

Minor Research Project in Arts and Humanities

UGC MINOR PROJECT

**Identification and Remedial Measures for students
with Dyslexia in Trichur District**

By

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CHAPTER I

INTRODUCTION

Dyslexia has been studied in numerous ways, worldwide, since the nineteenth century. It is, however, only in the last 60 years, or so (Swanson, 2005) that it has become recognized as a neurological disorder which manifests itself in the brains' inability to convert written text into understandable language, along with other symptoms, such as poor short-term memory, visual/auditory perception and motor skills. Every day, a person with dyslexia comes across major obstacles where others do not have to think twice. Reading a newspaper or magazine, writing a letter, or since the evolution of the World Wide Web - viewing a web page, can all be time-consuming, frustrating and even impossible tasks. They have much more resources available to them than there were just a few short years ago, but dyslexic children are still at a disadvantage when using these resources. Add to that list the cognitive disabilities of a user with dyslexia, and you are beginning to understand a fraction of the problems they face.

Reading is multi-componential skill that, in contrast to oral language skills, which humans have possessed for 100,000 years, has been manifest for only approximately 4,000 years. It requires the brain to link written markings to spoken language. The act of reading may be

usefully conceptualized as two simultaneous and intertwined sets of dynamic online processes: basic reading skills and reading comprehension. Basic reading skills include letter-sound knowledge (grapheme-phoneme mapping), word recognition and storage (logographic process), and simple decoding ability, (alphabetical process).

Basic reading processes are rooted in oral language, but reading is not a natural biological progression of language, and therefore must be taught. This is because, to recognize or to decode the printed word or character, every child must learn the conventional orthographic system invented by their ancestors to map alphabetical letters or other written characters (graphemes) to the basic segments of sound in speech (phonemes) that they represent. But 5-10% of the world's population, regardless of nationality, income level, sex, race or IQ has the reading disorder or dyslexia. Dyslexic people are visual thinkers, so it's hard for them to understand letters, numbers, symbols or written words, which leads to problems with reading, writing, math and attention focus.

A. Definition of the Research Problem

Etymologically, the term 'dyslexia' composed of two Greek words — 'dys' meaning 'ill or difficult' and 'lexis' meaning 'word' — literally means poor reading. It is normally used to refer to people, children

and/or adults, who experience difficulties with reading, spelling or writing. Dyslexia may also affect short-term memory, mathematical ability, concentration, personal organization or sequencing.

Dyslexia or the clinical condition known as reading disorder refers to severe problems in the mastery of reading. Reading disorder is a diagnostic term used for a common developmental problem that is cognitively and behaviorally heterogeneous. It is characterized by an unexpected and severe difficulty in the mastery of reading. The difficulties in learning to read are unexpected in relation to age and other cognitive and academic abilities and cannot be attributed to a generalized developmental disability, poor motivation, inadequate educational instruction, poor socio-economic opportunity, or sensory impairment.

The reading difficulties are clinically significant, meaning that they interfere with academic, career, or life activities requiring literacy skills. Current understanding of reading and reading disorders is based almost exclusively on alphabetical languages, particularly English.

B. Origin of the Research Problem

Historically, reading disorder, along with the term dyslexia used to refer to the clinical condition, was first noted in adults in the latter half of the 19th century and in children in 1896. Over the next 100

years, a variety of terms were used to refer to the condition of specific reading problems, including reading blindness, word blindness, dyslexia, congenital word blindness, strephosymbolia, specific reading disability, reading disability, specific developmental disability, unexpected reading failure, specific reading retardation, and poor reading.

In the 1920s, the neurologist Samuel Orton postulated a neurological basis of the disorder, suggesting that delayed development of specialization of the left hemisphere for language was potentially causal. However, it was not until the 1970s that an adequate knowledge base was established that localized the difficulties at the single-word level and pinpointed the cause, in most cases, as language-based deficits in phonological processing. More than a century after its initial description, the conceptualization, etiology, and treatment of dyslexia remains an issue of considerable controversy. However, converging evidence from behavioral, cognitive, and neuroimaging studies indicates that, in contrast to popular belief, individuals with reading disorder are not unusually prone to seeing letters or words backward. Rather, they have difficulty in naming the letters, mapping the letter-sound correspondence, and holding the sequence of component letters and sounds in short-term memory while reading the whole word. Thus, they might read 'saw' as 'was'. Converging evidence

from cross-cultural studies indicates that the core problem in reading disorder (at least for alphabetical languages) is linguistic and not visual (Farrel, 2007).

C. Significance of the Study

Reading disorder is the most common and most carefully studied of the learning disorders, affecting at least 90 percent of all individuals identified as having a learning disorder. It is estimated that two out of five children in special education are so placed because of reading difficulties. Epidemiological data indicate that reading disorder fits a dimensional model, like hypertension and obesity. That is, it represents the lower tail of a normal distribution of reading ability. Its prevalence is conservatively estimated to range between 4 percent and 10 percent in the general, school-aged population in the United States, although rates as high as 17 percent have been reported. Government figures suggest that one in 10 British people is dyslexic, with four out of 10 of those being severely so (Farrel, 2007).

The study of learning disabilities is a complex one, as every child who has this disability is unique. A dyslexic is a unique combination of often-unexplored talent, predisposition and environmental influences and unsuccessful learning experiences. Dyslexia is not a rare disability. Albert Einstein, Winston Churchill, Walt Disney, Benjamin Franklin, Prince Charles, Mozart, Tony Blair, Agatha Christie, and Bill Gates are

known to be dyslexic. Statistics in the west and India show that about 10 per cent of the children in a regular classroom are dyslexic (Paris, 2006). An estimated 30 million children are known to be dyslexic in India .

Some studies suggest that prevalence rates of reading disorder would be much higher if reading comprehension were included, because it has been estimated that approximately 10 percent of children experience significant, specific, and unexpected difficulties with reading comprehension, despite having accurate and fluent reading accuracy in good phonological processing skills. Also, recent evidence indicates that 37 percent of fourth-grade students and 25 percent of eighth- and 12th-grade students in the United States cannot read at the basic level, meaning that they cannot understand what they have read (Mortimore, 2008).

It is this lack of awareness that has made dyslexia a global problem. Early detection, followed by specialized training, can solve half the problems. This study examines the complexities of this problem and devises clinical and pedagogical mechanisms. Once dyslexia is confirmed, the child, depending on the severity of the condition, needs appropriate specialist teaching to overcome the problem.

D. INDIAN BACKGROUND

India presents imponderable issues in this area. The major hurdle is our country's multilingual pluralism and linguistic diversity. India's 1,000 million people use at least 1,600 mother tongues and the country boasts 20 recognized languages. These regional languages evolved from diverse language families, mainly the Aryan in North India and the Dravidian in the South (Goldstein, 2002). The Indian Constitution recognizes Hindi as the official language and English as the legislative and judicial language. Britain's colonial rule unified the diverse ethnic elements through the English language which is a sort of *lingua franca*. Every school child now is faced with this astounding complexity – having to speak one language at home and study a minimum of three languages in school, including Hindi and English. To complicate matters further, there are several School Education Boards – the Central Board of Secondary Education (CBSE) and the All India Council for School Examination (AICSE). These have regulations common to the entire country and their schools broad, while each of the 28 States and 7 Union Territories has independent Examination Boards with regulations which apply only to those territories (John, 2005) . The medium of instruction may be chosen – English, Hindi or a regional language (John, 2005). It is, nevertheless, mandatory that the child learns at least three languages starting even at the primary level. The

plethora of problems for a dyslexic child is compounded by such a system of multilingual exposure. In our experience at Cochin, most of the dyslexic children are found to be worse in oriental languages than in English. This may be due to their complex script or phoneme-grapheme correspondence; however, this needs further validation (George, 1999). As great a hurdle is the current educational system and examinations which rely heavily and sometimes exclusively on written performance.

E. Interdisciplinary Relevance & Criteria for Diagnosis

Reading disorder is a clinical diagnosis, based on a careful synthesis of clinical information from multiple sources, including developmental history, school reports, observation, and direct linguistic- phonetic assessment. The difficulties in reading are unexpected for the person's age, level of education, and cognitive abilities. The diagnosis requires the use of individually administered tests of reading accuracy or comprehension.

a. Although primary-care physicians may be able to screen for reading disorder by listening to the individual read aloud from an age-appropriate text, diagnosis of reading disorder does require psychological evaluation by licensed providers.

b. One of the best measures of basic reading related skills e.g., phonological awareness, phonological coding, working memory, and

rapid naming can be only given by a language teacher who is competent in the field of linguistics and phonetics.

c. Assessment of the accuracy of decoding single words and pseudo words is an essential assessment component for school-aged children. Thus, it is essential to include a measure of single-word reading efficiency which requires speeded and accurate naming of single words and pseudo-words with the help of a language teacher.

d. However, for adolescents and adults, it must be emphasized that the most common error in the diagnosis of reading disorder is the failure to recognize or to measure the lack of automaticity in reading. The sole use of tests relying on the accuracy of word identification is inappropriate for diagnosing reading disorder in adolescents and adults.

Reading fluency and comprehension (i.e., rate of reading connected text for meaning) should also be assessed in adolescents and young adults. However, it is important to understand that neither these nor the majority of the most widely used measures of the comprehension provide a sensitive or effective valuation of the ability to read expository texts for meaning which is the primary activity in high school, the university, and the workplace. Thus, every attempt in this regard may adequately reflect the interdisciplinary relevance in approaching the problem.

F. Review of literature and Development in the subject

Lot of research has gone into the problem of dyslexia, and studies have been done resulting in remedial teaching methods for the benefit dyslexic students in the West. The books that give practical ideas really work for students with dyslexia and other reading disorders. Their research insights have implemented in the teaching-learning process in the classrooms.

Susan Winebrenner's *Teaching Kids with Learning Difficulties in the Regular Classroom* (1996) provides strategies and techniques every teacher can use to challenge and motivate struggling students.

Written by an experienced Dyslexia Adviser, Chris Neanon in *How to Identify and Support Children with Dyslexia* (1998) offers help and advice to those providing and supporting the learning process of dyslexic children within the primary school classroom.

To Teach A Dyslexic (1999) by Don McCabe is a compelling autobiography illustrating what it is like to grow up dyslexic.

In *Dyslexia: Integrating Theory and Practice* (2001), a quite serious collection of articles by Snowling and Thomson explains the biological basis of dyslexia and the practical skills of teaching dyslexic children.

The Dyslexic Scholar: Helping your Child Succeed in the School System (1994) by Kathleen Nosek explains dyslexia and how to cut through the red tape at school.

In *Dyslexia and Learning Style* (2005), Matilda Mortimore shows the latest research into both dyslexia and learning styles shows that adapting the way teachers teach to suit the individual ways in which students learn can maximize success for all students dyslexic and non-dyslexic.

Dyslexia and Self-Concept (1990) by Robert Burden addresses the important area of dyslexic children's perception of themselves and how this is shaped by people and processes within their early school careers.

Dyslexia and Literacy (1988) edited by Gavin Reid provides a comprehensive, practical introduction for all professionals seeking an understanding of dyslexia in children.

Kathryn Dickie in *Phonological Skills Programme* (2003) shows meticulously planned programme teaching what a word is, segmentation, rhyming, through the early letter sounds, with a large battery of pictures to photocopy.

Snowling and Stackholme's *Dyslexia, Speech and Language* (1990) is an authoritative handbook presents current ideas on the relationship between spoken and written language difficulties. It provides clinical and educational perspectives on the assessment and management of children's reading and spelling problems.

Specific Learning Difficulties (Dyslexia) (1987) by Punfrey and Reason is another very thorough book on dyslexia, summing up the latest research, especially in the area of studies of the brain.

