.

 Chapter V presents a summary of the study, major findings, educational implications of the study and suggestions for further research in the area.

REVIEW OF RELATED LITERATURE

- ➢ *Theoretical overview*
- ➢ *Survey of related studies*
- ➢ *Conclusion*

Review of related literature is an essential part of academic research project. It gives the theoretical base for the research and help the researcher to determine the nature of the research, the work of previous researchers and thus it helps as a guide to the researcher. This chapter deals with the theoretical overview of the concept locus of control and studies related to locus of control and achievement in mathematics.

Theoretical overview

It includes a detailed overview of the variable locus of control.

Locus of control

Locus of control refers to the relatively stable beliefs of individuals concerning their abilities to effect their experiences. Rotter (1960) defines it as the person's expectancy regarding the effect of his own behaviour. Rotter's Social learning theory from which the concept of locus of control comes, suggests that the person enters a situation with expectencies are presumed to be based on the person's past experiences. This experiences might be divided into two categories general and specific. According to Rotter, the probability of a certain behaviour will vary, lawfully with the person's expectancy regarding the outcome of that behaviour. This rule can be formulated as:

$$PB= F (E)+rv$$

PB- Probability of behavior

F (E)- Function of expectancies

rv- Reinforcement value

The term locus of control refers to the perceived causality of behavioural outcomes. It has appeared in many forms. Philosophers have suggested the concept of locus of control as determinism v/s free will, sociologists as autonomy v/s alienation (powerfullessness) and psychologists as behaviourism v/s mentalism. Understanding of the concept was developed by Rotter (1954), and has since become an aspect of personality studies. A person's "locus" (plural "loci", Latin for "place" or "location") is conceptualized as internal (a belief that one can control one's own life) or external (a belief that life is controlled by outside factors which the person cannot influence, or that chance or fate controls their lives). The locus of control is a dimension of personality; it helps to explain one's traits and behavior (Rotter, 1950). An internal locus of control is the belief that the course of one's life is largely up to oneself. Those with an external locus of control regard the events in their lives as occurring regardless of their own efforts. Rotter has written extensively on problems with people's interpretations of the locus of control concept. First, he has warned people that locus of control is not a typology. It represents a continuum, not an either/or proposition. Second, because locus of control is a generalized expectancy it will predict people's behavior across situations. However, there may be some specific situations in which people who, for example, are generally external behave like internals. That is because their learning history has shown them that they have control over the reinforcement they receive in certain situations, although overall they perceive little control over what happens to them. Again, one can see the importance of conceiving of personality as the interaction of the person and the environment.

In the two and half decades since locus of control construct was first described in the psychological literature (Phares, 1957) there has been a continuous stream of researches reported. Phares demonstrated that subject perception of locus of control was related to expectations about success or failure in a judgment task. Basically, Phares found that subjects predicted their potential success on a task according to whether or not they perceived task results as dependent on their performance, or as being capricious and unpredictable because result they made appropriate and realistic judgements, which followed their past performance. In chance or luck conditions subjects made judgements unrelated to and independent to their performances.

James and Rotter(1958) found that varying instruction as to whether a task was to be considered skill or chance based also influenced extinction trial after requisition. Several investigators found that the almost universally held assumption of the superiority of partial reinforcement during extinction appeared to be valid only in chance situations. The importance of all these studies has to do with the fact that human learning and/or performance appearing not only to be a function of reinforcement but also is dependent on the individuals perception of locus of control of reinforcement.

Internal- External concept

Locus of control as a person characteristic, is conceived of as a point as a continuum of expectancies concerning the influence of one's behaviour in governing reinforcing outcomes. In extreme positions, the person at the 'internal' pole of the continuum perceives outcomes to be consequence of his own actions, and the person

at the 'external' and believes that these are due to fate, luck, powerful others or as unpredictable because of the great complexity of the force surrounding him and therefore, are beyond his personal control.

The social psychological concept of locus of control is an outgrowth of social learning theory and has been thoroughly discussed by Rotter (1972). Those who are self directed and perceive themselves as the primary determine of their own fate are said to hold internal control expectancies. Those who perceive chance or faith as the primary determinants of their destinies are said to hold external- control expectancies

Weiner (1974) proved through his studies that the internals found to view the outcomes on the result of ability or effort, while externals tend to attribute personal consequences to the result of minute test difficulty of luck.

There is difference in the provided causes of male and female performance. Deaux and Emswiller (1974) found that subjects are more clearly to explain male's successful performance due to ability, while the women's equivalent performance was more readily attributed to luck.

Measurement of internal and external control - Social learning theory has its roots in the behaviourist notion of human behaviour as being determined by learning particularly as shaped by reinforcement in the form of rewards or punishment. Early research in behaviourism conducted by Ivan Pavlov, John Watson and B F Skinner used animals in laboratory. Subsequently, researchers became dissatisfied with the capacity of their findings fully account for the complexities of human personality.

Criticism centered particularly on the fact that behaviourism's focus on observable behaviours left out the role played by cognition.   The first major Theory of social learning is that the theory developed by Julian B Rotter. When Rotter developed his social learning theory, the dominant perspective in clinical psychology at the time was Freud's psychoanalysis, which focused on people's deep-seated instinctual motives as determining behavior. Individuals were seen as being naive to their unconscious impulses, and treatment required long-term analysis of childhood experience. Even learning approaches at the time were dominated by drive theory, which held that people are motivated by physiologically-based impulses that press the individual to satisfy them. In developing social learning theory, Rotter departed from instinct-based psychoanalysis and drive-based behaviorism. He believed that a psychological theory should have a psychological motivational principle. Rotter chose the empirical law of effect as his motivating factor. The law of effect states that people are motivated to seek out positive stimulation, or reinforcement, and to avoid unpleasant stimulation. Rotter combined behaviorism and the study of personality, without relying on physiological instincts or drives as a motive force. The main idea in Julian Rotter's social learning theory is that personality represents an interaction of the individual with his or her environment. One cannot speak of a personality, internal to the individual that is independent of the environment. Neither can one focus on behavior as being an automatic response to an objective set of environmental stimuli. Rather, to understand behavior, one must take both the individual (i.e., his or her life history of learning and experiences) and the environment (i.e., those stimuli that the person is aware of and responding to) into

account. Rotter describes personality as a relatively stable set of potentials for responding to situations in a particular way.

Rotter described his social learning theory model for predicting behavior with four main components. These are behavior potential, expectancy, reinforcement value, and the psychological situation.

Behavior Potential: Behavior potential is the likelihood of engaging in a particular behavior in a specific situation. In other words, what is the probability that the person will exhibit a particular behavior in a situation? In any given situation, there are multiple behaviors one can engage in. For each possible behavior, there is a behavior potential. The individual will exhibit whichever behavior has the highest potential.

Expectancy: Expectancy is the subjective probability that a given behavior will lead to a particular outcome, or reinforcer. How likely is it that the behavior will lead to the outcome? Having high or strong expectancies means the individual is confident the behavior will result in the outcome. Having low expectancies means the individual believes it is unlikely that his or her behavior will result in reinforcement.

Reinforcement Value: Reinforcement is another name for the outcomes of our behavior. Reinforcement value refers to the desirability of these outcomes. Things we want to happen, that we are attracted to, have a high reinforcement value. Things we don't want to happen, that we wish to avoid, have a low reinforcement value.

Psychological Situation: The psychological situation represents Rotter's idea that each individual's experience of the environment is unique. Although the psychological situation does not figure directly into Rotter's formula for predicting behavior, Rotter believes it is always important to keep in mind that different people interpret the same situation differently. Different people will have different expectancies and reinforcement values in the same situation. Thus, it is people's subjective interpretation of the environment, rather than an objective array of stimuli, that is meaningful to them and that determines how they behave. For many people, their only exposure to the ideas of Julian B. Rotter is his concept of generalized expectancies for control of reinforcement, more commonly known as locus of control. ***Locus of control refers to people's very general, cross-situational beliefs about what determines whether or not they get reinforced in life. People can be classified along a continuum from very internal to very external.***

People with a strong internal locus of control believe that the responsibility for whether or not they get reinforced ultimately lies with themselves. Internals believe that success or failure is due to their own efforts. In contrast, externals believe that the reinforcers in life are controlled by luck, chance, or powerful others. Therefore, they see little impact of their own efforts on the amount of reinforcement they receive.

Measurement of locus of control: Several instruments have been developed to measure individual differences in the generalized expectancy for internal- external control of events. Phares in 1957 attempted to measure locus of control, using a short Likert- type scale with 13 items rated as external control- oriented attitudes

and 13 items rated as internal control oriented attitudes. In this, the skill and chance sets were created by the use of instructions. James in 1957 revised this and developed a forced choice scale called James-Phares scale which contain 26 items plus filled items, based on those which seemed to be the most successful in Phare's study.

Rotter's(1966) 29 item scale(Which include 6 filler items and hence only 23 items that are scored) was designed to measure the extent to which an individual believes he is Self- motivated or directed (internal control) V/S the extent to which environment (luck, fate, chance, powerful others) exercises the major influence in his behaviour(external control). This test is mainly meant for adult Individuals. Collins in 1974 converted Rotter's 23 forced choice items to 46 Likert scale items.

Nowicki and Strickland in 1973 developed another measure to assess generalized I- E in children, items reflects Intellectual and school related behavior and also general perceptions, such as superstitions and belief about behavior/ reinforcement contingencies in relation to parents and friends. Reid and Ware in 1973 and 1974 also developed a three factor I- E scale (Lefcourt, 1976).

Coan constructed two tests to measure experienced control in children(1955). He discussed a picture interpretation test for using with older subjects has hence been reported by Adams Weber (1969) and Bealer (1961) devised the locus of control scale for oral administration to younger subjects. Another self report instrument is the Intellectual Achievement Responsibility Questionnaire of Crandall, Katkovsky and Preston(1962) and another test employing picture in the childrens' Pictures test of I- E control devised by Battle and Rotter (1963)

Sex difference in locus of control

The literature suggest that women are more externally oriented than men(Nowicki, 1969). There is also evidence that an external orientation is part of the female sex role stereotype (Hochrech, 1975; Borrowerman et al., 1977). Females are more likely than males to attribute their success to external factors such as luck and task ease and are less likely to see their success as caused by ability, but they make more attributions to lack of ability and bad luck for failure.

