

**DEVELOPMENT OF PROFESSIONAL SKILLS AMONG ELEMENTARY
SCHOOL TEACHERS TO ADOPT MIND MAPPING STRATEGY FOR
DYSLEXICS IN AN INCLUSIVE CLASSROOM**

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Submitted to

The Deputy Secretary

University Grants Commission

South Western Regional Office

Bangalore

CERTIFICATE

I, Dr. Sony Mary Varghese do hereby declare that this project entitled ***‘DEVELOPMENT OF PROFESSIONAL SKILLS AMONG ELEMENTARY SCHOOL TEACHERS TO ADOPT MIND MAPPING STRATEGY FOR DYSLEXICS IN AN INCLUSIVE CLASSROOM’*** has not been submitted by me for the award of a Degree, Diploma, Title or Recognition before.

Mavelikara

Dr. Sony Mary Varghese

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The investigator would like to thank all his colleagues, resource teachers and other teachers who attended the training sessions on mind mapping.

Dr.SONY MARY VARGHESE

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CHAPTER 1

INTRODUCTION

Dyslexia is a phonological based learning disability where the individual face difficulty with reading, writing and spelling. They may also encounter problems with organization, memory, concentration, processing information and with spoken language. They find it difficult to translate language to thought and thought to language. Dyslexia affects individuals throughout their lives; however, its impact can change at different stages in person's life. It is referred to as a learning disability because dyslexics find it difficult to succeed academically in the typical instructional environment. Brain image studies found that, the brain of dyslexics' functions differently to process language. It is not due to either lack of intelligence or lack of desire to learn. Although research is ongoing and some results vary, reputable agencies in the field of special education in India estimate that between 4-6 % of the children in our country are dyslexics. Impact of dyslexia is different for each person and depends on the severity of the condition and approaches of the remediation. Most of the dyslexics experience a great deal of stress due to academic problems, which may sometimes even lead to dropout. Amidst these disabilities they do possess specific strengths like

innovative thinking, creative problem solving, and logical organization of mental images better than their normal peers. Therefore they can overcome their learning problems by learning through creative learning methods like mind mapping, graphic organisers, thinking maps etc. which take into consideration the above strengths. Mind maps are visual maps of connecting thoughts, which span out in a radial way from our central idea. It uses only key words to prompt memory and association, and encourages the use of colour and imagery. They help dyslexics to organize and assimilate information.

The difficulties in language skills in dyslexics can lead to poor achievement, self-esteem problems, or even emotional and behavioral problems. Intervention at an earlier stage helps them to be successful in academic and social life. Among the interventions, academic interventions are more appropriate for overcoming the difficulties in language skills. Mind mapping strategy is more helpful in this regard for teachers in all discipline. It can be used for children with other disabilities, to get along with normal children in a collaborative working arrangement in an inclusive classroom. This strategy can even be used by counselors, academic therapists, and clinical psychologists while dealing with dyslexics.

- **Need and significance of the study**

Recent research studies prove that about 7% of students in Indian schools have dyslexia. Few studies conducted in Kerala indicate a rapid increase in the number of dyslexics in Malayalam. Not all of these qualify for special education, but they are likely to struggle with many aspects of academic learning, like reading, writing and spelling. Dyslexia occurs in children of all backgrounds and intellectual levels. It is a lifelong condition. Early identification and intervention is the key for helping dyslexics to be active in schools and life, which is the major responsibility of the teachers. Teachers can adopt multisensory structured approach for teaching dyslexics. They have more ability to think innovatively by using different senses simultaneously than their normal peers. They can easily process information using visual presentations. By considering this strength of dyslexics this study is intended to develop a module on mind mapping strategy for dyslexics to learn Malayalam language and to train the main stream teachers to implement it in there inclusive classrooms.

OBJECTIVES

1. To find out the prevalence of dyslexics in Malayalam language in elementary inclusive classrooms.
2. To understand the problems of dyslexics in learning in an inclusive classroom.
3. To develop skill among elementary school teachers in preparing mind maps.
4. To develop professional skills among elementary school teachers to adopt mind mapping strategy for dyslexics in an inclusive classroom.