According to the British Dyslexia Association, 10% of the population is recognized as being dyslexic, but - as diagnosis is still a long way from being commonplace in the British education system - the figure could be much higher (Merrick, 2008). The purpose of this literature review is to source, categorize and analyze some of the research that has been published on the subject in recent years. The main subject areas are:

- a. To define the characteristics of Dyslexia and distinguish the different types.
- b. List the main symptoms of dyslexia and highlight the various literature available for diagnosis of the disorder.
- c. Identify what advances have been made in teaching for both mainstream and those with disabilities.
- d. Identify the various types of software and hardware being recommended as more beneficial than mainstreams devices, for dyslexics. There is however conflicting information on the efficiency of these tools. The literature sourced will help to give a balanced view of these opinions.

- e. Focus, in particular, on Voice Recognition Software, how it works and how it could be beneficial to those with dyslexia.
- f. Highlight any major advances in technology in recent news articles highlighting the developments in diagnosis, causes, and the scientific methods being developed to counteract the problems faced by sufferers of dyslexia on a daily basis.
- g. Identify what we still need to find out within these areas, and how all this information relates to the project.

From the issues raised by analysis and comparison, it will then be possible to ascertain what information is lacking, and, where arguments are weak, lead to further investigation and collection of data which will answer the questions raised. In India, the support for the dyslexic students in schools has been lacking due to the lack of knowledge of this particular learning disorder. It is quite strange to see many new teachers, who have spent years studying to become a teacher, are not aware of dyslexia. And as such we don't have much to claim in the area of research in this field. Parents, teachers and support groups for the cause of dyslexics yet to come (John, 2005).

G. Objectives

This research project aims to highlight the above-mentioned problems encountered by dyslexics in everyday tasks, at school, college and at home. It will focus on investigating the different

factors contributing to the difficulties encountered by the dyslexics and to bring a better awareness of the difficulties faced by dyslexics and suggest remedial measures. The main objectives are to gain an understanding of the difficulties faced by someone with dyslexia when faced with certain tasks. The main rationale behind this research will be:

- a. To identify the cases of dyslexic and offer support for the dyslexic students, in selected schools and colleges in Trichur District, Kerala, left neglected in the past mostly due to the lack of knowledge of this particular disorder.
- b. To offer useful clinical insights into the problem of dyslexia and remedial teaching methods in the learning-teaching atmosphere in the classrooms.
- c. To help the parents of the dyslexic students, giving them tips how to tackle the problem with proper care and concern.
- d. To get an objective picture of the extent of the problem cases of dyslexic students in Thrissur area and give awareness to the public about this disorder.
- e. To offer useful guidelines and teaching methods to the teachers so that they can effectively help the dyslexic students in the classroom.
- f. To devise certain help to the teachers who teach

other subjects.

- g. To identify the complex components of English language that makes dyslexic students difficult to absorb the basic skills in English.
- h. To build confidence in dyslexic students as the majority of dyslexic children have come to the conclusion that they are not good for anything.
- i. To publish the data and the findings of my study for the benefit of the teachers, parents and students with dyslexic disorder.
- j. Lastly, to have the personal awareness of this disorder and to enhance professionalism in dealing with cases with dyslexic students.

H. Methodology

i). Design of the Study

Learning and teaching strategies to overcome the difficulties associated with dyslexia can make a huge difference to the performance of a dyslexic child or adult. Therefore, this project addresses the problem through case study across the selected school-college campuses in Thrissur District. In the 30 km circumference of Thrissur town we have 9 Arts and Science colleges affiliated to the University of Calicut and around 10 High Schools.

As the present study aims at the identification and the prevalence of dyslexic disorder among the students in these institutions in Trichur district, two stages of screening are included. In the first stage, selected teachers from these institutions will screen the students for the identification of the dyslexic cases. For this selected teachers from the selected Higher Secondary schools and colleges will get training on problem identification by clinical psychologists.

In the second stage the researcher will do another screening among the students who are already identified as dyslexic by their teachers through the following methods:

a. Checking the score in the internal Test in order to find out the poor performers and find provision for locating the problem areas of an individual with dyslexia.

b. Reading fluency and comprehension (i.e., rate of reading connected text for meaning) should also be assessed in adolescents and young adults.

c. Reading disorder also occurs with other learning disorders, including mathematics disorder, disorder of written expression, and communication disorders (primarily with mixed receptive-expressive language disorder), as well as developmental coordination disorder. So the evaluation of the academic reports and scripts will help to diagnose the problem.

d. Specialized lessons, taught on a one-to-one basis, can improve the reading skills to average levels. Intensive reading tuition to dyslexic pupils from schools and other institutions should be given to particularly poor readers. Their progress is to be monitored and at the end of the period children can achieve scores in the "average" bracket.

e. Evaluation to rate a students' specific reading problems, and select strategies that can to improve reading skills; and a manual of practical ideas, with instructional strategies, explanations, helpful illustrations and examples.

ii). Procedure and Data Analysis

After the selection of the schools, colleges and the other educational institutions, problem identification training program can be arranged for selected teachers in these institutions. After 3 days training, teachers will be able to identify the symptoms of dyslexic disorder. Teachers are asked to observe the student in their usual class work. If they find certain cases they have to prepare a list of those students through observation over a period of one month and send them for a second level of screening. In the second stage researcher can evaluate the student on the basis of phonetic criteria and validate the diagnosis. The "Dyslexia Screening Instrument" (Appendix – 3) by Kathryn B. Choon et al (1994) is a rating scale designed to describe the cluster of characteristics associated with dyslexia and to discriminate

between students who display these characteristics and students who do not. This scale, for use in the school setting, is quick and non intrusive, and provides education professionals with a starting point for identifying students at risk for dyslexia.

Questions Management

The instrument that is used is a questionnaire, which was adapted from its original instrument “Dyslexia Screening Instrument” Kathryn B. Choon and others. The questionnaire is made into two groups which contain similar question. The first set is for the students and it has been translated into Malayalam language (Appendix-2) and the second set is for the teachers or rators.

Evaluation

Evaluation is made according to evaluation procedure, especially the explanation for every statement which is written in the questionnaire. Both questionnaires need to be completed in 15 to 20 minutes only. The filling in the questionnaire for students who suffer from dyslexia must be carried out by the help from the teacher and the researcher. Detail explanation about their needs followed by the meaning of a statement must be carried out. Teachers who are involved must have experience in teaching the students for at least 6 weeks. It can help the teacher to make an observation followed by

comparing their potential with their friends. It takes three months to complete the questionnaire.

The above mentioned procedure is followed in the chosen institutions in Trichur district, Kerala. After the second level of evaluation, the researcher can tabulate the data and devise remedial measures based on the application.

iii). Working plan of the Research Project

This study involves a clinical and educational investigation into the problem in focus. Thus, the first part of the project is a program meant for random identification of the dyslexic cases, along with its analysis and assessment in the real situation at the campuses. It is done through the application of educational tools in order to know the underlying ability -- thinking skills, organizing and planning, using words and patterns, vocabulary, reading, writing, spelling, memory, and sound skills. Thereafter, a profile of strengths and weaknesses is made, which can tell with the help of an experienced psychologist whether the child is dyslexic, and what should be done to help.

Thus, the first year of the Project would thus be spent for locating the crucial problems, and the collection of data through the campus visits and the personal interviews. Since this procedure is time-consuming, and could only be done through one-to-one basis with the

help of a clinical expert, a year is devoted to complete the first part of the research.

Each dyslexic person's difficulties are different, and vary from slight to very severe disruption of the learning process. There may have improvement in individual cases but it is certain that the effects of dyslexia can be alleviated by skilled specialist teaching and committed learning. Once dyslexia is confirmed, the child, depending on the severity of the condition, needs appropriate specialist teaching and training to overcome the problem.

The second part of the research has its focus on the clinical analysis of the cases and the remedial program meant for the dyslexic students, and for the teachers and parents who take care of them.

Thus, in the second year of the research period, preparation of the necessary modules for the awareness of the students and teachers is made in the light of the observation and verification, and consolidate other findings based on the first part of the research.

CHAPTER II

TESTING AND ASSESSMENT OF DYLEXIA

There are two types of tests for dyslexia: screening tests and comprehensive tests. Screening tests are designed to be used on very large number of students, to narrow down the group who might need a more thorough test for possible dyslexia. They are not tests for dyslexia, but are designed to help researchers focus on students who appear to be having difficulties with their studies, and who might be dyslexic (Campbell, 2005). Typically, these tests consist of a short list of questions, such as:

- Do you have difficulties with spelling?
- Do you find directions confusing?
- Were you reluctant to go to school?
- Do you have problems with language?
- Why you are 'poor' in their academic performance?

Students selected by this method could be having problems with their learning for any number of reasons - emotional problems, attention deficit, delayed learning, autism, dyspraxia, and possible dyslexia. Screening tests like these cannot be seen as valid tests for dyslexia, but they are helpful for the study.

Comprehensive tests for Dyslexia look at the whole person and examine the root causes of any learning difficulties in the light of research into dyslexia and its causes. These tests examine whether brain functions are interfering with a person's acquisition of normal learning. Tests of reading, spelling, comprehension, and intelligence are given, as well as visual tests, laterality tests, visual scanning tests, sequencing, reversals and other tests. The results are assembled into a complete report on the person, which outlines the evidence for the conclusions reached. A comprehensive dyslexia test may be administered in two ways, either by a psychologist or at a distance. Clinical psychologists operate either through schools and colleges or privately in a consulting room. Assessment by a psychologist seems to be the method that works for the majority of people, though there are cases dissatisfied with the process.

Some people seek a private assessment by a psychologist. The assessment takes a few hours, and is expected to receive a detailed report. Although assessments are thorough, few psychologists provide detailed recommendations for improving a person's learning techniques. An alternative is comprehensive dyslexia testing at a distance. This has the advantage of improved objectivity: the psychologist remains completely objective about the child's performance in all the tests, as

he/she never meets the person, but bases the assessment purely on the test results.

The tests used are very similar to those used by psychologists in schools/colleges or privately, but have been adapted so that they can be used by adults at home. This type of test produces a more detailed assessment report than a psychologist normally provides, and contains detailed recommendations for learning techniques that will help the person raise their achievement level. Typically, a test like this consumes only a certain amount time for assessment by a psychologist.

A. THE CAUSES OF DYSLEXIA

The first thing that needs to be said is that dyslexia is not brought about by poor parenting. On the contrary, it is the concerned parents of dyslexic children who have taken the initiatives that have brought dyslexia to the forefront of the learning difficulties arena. Individual parents have persisted in pointing out to their children's schools/colleges that something must be wrong when a child of apparently normal intelligence is failing to learn to read and write. There has been a real increase in the amount of research taking place, and a number of possibilities are beginning to emerge (Reed, 2009). The overall picture is that dyslexia can be caused by inherited factors, and/or hearing problems at an early age.

a. Inherited Factors

It is clear that dyslexia is very frequently found in families, and is often accompanied by left-handedness somewhere in the family. This does not mean to say that a dyslexic parent will automatically have a dyslexic child, or that a left-handed child will necessarily be dyslexic. But where dyslexia is identified, between a third and a half of children have a history of learning difficulties in their family, and more than half have a family member who is left-handed (Goswami, 200).

With the technical advances that have come about in brain-scanning in recent years, a lot of research has been carried out examining the brains of dyslexic people. Bunches of cells beneath the surface of the brain have been detected which lie on the surface in the brain of a non-dyslexic person. These groups of cells ought to have moved to the brain's surface at the time when the brain was developing in the foetus, but failed to make the journey. They are known as 'ectopic' cells. These ectopic clusters of cells are mainly found in the left and the front of the brain - the areas which are important for reading and writing. Another area of the brain - the magno-cellular system, which deals with our ability to see moving images - is smaller in the brains of dyslexic people. This makes reading harder, where the brain has to quickly interpret the different letters and words which the eyes see as they scan words and sentences (Marshall, 2004).