Locus of control and achievement related behavior

Achievement value will not be related to achievement motive because of the intervenery role of the individuals' belief about the locus of reinforcement and also because of the environmental (structural) factors determining the presence of achievement cues. The individual with high achievement value may express his strong belief about hard work, about the importance of having a long record of personal accomplishment and still may not have a very strong achievement as such. This conceptualization by passes the controversial role of arousal condition as an intervening variable in the study on the relationship between achievement value and performance since irrespective of arousal condition.

Locus of control is a good predictor of achievement behavior. It was a better indicator of academic success. Internally oriented students seem to feel that they denote themselves energetically to improving their conditions. Externally oriented students success to feel and their efforts make little difference and therefore do not seem to try to very hard.

Studies related to locus of control

A descriptive field survey was adopted by Gupta, (1987) to study on "Relationship between Locus of Control, Anxiety, level of Aspiration and Academic Achievement of Secondary Students". The data was collected from 670 class XI students which were selected by using random proportionate and cluster sampling techniques and by using Rotters's I-E Scale. The study found that Locus of Control correlated negatively and significantly with academic achievement for the total sample. Art students were found to be more external in their locus of control and were characterized by low achievement as compared to science students. Boys were found to be high achievers, more internally controlled than girls. Externally controlled boys and girls of either curriculum had low Academic Achievement score than their internal counterparts.

Lavan (1993) had conducted a study on the topic " Self concept and Locus of control(achievement) as correlates of achievement in Biology of secondary school students of Kerala. The study was conducted among 582 secondary school students attending standard IX from 12 schools of Kozhikode and Malappuram revenue districts. Proportionate stratified sampling technique was used. Locus of control scale for children was used for data collection. The result showed that high internals are higher on achievement than low externals. Also, there is a positive relationship between internal locus of control and academic achievement.

A study on "Locus of control, Achievement Motivation and Attitude towards Modernity among College and University Students" by Gangte, (2001) adopted Locus of control scale by Levenson, (1974) on 805 students selected randomly. The

study found that the gender respondents did not significantly affect their level of Locus of Control and the attitude dimension of religion, marriage and education. The different level of socio-economic status groups was found differed in the level of Internal Locus of Control. In case of External Locus of Control, it was found that a higher level of socioeconomic status group exhibited a lower level of the variable.

Verma and Sood, (2005) conducted a study on "Study Approaches of Distance Learners: Impact of Achievement, Locus of Control and Self Esteem. The sample consisted of 424 students (279 males and 145 females) of M.Ed second semester selected by random cluster method of the sampling technique. Tools used was Rotter's Internal-External Locus of Control Scale. Level of Locus of Control does not seem to matter in deep approach to study but students with an Internal Locus of Control were significantly more inclined towards the use of the surface approach to studying as compared to students with an External Locus of Control.

Majzub, Bataineh, Ishak and Rahman (2009) had conducted a study to understand the relationship between locus of control and academic achievement and gender in a selected higher education institution in Jordan. The sample of the study included 204 first year Yarmouk University students, from four different departments(English, Accounting, Chemistry, Engineering). The multi dimensional-multi- attributional causality scales (MMCS) was administered to the respondents of the study. The findings showed that males were more internal and external than females and also there is a positive relationship between locus of control and academic achievement.

A descriptive survey was conducted to study on "Effect of Academic Achievement, Locus of Control and Socio-Economic Status on Powerlessness of Adolescent" by Kalia and Sahu, (2013). The data was collected from 350 adolescents selected randomly by using Locus of Control Scale constructed by Hasnain and Joshi (1992). The study found Locus of Control of adolescents has a significant effect on powerlessness. Externally controlled group of adolescents were found higher on powerlessness in comparison to internally controlled adolescents.

Gujjar and Aijaz(2014) had conducted a study to investigate the relationship between locus of control and academic achievement of students. The result showed that the majority of students were found to be more internal than external in the locus of control. This result enlightened with other studies that, locus of control and academic achievement were related positively to each other. Boys found to be more internal than girls at college level however, non gender differences in locus of control were found at the university-level.

Lather, Jain and Shukla (2014) had conducted a study on students' creativity in relation to Locus of control. The study was conducted in Mysore University, India. This study explored the relationship of creativity and locus of control of students coming from various academic disciplines. Abbreviated Torrance Test for Adults and Levenson's Locus of control test were administered on students and their socio- demographic information was taken. Result showed that highly creative students are significantly high on internal locus of control and the students who were low on creativity are significantly high on external locus of control.

"A Study of Locus of Control and Self Esteem among Boys and Girls College Students" by adopting Descriptive method was conducted by Qusar, (2014). Locus of Control Scale constructed by Dr. Anand Kumar and Dr. S. N. Srivastav was used to collect data. The study found no significant interactions between Locus of Control and sex among secondary school students with self-confidence as the dependent variables

Naik, (2015) carried a study titled as "A Study on Locus of Control among College Students of Gulbarga City". The samples were taken from different colleges of Gulbarga city which are affiliated with Gulbarga University. The colleges were selected by random sampling using the lottery method. Rotter's Locus of Control Scale: It is the Indian adaption of Julian Rotter's Internal-External scale by Dr. Anand Kumar and Dr. S.N. Srivastava used to collect the data. The results could not find a significant difference in the Locus of Control among males & females, Science and Arts and urban & rural college students.

Abid, Kanwal, Nasir, Iqbal and Huda (2016) investigated the effect of locus of control on academic performance of the students in tertiary level. The purpose of the study was to research what influences the locus of control has on the learning performance of students. In this research, quantitative research method was used. The standardized survey technique was used to gather data. The level of locus of control of the subject who take part in the research were measured with the Scale of Internal- External locus of control developed by Rotter(1966) and Learning scale was developed by Gungor(2006). Descriptive statistical techniques and multiple regression analysis were used. At the end of the research, it is concluded that

learning performances of the students with internal locus of control are high and they are more proactive and effective during the learning process. On the other hand, the ones with external locus of control are more passive and reactive during this period. Also revealed that there are some differences among students demographic groups and their learning factors.

Choudhary and Borooah(2017) had investigated locus of control and academic achievement of undergraduate college students of Guwahati city. The purpose of the study was to examine the relationship between locus of control and academic achievement of male and female undergraduate college students of Guwahati city. The study was conducted on a sample of 240 male and female undergraduate students from various degree colleges of Guwahati. The Indian adaption of Rotter's Locus of control scale was used to assess the locus of control of the students. The results indicated that there was no significant positive correlation between external locus of control and academic achievement of the students.

Nongtdu and Bhutia (2017) had conducted a study on locus of control in relation to academic achievement of college students. The purpose of the study was to investigate the relationship between locus of control and academic achievement of college students in Meghalaya. The study had adopted descriptive survey method. The sample for the study consisted of 797 students of bachelor degree of final year, selected by stratified random sampling technique. The tool used for collecting data was constructed and standardized by the investigator. The study found that majority of students have average internal and external locus of control. It also found a significant difference in internal locus of control between urban and rural college

students, between science and commerce students, between science and arts students, but there was no significant difference in internal locus of control between genders and between commerce and arts students. The study found that there was no significant difference in external locus of control between gender, between locale, between arts and commerce students, but there was a significant difference between science and arts students and between science and commerce students. This study also reveals that there was a strong positive correlation between internal locus of control and academic achievement among college students from different streams, in both the gender, from colleges of both the locale. The study found that there was a moderate positive correlation between external locus of control and academic achievement among students from different streams, in the both gender and from colleges of both the locale.

Atetwe, Aloka and Gudo (2018) had conducted a study on Influence of internal locus of control on mathematics achievement. The main objective of the study was to determine the influence of the level of internal locus of control on mathematics achievement among students in secondary schools in Vihiga sub-country. The study adopted mixed methods approach and the sequential explanatory design was used. A sample size of 445 students, 11 mathematics teachers and 9 teacher counsellors were selected using stratified random, purposive, purposive sampling techniques respectively. Quantitative data were collected using a students' questionnaire while qualitative data were collected using interviews from students, mathematics teachers and teacher counsellors. Students' achievement was assessed

using K.C.S.E exam results of year 2017. The findings showed that internal locus of control predicted the achievement in mathematics among secondary school students.

Kumaravelu(2018) had conducted a study on 'Locus of control in school students and its relationship with academic achievement'. Result revealed that significant difference was not observed in internal external and chance locus of control among male and female students, female students received higher mean scores for internal, external and chance locus of control then male students. The students on the subjects of English, Mathematics and sciences show that significant difference on the internal locus of control and significant differences was not observed in on the external and chance locus of control. Chance locus of control with $r = 0.138$ on the meaningful level $P<0.01$ and internal locus of control with $r = 0.112$ on the meaningful level of $P< 0.05$ had a significant and positive relationship with the academic achievement of school students.

Studies related to achievement in mathematics

Aswal (2001) conducted a study on intelligence as a correlate of achievement in mathematics. The study intended to examine the relationship of intelligence with achievement in mathematics in context with different level of socio- economic status. 200 students of class XI selected randomly from 5 colleges of Tehri district served as sample for the study. The result showed that there was a significant correlation between intelligence and achievement in mathematics.

Saha (2007) had conducted a study on academic achievement in mathematics in relation to cognitive styles and attitude towards mathematics. The boys and girls

differed significantly on all three measure under consideration. The field independent boys excelled over the field dependent boys significantly in their achievement in mathematics. Similarly, field independent girls also excelled over the field dependent girls significantly.

Ganihar and Wajiha (2008) had conducted a study on factors affecting academic achievement of IX standard students in mathematics. The objective of the study was to find out the relationship between achievement in mathematics and mathematics creativity, test anxiety, attitude towards mathematics and achievement motivation of IX standard students. The sample was comprised of 800 boys and girls, selected from 20 secondary schools giving due representation to sex, type of management and medium of instruction. Achievement test in mathematics constructed by the researcher and Mathematics creativity test (Singh 1988) were used as tools for the study. The result of the study revealed that there is significant effect of gender on academic achievement and the study of schools in which the study has significant effect on achievement in mathematics.