LIMITATIONS

- Teachers teaching in lower grades were not taken as subjects for the study
- Three months were not adequate for administering mind maps to dyslexics for finding its effectiveness
- The study could not take sample of teachers from all schools of Kottayam, Pathanamthitta and Alappuzha districts.
- The study could not involve teachers teaching CBSE and ICSE syllabus.

CHAPTER 2

THEORETICAL OVERVIEW

WHAT IS MIND MAPPING ?

Mind mapping is a highly effective way of organizing information. Mind mapping is one of the best ways to capture our thoughts and bring them to life in visual form. It is a creative and logical means of note-taking and note-making to map out our ideas. They have a natural organizational structure that radiates from the center and we can either use lines, symbols, words, color and images according to the concept to be learned. Mind mapping converts a long list of monotonous information into a colorful, memorable and highly organized diagram.

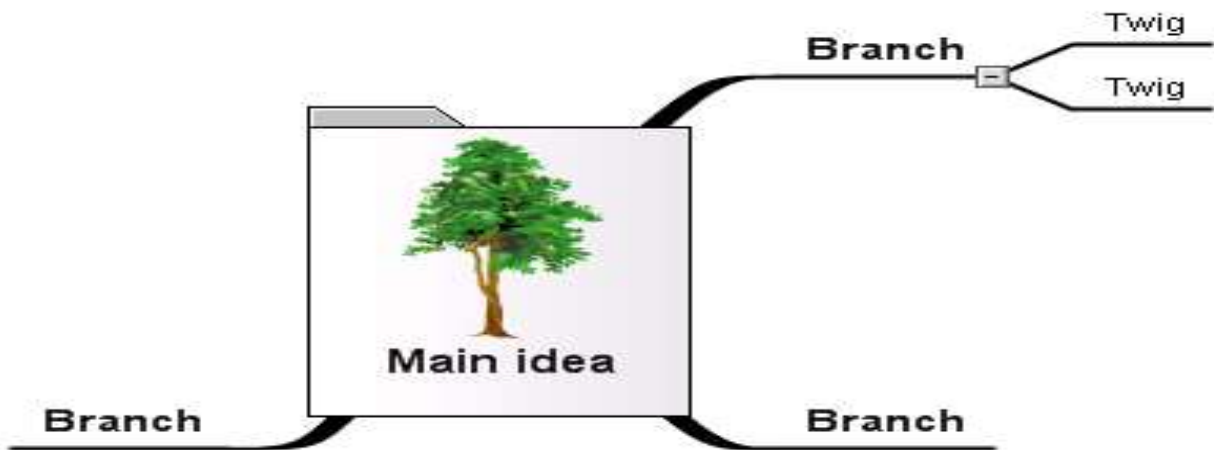
Mind mapping can be compared to a city map. The city centre represents the main idea; the main roads leading from the center represent the main ideas in the thinking process; the secondary roads or branches represent the sub concepts, and so on. Special images or shapes can represent landmarks of interest or particularly relevant ideas.

The great thing about mind mapping is that a person can put his ideas down in any order, as soon as they pop in. Initially throw the ideas and then reorganize to an

organized structure as one like it. Tony Buzan an English author and educational consultant is the brain behind the idea of mental literacy and thinking technique called Mind Mapping.