With the use of EEG (Electroencephalogram), where small electrodes with wires are temporarily attached to the outside of a person's head, it has been possible to see increased brain activity on the right side of the brain when a child is beginning to learn to read. Increased activity is noticeable on the left side in an advanced reader. However, the brains of dyslexic children show an unusual variation in left- and right-side activity (Westwood, 1993). Recent research has found that, whereas non-dyslexic children use the left side of their brain for language work, dyslexic children have to use the right side as well. This is not the side of the brain that is wired for language work, and, as a result, the brains of dyslexic children and adults have to work about six times harder. This may be why dyslexic children and adults become fatigued by language work and dealing with text(Fink, 1994).

b. Hearing problems at an early age

If a child suffers frequent colds and throat infections in the first five years, the ears can be blocked from time to time so that hearing is impaired. The parents can easily be unaware of this until a doctor actually looks into the child's ear. This condition is sometimes known as 'glue ear' or 'conductive hearing loss'. If the difficulty is not noticed at an early stage, then the developing brain does not make the links between the sounds it hears. This early learning of sounds and words is fundamental to the child's developing ability to handle language and

text. If a child cannot hear clearly, it will be unable to hear the difference between words like 'pin' and 'thin', or 'fan' and 'van'. The lack of clear hearing will also delay the child's phonemic awareness - the ability to hear that words are made up of smaller sounds and syllables, like 'c-a-t', or 'in-ter-est-ing' (Judd, 1999).

A delay in phonemic awareness causes lifelong difficulties - dyslexia - if corrective action is not taken at a very early stage. The most common treatment is the insertion of a tiny tube or grommet into the child's ear. This allows the fluid to drain off so that the child's hearing is restored. Another treatment is the removal of the tonsils, which are sometimes the cause of the repeated infections.

c. A combination of both

Sometimes a child has inherited genes which dispose him or her towards difficulties dealing with the printed word, and has also experienced early hearing problems. These children are often found to be quite severely dyslexic, and need a lot of support through their school and college years, as well as in the workplace.

B. LEARNING STRATEGIES

Learning strategies to overcome the difficulties associated with dyslexia can make a huge difference to the performance of a dyslexic child or adult. In particular, a 'multi-sensory' method can really help. This involves teaching children to learn spellings, for example, not only

by hearing and saying the sounds of the letters, but also by using their visual and tactile memories by writing the letters in the air, on the carpet, or in very large handwriting on big sheets of paper. This gives their brain a visual and tactile memory of the word as well as the memory of hearing the sounds of the letters. Joining the letters together - in joined handwriting - helps the brain to remember the order of the letters in a word (Ziegler, 2003).

C. COMPENSATING STRENGTHS

There are compensating strengths for a dyslexic person. Dyslexic children and teens benefit greatly in three important areas: creativity, physical co-ordination, and empathy with others. Teachers working with dyslexic children and teens see examples of their creative and imaginative drawings in school, and their skills and pleasure in sports, games, swimming, skate-boarding and other activities which require the physical co-ordination that many non-dyslexic children find hard. Every dyslexic child experiences problems and frustration at school - often including bullying, unfortunately - and they learn to empathize with other people's experiences of difficulty (Hoskyn, 2000).

In learning what the symptoms of dyslexia are, and how dyslexics deal with them, determine whether it does overcome the obstacles faced, and provide the valuable support needed. Doctors, scientists, and even the Government are now being seen to be

actively supporting dyslexic children and adults in their quest for normality. It is up to developers, and educators to turn these findings into realistic goals.

D. METHODS AND ANALYSIS

There are different investigation methods which could be used to answer the questions about dyslexia. The methods which have finally be selected are explained in detail in the following section, justifying the reasons for their choice, and the process used to eliminate the other potential methods.

A number of issues have been focused by this investigation, and by using a variety of analysis methods, it is hoped that some, if not all of these questions will be answered. There are several methods which could be used to help answer these questions (Gayan, 2003). These are identified as follows:

- Qualitative Data Analysis - To try to 'experience' the problems faced, and understand the issues involved with the process of change and improvement.
- Background Reading - To understand the subject area as a whole, and stimulate questions which could be answered by more research.

- Interviews - With subjects closely involved with the different aspects of the project to gain first-hand knowledge of their opinions and experiences.
- Questionnaires - To target a wider audience of potential subjects, and analyze the information produced in a quantitative way.
- Surveys - To target the widest possible audience available from the medium the survey is implemented through, analyzing the data in the same way as a questionnaire would, but with the potential to gain a much broader perspective.
- Case Studies - Highlighting one individual or group to analyze and producing a detailed amount of qualitative data on them
- Lab/Field Studies - Analysis of a product or system being used in either its normal working environment, or in a controlled, Lab-based situation
- Cognitive Walkthrough - In the absence of a 'user', testing of a product, usually by the designer, to produce a full usability evaluation.

- Heuristic Evaluation - Using a set of pre-defined guidelines to assess the usability and effectiveness of the software being tested.
- Review-Based Evaluation - Using a set of previously published facts and reviews on technical ability and design style, and comparing them to the product in question
- Model-Based - Use of previously evaluated models designed for particular types of interfaces, such as Microsoft Windows Drop-down menus, which have been adopted by the majority of software applications as being familiar and intuitive to use (Shaywitz, 2003).

E. METHODS SELECTED

From the above list of potential methods, not all could be used. Apart from time constraints not allowing for every method to be used, not all methods were completely suitable for this type of investigation. Below is a summary of the methods chosen and the reasons for doing so:

i). Background Reading

This forms the main bulk of the literature review and from a combination of resources, including books written by experts on the subject, journals, newspaper articles and web documents,

information has been sourced which will be used to gain an understanding of what dyslexia is. Discover how and when it is diagnosed, and solutions identified to assist dyslexics. Investigate any previous research and discoveries already made in the field related to dyslexia. Find any other research conducted on dyslexia. Source documentation from manufacturers of software will explain how it works and how or if - it has improved over the years. Highlight any ongoing research still being investigated in both the diagnosis of dyslexia.

ii).Interviews

It was necessary to conduct a series of informal interviews with a variety of people, both with dyslexia and those involved with them, to gain first-hand knowledge of their experiences and views. These interviews are conducted as follows:

a. With both Secondary school and college teachers to identify what methods of teaching they currently use, and what method, if any, is currently available within the campuses. Also to highlight any problems they face while teaching dyslexic children using computers, and any suggestions they have for future improvements.

b. With Specialist Dyslexia Instructors, to establish how it is diagnosed, what procedures are in place and what type of teaching methods are used, including any computerized methods.

c. With Dyslexic users of computers and other devices, both child and adult, to get first-hand point of view on the difficulties they face and how computers could be made more user-friendly for them.

iii). Surveys

Administering a Survey, aimed at dyslexics, seems to be a more efficient way to reach to the students in the campuses. A survey can be structured in much the same way as a questionnaire. The main reasons for this are:

a. The person taking the survey has complete control over the environment, to answer in their own time and pace with no pressure

b. The survey is completely anonymous; therefore they can answer all questions freely in the knowledge that they will not be traced.

F. PRELIMINARY PILOT TESTING

A pilot study had been made before the actual research was done. The pilot study is to certify the researched subject is being made through interview with the remedial teachers and other teachers who

are teaching them, besides observation of the students who had been notified. This sample has been confirmed through the pilot study at the early stage of the research.

Besides using the students' sample, the researcher also distributed questionnaire to the 10 teachers who are in charge of every subject, and the class teachers to find out about their perception toward the students. The pilot study is carried out after interview with those teachers who teach them. Students that have been analyzed are been observed. In this observation, the students' characteristics as set in Dyslexia Screening Instrument were detected. In the pilot study report from teachers and the students' work are also included as criteria to ascertain if the students are suffering from dyslexia.

At first, the researcher distributed questionnaire to the students and asked them to write their name in the questionnaire. Then, the researcher distributed the same questionnaire to the class teacher and asked them to evaluate the students. The teachers' perception is important because according to Abang Ridzuan (1991), "Class teacher is one who knows well about the problems among the students besides their attitude". In an indirect way, teacher's perception can be used as a control for the students' opinions.

The "**Dyslexia Screening Instrument**" by Kathryn B. Choon *et. al.* (1994) is a rating scale designed to describe the cluster of

characteristics associated with dyslexia and to discriminate between students who display these characteristics and students who do not. “The Dyslexia Screening Instrument” is designed to be used with students in ages 6 through 21. It can be used to screen entire population of students or students who exhibit reading, spelling, writing or language-processing difficulties. Rating and scoring should take 15 to 20 minutes per student.

A classroom teacher who has worked directly with the student for at least six weeks should complete the Rating Form. This will result in a rating that will be more accurate because the teacher has observed the student over a lengthy period of time and can compare the students’ performance to that of the students’ classmate.

For a middle school or high school student, the preferred rater is a language teacher who generally has more opportunity to observe the behavior that is indicative of dyslexia. The researcher with the help of the expert who is in charge of gathering information about the student should explain to the rater that the purpose of the ‘Rating Form’ is to obtain an accurate picture of current student performance related to specific characteristics. The professional also should make sure the rater understands how to complete the Rating Form and what each statement describes.

The rater should complete the student information on the front of the Rating Form. Not all of the information is required for scoring, but it may be useful for record-keeping purposes.

- a. Never exhibits.
- b. Seldom exhibits.
- c. Sometimes exhibits
- d. Often exhibits
- e. Always exhibits

Besides that, a questionnaire is used to recognize especially the other aspects of the students. This ensured that the Questionnaire based campus survey along with “The Dyslexia Screening Instrument” would be suitably accessible to dyslexics, before administering it to the dyslexics in the campuses.

i). Methods Eliminated

This offers an explanation of why other potential methods were eliminated. Questionnaires are an excellent way of gaining information first-hand from a potentially wider audience than could be reached via interviews. However, due to the nature of the study, it was considered to be impossible to reach a wide enough range of dyslexic people to provide a credible response. It was felt that the main disadvantages in using a questionnaire would be as follows:

- The people being questioned may feel rushed into giving inaccurate responses, just to get it over with quickly.
- They may feel pressured into giving the responses they think are expected of them.
- Due to the sensitive nature of some questions they may not wish to divulge some information if they cannot be guaranteed anonymity.
- Depending on how the questionnaire is administered, some people may not bother to return it at all, leading to a low response rate.
- It would be almost impossible to reach a wide enough number of dyslexic people within the timescale of the project.

ii). Individual Case Study

Individual Case Study and monitoring one to one observation over a period of time would produce valid data over how the individuals' performance with academic work. As stated earlier, though, every dyslexic is different - with different symptoms, and to varying degrees, this type of study would be able to highlight the performance of the individual taking part, and could, in a way be representative of other dyslexics. But this is not feasible in the campus situations.

G. METHOD SELECTED

In view of identification of dyslexics, the Campus-based survey with “Dyslexia Screening Instrument” is hoped to produce a wide view of opinions from a large cross-section of dyslexics. This will only happen if the survey is well promoted. There is also the potential hazard that, without proper instruction, those participating in the survey will misinterpret the questions, or fail to answer some questions altogether. This would then limit the amount of useful information obtained. The only way to try to avoid these pitfalls is to give as clear and concise instructions as possible and to promote it in as many ways possible to reach the largest possible audience.

From the point of view of the students undergoing testing, there is likely to be an overwhelming psychological feeling of being inferior, or ‘stupid’ - therefore during testing, they may not be entirely honest about their capabilities, or feelings during a particular part of the test. Motivation and understanding is the key to filtering out these feelings. If the students know that by being themselves and by providing the most natural and relaxed environment possible for them to work in, they will benefit themselves. As the testing will be done in a class-based, constrained environment, the children may also tend to give answers or display results that they think the tester wants them to give, as they will be observed at all times during the tests.

H. COMPARISON OF DATA

With regard to the comparison of results from the study, the students will not all be of exactly the same reading age or chronological age. This will no doubt have a contributory factor in the final results. Every dyslexic tested, whether they are of the same age or reading ability will always be different to some extent. There is also the possibility of uneven performance. It will be very difficult to obtain an overall perspective by interviewing and testing just a small selection of dyslexics. There are so many variations of symptoms and problems that could occur, and no solution is going to be perfect for everyone, but hopefully by highlighting the most common difficulties, progress will be made, even if it only overcomes some of the obstacles.