Choudary and Das(2012) had conducted a study to find out the influence of areas in relation to the attitude towards mathematics and study habit on the achievement in mathematics to the pupils' at secondary stage. A sample of 500 students of standard IX from secondary school of south kamrup district, Assam, participated in the study, in which the relationship among the achievement in mathematics was most closely related with attitude towards mathematics and study habit. Analysis of data indicated that there was no significant difference on achievement in mathematics of the students in case of medium and sex. The

regression equation thus obtained showed that attitude towards mathematics; study habit contributes 15.2%, and 29% respectively to the Achievement in mathematics.

Alordiah, Akpadaka and Oviogbodu (2015) investigated the influence of gender, school location, and socioeconomic status on students' academic achievement in mathematics. The study was an ex-post factor design in which the variables were not manipulated nor controlled. The results of the study showed that students have an average achievement in mathematics. The result also showed that male students performed better than female students, urban students performed better than rural students and students of parents with high socio economic status performed than students of parents with low socio economic status.

Geethanjali and Jibi (2016) explored the relationship between attitude towards mathematics and achievement in mathematics of high school students of Malappuram districts. The results of the study revealed that the relationship between attitude towards mathematics and achievement in mathematics of high school students is significant, high and positive. The result also showed that girls shows more achievement in mathematics than boys.

Oyegok, Oyelabi and Nnaji (2016) conducted a study on mathemaphobia and teaching learning materials as correlates of pupils' achievement in mathematics. Correlation design was adopted in the study. The study conducted among 1080 students and 48 mathematics teachers who were randomly selected. The tools used for data collection were Students Mathemaphobia Questionnaires (SMQ), Teaching-learning Materials Inventory (TMI) and Mathematics Achievement Test. The results of the study showed a linear relationship between the predictors and the criterion.

The combination of predictor variables and students achievement in basic mathematics yielded multiple correlations of 0.574 with students' achievement in basic mathematics.

Lawrence, Arul and Saileella (2019) had conducted a study on self-regulation of higher secondary students in relation to achievement in mathematics. The sample of the study consisted of 300 first year higher secondary students studying during the academic year 2018- 19 was selected by using simple random sampling technique from Tirunelveli district, Tamil Nadu. Data were collected with the help of self- regulation Scale constructed by Saileella (2013). The findings showed that there is a positive relationship between self- regulation and achievement in mathematics of higher secondary students.

Conclusion

The variables selected in the study were Locus of control, and achievement in mathematics of secondary school students. Fifteen studies in the area locus of control are reviewed by the investigator. From that it can be understood that there is a positive relationship between internal locus of control and academic achievement of students.Moreover, Boys were found to be high achievers, more internally controlled than girls.Studies also revealed that highly creative students are significantly high on internal locus of control and the students who were low on creativity are significantly high on external locus of control.

There are many studies related to Locus of Control and its relationship with other factors such as Academic achievement, Achievement Motivation, Creativity,

Anxiety, Level of aspiration, Self Concept etc. But the number of studies which investigate the relationship between Locus of Control and Achievement in Mathematics is very less. The present study is an attempt to find out the Relationship between Locus of Control and Achievement in Mathematics.

METHODOLOGY

- ➢ *Variables of the study*
- ➢ *Design of the study*
- ➢ *Sample selected for the study*
- ➢ *Tools used for data collection*
- ➢ *Data collection procedure*
- ➢ *Consolidation of Data*
- ➢ *Statistical Techniques used for Analysis*

Methodology is the specific procedure or technique adopted in a study and thus it occupies a very important place in the research. It reveals all the methods and techniques followed by the researcher during the course of research work. The success of any research work depends largely upon the suitability of the methods, tools and techniques used by the researcher in collecting and processing data. Thus the role of methodology is to carry on the research work in a scientific and valid manner.

The present study is an attempt to find out the relationship between locus of control and achievement in mathematics among secondary school students. The methodology of the study is presented below under the following heads,

➢ Variables of the study

➢ Design of the study

➢ Sample selected for the study

➢ Tools used for data collection

➢ Data collection procedure

➢ Scoring and Consolidation of Data

➢ Statistical Techniques used for Analysis

The detailed description of each one is given below

Variables of the study

The present study involves two variables. They are Locus of control with its two types external locus of control and internal locus of control and achievement in mathematics among secondary school students.
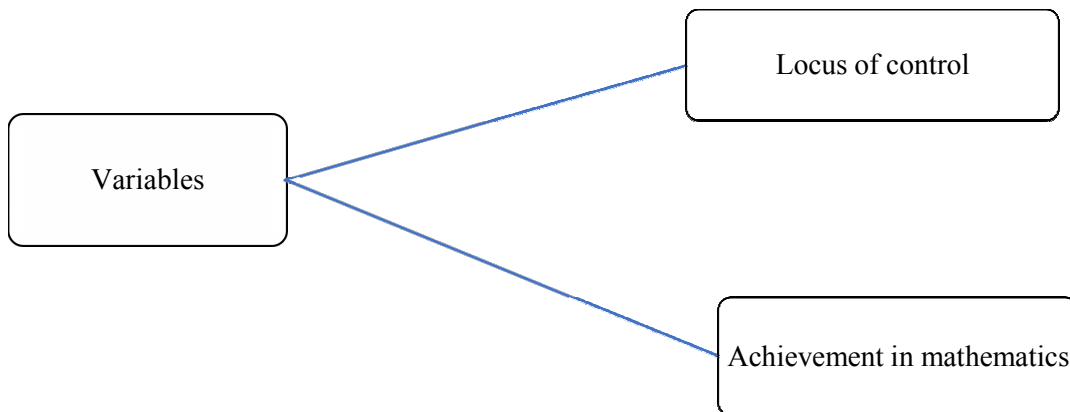
The categorical variables are gender, locale of residence, and board of education.

Design of the study

The purpose of the present study is to investigate the relationship between locus of control and achievement in mathematics among secondary school students. Survey method was used by the investigator for data collection.

Sample selected for the study

Selection of sample has due importance in any research work. Once the researcher has clearly specified the problem and developed an appropriate design and data collection instruments, the next step in the research process is to select those elements from which the information will be collected. A sample refers to a

smaller, manageable version of a larger group. It is a subset containing the characteristics of a larger population.

A good sample must be as nearly representative of the entire population as possible and ideally. It must provide the whole of the information about the population as possible and ideally it must provide the whole of the information about the population from which the sample has been drawn (Kou1,2009).

The population of the present study comprised of secondary school students in Kerala state who follows Kerala state syllabus, CBSE and ICSE. The sample of the study consisted of 648 secondary school students studying in standard IX who were selected from Kozhikode and Malappuram districts of Kerala.

Proportionate stratified random sampling technique was used for the selection of the sample of the present study. 648 secondary school students were taken by giving due representation to gender, locale of residence, and board of education. Break up of the sample is given in table 1.

Table 1

Breakup of the sample

Sample	Categories	Number of students
Gender	Boys	346
	Girls	302
Locale of residence	Rural	341
	Urban	307
Board of education	Kerala state	399
	CBSE	199
	ICSE	50

The factors or strata taken in to consideration while selecting the sample are the following.

Gender

Studies revealed that sex difference makes change in their locus of control and achievement in mathematics. Hence gender of the student is considered as one of the factors in the study.

Locale of residence

Studies revealed that locale of residence make change in their locus of control and achievement in mathematics. Hence urban and rural was taken as a factor in the study.

Board of education

Board of education in India for public and private schools is controlled and managed by central or state Government of India. It includes students from schools run by state government, CBSE, and ICSE. Board of education is considered as one of the factors to find out the difference in the locus of control among secondary school students.

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Tool used for data collection

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Selection of appropriate tool for data collection is very important for the success of any research work. For the purpose of collecting data the investigator used the following tool.

- Locus of control Inventory

Locus of control Inventory is used to know the type of locus of control among secondary school students.

To know the achievement in mathematics the marks scored by students in their ninth standard is considered.

Description of the tool

Locus of control Inventory

Locus of control Inventory is the tool used to identify the type of locus of control pursued by secondary school students. Locus of control Inventory is constructed and standardized by the investigator with the help of supervising teacher. The inventory was constructed based on the social learning theory of Rotter. The theory suggested two aspects as internal locus of control and external locus of control.

Planning of the inventory

The first step in the construction and standardization of the inventory was planning of the inventory. After selecting the topic, the investigator made an intensive search through the literature related to locus of control which is followed by review of related studies. The review helped the investigator to understand the tools employed in the area locus of control by different researchers. From the review the investigator reached the conclusion that locus of control has two dimensions as

internal and external locus of control. Thus the investigator decided to prepare an inventory to identify the type of locus of control of secondary school students.

Internal locus of control and External locus of control

For many people, their only exposure to the ideas of Rotter is his concept of generalized expectancies for control of reinforcement, more commonly known as locus of control. Locus of control refers to people's very general, cross-situational beliefs about what determines whether or not they get reinforced in life. People can be classified along a continuum from very internal to very external.

People with a strong internal locus of control believe that the responsibility for whether or not they get reinforced ultimately lies with themselves. Internals believe that success or failure is due to their own efforts. In contrast, externals believe that the reinforcers in life are controlled by luck, chance, or powerful others. Therefore, they see little impact of their own efforts on the amount of reinforcement they receive.

Preparation of the inventory

The inventory was constructed on the basis of Rotter's locus of control scale (Rotter, 1966). The investigator prepared items in the two dimensions selected from the social learning theory developed by Rotter, Internal locus of control and External locus of control

The investigator prepared 28 statements for the draft form of the tool. Each item of the tool has two parts as A and B representing the external and internal. An external type shows the role of luck or chance of the individual and the internal type

item shows the individuals deliberate attempt in his/her activities in life. The investigator made each item suitable for the target group. During the process the repeated items were eliminated. The items were checked by the experts to judge the quality and the suggestions were incorporated. Thus the draft inventory was prepared which consisted of 28 items. One example is given below.