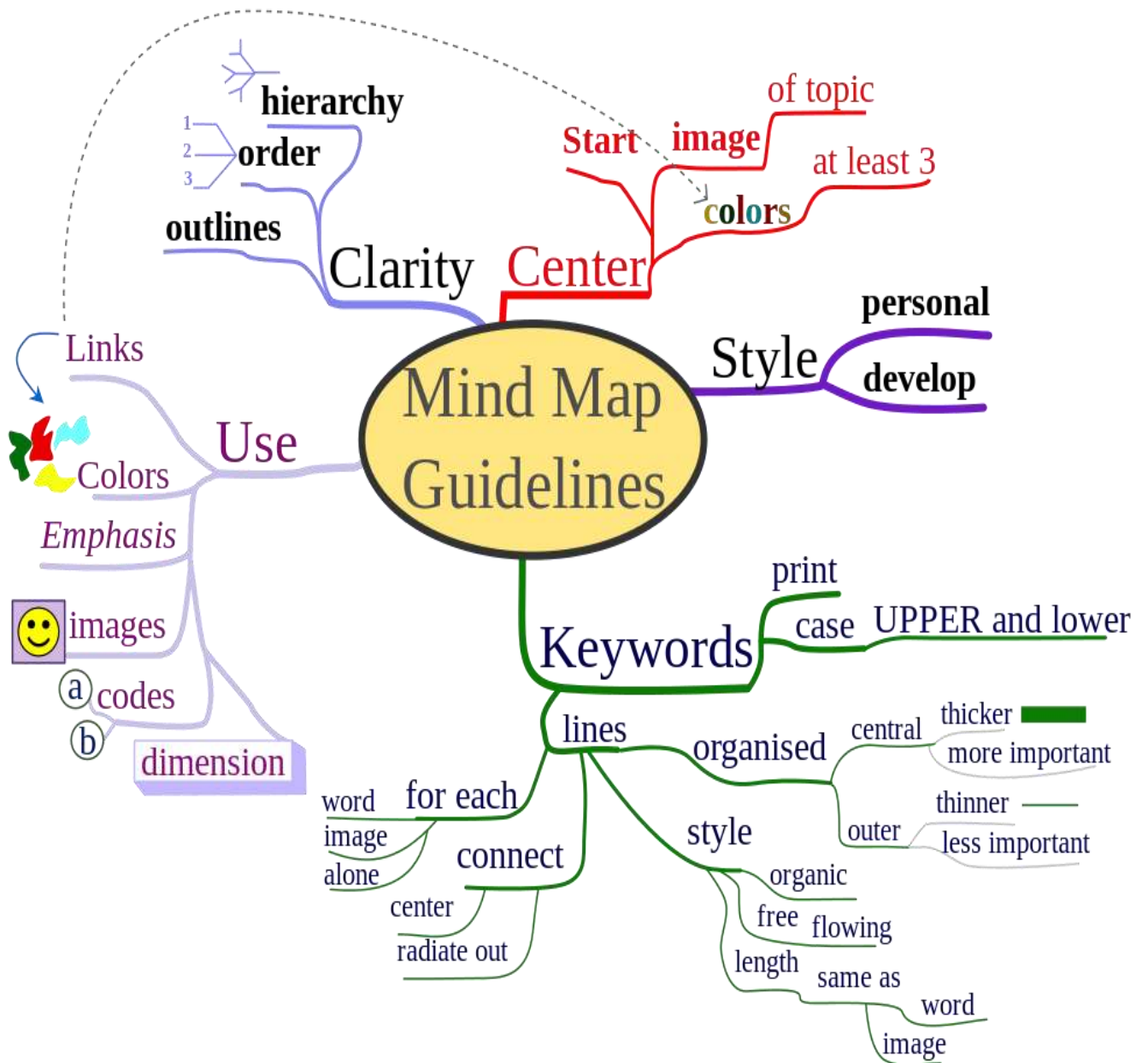
MAIN FEATURES OF MIND MAPPING

- The main idea, subject or focus is crystallized in a central image
- The main themes radiate from the central image as 'branches'
- The branches comprise a key image or key word drawn or printed on its associated line
- Topics of lesser importance are represented as 'twigs' of the relevant branch
- The branches form a connected nodal structure



STEPS TO CREATE A MIND MAP

- Think of your general main theme and write that down in the center of the page. i.e. Food
- Figure out sub-themes of your main concept and draw branches to them from the center, beginning to look like a spider web i.e. Meats, Dairy, Breads
- Use an **IMAGE** or **PICTURE** for your central idea. Because an image *is* worth a thousand words and helps you use your imagination. a central image is more interesting, keeps you focused, helps you concentrate, and gives your brain more of a buzz!
- Use colours throughout, because colours are as exciting to the brain as are images.
- Make sure to use very short phrases or even single words
- Connect your main branches to the central image and connect your second- and third-level branches to the first and second levels, etc.
- Make your branches curved rather than straight-lined
- Use one key word per line



MAJOR TIPS TO CREATE MIND MAPS

USE SPACE - By organising the mind map carefully I can use spatial information to 'find' related information by thinking of what was nearby on a page.

USE COLOUR - Initially use different colours to indicate headings and names, later added to blocks too.