CHAPTER III
IDENTIFICATION OF DYSLEXIA IN SELECTED INSTITUTIONS IN
TRICHUR DISTRICT

There are no reliable data about identification and remedial services available across the country. There is certainly no uniformity in the diagnostic criteria or types of remedial services provided (John, 1997). The national picture of access to services is quite uneven, with agencies and specialists being available mostly in the urban areas alone. This is where a new approach is called for, to deal with the enormous number of children with poor marks and poor academic performance. This has been executed with significant questions in the questionnaire for the survey and interview, prepared on the basis of a consultation with the experts in this field. Once the methods were chosen and the timescale for the project confirmed, a detailed task list was drawn up. This was used to assign specific timescales to each part of the project, setting deadlines, dependencies and highlighting milestones within the project. Therefore, the best place to identify dyslexia is the classroom itself.

A. IDENTIFICATION: TEACHER AS DIAGNOSTICIAN AND THERAPIST

The strategy has been path-breaking, to consider 'poor marks' as a symptom (John *et al.*, 2001). Then, the class teacher is trained as a 'therapist' to use a simple and brief method to 'diagnose' the various causes in the particular child which have led to poor academic performance. These causes include:

- (1) Hearing or visual deficits
- (2) Subnormal intelligence (IQ)
- (3) Learning Disorders including dyslexia
- (4) Attention Deficit Disorders
- (5) Emotional / behavior disorders.

Designing the Questions: It is documented that a good survey should have the following features (Fink, 1995):

- Specific Objectives
- Straightforward questions
- Sound research design
- Sound choice of population sample
- Reliable and valid survey instruments
- Reasonable resources

Therefore, the questions were designed to obtain quantitative data on the percentages of dyslexics who have been formally diagnosed

and to obtain qualitative data on the opinions of dyslexics who got help in getting along with dyslexia.

Campus-Survey with “Dyslexia Screening Instrument”:

Teachers, through brief structured sensitization, can thus be easily prepared to become ‘Educational Diagnosticians’. The causes for poor academic performance include a synthesis of educational, social, psychological and neurological factors. Therefore, a restricted educational model without a multidisciplinary, multi-axial perspective may only see dyslexia in isolation. Such an evaluation can blind the professional to the presence of co-existing neuro-developmental, environmental or behavioral disorders in the dyslexic child. ‘Diagnostic Approach’ overcomes this problem effectively, and creates a holistic perspective. The Central Board of Secondary Education has recognized the potential of this approach. It has been training its teachers using a handbook to develop a national resources organization and to achieve uniformity in the identification and management of poor academic performance. In fact, the present study makes no pretense even of dealing with a question of such scope and importance. This study, however, shall attempt through consideration of such more specific questions.

B. THE MULTIDISCIPLINARY APPROACH

Poor academic performance evaluated at the different institutions yielded very useful information in the past. Some 20–25 per cent of children in every class score ‘poor marks’ and were diagnosed with Learning Disorders. Among them, 40-45 per cent of students had significant and diagnosable psychological co-morbidity. Attention deficit hyperactivity disorders, obsessive compulsive disorders, oppositional defiant/conduct disorders, Tourette’s disorder, anxiety, school phobia and depression are the prominent co-morbid disorders identified. What is more significant is that in 18 per cent of these children, developmental communication disorders (speech and language disorders) and developmental co-ordination disorders (motor skill disorders) were also detected. As it is clear of this pattern and tend to see them – linguistic, cognitive and motor developmental disorders – as occurring in a spectrum.

Mainly two strategies are planned as a part of the research. First one looks into the problem through a general questionnaire prepared on the basis of “Dyslexia Screening Instrument”. The second one is through the personal interviews conducted on the so called ‘poor performers’ with the help of the questionnaire.

Through this investigation it is hardly expected to find answers to all of the questions, or, indeed, to reach final and complete conclusions

regarding even the simplest of them. Still less does this study hope to solve any of the more fundamental issues mentioned above, of which these specific and more restricted questions are only minor parts. This study presumes, however, that reliable results may be obtained regarding some of the topics related to dyslexia, at least. Certainly the importance of the general issues is recognized, though there has been little quantitative study of them even on the limited basis here undertaken. This attempt may at least suggest major contributions in this field.

The most relevant and significant questions in the questionnaire for the survey and interview are prepared on the basis of a consultation with the experts in this field. After a preliminary selection of questions, the questions are classified into groups. Then, again after a thorough discussion with the experts, repetitions are avoided, weak and irrelevant questions are removed; the final lists of questions are prepared.

Questionnaires are distributed directly, and responses are collected by class teachers through the members of the Student Council in each institution. As a part of the study the other information already available through other sources such as academic records and Log Books have been made use of in order to find out the students with poor marks or poor academic performance.

The data will be of value in proportion to the thought and attention expended thereon by students. All the questions raised may not be of equal interest or apparent value to all students. Every question has a definite purpose so they are to be answered as fully and completely as possible. It is obviously impractical to try and list the motive for every question. Therefore, the motive behind every question is to be taken for granted, even though the practical significance of some of the issues may not be obvious.

i). Initial Response

The initial reaction of students to the plan when it was announced varied in different cases from extreme enthusiasm to passive indifference. When the plan was first under consideration, an outline thereof, with typical questions, was shown to about a few members of the faculty. The students as a whole evinced a reasonable amount of interest in the project but were skeptical as to the degree of response which might be expected. Whether personally favoring the plan or not, the almost unanimous prediction of the faculty members consulted was that the student response would be too small to prove of any practical value. As the actual return was more than 50 per cent, the experiment may be considered to have been successful and the data obtained thereby served the purpose.

ii). Student Cooperation

The success of the experiment as a whole and the reliability of the data were both dependent on the development of a favourable student attitude toward the project. Analyses of answers to the various questions indicate that such information as was obtained probably reflected, as well as might be expected, a serious intention to be accurate. Some of the questions yielded objective data and others, subjective opinions. The inclusion of such questions had a beneficial effect on the study as a whole.

C. OBJECTIVE EVIDENCE AND AUTHENTICITY OF THE DATA

Careful study of individual replies to the Questionnaire indicated that the method was impressive. Certain questions on personal data were reflected in only a few instances. In most cases the participants either became sufficiently interested in the Survey to cooperate wholeheartedly and expend real time and effort on their answers to the questions. If they were not of genuine interest in it, they made no return of the questionnaire. The following table shows the number of blanks sent out and returned from the students.

TABLE I - Number and Percentage of Questionnaires sent and returned:
Classes XI, XII and UG of the year 2009-08.

Name of the Institution	No. of Sent Out forms	No. of Returned	Percentage
St. Thomas College, Trichur	204	138	67 %
Sree Keralavarma College, Trichur	140	74	53 %
St. Mary's College, Trichur	110	63	57 %
Vimala College, Trichur	135	98	73 %
Govt. College, Kuttanellur, Trichur	166	89	54 %
St. Aloysius College, Elthuruth	94	73	78 %
Prajyoti Niketan College, Pudukad	56	40	71 %
Panampilly College, Chalakudy	69	40	58 %
Sacred Heart College, Chalakudy	45	31	69 %

Devamatha CMI Public School, Paturaikal, Trichur	168	105	62 %
Nirmalamatha CBSE School, Trichur	66	43	65 %
Deepthi School, Thalore, Trichur	61	21	34 %
Carmel School, Chalakydy	176	128	73 %
CMI Public School, Chalakydy	26	21	80 %
St. Antony's Higher Sec. School, Pudukad	120	86	72 %

The above Table – 1 shows the names of the 15 institutions along with the number of campus survey forms sent, returned and their percentage.

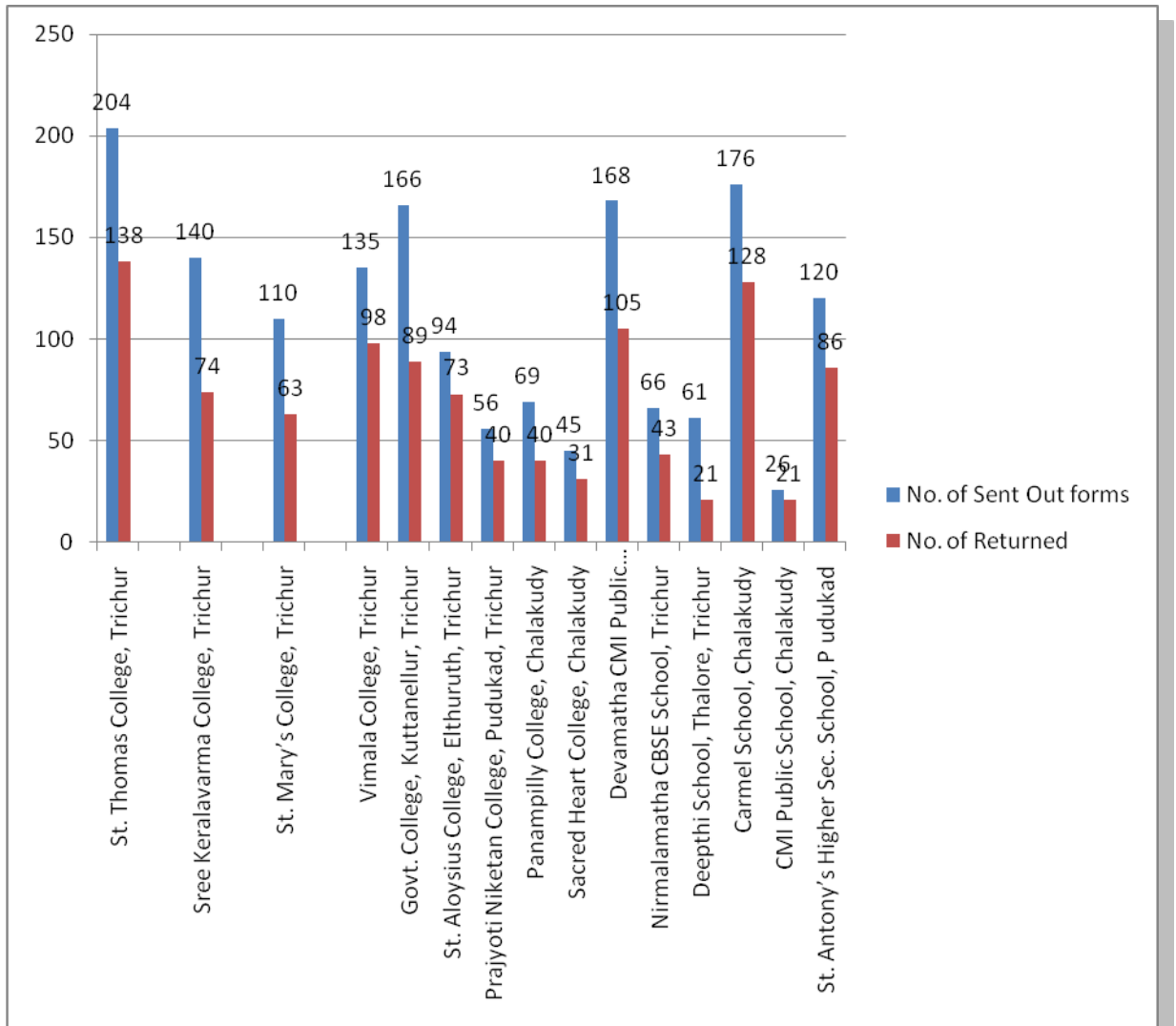


Figure - I

Figure-I is the graphical representation of the number of questionnaire forms sent and the number of filled in forms returned from each institution. The highest number of filled in forms ie.138 forms out of 204 returned from St. Thomas College, Trichur, whereas highest percentage of filled in forms returned is 80% from CMI Public School, Chalakudy. But in this institution the number of sent and returned

forms are comparatively small in relation to other institutions. St. Aloysius College with 78% and Vimala College with 72% stand second and third positions respectively. The number of filled in returned forms. Table – II shows the number of filled in returned forms along with number of poor performers, number of dyslexic cases both boys and girls with their percentage in each category.