Example;

1.   A. It is easy to achieve success without any preparations through mere luck.

       B.I prepare well taking adequate time before getting involved in any activity.

Scoring procedure

The inventory consisted of 28 items. Each item consisted of two statements, one representing the internal locus of control and other the external locus of control. The students are asked to select the statement that they agree with the most for each question. The items are scored by giving a score of '1' for the response that representing external locus of control and a score of '0' for the response that representing internal locus of control. Total score obtained by each sample is calculated. Students who obtain a score above 14 are considered that they possess external locus of control and students who obtain a score below 14 are considered that they possess internal locus of control. A score of 14 is considered as neither external nor internal.

Item analysis

For the purpose of selection of items for the final locus of control Inventory, item analysis was carried out to ensure the quality of items. The preliminary inventory was administrated to a sample of 200 secondary school students. The response sheets of 200 students were arranged in the rank order of total score obtained by them. The upper 27 percentage and lower 27 percentage was taken as the upper group and lower group respectively. The mean and standard deviation of the score obtained for the upper and lower groups were calculated. The t-value (critical ratio) for each item was calculated by using the following formula,

$$ t \ = \ \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\dfrac{(X_H - \bar{X}_H)^2 + (X_L - \bar{X}_L)^2}{n(n-1)}}} $$

$\bar{X}_H$ = The mean scores on a given statement for the upper group

$\bar{X}_L$ = The mean scores on a given statement for the lower group

n = Number of cases

The t- value obtained for each item in locus of control Inventory is given in table 2

Table 2

Details of item analysis

Critical ratio obtained for items together with means and standard deviations of the groups

Item No.	$\bar{X}_1$	$\bar{X}_2$	σ_1	σ_2	t value
1	0.04	0.07	0.197	0.256	*0.928
2	0.06	0.31	0.239	0.465	4.784
3	0.09	0.22	0.288	0.416	2.569
4	0.02	0.27	0.141	0.446	5.344
5	0.42	0.68	0.496	0.469	3.809
6	0.03	0.14	0.171	0.349	1.738
7	0.01	0.11	0.100	0.314	2.272
8	0.01	0.13	0.100	0.338	2.750
9	0.20	0.48	0.402	0.502	1.198
10	0.12	0.39	0.327	0.490	2.292
11	0.19	0.34	0.394	0.476	0.418
12	0.01	0.05	0.100	0.219	*2.333
13	0.06	0.12	0.239	0.327	*0.610
14	0.03	0.11	0.171	0.314	2.272
15	0.03	0.09	0.171	0.288	*1.792
16	0.01	0.14	0.100	0.349	3.583
17	0.02	0.17	0.141	0.378	3.723
18	0.43	0.58	0.498	0.498	2.135
19	0.01	0.16	0.100	0.368	3.929
20	0.09	0.24	0.288	0.429	2.903
21	0.23	0.47	0.423	0.502	3.658
22	0.13	0.55	0.338	0.500	6.959
23	0.17	0.51	0.378	0.502	5.410
24	0.15	0.31	0.359	0.465	2.725
25	0.10	0.24	0.302	0.429	2.669
26	0.37	0.76	0.485	0.429	6.020
27	0.02	0.10	0.141	0.302	2.404
28	0.20	0.39	0.402	0.490	2.997

*Indicates the items rejected

Table 2 shows that items numbered 1, 12, 13, 15 have t value less than 1.96 and these items were excluded from the inventory. Thus the final form of the tool 'Locus of control inventory' consisted of 24 items. A copy of the draft and final tool is given as Appendix I and Appendix III respectively.

Reliability and Validity of the tool

"The reliability of the test or any measuring instrument depends upon the consistency with which it gauges the ability to which it is supplied" (Garret, 2012). The investigator used Cronbach alpha to find out the reliability of the tool. The value .658 shows that the inventory is reliable.

Validity is that quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure (Best& Khan, 2001). The validity of the present study was ensured by face validity. All the items were selected after expert consultation and thus ensured face validity.

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Data Collection Procedure

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After constructing the tool and fixing the sample the investigator asked permission from the Headmasters of secondary schools in advance to administer the tool. After getting permission, the investigator administered the tool among the secondary school students selected from Kozhikode and Malappuram districts of Kerala . Before administering the tool the investigator explained the purpose of the study and provides instructions for making the responses and ensured secrecy of their response. The filled response sheets were collected back by the investigator.

The marks of Achievement test in Mathematics conducted by school for first terminal examination were collected from respective class teachers of the selected sample.

Scoring and consolidation of data

Soon after the collection of data the investigator arranged the data sheets. Response sheets with incomplete data were discarded. Thus the final sample with necessary data was 648. All the response sheets were scored as per the scoring procedure.

Scores on the inventory is entered in the consolidation sheet systematically for further analysis.

Statistical techniques

The statistical techniques used for analyzing the data are as follows

1.   Percentage

2.   Test of Significance of difference between Means

3.   One Way ANOVA

4.   Pearson's Coefficient of Correlation

5.   Chi Square test

Percentage

In order to find out the percentage of students having internal and external locus of control, percentage of students in each category was calculated.

Test of Significance of difference between Means (t- test)

A t-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups, which may be related in certain features. A t-test is used as a hypothesis testing tool, which allows testing of an assumption applicable to a population. The formula for testing the significance of difference between two means for large independent group is,

$$\text{Critical ratio, t} = \frac{Mean\ Difference}{SE_{Mean\ Difference}}$$

One Way ANOVA

ANOVA is a parametric technique of hypotheses testing and is an extension of t-test of mean difference. That is, ANOVA is an overall test of significance of difference between means when the number of groups is more than two. One-way ANOVA was used to find out the significance of mean difference between the three categories of subsamples based on board of education.

Pearson's Coefficient of Correlation and Shared Variance

Pearson's coefficient of correlation was calculated for finding the relationship between locus of control (External) and achievement in Mathematics of

students. Shared variance (r^2X100) was also calculated to know the variation associated with each other.

Chi Square test

The Chi Square statistic is commonly used for testing relationships between categorical variables. It is used to determine whether there is a significant association between the two variables. The following formula is used to know the significance.

$$\chi^2 = \ \Sigma \frac{(O-E)^2}{E}$$

Using the above statistical techniques the collected data was analysed. The analysis and interpretations are given in the next chapter.

ANALYSIS AND INTERPRETATIONS

➢ *Objectives of the study*

➢ *Statistical analysis*

➢ *Tenability of hypotheses*

➢ *Conclusion*

Analysis of data and its interpretations is an important and exciting step in the process of research. Analysis of data means studying the tabulated material in order to determine inherent facts or relationships. Interpretation of data means establishing relationship between variables.

The aim of the present study is to find out the relationship between locus of control and achievement in Mathematics among secondary school students on the basis of gender, locale of residence and board of education.

Objectives of the study

The objectives of the present study are the following,

1. To identify the type of locus of control pursued by secondary school students for total sample and sub samples based on gender, locale of residence and board of education.

2. To compare the locus of control among sub samples based on gender, locale of residence and board of education.

3. To find out the relationship between locus of control and achievement in mathematics among secondary school students.

The data collected were analysed using the statistical techniques such as percentage, mean, standard deviation, t-test, ANOVA, and chi-square.

Statistical Analysis

1.   To identify the type of locus of control among secondary school students

The total sample constituted of 648 students and the number of students who scored higher than 12(middle value in the Locus of Control Inventory) was counted and they were considered as having External Locus of Control. Those who have score below 12 in the inventory were taken as having Internal Locus of Control. The same procedure was done in the subsamples based on gender, locale of residence and board of education.

The number and percentage of students with Internal and External Locus of control are given in table 3.

Table 3

Number of students with internal and external locus of control

Sample	N	Internal (%)	External(%)	Not internal/ external(%)
Total sample	648	602(92.9%)	27(0.04%)	19(0.03%)
Boys	346	318(91.9%)	18(0.05%)	10(0.03%)
Girls	302	284(94.03%)	9(0.03%)	9(0.03%)
Rural	347	311(89.63%)	18(0.05%)	12(0.03%)
Urban	341	291(85.33%)	9(0.03%)	7(0.02%)
State	399	371(92.98%)	19(0.05%)	9(0.02%)
CBSE	199	186(93.47%)	6(0.03%)	7(0.04%)
ICSE	50	45(90%)	2(0.04%)	3(0.06%)

From table 3 it can found that number of students with internal locus of control is 602(92.9%) and with external locus of control is 27(0.04%) in the total sample. 19 students with a score of 12 which is considered as neither internal nor external.

The number of boys with internal locus of control is 318 and with external locus of control is 18(0.05%). 284 girls out of 302 are with internal locus of control and 9 girls are with external locus of control. Ten boys and 9 girls are in the no internal or external category.

Out of 341 urban students 291students are with internal locus of control and 9 students are with external locus of control. Also shows that there are 311 and 18 students with internal locus of control and external locus of control respectively from rural area. 12 and seven students are neither internal nor external in the rural and urban respectively.

Out of 399 students who are following state syllabus 371 are with internal locus of control and 19 students are with external locus of control. The table also shows that, 186 students from CBSE are with internal locus of control and 6 students are with external locus of control. Out of 50 students from ICSE syllabus 45 are with internal locus of control and 2 are with external locus of control. Nine students from state, seven from CBSE and three students from ICSE are found no internal or external in their locus of control.

Discussion

In the total sample the percentage of students with internal locus of control is 92.9 percent and that with external locus of control is 0.04 percent. As the percentage of students having internal locus of control is higher than that of external locus of control, it can be concluded that majority of secondary school students are having internal locus of control. The percentage of boys with internal locus of control is 91.9 percent and that with external locus of control is 0.05 percent. The percentage of girls with internal locus of control is 94.035 percent and that with external locus of control is 0.03 percent. Therefore, it can be concluded that, in case of both boys and girls majority of students are with internal locus of control.

85.33 percent of urban students are with internal locus of control and 0.03 percentage of urban students are with external locus of control. The percent of rural students with internal locus of control and external locus of control are 89.63 percent and 0.05 percent respectively.