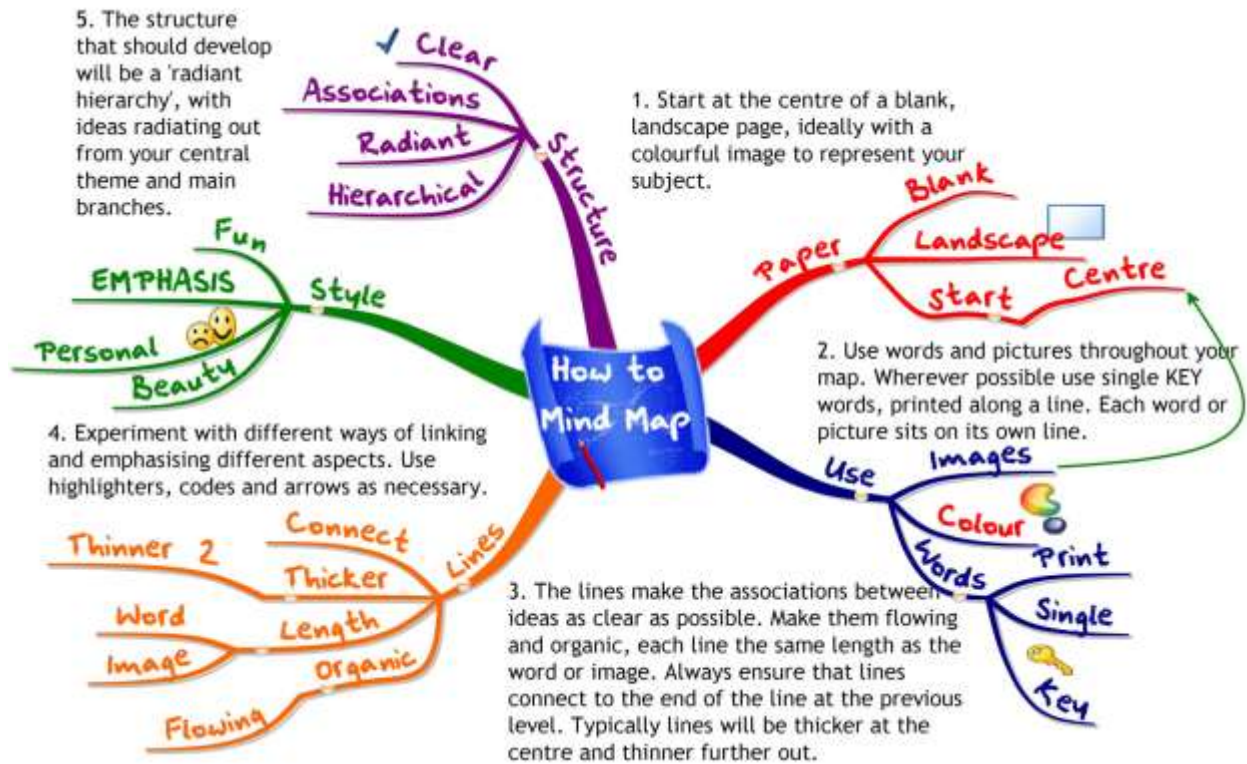
USE PICTURES - Pictures provide great visual prompts and only key words need recording.

Mind maps can be more effective than other brainstorming and linear note-taking methods for a number of reasons:

- It's a graphical tool that can incorporate words, images, numbers, and color, so it can be more memorable and enjoyable to create and review. The combination of words and pictures is six times better for remembering information than words alone.
- Mind maps link and group concepts together through natural associations. This helps generate more ideas, find deeper meaning in your subject, and also prompt you to fill in more or find what you're missing.

- A mind map can at once give you an overview of a large subject while also holding large amounts of information.
- It's also a very intuitive way to organize your thoughts, since mind maps mimic the way our brains think—bouncing ideas off of each other, rather than thinking linearly.
- You can generate ideas very quickly with this technique and are encouraged to explore different creative pathways.