NAME OF INSTITUTIONS	No. of Returned Forms	NO. OF POOR PERFORMERS	NO. OF DYSLEXIC CASES	PERCENTAGE OF DYSLEXIC CASES	
		Boys / Girls	Boys/ Girls	Poor performers	Dyslexic cases
STC	138	28/17	8/5	32 %	9 %
SKC	74	32/14	5/12	62 %	23 %
SMC	63	Nil /31	Nil /11	49 %	17 %
VC	28	Nil/10	Nil /9	35 %	32 %
GCK	89	43/21	19/7	75 %	29 %

SAC	73	22/12	6/13	47 %	26 %
PNC	40	10/16	4/5	65 %	23 %
PGC	40	19/11	12/5	75 %	43 %
SHC	31	Nil/11	Nil/6	35 %	19 %
DPS	105	19/9	8/4	27 %	11 %
NMS	43	Nil /14	Nil / 5	33 %	12 %
DST	61	17/8	9/5	41 %	23 %
CS	128	34/15	12/5	38 %	13 %
CMI	21	5/3	3/2	38 %	24 %
SAC	86	24/11	11/12	41 %	27 %

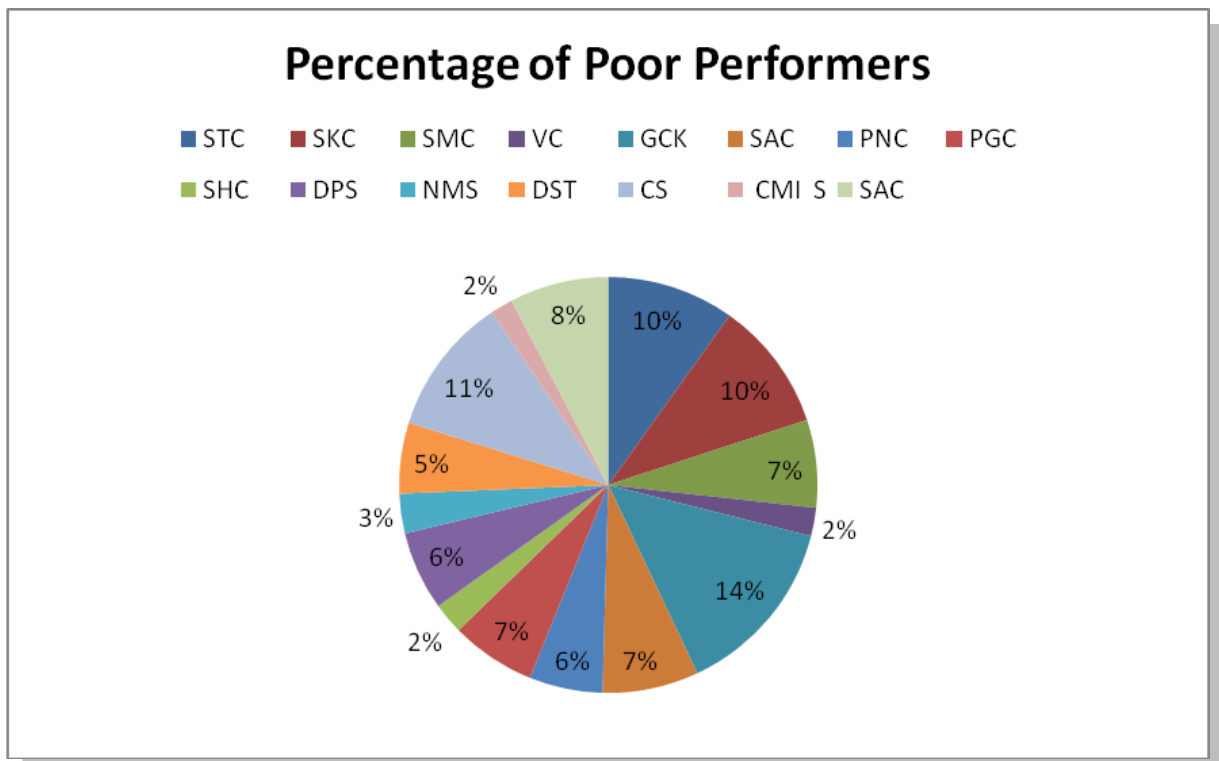


Figure - II

Figure -2 is the pie chart representation of the percentage of poor performers in each educational institution. Three educational institutions, namely Deepthi School Thalore, CMI School Chalakudy and Sacred Heart College Chalakudy, mark the lowest percentage of performers each with 2%. With 11 percentage, Carmel School chalakudy has the highest percentage of poor performers.

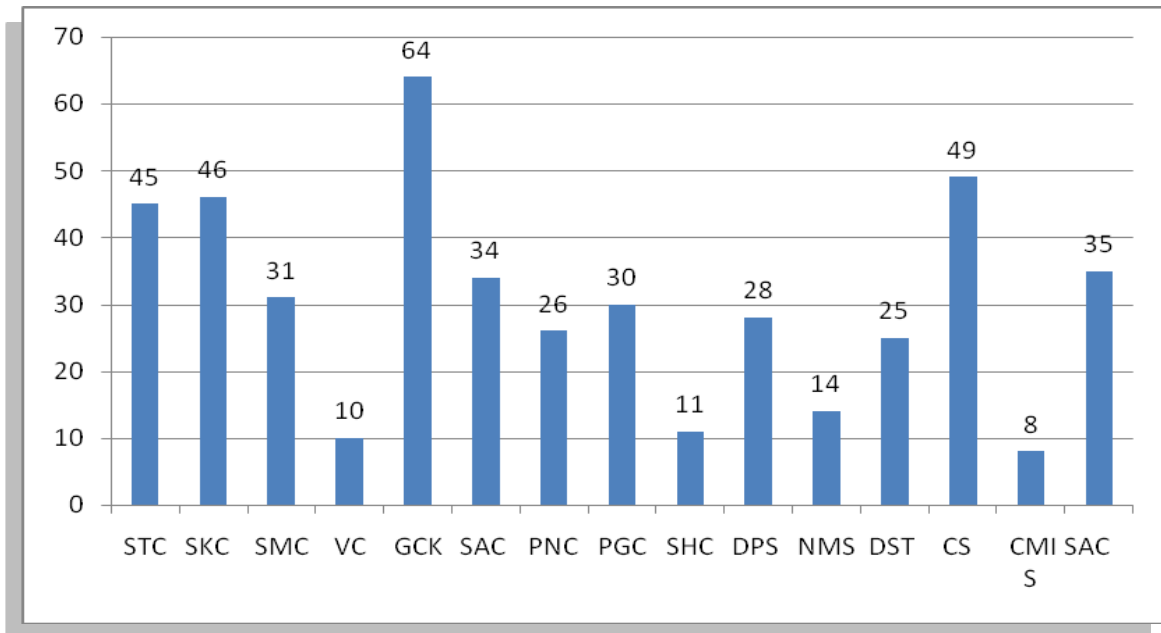


Figure - III

Figure-III is the graphic representation of the number of poor performers in each educational institution. Government College Kuttanellur has the highest number of poor performers ie. 64 and CMI School Chalakudy has the lowest number of poor performers ie. 8.

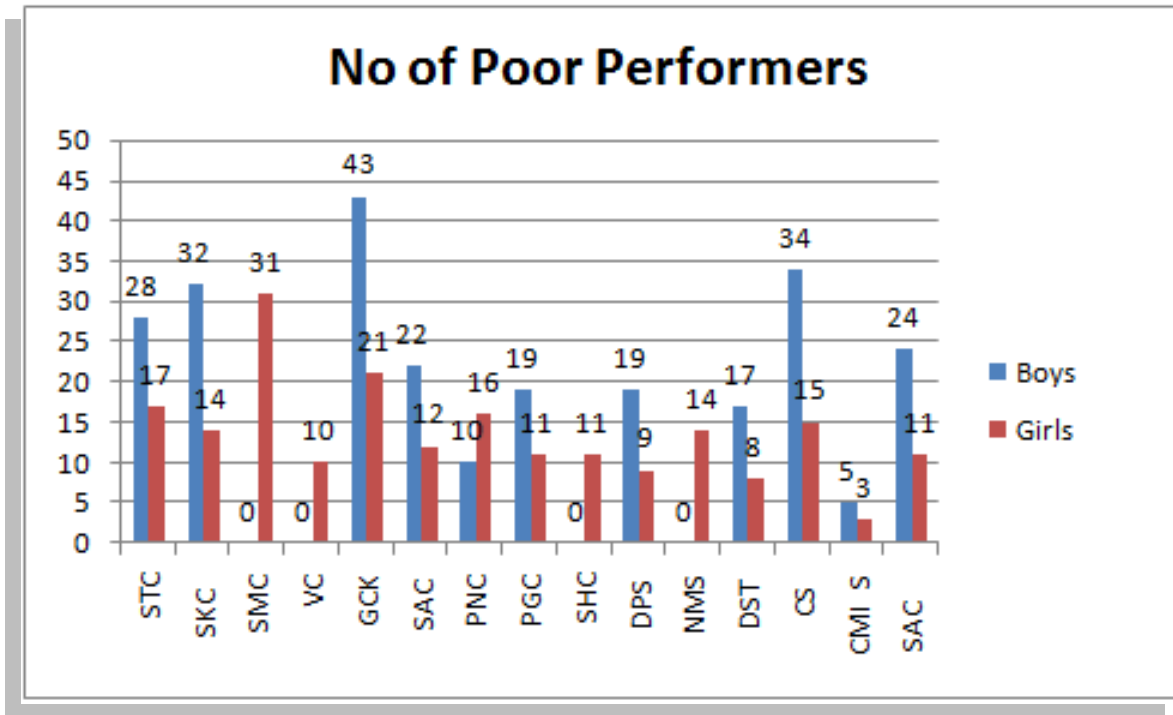


Figure – IV

Figure-IV is the graphic representation of the number of poor performers both boys and girls. The highest number of poorly performed boys is from Government College Kuttanellur and the lowest number is from CMI School Chalakudy. The highest number of poorly performed girls is from Government College Kuttanallur and the lowest number is from CMI School Chalakudy. St. Mary's Colleg, Vimala College, Sacred Heart College and Nirmala Matha Scool are girls only institutions.

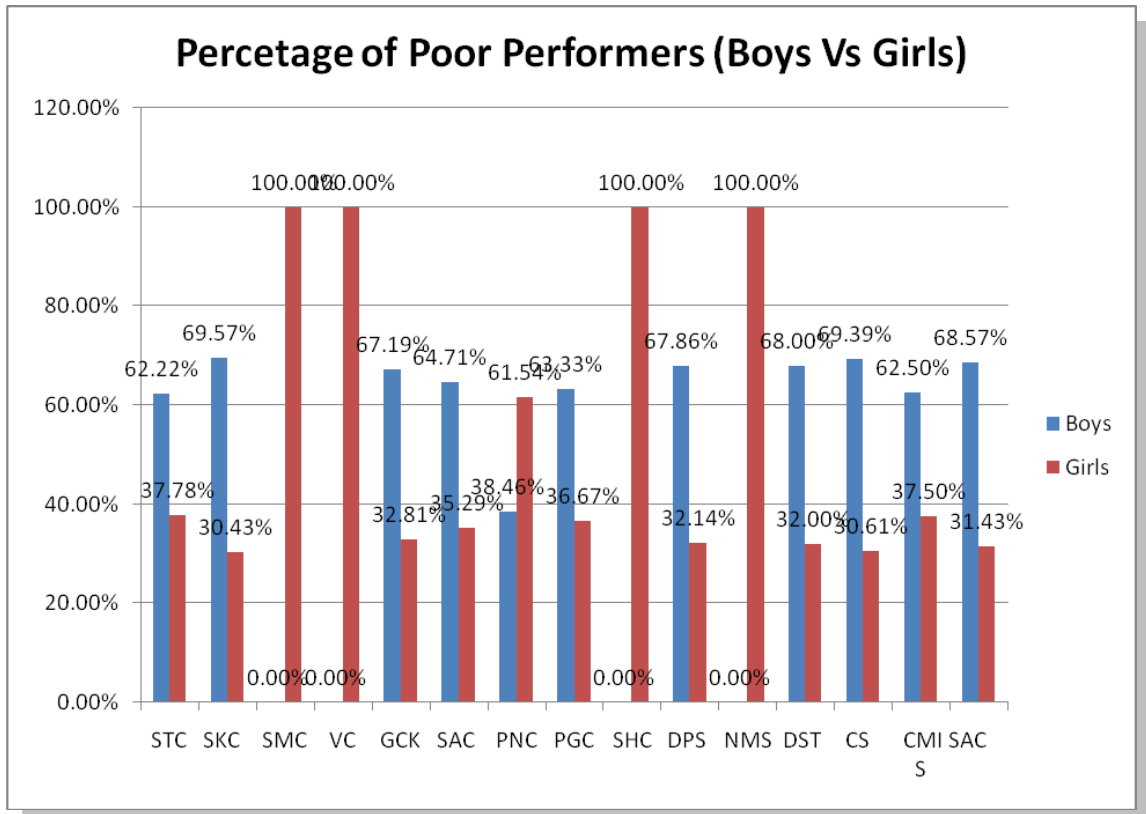


Figure – V

Figure-V is the graphical presentation of the percentage of poor performers – both boys and girls. The highest number of poor performing boys are from Sree Keralavarma College with 69.5%. The lowest percentage of boys is from Prajyoti Niketan College. The highest number of poor performing girls are from Projyoti Niketan college and lowest percentage of poor performing girls are from Sree Kerala Varma College. There is not much difference in the score of poor performing girls if we compare the score of other poor performing girls in other institutions. As St. Mary’s Colleg, Vimala College, Sacred Heart College

and Nirmala Matha School are girls only institutions, the graph shows their score as cent percentage.