92.98 percent of students from state syllabus are with internal locus of control and 0.05percent are with external locus of control. Among CBSE students 93.47 percent of students are with internal locus of control and 0.03percent of students with external locus of control. The percentage of ICSE students with internal locus of control is 90 percent and those with external locus of control are 0.04percent. It can be concluded that majority of secondary school students are with internal locus of control in total sample and subsample based on gender, locale of residence and board of education.

2.   Comparison of locus of control among subsamples based on gender and locale of residence.

Locus of control among subsamples based on gender and locale of residence were compared using test of significance of difference between means for two independent large samples.

The comparison of mean scores on locus of control for the subsamples based on gender and locale was done using two tailed test of significance of difference between means and the results are given in table 4.

Table 4

Data and Results of test of significance of difference between means for subsamples based on gender and locale of residence,

Subsample	Category	Number(N)	Mean	Standard Deviation	t- value
Gender	Male	346	6.42	3.369	3.715**
	Female	302	5.47	3.163	
Locale of Residence	Rural	341	5.81	3.466	1.348 (NS)
	Urban	307	6.16	3.116	

**Shows significance at .01 level

NS- Not significant at any level

From table 4 it can be seen that the mean scores of locus of control obtained for boys and girls are 6.42 and 5.47 respectively and the standard deviation are 3.369 and 3.163 respectively. The t value obtained is 3.715 which is greater than the tabled value (2.58) required for significance at.01 level. It indicates that the

difference in the mean score of locus of control between boys and girls is significant at.01 level. This shows that there exists a significant difference in the mean score of locus of control between boys and girls.

The mean scores of locus of control for rural and urban students are 5.81 and 6.16 and the standard deviation are 3.466 and 3.116 respectively. The t value obtained is 1.348 which is less than the tabled value of t (1.96) required for significance at .05 level. It indicates that the mean scores of locus of control of rural and urban students is not significant at any level. It means that there exists no significant difference in the mean scores of locus of control of between rural and urban students.

Comparison of locus of control between students of State, CBSE, and ICSE board of education.

One way ANOVA was used to compare the locus of control between students of State, CBSE, and ICSE board of education.

The results of one way ANOVA is given in table 5

Table 5

Data and results of one way ANOVA for Locus of Control based on subsample board of education

Subject	Sum of squares	Df	Mean squares	F	Sig
Between groups	47.986	2	23.993	2.202	0.111
Within groups	7027.712	645	10.896		
Total	7075.698	647			

Table 5 indicates that the F value obtained in one way ANOVA for locus of control by the board of education is 2.202 which is less than the tabled F value 3.00 required for significance at 0.05 level with (2, 645) degrees of freedom. Hence there is no significant difference in the mean scores of locus of control of secondary school students based on board of education.

Discussion

Table 4 shows the comparison of mean difference of locus of control in the subsample based on gender and locale of residence. From the table it is found that there is difference in locus of control between boys and girls. But there is no significant difference in the locus of control between urban and rural students.

From table 5 it is found that there is no significant difference in the mean scores of locus of control between the students of state syllabus, CBSE and ICSE.

3. **Relationship between locus of control and achievement in mathematics among secondary school students.**

To find out whether locus of control (external) is related to achievement in mathematics of secondary school students, Pearson's r was calculated and the shared variance was also calculated, the details of which are given as table 6

Table 6

Correlation coefficient and shared variance between locus of control(external) and achievement in mathematics among secondary school students

Variables	Pearson's r	Shared variance
External Locus of Control	-0.107	1.0
Achievement in Mathematic		

The r obtained is -0.107, a negative value showing a negative relationship between the two variables. A comparatively small value of r shows that the relationship is very low. But the relationship is significant at .01 level. Thus, there exist a negative, very low but significant relationship between external locus of control and achievement in mathematics. A shared variance of external locus of control and achievement in mathematics shows that one percent of the variance in the two variables overlap.

4.   Independence of locus of control and achievement in mathematics among secondary school students.

To find out whether achievement in mathematics is independent of internal and external locus of control, chi-square was done. Two groups from the sample were formed as students with internal locus of control and external locus of control based on their score on locus of control inventory. Three categories of students were formed based on their achievement in mathematics as low, average and high achievers based on the criteria $\bar{X} \pm \frac{1\sigma}{2}$ and the result is presented in table 7

Table 7

Data and results of chi square test of independence for locus of control and achievement in mathematics among secondary school students

Details of Chi-Square Tests

Chi-Square Tests			
	Value	Df	Significance
Pearson Chi-Square	13.114[a]	2	.001
Contingency coefficient	.143	2	.010

From table 7 it is found that the chi square value obtained is 13.114 with d.f 2, which shows that locus of control and achievement in mathematics are associated significantly at .01 level.

The c coefficient of contingency obtained is .143 showing that the extent of association between the two variables is significant and the extent is .143. That is , achievement in mathematics is influenced by the type of locus of control the learner have.

Tenability of hypotheses

The tenability of hypotheses was examined in the light of the above findings.

The first hypothesis states that there exists significant difference in the mean scores of locus of control among subsample based on gender, locale of residence and board of education.

The study revealed that

➢ There exists a significant difference in the locus of control between boys and girls.

➢ There is no significant difference in the locus of control between secondary school students from rural and urban area.

➢ There is no significant difference in the mean scores of locus of control among secondary school students based on board of education.

Thus the first hypothesis is not fully substantiated.

The second hypothesis states that there is no significant relationship between locus of control and achievement in mathematics among secondary school students.

The study revealed that there exist a negative, very low but significant relationship between external locus of control and achievement in mathematics. That is, achievement in mathematics is influenced by the type of locus of control the learner have. Thus the second hypothesis is rejected.

Conclusion

From the study it can be concluded that there are students with internal and external locus of control among secondary school students. There is a negative very low but significant relationship between locus of control(external) and achievement in mathematics.

SUMMARY, FINDINGS AND SUGGESTIONS

➢ *Restatement of the problem*

➢ *Objectives of the study*

➢ *Hypotheses of the study*

➢ *Methodology of the study*

➢ *Major Findings*

➢ *Educational Implication*

➢ *Suggestions for Further Research*

This chapter presents a summary of the procedure used for the study along with major findings, educational implications and suggestions for further research in the field.

Restatement of the problem

The present study is entitled as "**RELATIONSHIP BETWEEN LOCUS OF CONTROL AND ACHIEVEMENT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS**".

Objectives

Objectives of the study

The objectives of the present study are the following,

1. To identify the type of locus of control pursued by secondary school students for total sample and sub samples based on gender, locale of residence and board of education.

2. To compare the locus of control among sub samples based on gender, locale of residence and board of education.

3. To find out the relationship between locus of control and achievement in mathematics among secondary school students.

Hypotheses

1. There exists significant difference in the mean scores of locus of control among subsamples based on gender, locale of residence and board of education.

2. There is no significant relationship between locus of control and achievement in mathematics among secondary school students.

Variables

The present study involves two variables. They are Locus of control with its two types external locus of control and internal locus of control and achievement in mathematics among secondary school students.

Methodology

Method used

The purpose of the present study is to investigate the relationship between locus of control and achievement in mathematics among secondary school students. Survey method was used by the investigator for data collection.

Sample

The sample of the study constituted 648 secondary school students studying in standard IX who were selected from Kozhikode and Malappuram districts of Kerala state. The sample were collected by giving the due representation to gender, locale of residence and board of education.

Tool used for data collection

For the purpose of collecting data the investigator used 'Locus of control Inventory'.

Statistical techniques used

The following Statistical techniques are used for the present study

1.   Percentage

2.   Test of Significance of difference between Means

3.   One Way ANOVA

4.   Pearson's Coefficient of Correlation

5.   Chi-square test

Major findings

• The number of students with internal locus of control is 602(92.9%) and with external locus of control is 27(0.04%) in the total sample (N=648).

• The number of boys with internal locus of control is 318 and with external locus of control is 18(0.05%). 284 girls out of 302 are with internal locus of control and 9 girls are with external locus of control.

• Out of 341 urban students 291students are with internal locus of control and 9 students are with external locus of control. Also shows that there are 311

and 18 students with internal locus of control and external locus of control respectively from rural area.

- Out of 399 students who are following state syllabus 371 are with internal locus of control and 19 students are with external locus of control. 186 students from CBSE are with internal locus of control and 6 students are with external locus of control. Out of 50 students from ICSE syllabus 45 are with internal locus of control and 2 are with external locus of control.

- Mean scores of locus of control obtained for boys and girls are 6.42 and 5.47 respectively and the standard deviation are 3.369 and 3.163 respectively. The t value obtained is 3.715. It indicates that the difference in the mean score of locus of control between boys and girls is significant at.01 level. This shows that there exists a significant difference in the mean score of locus of control between boys and girls.

- The mean scores of locus of control for rural and urban students are 5.81 and 6.16 and the standard deviation are 3.466 and 3.116 respectively. The t value obtained is 1.348, which is not significant at any level. It means that there exists no significant difference in the mean scores of locus of control between rural and urban students.

- The F value obtained in one way ANOVA for locus of control by the board of education is 2.202 which is less than the tabled F value. Hence there is no significant difference in the mean scores of locus of control of secondary school students based on board of education.

- The r obtained is -.107. A comparatively small value of r shows that the relationship is very low. But the relationship is significant at .01 level. Thus, there exist a negative, very low but significant relationship between external locus of control and achievement in mathematics.

- The chi square value obtained is 13.114 with d. f 2, which shows that locus of control and achievement in mathematics are associated significantly at .01 level.

- The c coefficient of contingency obtained is .143 showing that the extent of association between the two variables is significant and the extent is .143. That is, achievement in mathematics is influenced by the type of locus of control the learner have.

Educational implications

In the present society academic achievement is considered as a key criterion to judge one's potentialities and capabilities. Academic achievement has become an index of student's career. Therefore, there is tough competition among students who are appearing for state and national level examinations. Particularly in Kerala the competition is very tough among students. Kerala is in the top of the educational ladder comparing to the other states. Parents are considering the education as an investment. They are investing in the education of the children. So achievement is a criterion in the evaluation of a child. Hence all factors which is related with academic achievement is very important.