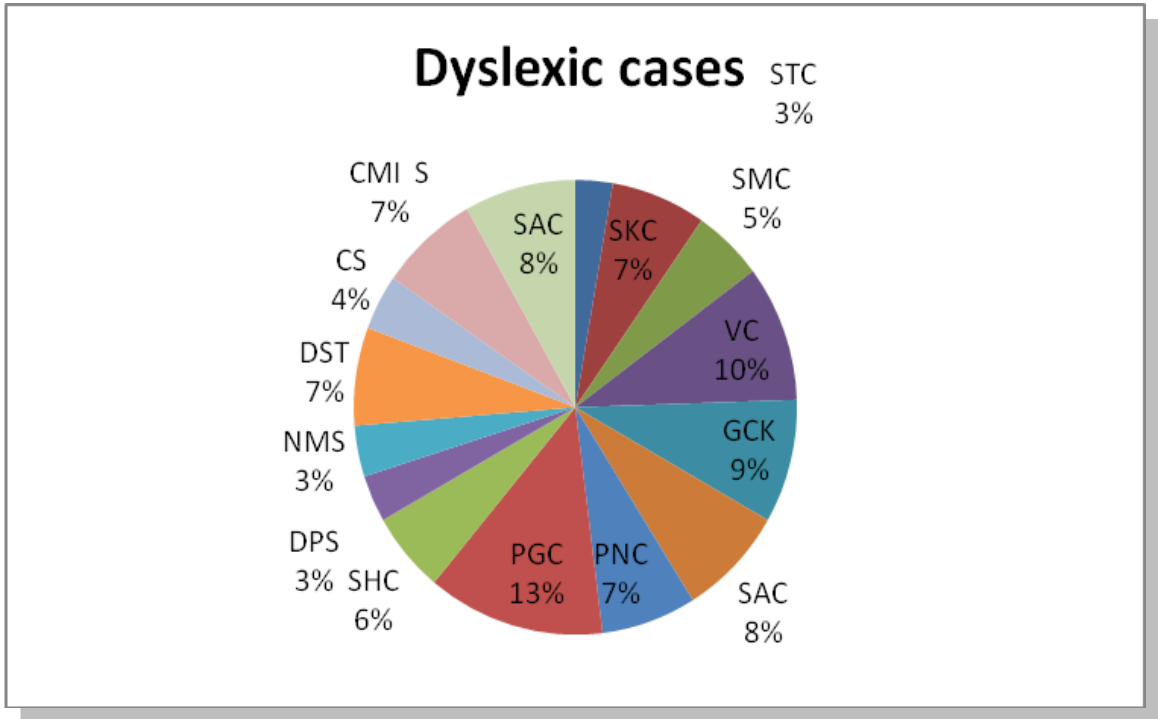


Figure – VI

Figure-VI is the pie-chart representation of the percentage of dyslexic cases in each institution. The data shows that the number varies from the lowest of 3 percentage to the highest of 13 percentage. Invariably all the selected institutions in Trichur District have the students with dyslexia.

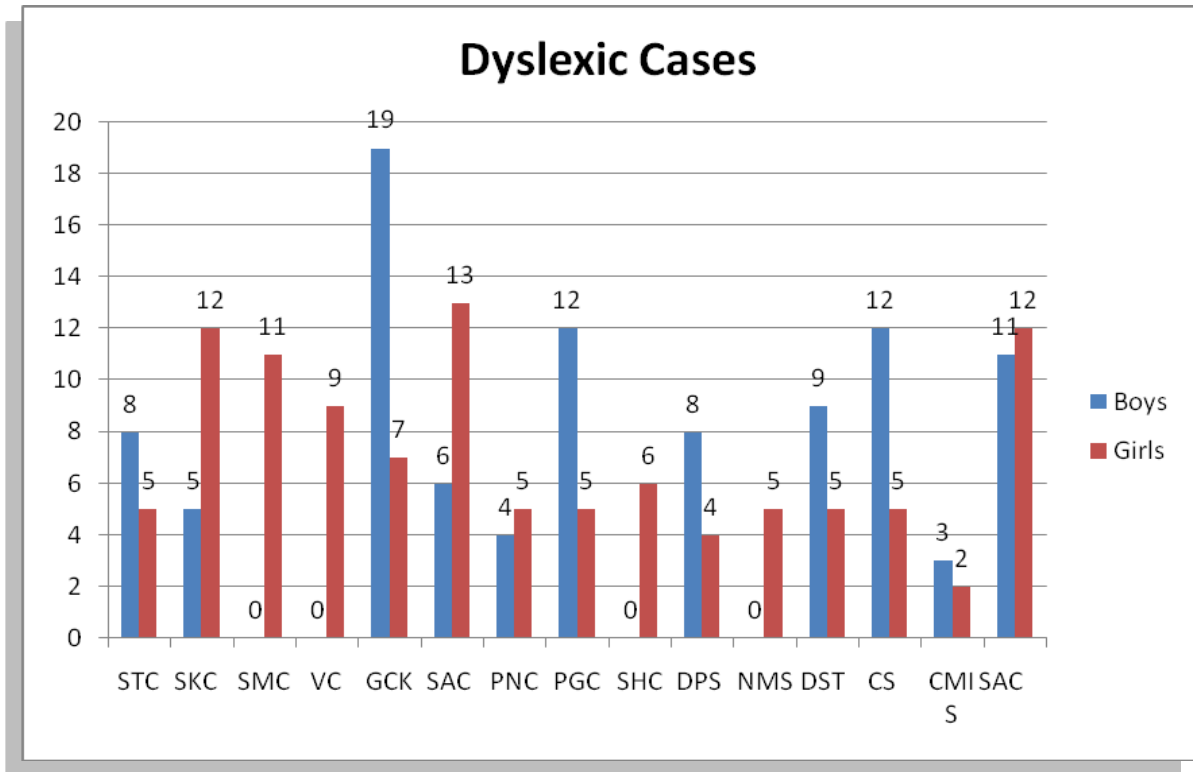


Figure – VII

Figure – VII shows the number of dyslexic cases in each educational institution with the actual number in terms of gender. Government College Kuttanellur has the highest number of cases and they are boys. The highest number of dyslexic girls are from St. Aloysius college. The lowest reported dyslexic cases are from CMI School chalakudy.

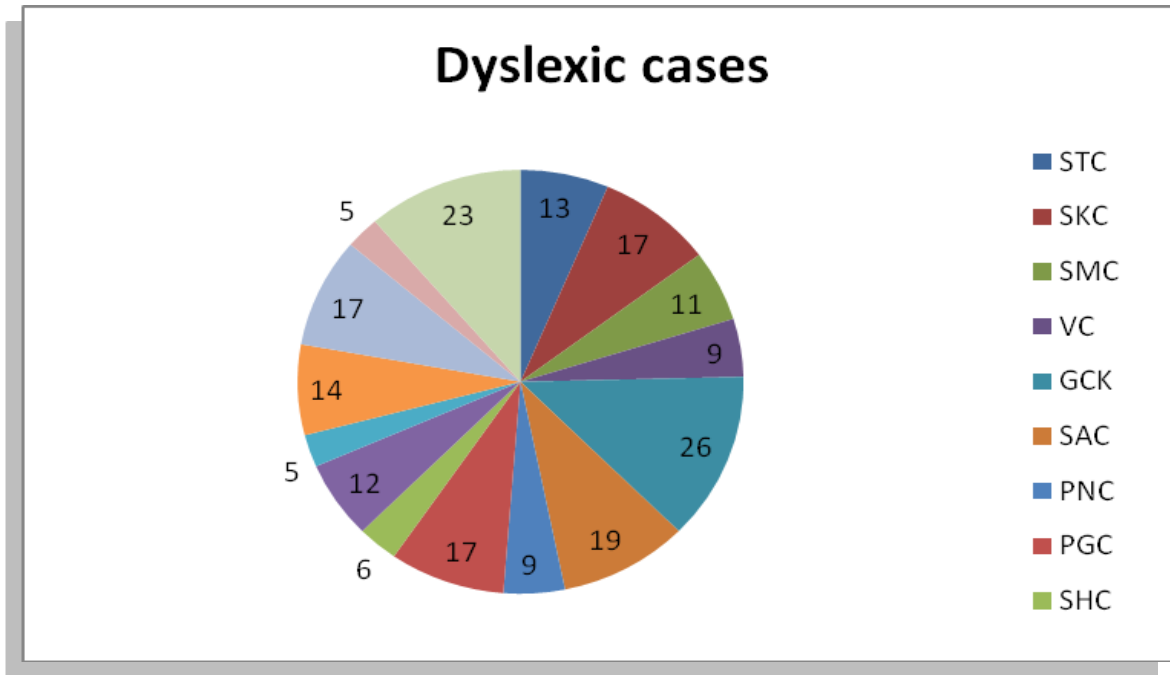


Figure – VIII

Figure – VIII is the pie-chart representation of the number dyslexic cases in each educational institution selected for this study.

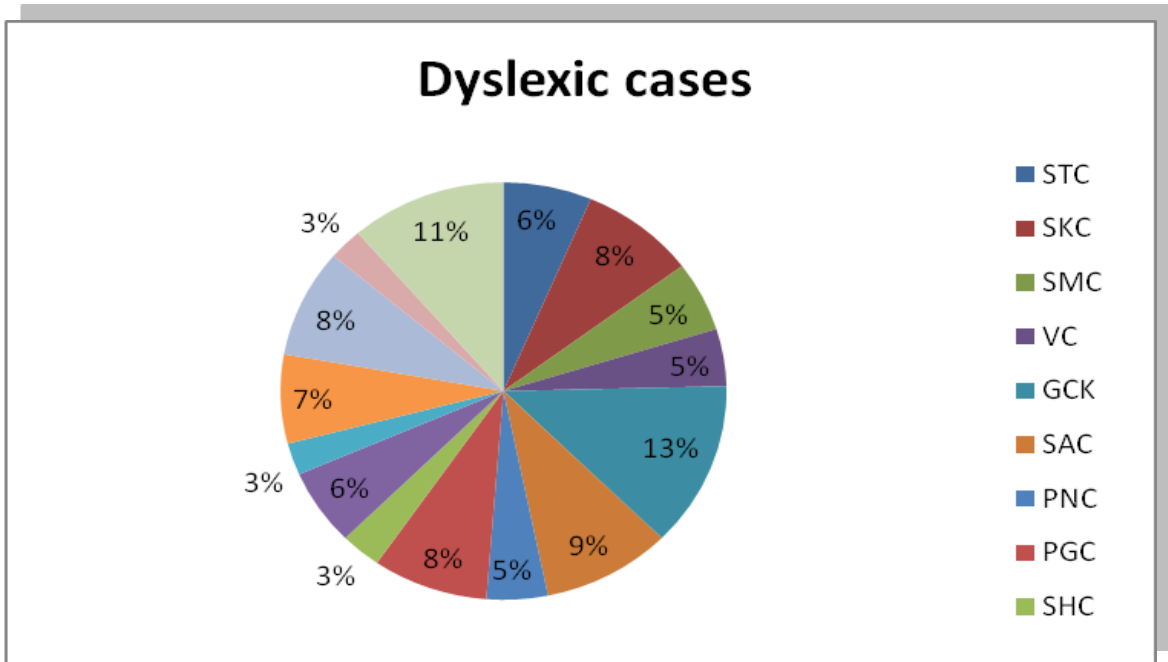


Figure – IX

Figure – IX is the pie-chart presentation of the percentage of dyslexic students from each institution. It shows at a glance the varying level of percentage of occurrences in each institution.