Locus of control is a good predictor of achievement behavior. It is a better indicator of academic success. Internality oriented students seem to feel that they denote themselves energetically to improving their conditions. Externality oriented students, success to feel and their efforts make little difference and therefore do not seem to try to very hard.The present study shows that the locus of control is related to their achievement. Hence the internal locus of control is to be improved. This will be improved by the teachers, parents and the others. The students with the internal locus of control have confidence in their capacity, work and achievement. They have a sustained motivation. All teachers will help the students to improve the locus of control and thus their achievement. Various programmes like quiz competitions, brain storming sessions, etc. are to be given to students. Every subject teachers can make interest in their subjects and thus their achievement.

Suggestions for further research

The findings and limitations of the present study helped the investigator to put forward the following suggestions for further research in the area.

1. Similar study can be conducted at elementary, higher secondary and college level.

2. Study can be conducted to find out the influence of locus of control on achievement in other subjects.

3. The study can be replicated by including more variables like motivation of the learner, interests, attitudes etc

4. Similar study can be conducted in samples from other districts

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APPENDICES

FAROOK TRAINING COLLEGE, CALICUT

LOCUS OF CONTROL INVENTORY (Draft)

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നിർദ്ദേശങ്ങൾ

നിങ്ങളുടെ പഠനപ്രവർത്തനങ്ങളുടെ സ്വാധീനത്തെക്കുറിച്ച് അറിയുന്നതിനുള്ള Inventory ആണിത്. താഴെ കൊടുത്തിട്ടുള്ള 28 ചോദ്യങ്ങൾക്കും രണ്ട് പ്രസ്താവനകളാ ണുള്ളത്. ചോദ്യം വായിച്ചതിനു ശേഷം ഏറ്റവും കൂടുതൽ ജോയിക്കുന്ന പ്രസ്താവ നയ്ക്ക് നേരെ ഉത്തരക്കടലാസിൽ നൽകിയിട്ടുള്ള ബോക്സിൽ (✓) അടയാളപ്പെടുത്തു ക. ഒരു ചോദ്യത്തിന് ഒരു പ്രതികരണം മാത്രം നൽകുക. എല്ലാ ചോദ്യങ്ങൾക്കും ഉത്തര മെഴുതാൻ പ്രത്യേകം ശ്രദ്ധിക്കുക. നിങ്ങളുടെ പ്രതികരണങ്ങൾ ഗവേഷണാവശ്യത്തിന് മാത്രമേ ഉപയോഗിക്കുകയുള്ളൂ.

1.   A.   കഠിനാധ്വാനം പരീക്ഷകളിൽ ഉന്നതമാർക്ക് നേടാൻ സഹായിക്കുന്നു.

        B.   കഠിനാധ്വാനത്തേക്കാൾ ഭാഗ്യമാണ് പരീക്ഷകളിൽ മാർക്ക് നേടാൻ സഹായി ക്കുന്നത്.

2.   A.   തയ്യാറെടുപ്പുകളൊന്നും ഇല്ലെങ്കിലും ഭാഗ്യമുണ്ടെങ്കിൽ വിജയം കൈവരി ക്കാൻ സാധിക്കും.

        B.   ഏതൊരു കാര്യത്തിനും മുന്നോടിയായി സമയമെടുത്തുള്ള തയ്യാറെടുപ്പ് ഞാൻ നടത്താറുണ്ട്.

3.   A.   നിത്യവും ക്ലാസ്സിൽ പോവുന്നത് അത്രപ്രധാനമായ കാര്യമൊന്നുമല്ല

        B.   മുടങ്ങാതെ ക്ലാസിൽ പോവുന്നത് നല്ല കാര്യമാണ്

4.   A.   ദിവസേനയുള്ള പഠനം ഒരാളുടെ ജീവിതത്തിൽ വളരെ പ്രാധാന്യമർഹിക്കു ന്നു.

        B.   എന്നും പഠിക്കുന്നത് എന്നെ സംബന്ധിച്ച് അത്ര പ്രധാനമല്ല.

5.   A.   ഒരാളുടെ ജീവിതത്തിലെ മുഴുവൻ സംഭവങ്ങൾക്കും ഉത്തവാദി അയാൾ മാത്ര മാണ്.

        B.   ജീവിതത്തിലെ സംഭവങ്ങളെല്ലാം യാദൃശ്ചികമാണ്

6.   A.   പഠനപ്രവർത്തനങ്ങൾ സ്വയം ഏറ്റെടുക്കുന്നത് വളരെ നല്ലതാണ്.

        B.   പഠനപ്രവർത്തനങ്ങളിൽ നിന്നും ഒഴിഞ്ഞുമാറുന്നതാണ് നല്ലത്.

7. A. പരീക്ഷകളിൽ ഭാഗ്യമാണ് പ്രധാനം

      B. പരീക്ഷകളെ ധൈര്യത്തോടെ അഭിമുഖീകരിക്കേണ്ടതുണ്ട്

8. A. പഠനപ്രവർത്തനങ്ങളിൽ ചുമതലാബോധം ആവശ്യമാണ്

      B. പഠനപ്രവർത്തനങ്ങളിൽ ഞാൻ നിസ്സഹായനാണ്/നിസ്സഹായയാണ്

9. A. ക്ലാസ്സിൽ നേതൃത്വം വഹിക്കാൻ ഞാൻ താല്പര്യപ്പെടുന്നു.

      B. ക്ലാസിൽ നേതൃത്വഗുണത്തിന് വലിയ പ്രാധാന്യമൊന്നും കൊടുക്കേണ്ടതില്ല

10. A. അഭിരുചികളൊന്നും വിജയത്തെ സ്വാധീനിക്കുന്നില്ല

      B. വിജയത്തിന് അഭിരുചികൾ വളരെ ആവശ്യമാണ്

11. A. ഭാഗ്യനമ്പറുകൾ നമുക്ക് വിജയം സമ്മാനിക്കും

      B. വിജയം ഏതെങ്കിലും ഒരു നമ്പറിനെ ആശ്രയിക്കുന്നില്ല

12. A. പഠനത്തിൽ എന്റെ പങ്ക് വിലപ്പെട്ടതാണ്

      B. പഠനത്തിൽ എനിക്ക് യാതൊരു പങ്കും വഹിക്കാനില്ല.

13. A. എനിക്ക് ഒരിക്കലും വിജയിക്കാൻ സാധിക്കാത്ത ചില വിഷയങ്ങളുണ്ട്

      B. പരിശ്രമിച്ചാൽ ഏത് വിഷയത്തിലും എനിക്ക് വിജയിക്കാൻ സാധിക്കും

14. A. ഞാൻ നന്നായി പഠനാസൂത്രണം ചെയ്യുകയും അതിൽ ഉറച്ചു നിൽക്കുകയും ചെയ്യാറുണ്ട്.

      B പഠനാസൂത്രണത്തിൽ പ്രത്യേകിച്ച് കാര്യമൊന്നുമില്ല

15. A. എന്റെ വിജയപരാജയങ്ങളുടെ ഗതി നിയന്ത്രിക്കാൻ എനിക്ക് സാധിക്കുന്നില്ല എന്ന് മിക്കപ്പോഴും തോന്നാറുണ്ട്.

      B. എന്റെ വിജയപരാജയങ്ങൾ എന്റെ പ്രവൃത്തിയുടെ ഫലമാണ്.

16. A. എന്റെ പരിശ്രമത്തിനനുസരിച്ചുള്ള മാർക്കാണ് എനിക്ക് പരീക്ഷകളിൽ ലഭിക്കാറുള്ളത്.

      B. എന്റെ പരിശ്രമവും പരീക്ഷയിലെ മാർക്കും തമ്മിൽ യാതൊരു ബന്ധവും ഉണ്ടാകാറില്ല

17. A. യഥാസമയങ്ങളിൽ കാര്യങ്ങൾ ചെയ്തു തീർക്കുന്നത് വിജയത്തിലേക്ക് നയിക്കും.

      B. കാര്യങ്ങൾ യഥാസമയങ്ങളിൽ ചെയ്താലും ഇല്ലെങ്കിലും ഭാഗ്യം ഉണ്ടെങ്കിൽ മാത്രമേ വിജിക്കാൻ സാധിക്കുകയുള്ളൂ.

18. A. പഠനത്തേക്കാൾ അധ്യാപകരുമായുള്ള സൗഹൃദം പരീക്ഷാഫലത്തെ സ്വാധീനിക്കും.

      B. അധ്യാപകരോടുള്ള സൗഹൃദം പരീക്ഷാഫലത്തെ സ്വാധീനിക്കുന്നില്ല.

19.   A.   സർഗാത്മക രചനയിൽ (കഥാരചന, കവിതാരചന) അഗാധമായ വായന വള
രെയധികം സഹായിക്കുന്നു.

       B.   സർഗാത്മകമായ കഴിവുകൾ പുഷ്ടിപ്പെടുത്തുന്നതിൽ വായനക്ക് സ്വാധീന
മൊന്നുമില്ല.

20.   A.   ആരോഗ്യമുള്ള മനസ്സും ശരീരവും വിജയത്തിലേക്ക് നയിക്കും

       B.   വിജയിക്കാൻ ആരോഗ്യമുള്ള മനസ്സിന്റെയോ ശരീരത്തിന്റെയോ ആവശ്യമില്ല

21.   A.   സുഹൃത്തുക്കളുടെ പഠനനിലവാരത്തിന്റെ സ്വാധീനം നമ്മളിലും കാണാം

       B.   സുഹൃത്തുക്കളുടെ പഠനനിലവാരം നമ്മുടെ പഠനനിലവാരത്തെ സ്വാധീനി
ക്കുന്നില്ല.

22.   A.   എന്റെ കഴിവിൽ ഞാൻ സംതൃപ്തനാണ് /സംതൃപ്തയാണ്.

       B.   എന്റെ കഴിവിലുപരി ഞാൻ വിധിയിൽ വിശ്വസിക്കുന്നു.

23.   A.   എന്റെ ജീവിതത്തെ പലപ്പോഴും നിയന്ത്രിക്കുന്നത് മറ്റുള്ളവരാണ്

       B.   എന്റെ ജീവിതം എന്റെ നിയന്ത്രണത്തിനുള്ളിലാണ്

24.   A.   എന്റെ കുറഞ്ഞ പഠന നിലവാരത്തിന് കാരണം അധ്യാപകരാണ്

       B.   എന്റെ കുറഞ്ഞ പഠന നിലവാരത്തിന് കാരണം ഞാൻ തന്നെയാണ്

25.   A.   നന്നായി തയ്യാറെടുത്ത ഒരു കുട്ടിക്ക് പരീക്ഷ കഠിനമാവാനുള്ള സാധ്യത
വളരെ കുറവാണ്

       B.   പാഠപുസ്തകവുമായി ബന്ധമില്ലാത്ത ചോദ്യങ്ങളാണ് മിക്കപ്പോഴും പരീ
ക്ഷക്ക് ഉണ്ടാകാറുള്ളത് എന്നുള്ളതുകൊണ്ടുതന്നെ പഠനം നിഷ്ഫലമാണ്.