Solution Design

i). Interviews

In interviews, as many questions as it answered, it was felt necessary to contact those directly involved in the subject area, in order to ascertain the numbers of dyslexic pupils attending the schools / colleges, the procedure for diagnosis and referral and teaching methods in place for support. From the Informal interviews conducted with the students the following conclusions were drawn:

a). Very few pupils seem to be formally diagnosed with dyslexia before reaching secondary education.

b). Of those who are diagnosed early, most of these are independent evaluations requested by parents.

c). As far as teaching methods are concerned, primary education seems to focus more on traditional phonics-based teaching methods, using a series of books and cassette tapes as aides, rather than multimedia-based teaching systems.

ii). Campus-Survey Design

The purpose of the survey was to obtain information from dyslexics

of different age groups. From the results of this survey it was hoped to quantify the information provided.

Using the previously mentioned guidelines for designing a good survey, the first section of the questions asks for some background information, such as age and gender, which can be used to determine if patterns are formed within different sub-groups. It was considered that this might help highlight if younger respondents were more likely to have been formally diagnosed with dyslexia than the older ones. The results of this and some of the main findings from the survey as a whole are discussed further in the Analysis part of this section.

Statistical Analyses

Based on the items in the questionnaire in '*Dyslexia Screening Instrument*' there are 32 items which are the normal characteristics that have been shown by the students who suffered the dyslexia problem. The research points that the students very often show the 32 characteristics. Although the dyslexia level and status is different from each other, this is the view of the two sides which involved the teachers and the students themselves. In general, Figures show that 44.7 % of students are rather poor performers in their field and course of studies. It comes 456 students out of a total of 1929 students. At the same time it shows that 19.9 % students ie. 203 students from a total of 1020 students are always showing the characteristics of dyslexia. In the poor

performers category 44.51 % are proved dyslexic cases. It comes 203 students out of 456 students.

IMPLICATIONS OF THESE FINDINGS

The purpose of this has been to organize evidence, both objective and subjective in nature, as to the reliability of data, upon which certain analyses will be based. The number of cases investigated varies in accordance with the number of replies received to the different questions. Over 62.34 percent of the student body positively responded to the questionnaire and the personal interviews. Those cooperating in the Survey and the Interview represented student community in various institutions.

Again, it is emphasized, however, that minor irregularities and the interplay of conflicting influences, because of the number of cases involved, will tend to obscure rather than to exaggerate any group differentiations. Accordingly we must depend upon the data presented by consistent, though small, differences in our search. Having apparently carried out investigation as far as limitations of the data will permit, we shall attempt to integrate the various findings. Something very remarkable about this study is that it has elicited profuse responses from good section of our respondents.

CHAPTER IV

REMEDIAL MEASURES FOR DYSLEXIA

There was considerable emphasis on the advantages that technology can offer to people with dyslexia. Tape recorders for use in lectures and seminars, PCs with appropriate software, portable computerized note-takers and spell checkers were lifeline by many. However, the majority were aware of the importance of seeking advice and help from a wide range of people, from other students to professors. This is vital if things seem to be going wrong. The theme of individual strategies to develop useful study skills, maximize learning and make the best use of time also comes through very clearly. Results from every question in the survey and the personal interview conducted on the 'poor mark' students have been fully reflected in the scores. It seems apparent from these findings that much more investigation was required in order to find out the individual cases further. The test results from the comparative classroom study will provide more evidence towards the reasons for this.

First of all, it is necessary to ensure that anyone involved in the study understands dyslexia and its implications as a part of the remedial measures:

1). They should consider alternative ways of obtaining and recording information. Ask if you might tape-record lectures and / or make other special arrangements. Some lecturers will hand out lecture notes, copies of visual aids and so forth before the lecture. Being in an age of science and technology they have to take advantage of modern technology. Word processors, spell checkers and some computer programs are excellent for dyslexics.

2). Awareness about their rights, concessions and assessment procedures may be entitled to Disabled Students. A scribe in examinations and extra time are necessary. Validating bodies vary so you need to find out what's on offer. Check out support groups for dyslexics, If your institution doesn't have one, ask whether you might start one. Again, you might approach the Dyslexia Support coordinator.

3). They have to be realistic about what they expect to achieve and the time it will take to achieve it. They will probably have to put in extra time and energy to gain qualification. They may, for instance, have to redraft an essay three or four times before achieving an 'average' grade.

4). It is good to find out about all the learning support services. Dyslexia support groups have to try a maths / English workshop. Some colleges and universities also offer extra study-skills sessions. Attend

these if you're unsure about: note-taking, referencing, bibliographies, styles of writing and so forth.

5). Dyslexics are to be highly organized. They have to arrange their lives so that they have time to read and reread, write and rewrite. They might have to sacrifice some social activities. Photocopy important papers and Keep a diary and note almost anything and everything is essential. Enter times and dates for tutorials and get into the habit of noting the dates they submit assignments /post documents/make important telephone calls are important for the dyslexics.

6). Dyslexics have to organize lecture notes. They should always begin with highlighted titles and dates. Keep separate files for each subject and write titles on the back and front and top and bottom. Titles should be visible / legible whichever way the file is handled. If possible, use contrasting colours for different subjects. Clear plastic wallets are useful for filing material that needs regular and /or further attention.

7). Dyslexics should make a positive effort to improve spelling. If it is really bad, they may need a remedial language programme. They would probably benefit from specialist tuition. Buy a small notebook to use as a personal dictionary and carry it around. Label the pages alphabetically and (carefully) enter the words you find difficult. Use spare moments to revise spellings/invent mnemonics.

8). Dyslexics should talk to their tutors if they feel they are falling behind and / or they are confused about something. Generally, tutors are more dyslexia-aware than they have ever been.

9). Dyslexics should use 'Post-it' notes liberally. If they think they will forget things, stick a Post-it checklist where they are bound to spot it. Post-its also make good bookmarks. Stick them down the sides of pages to which they will want to return. Write a key word on each Post-it. Experiment with position. Try to place Post-its so that they can see key words at a glance /when the book is closed.

10). Dyslexics, first of all, should have confidence in their own ability. If they have got this far, they must have potential. Dyslexics should take one day at a time and keep calm; don't waste valuable energy on pointless anxiety.

11). Dyslexics should organize their time/diary/files and all other resources. This will pay dividends later.

12). Changing or improving dyslexics' note-taking style will help to think more and write less. Often, the main idea / argument appears in the first sentence of a paragraph / lecture. Dyslexics should ask themselves: 'What is his/her point here?' Try to be precise and push them to find the exact words.

13). Dyslexics, when possible, should use their own language and not the writer's. This will help them to make sense of/recall the idea.

Note ideas rather than complete sentences. Try using 'spider plans' or 'mind maps'.

14). They should think of structure and content as two sides of the same coin. A well-constructed sentence / paragraph / essay conveys content from writer to reader. Poorly constructed work suggests a limited understanding of content.

15). Dyslexics should consider their essay in terms of an argument. Keep essay plans simple. Plan an introduction, development and conclusion. Remember that each sentence should carry the argument forward to its conclusion.

16). Use link words to carry meaning from one paragraph to the next. Make sure that they understand key words in essay titles. Check that every paragraph focuses on one strand of the argument .

17). The first sentence of a paragraph should give 'clues' about its content. Get into the habit of thinking 'one paragraph, one idea'.

18). Dyslexics should ask their tutor whether copies of highly graded essays are available. If so, try to analyze them in the light of the above. Again, start by finding the main idea in every paragraph.

19). Dyslexics should plan everything they write - from sentences to dissertations. This is neither as easy nor as obvious as it sounds.

20). Practice thinking/writing in short, complete sentences. Starting to write an open-ended sentence whilst hoping for inspiration is not a good idea.

21). Habit of reading aloud each sentence, and by itself from one full stop to the next will help the dyslexics to develop confidence. If it doesn't make sense, they need to think again. They have to read it slowly, two or three times if necessary. They have to keep in mind that every sentence needs a word of action (a verb). Most sentences also need a subject (the person or thing performing the action).

22). Whatever they are writing, they should consider their reader and imagine themselves in his or her place.

23). Dyslexics should know where their argument is going. Explanations of 'obvious' connections within and between paragraphs/sentences are the writer's responsibility.

24). Writing is a craft. For most students it is also hard work. The best writers are very critical of their own performance. Some students find it hard to analyze their own writing. One way forward is to pretend that they are in a tutorial.

25). Dyslexics should Improve reading by learning when to read closely and when to scan. It is not always necessary to read every word. A quick scan of the text might suffice.

26). Before picking up a book, they should think about their reasons for reading. A quick scan of the book's contents page will do for the second. As with writing, they must be clear about their objectives. Forward planning, thinking and analysis are priorities.

27). Dyslexics should try to be positive about exams. They probably know more than they think. Again, they need to organize and prioritize. The syllabus/ course outline and past papers should inform their revision. Dyslexics have to be realistic about the time available and the nature of the task and draw up a weekly timetable for all the subjects to be revised. Generally, the learning portions have to be revised with a pen in your hand; take notes/underline as necessary and set objectives for each session.

28). Regarding the learning procedure, they should try to make best use of the library; don't waste time stumbling around. They have to take a list of the books and references they need. Library assistants are there to help, but they must help them first asking about the facilities/indexing system. From everyone's point of view, it is better to spend time now rather than waste it later and find out what are the busiest/quietest times. If possible, organize visits to suit the librarian.

29). Thinking about studying generally, they should work out when it's at its best/worst and adjust accordingly and start to manage their concentration. They might feel that they concentrate better in the

library than at home. At the same time they need to reorganize their timetable, social and family life and identify which distractions are the most difficult to ignore/resist. And they should take practical steps to avoid them.

30). They should accept that studying is largely what they make it. They have to be serious about the processes involved when they study, take in ideas sort out the ideas in your mind and express ideas clearly and concisely. For dyslexics study can be difficult and frustrating but it can also be exciting and rewarding.

31). When thinking of exam revision, the dyslexics should not forget the photocopier. It is very easy to enlarge important texts and notes. Often, this improves readability even at a distance. Even, they should consider pasting these enlargements on walls and doors.

32). Dyslexics should think about how they learn/write and get into the habit of criticizing their own performance. They should be positive about exams, find the course outline and plan their revision and spend time in the library.

33). Along with that there is more practical advice from students. When making notes, they should develop their own shorthand, and write up the notes properly later. Recording, while attending lectures, is a better method in comparison with taking notes. Just sit and listen the lecture and do proper notes later.

The Dyslexics need to take proper care of themselves and make sure they get enough sleep. They need it more than most of the people. It has been observed that never, ever, let piles of rough notes accumulate. Type them up as you go along. It's good revision anyway. This has also to be acknowledged that when they finally do produce something decent, the satisfaction is great. If they are really interested in what they are doing, it is tremendous. If they do their fair share of work, they should feel alright and it's certainly worth it. Many people cope with disorder throughout life and at college and still achieve great success. They have to work round their dyslexia and it can be done and it all gets too much at times but, then again, it's marvelous when everything comes alright. Studying is liked and hated for similar reasons. It is hard work but if they enjoy a challenge, it is very rewarding.

Dyslexia Treatment: Coping skills, Hints and Tips.

It tells about ways in which one manages with one's dyslexia. Be positive about dyslexia and look for the help they need. Academic staff such as lecturers and personal tutors can provide a great deal of support. They can also help to make sure that the assessment of their work takes into account the effects of their dyslexia. They should keep in mind that communication is very important. It is also a two-way process. So make sure they read notice boards, check their pigeonhole

and their e-mail, respond to written communications and turn up on time for lectures, seminars and tutorials. Also, if they need to ask for help or advice, make an appointment in good time. Try to tackle any problems early rather than late. For example, if they are likely to have difficulties with exams, find out what help might be available. Ask their personal tutor or ask for help from their friends. They may remember things they have forgotten. They can also learn a lot just from talking together about the work they are doing. If they start to feel under pressure, look for the help that is there. Sessions with a counselor may also be available. Attend study skills workshops, especially those designed for students with dyslexia. They will pick up useful tips, try out different learning strategies and meet other dyslexic students too. Check their dyslexia assessment report to see if it recommends individual learning support. Start to work out one's own preferred learning style.

Usually the dyslexic face problem with Numbers and Codes, Driving Left And Right, Remembering numbers, Codes, Multiplication, Comparing numbers Confusing 'b' and 'd'.. Spelling And Grammar, Using Color, Computers And Technology, Managing tasks, Keeping appointments, Trouble tracking and Giving directions. Suggestions given by Dyslexics.

Observations made on certain dyslexic cases and their suggestions during the interview are given:

1). The dyslexics should check whether their colleges or schools have PCs for students to use. They have to make backup copies of the disks so as not to lose all their hard work. Dyslexics should make use any kind of 'assistive technology' that covers PCs and laptops, standard and voice-activated, portable note-takers, scanners, tape recorders, dicta-phones and so on.

2). The dyslexics should plan their time carefully so that they can get the right balance between work and play. This is very important indeed, because they probably need to work longer and harder than other students - but they must set aside time to relax as well.

3). They have to make sure to manage their time to the best advantage, so that they have space for study and for leisure and relaxation. Try using assistive technology and see if they can get financial support what they need. They should develop their own learning strategies so that they know how to use your strengths and cope with your weaknesses.

4). They should make sure that their college or school is aware that they are dyslexic. Be ready to pass on a copy of the written evidence of their disability and to discuss their needs in detail.

5). They should find out what computers are available on open access and, if they need it, ask for training in their use. They should get information and advice about software packages that will suit their individual needs and match their course requirements from specialist staff in the college/ school.

6). They have to check on help available from the university, college or school library. There may be online provision for easy access to catalogues of books, journals, newspapers and many other sources of local, national and international information. They also have to look for the people who will give them the support and understanding they need. Many, but not all, lecturers/teachers are aware of the problems faced by dyslexic students.

7). There should be specialist staff who provide support and guidance for people with dyslexia know about study techniques, students with disabilities, the widening range of assistive technologies and what might suit their needs.

8). Disability support staff in the school, colleges and university administrators knows about any special procedures for the assessment of students with dyslexia. The dyslexics have to take full advantage of any opportunities to discuss their written work at the planning stage and find out what sort of procedures are in place for assessment which takes into account the effects of dyslexia.

9). Let the dyslexics make the people know that they are dyslexics. This makes it easier for them to provide the support they need. Provide documentary evidence concerning dyslexia, e.g. one's dyslexia assessment report. They have to make sure to find out what is available to meet their own needs and the requirements of the course.

10). They have to make contact with all the people who can help them: other students, departmental administrators, academic staff and specialist support staff.

In universities and colleges of further education, assessment is normally based on homework, coursework as well as examinations. A notably large proportion of those who responded to the questionnaire made it clear that they would prefer coursework to exams. This is because they know they can take extra time to achieve the standards they aim for via coursework. This is very important for those who need to ensure that work is planned effectively and that spelling and other errors are recognized and corrected. Even when extra time is allowed for exams, many respondents explained that they still felt themselves to be under great pressure. Usually, study support for all students is to be found in the colleges and schools. Specialist staff, experienced in working with people with dyslexia, may also be available.

Some colleges and schools have an Access Centre. There they can get advice and information, including costs, about a range of

technological aids. These include PCs, printers, software and much else. The dyslexics may be referred for counseling to help them cope with stress or any personal problems arising from your dyslexia. This is normally free of charge and the service is confidential. The schools and colleges should provide information and advice about individual support and help from staff specializing in supporting students with disabilities, including dyslexia. They also should make possible loan of specialist equipment and arrangements for extra time for examinations along with alternative methods of assessment. This is intended to help them pay for the special support they need as a result of their dyslexia.

CHAPTER V

EVALUATION AND CONCLUSION

This chapter is aimed at providing a critical appraisal of the project outcomes. It will highlight the major successes, any problems encountered, discussing how they were or could be solved. The main objectives of the project were to gain an understanding of dyslexia with regard to its identification and remedial measures in a particular locality ie. Trichur district. Exploring the difficulties faced by dyslexics, when faced with certain tasks, it investigates the methods available and determines if they are being used suitably and effectively. The following sections will discuss to what extent these objectives were met.

Literature Review

It was expected from the Literature Review to source, categorize and analyze some of the research that has been published on the subject in recent years. It was discovered that most of the books written on Dyslexia were all written with a wealth of information regarding dyslexia. The majority of journal papers sourced included dyslexia as secondary information, with education or Learning Disabilities as the main area of research. From this research it became apparent that due to the wide variety

of symptoms suffered by dyslexics was highlighted as a potential solution.

Methods Used and their Results

a). Interviews

The interviews conducted with those directly involved with dyslexics, and those with first hand experience of the condition, gave a valuable insight in to the problems dyslexia can cause, the obstacles that have to be overcome, and the current teaching methods used. It was also clear from these interviews that very little was known about any clinical help available for Dyslexics. It was felt at this stage, that a wider opinion was needed to gauge the real extent of knowledge.

b). Campus-based Survey

It was felt that the fastest, most cost effective and efficient method of reaching the widest number of dyslexics of young age in schools, colleges and other educational institutions. What started out as just a small, additional piece of research for the project, suddenly took on a life all of its own, gaining interest from a wide variety of sources, all with very valuable input. The most predominant opinion to come across was the appreciation that someone was actually acknowledging their problems and trying to do something practical about it.

However the campus survey and interview were the effective means to address the problems of the dyslexics. Therefore, it must be assumed that a great number of students made benefit out of it. Further evidence to substantiate its importance and usefulness is evident from the response received from teachers, lecturers, research students and parents of dyslexic children requesting more information and expressing interest in the results of both the survey and the interview. The campus-based survey and interview led to some surprising results; not least the amount of responses, and interest generated, but also the answers given. As the survey data Analysis section shows, some of the information provided contradicts what is generally believed that all the poor performers are likely to be dyslexics. It comes only 44.51 % of the total poor performers' population.

The overall timescale of the original study was twenty one months but because of its casual nature it got delayed a little bit, and many of the informal sessions are not documented. Although the session time allotted for each student seemed fairly adequate at this stage, every student is different. The timescale of the project and the limited time restrictions for testing the students undoubtedly had a bearing on the final results of the testing. The main problem found with the research was that this would be a

particularly tedious task, especially for youngsters.

Discussion and Conclusions

It summarizes what the original main objectives of the project were, and determine whether they were adhered to. It will also conclude how successful the results provided were at answering the questions raised. It will end by evaluating the lessons learned from the implementation of the project and suggest the potential of future research in this area.

Through observation on the aspect of writing, students with dyslexia have great difficulties in writing. On the whole they are very poor in writing, having poor skill of spelling, poor in oral and written vocabulary as well as poor in arranging content of compositions. The reliability of this observation had been proven by a few other researchers of the past. Besides that students with dyslexia are usually poor in learning. They usually fall apart under time limits and pressure, often losing ground on achievement tests, having poor handwriting, inaccurate oral reading as well as having delay in verbal response.

This research has identified various findings and also elaboration on various questions which are relevant to the case. Therefore, the researcher wishes to put forward a few recommendations such as to propose a wide variety of samples to be used in the research. In that case samples can be given continuous attention for a long period of

time. Due to the imbalance of the written and oral vocabulary it portrays the main criteria shown by the pupils. It is hoped that teaching can be more focused on interaction which is very open to teacher and pupils. That will encourage pupils to talk more openly. It also helps to built up their confidence in reading. However, writing can also be stressed in order to create balanced skills in both oral and writing skills. The survey was designed to obtain information on a wide scale relating to the identification of and the remedial measures for dyslexia in selected educational institutions in Thrissur district. The most significant results showed that 19.9 % of those surveyed had never thought that they had any problems of this kind. But it was an eye-opener to these people who had faced with many problems related to dyslexia. It is to be noted that though they had the problems related to learning disabilities they never associated it with dyslexia. It seemed strange when so many 44.7 % of those surveyed and interviewed were either experienced or even faced with the real hardships of dyslexia. Further analysis of the interview showed that 58% of these had never tried any remedial measures because they were unaware that any specialist assistance existed. This must surely be valuable information for the parents and teachers who are obviously missing out remedial help so far. On the issue of technical assistance to the dyslexics, those who had tried technical assistance tools, such as text editors,

computers and readers, on the whole, found them fairly helpful and easy to use.

Lessons Learned

Prior to undertaking this study, knowledge was fairly limited on the subject of dyslexia. It was not until research for the literature review was undertaken that the full extent of the subject was realized. This led to the problem of which of the many potential aspects to focus on. Extensive research was needed to decide where the most effective and useful testing could be done. The initial idea of a Campus-survey had an added extra coverage towards substantiating interview and literature research. Due to the nature of the questionnaire-Campus Survey form it proved to be considerably more time-consuming than was first anticipated. However, the results produced and the astonishing degree of interest generated from the survey, have made all the extra work well worth the effort.

As the study was performed under such a controlled environment, it was not possible to assess exactly just how the remedial measures would be effective under normal circumstances. Allowing the students to be aware of their state in their normal school/college work, measuring performance in terminal coursework and examinations would be a much better indication of

how they have to improve themselves. The awareness of their own situations would also produce a better indication of how beneficial it would be for the students. The ability to source valuable contacts was also developed, in order to present the case for a worthwhile project that demanded their time, effort and support.

Future Research

As the different types of dyslexia produce different symptoms and therefore, need to be given different options to tackle their problems. It also seemed to be one of the main obstacles for respondents of the survey. There are many software programs, and input devices being developed which are being claimed to help dyslexics, both for their diagnosis and teaching, but there are very few published reports on how effective they are.

The future is promising for the dyslexic, although progress toward fulfillment of the promise is slow. It will not be realized soon enough to help some already out there in the dyslexia world of frustration. But we are finding out something more about the condition. We know that there is a genetic factor in the cause of dyslexia, and therefore we can be alert to the occurrence in some families and provide the immediate help as needed. We now know how to diagnose dyslexia accurately but the problem lies in disseminating and using this knowledge. We know that, because of maturational factors, an accurate diagnosis of dyslexia

at the present time ordinarily cannot be made before a child has reached about the age of eight.

We know that dyslexia can be alleviated, and that the most appropriate time to begin remediation for a child is at about the age of eight. It is far easier to remediate the condition at this early age than at an older age, when certain behaviors and attitudes have been internalized. Of course the severity of the dyslexia condition will affect the success and length of remediation and other factors. More information is being distributed about dyslexia; thus more people are aware of the condition and are becoming concerned about helping dyslexics. Society recognizes the need to provide the dyslexic with opportunities for remediation opportunities to learn and to develop normally.

The challenge of dyslexia must be met by all - all parents, schools, researchers, teachers-training institutions, the government, society as a whole - and the dyslexic himself/herself. More research needs to be done in this area to substantiate the phenomenon. It will take all of us working together to accomplish what must be accomplished and what can be done. We must make this challenge as the focus of our efforts.

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