26.   A.   ഭാഗ്യം വിജയത്തിലേക്ക് നയിക്കും

       B.   ഭാഗ്യം എന്നത് മിഥ്യാധാരണയാണ്

27.   A.   സ്കൂളിലെ പഠനപ്രവർത്തനങ്ങൾ പഠനം എളുപ്പമാക്കാൻ വളരെയധികം
സഹായിക്കുന്നു.

       B.   സ്കൂളിലെ പഠനപ്രവർത്തനങ്ങൾ ചെയ്യുന്നത് പഠനത്തെ സ്വാധീനിക്കുന്നില്ല.

28.   A.   സ്വപ്രയത്നത്തിലൂടെ വിജയിക്കാനാണ് എനിക്ക് താൽപര്യം

       B.   വിജയിക്കുവാനായി ഞാൻ ഏത് എളുപ്പവഴിയും സ്വീകരിക്കും

FAROOK TRAINING COLLEGE, CALICUT
LOCUS OF CONTROL INVENTORY (Draft)

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Instructions

This inventory is exclusively meant to know the impact of learning programmes among school students. Two statements are given for each questions. After reading the questions put a tick mark in the box towards the appropriate statements.Give only one answer for a question.It is important to give answers for all the questions. All the responses will be considered for research purpose only.

1. A. Hardwork helps to score high marks in exams.

    B. Luck is more important than hard work for scoring good marks in exams.

2. A. It is easy to achieve success without any preparations through mere luck.

    B. I prepare well taking adequate time before getting involved in any activity.

3. A. It is not important to attend the classes regularly.

    B. It is good if we attend the classes regularly.

4. A. Day to day learning has a significant importance in one's life.

    B. According to me,day to day learning has no importance.

5. A. Iam the one who is responsible for all the incidents happening in my life.

    B. All the incidents happening in my life are accidental.

6. A. It is better to manage all the learning related activities by myself.

    B. It is better to withdraw oneself from all the learning related activities.

7. A. Luck is more important in exams.

    B. It is important to face exams with courage.

8. A. Responsibility is very important in learning programmes.

    B. Iam helpless in all kinds of learning related activities.

9. A. I am interested to lead my class efficiently.

B. Leadership quality has no importance in a classroom context.

10. A. Aptitude will not affect success.

    B. Aptitude is required to achieve success.

11. A. Lucky numbers help to achieve success.

    B. Success is not determined by any of the lucky numbers.

12. A. I have a major role in learning process.

    B. I don't have any role in learning process.

13. A. I can't pass in some subjects.

    B. If I work hard,I can pass in all the subjects.

14. A. I prepare study plans and stick on it in the learning process.

    B. Study plans are not important.

15. A. I have the feeling that Iam not able to determine the pathway towards failure and success in my life.

    B. Success and failure are the result of my own actions.

16. A. The marks that I score in exam is the result of my hard work.

    B. There is no relation between hard work and scoring good mark in exams.

17. A. If we can complete things with in the stipulated time frame, it is easy to achieve   success.

    B. Even if we complete things or do not complete things with in the time period,luck determines our success.

18. A . Cordial relationship with teachers influences our exam results.

    B. Cordial relationship with teachers will not influence the exam results.

19. A. In- depth reading helps to develop the aesthetic skills (story writing,poemwriting,etc)

    B. Reading has no role in developing aesthetic skills.

20. A. Healthy body and healthy mind will help to achieve success.

    B. Healthy body and healthy mind are not required for achieving success.

21. A. Academic standards of the peer group influence our learning process.

    B.Academic standard of the peer group has no influence over my learning process.

22. A. Iam satisfied with my skills.

    B. I believe in fate than my skills.

23. A. It is some other people who control my life than me.

    B. I have the control over my life.

24. A. Teachers are responsible for my poor academic standards.

    B. Iam solely responsible for my poor academic standard.

25. A. There is only less chance for being exams difficult for a student who has prepared   well.

    B . Most of the questions asked in the exam are from out of the syllabus. Hence learning   becomes difficult.

26. A. Luck leads towards success.

    B. Luck is merely an illusion.

27. A. Learning programmes make the learning process easier.

    B. Learning programmes do not have any impact over the learning process.

28. A. I like to succeed by self- determination.

    B. Iam ready to choose easy ways for achieving success.

APPENDIX III
FAROOK TRAINING COLLEGE, CALICUT
LOCUS OF CONTROL INVENTORY (Final)

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നിർദ്ദേശങ്ങൾ

　　　നിങ്ങളുടെ പഠനപ്രവർത്തനങ്ങളുടെ സ്വാധീനത്തെക്കുറിച്ച് അറിയുന്നതിനുള്ള Inventory ആണിത്. താഴെ കൊടുത്തിട്ടുള്ള 28 ചോദ്യങ്ങൾക്കും രണ്ട് പ്രസ്താവനകളാ ണുള്ളത്. ചോദ്യം വായിച്ചതിനു ശേഷം ഏറ്റവും കൂടുതൽ ജോയിക്കുന്ന പ്രസ്താവ നയ്ക്ക് നേരെ ഉത്തരക്കടലാസിൽ നൽകിയിട്ടുള്ള ബോക്സിൽ (✓) അടയാളപ്പെടുത്തു ക. ഒരു ചോദ്യത്തിന് ഒരു പ്രതികരണം മാത്രം നൽകുക. എല്ലാ ചോദ്യങ്ങൾക്കും ഉത്തര മെഴുതാൻ പ്രത്യേകം ശ്രദ്ധിക്കുക. നിങ്ങളുടെ പ്രതികരണങ്ങൾ ഗവേഷണാവശ്യത്തിന് മാത്രമേ ഉപയോഗിക്കുകയുള്ളൂ.

1. 　A.　തയ്യാറെടുപ്പുകളൊന്നും ഇല്ലെങ്കിലും ഭാഗ്യമുണ്ടെങ്കിൽ വിജയം കൈവരി ക്കാൻ സാധിക്കും.

　　B.　ഏതൊരു കാര്യത്തിനും മുന്നോടിയായി സമയമെടുത്തുള്ള തയ്യാറെടുപ്പ് ഞാൻ നടത്താറുണ്ട്.

2. 　A.　നിത്യവും ക്ലാസ്സിൽ പോവുന്നത് നല്ല കാര്യമല്ല

　　B.　മുടങ്ങാതെ ക്ലാസിൽ പോവുന്നത് നല്ല കാര്യമാണ്

3. 　A.　ദിവസേനയുള്ള പഠനം ഒരാളുടെ ജീവിതത്തിൽ വളരെ പ്രാധാന്യമർഹിക്കു ന്നു.

　　B.　എന്നും പഠിക്കുന്നത് എന്നെ സംബന്ധിച്ച് അത്ര പ്രധാനമല്ല.

4. 　A.　ഒരാളുടെ ജീവിതത്തിലെ മുഴുവൻ സംഭവങ്ങൾക്കും ഉത്തവാദി അയാൾ മാത്ര മാണ്.

　　B.　ജീവിതത്തിലെ സംഭവങ്ങളെല്ലാം യാദൃശ്ചികമാണ്

5. 　A.　പഠനപ്രവർത്തനങ്ങൾ സ്വയം ഏറ്റെടുക്കുന്നത് വളരെ നല്ലതാണ്.

　　B.　പഠനപ്രവർത്തനങ്ങളിൽ നിന്നും ഒഴിഞ്ഞുമാറുന്നതാണ് നല്ലത്.

6. 　A.　പരീക്ഷകളെ ധൈര്യത്തോടെ അഭിമുഖീകരിക്കേണ്ടതുണ്ട്

　　B.　പരീക്ഷകളിൽ ഭാഗ്യമാണ് പ്രധാനം

7. 　A.　പഠനപ്രവർത്തനങ്ങളിൽ ചുമതലാബോധം ആവശ്യമാണ്

B. പഠനപ്രവർത്തനങ്ങളിൽ ഞാൻ നിസ്സഹായനാണ്/നിസ്സഹായയാണ്

8. A. ക്ലാസ്സിൽ നേതൃത്വം വഹിക്കാൻ ഞാൻ താൽപര്യപ്പെടുന്നു.

B. ക്ലാസിൽ നേതൃത്വഗുണത്തിന് വലിയ പ്രാധാന്യമൊന്നും കൊടുക്കേണ്ടതില്ല

9. A. അഭിരുചികളൊന്നും വിജയത്തെ സ്വാധീനിക്കുന്നില്ല

B. വിജയത്തിന് അഭിരുചികൾ വളരെ ആവശ്യമാണ്

10. A. ഭാഗ്യനമ്പറുകൾ നമുക്ക് വിജയം സമ്മാനിക്കും

B. വിജയം ഏതെങ്കിലും ഒരു നമ്പറിനെ ആശ്രയിക്കുന്നില്ല

11. A. ഞാൻ നന്നായി പഠനാസൂത്രണം ചെയ്യുകയും അതിൽ ഉറച്ചു നിൽക്കുകയും ചെയ്യാറുണ്ട്.

B. പഠനാസൂത്രണത്തിൽ പ്രത്യേകിച്ച് കാര്യമൊന്നുമില്ല

12. A. എന്റെ പരിശ്രമത്തിനനുസരിച്ചുള്ള മാർക്കാണ് എനിക്ക് പരീക്ഷകളിൽ ലഭി ക്കാറുള്ളത്.

B. എന്റെ പരിശ്രമവും പരീക്ഷയിലെ മാർക്കും തമ്മിൽ യാതൊരു ബന്ധവും ഉണ്ടാകാറില്ല

13. A. യഥാസമയങ്ങളിൽ കാര്യങ്ങൾ ചെയ്തു തീർക്കുന്നത് വിജയത്തിലേക്ക് നയി ക്കും.

B. കാര്യങ്ങൾ യഥാസമയങ്ങളിൽ ചെയ്താലും ഇല്ലെങ്കിലും ഭാഗ്യം ഉണ്ടെങ്കിൽ മാത്രമേ വിജിക്കാൻ സാധിക്കുകയുള്ളൂ.

14. A. പഠനത്തേക്കാൾ അധ്യാപകരുമായുള്ള സൗഹൃദം പരീക്ഷാഫലത്തെ സ്വാധീ നിക്കും.

B. അധ്യാപകരോടുള്ള സൗഹൃദം പരീക്ഷാഫലത്തെ സ്വാധീനിക്കുന്നില്ല.

15. A. സർഗാത്മക രചനയിൽ (കഥാരചന, കവിതാരചന) അഗാധമായ വായന വള രെയധികം സഹായിക്കുന്നു.

B. സർഗാത്മകമായ കഴിവുകൾ പുഷ്ടിപ്പെടുത്തുന്നതിൽ വായനക്ക് സ്വാധീന മൊന്നുമില്ല.

16. A. ആരോഗ്യമുള്ള മനസ്സും ശരീരവും വിജയത്തിലേക്ക് നയിക്കും

B. വിജയിക്കാൻ ആരോഗ്യമുള്ള മനസ്സിന്റെയോ ശരീരത്തിന്റെയോ ആവശ്യമില്ല

17. A. സുഹൃത്തുക്കളുടെ പഠനനിലവാരത്തിന്റെ സ്വാധീനം നമ്മളിലും കാണാം

B. സുഹൃത്തുക്കളുടെ പഠനനിലവാരം നമ്മുടെ പഠനനിലവാരത്തെ സ്വാധീനി ക്കുന്നില്ല.

18. A. എന്റെ കഴിവിൽ ഞാൻ സംതൃപ്തനാണ് /സംതൃപ്തയാണ്.

B. എന്റെ കഴിവിലുപരി ഞാൻ വിധിയിൽ വിശ്വസിക്കുന്നു.

19. A. എന്റെ ജീവിതത്തെ പലപ്പോഴും നിയന്ത്രിക്കുന്നത് മറ്റുള്ളവരാണ്

    B. എന്റെ ജീവിതം എന്റെ നിയന്ത്രണത്തിനുള്ളിലാണ്

20. A. എന്റെ കുറഞ്ഞ പഠന നിലവാരത്തിന് കാരണം അധ്യാപകരാണ്

    B. എന്റെ കുറഞ്ഞ പഠന നിലവാരത്തിന് കാരണം ഞാൻ തന്നെയാണ്

21. A. നന്നായി തയ്യാറെടുത്ത ഒരു കുട്ടിക്ക് പരീക്ഷ കഠിനമാവാനുള്ള സാധ്യത വളരെ കുറവാണ്

    B. പാഠപുസ്തകവുമായി ബന്ധമില്ലാത്ത ചോദ്യങ്ങളാണ് മിക്കപ്പോഴും പരീക്ഷക്ക് ഉണ്ടാകാറുള്ളത് എന്നുള്ളതുകൊണ്ടുതന്നെ പഠനം നിഷ്ഫലമാണ്.

22. A. ഭാഗ്യം വിജയത്തിലേക്ക് നയിക്കും

    B. ഭാഗ്യം എന്നത് മിഥ്യാധാരണയാണ്

23. A. സ്കൂളിലെ പഠനപ്രവർത്തനങ്ങൾ പഠനം എളുപ്പമാക്കാൻ വളരെയധികം സഹായിക്കുന്നു.

    B. സ്കൂളിലെ പഠനപ്രവർത്തനങ്ങൾ ചെയ്യുന്നത് പഠനത്തെ സ്വാധീനിക്കുന്നില്ല.

24. A. സ്വപ്രയത്നത്തിലൂടെ വിജയിക്കാനാണ് എനിക്ക് താൽപര്യം

    B. വിജയിക്കുവാനായി ഞാൻ ഏത് എളുപ്പവഴിയും സ്വീകരിക്കും

FAROOK TRAINING COLLEGE, CALICUT
LOCUS OF CONTROL INVENTORY (Final)

Nimisha P   **Dr. Rekha P**
M Ed Student   Assistant Professor
Farook Training College   Farook Training College

Instructions

This inventory is exclusively meant to know the impact of learning programmes among school students. Two statements are given for each questions. After reading the questions put a tick mark(✔) in the box towards the appropriate statements.Give only one answer for a question.It is important to give answers for all the questions. All the responses will be considered for research purpose only.

1.   A. It is easy to achieve success without any preparations through mere luck.

        B. I prepare well taking adequate time before getting involved in any activity.

2.   A. It is not important to attend the classes regularly.

        B. It is good if we attend the classes regularly.

3.   A. Day to day learning has a significant importance in one's life.

        B. According to me,day to day learning has no importance.

4.   A. Iam the one who is responsible for all the incidents happening in my life.

        B. All the incidents happening in my life are accidental.

5.   A. It is better to manage all the learning related activities by myself.

        B. It is better to withdraw oneself from all the learning related activities.

6.   A. Luck is more important in exams.

        B. It is important to face exams with courage.

7.   A. Responsibility is very important in learning programmes.

        B. Iam helpless in all kinds of learning related activities.

8.   A. I am interested to lead my class efficiently.

        B. Leadership quality has no importance in a classroom context.

9.   A. Aptitude will not affect success.

         B. Aptitude is required to achieve success.

10.   A. Lucky numbers help to achieve success.

         B. Success is not determined by any of the lucky numbers.

11.   A. I prepare study plans and stick on it in the learning process.

         B. Study plans are not important.

12.   A. The marks that I score in exam is the result of my hard work.

         B. There is no relation between hard work and scoring good mark in exams.

13.   A. If we can complete things with in the stipulated time frame, it is easy to achieve success.

         B. Even if we complete things or do not complete things with in the time period, luck   determines our success.

14.   A. Cordial relationship with teachers influences our exam results.

         B. Cordial relationship with teachers will not influence the exam results.

15.   A. In- depth reading helps to develop the aesthetic skills (story writing,poem writing, etc)

         B. Reading has no role in developing aesthetic skills.

16.   A. Healthy body and healthy mind will help to achieve success.

         B. Healthy body and healthy mind are not required for achieving success.

17.   A. Academic standards of the peer group influence our learning process.

         B. Academic standard of the peer group has no influence over my learning process.

18.   A. Iam satisfied with my skills.

         B. I believe in fate than my skills.

19.   A. It is some other people who control my life than me.

         B. I have the control over my life.

20.   A. Teachers are responsible for my poor academic standards.

         B. Iam solely responsible for my poor academic standard.

21.   A. There is only less chance for being exams difficult for a student who has prepared well.

       B. Most of the questions asked in the exam are from out of the syllabus.Hence learning   becomes difficult.

22.   A. Luck leads towards success.

       B. Luck is merely an illusion.

23.   A. Learning programmes make the learning process easier.

       B. Learning programmes do not have any impact over the learning process.

24.   A. I like to succeed by self- determination.

       B. Iam ready to choose easy ways for achieving success.

FAROOK TRAINING COLLEGE, CALICUT

LOCUS OF CONTROL INVENTORY

Nimisha P   **Dr. Rekha P**

Personal Information

Name of the school :   Board of the school: State: ☐   CBSE: ☐   ICSE: ☐

Name of the student: Gender :   Male: ☐   Female: ☐

Locality of residence :

പ്രതികരണങ്ങൾ.

1.	A ☐	B ☐		15.	A ☐	B ☐
2.	A ☐	B ☐		16.	A ☐	B ☐
3.	A ☐	B ☐		17.	A ☐	B ☐
4.	A ☐	B ☐		18.	A ☐	B ☐
5.	A ☐	B ☐		19.	A ☐	B ☐
6.	A ☐	B ☐		20.	A ☐	B ☐
7.	A ☐	B ☐		21.	A ☐	B ☐
8.	A ☐	B ☐		22.	A ☐	B ☐
9.	A ☐	B ☐		23.	A ☐	B ☐
10.	A ☐	B ☐		24.	A ☐	B ☐
11.	A ☐	B ☐		25.	A ☐	B ☐
12.	A ☐	B ☐		26.	A ☐	B ☐
13.	A ☐	B ☐		27.	A ☐	B ☐
14.	A ☐	B ☐		28.	A ☐	B ☐

APPENDIX VI

LIST OF SCHOOLS

1. MHSS MOONNIYUR

2. GMHSS CU CAMPUS

3. RAMAKRISHNA MISSION HSS, MEENCHANDA

4. GGVHSS FEROKE

5. FAROOK HSS, FAROOK COLLEGE

6. PHSS, PANTHEERANKAV

7. RHSS, RAMANATTUKARA

8. EMEA HSS, KONDOTTY

9. UHHSS, CHALIYAM

10. AL- FAROOK RESIDENTIAL SENIOR SECONDARY SCHOOL, FAROOK COLLEGE

11. BHAVANS VIDHYASRAM, CHELEMBRA

12. NAVABHARATH ENGLISH MEDIUM SCHOOL, KAKKANJERI

13. HIDAYA PUBLIC SCHOOL, PERUMANNA

14. ST. FRANCIS ENGLISH MEDIUM SCHOOL, KUNDAYITHODE

15. MARY MATHA ENGLISH MEDIUM SCHOOL, NILAMBUR