MIND MAP ON MIND MAPPING



MIND MAPS HAVE BEEN USED TO HELP PEOPLE WITH DYSLEXIA

BECAUSE:

- They are a different way of **organising thoughts**

- They also use **fewer words**
- Drawing **connections** and placing **words in space** also makes it easier to remember
- Some people can see **connections between thoughts** better than reading long texts
- Making mind maps can engage multiple senses including **vision** and **touch**

MIND MAPPING SOFTWARES

XMIND

XMind has been around for a good long time, and it even made the roundup the last time we looked at mind mapping apps. It hasn't lost its power though; it's still extremely flexible, works great on any desktop OS, and makes it easy to organize your ideas and thoughts in a variety of different styles, diagrams, and designs. You can use simple mind maps if you choose, or "fishbone" style flowcharts if you prefer. You can even add images and icons to differentiate parts of a project or specific ideas, add links and multimedia to each item, and more. Best of all, XMind is completely free and open source.

COGGLE (WEBAPP)

Coggle is a completely free, simple to use mind mapping tool that's easy to get started with. Sign in with a Google account of your choice and you're off and away. Double-click on any item to edit it, and click the plus signs on either side to add branches to your mind map. Click and hold to drag them around the canvas to design your mind map any way you like. Coggle will automatically assign different colors to your branches, but clicking on a branch will bring up a color wheel so you can personalize it yourself. When we finish a map, we can download it as a PDF or PNG, share it with others who can just view it or, if you allow it, edit the mind map. We even get auto-saving and revision history, so if one want to see what the mind map looked like before, someone we invited started working with it, we can. Coggle is completely and totally free.

FREEMIND

Freemind is a free, GNU General Public Licensed mind mapping app built in Java, so it runs on just about anything you throw it at. It was the winner of our last poll, partially because of its flexibility, and because its features and performance are pretty consistent regardless of the operating system you use with it. It's a pretty powerful mind mapping tool too, offering complex diagrams and tons of branches,

graphics and icons to differentiate notes and connect them, and the option to embed links and multimedia in your mind maps for quick reference. Freemind can export a map as HTML/XHTML, PDF, Open Document, SVG, or PNG.

MINDNODE

MindNode is an elegant mind mapping and brainstorming app for OS X and iOS. The iOS version is designed to work well on touch devices, specifically the iPad, and makes it easy to drag branches around, add new nodes, connect nodes, share documents with others, and more. The Mac app is similar, and supports sharing your mind map with others and exporting as PDF and as a Freemind project. MindNode can automatically hide branches that have nothing to do with the items you're working on, embed images and screenshots onto nodes, create links on nodes, and even automatically organize your branches for you if they get messy. It can also support linked mind maps.

MIND MAPLE LITE

Mind Maple Lite is an application that allows users to create mind maps that help increase productivity and lend themselves to creativity. Created as a way for users to organize thoughts, ideas and more in a simple and easy-to-view way, Mind

Maple Lite is a great tool for business professional, teachers and creative types. As the lite version of the classic Mind Maple software, it's scaled back in features but aims to perform the same function. It's especially attractive for those thinking of trying the full, Pro version.

MIND MAPPING FOR DYSLEXICS

Although learners affected by Dyslexia can function at a high level, there are many common struggles students and working professionals must overcome in their daily activities. Dyslexia typically impacts reading, spelling and writing; however dyslexic learners also encounter problems with short term memory, concentration, sequencing and processing information.

Instructional advances have given way to some exciting learning strategies which can be extremely beneficial to students and working professionals living with Dyslexia.

Mind mapping is commonly used for outlining written documents, organizing thoughts, stimulating memory recall and decision making which are the common

struggles of Dyslexic learners. Dyslexic learners can benefit from mind mapping in that mind mapping is a visual approach to understanding information. Mind maps break down complicated information into chunks, which can be arranged into branches and sub branches making the information easier to comprehend. With limited distractions when creating new ideas, mind maps help Dyslexic learners to structure assignments and presentations visually.

HOW MIND MAPS ALLEVIATE DYSLEXIC LEARNING PROBLEMS

Mind Mapping appeals to many senses

Mind mapping helps with dyslexia as it makes use of images, colour, shape, size and symbols to map out information in a way that is easier to comprehend.

MIND MAPPING IMPROVES CONCENTRATION

Many dyslexic people can become distracted when trying to get ideas down on the page. However, when a Mind Map is drawn, he is constantly seeing what he has already done, whilst working on a new idea. This decreases the possibility of losing the train of thought while automatically reviewing the rest of the map.

MIND MAPPING BREAKS DOWN INFORMATION

Using Mind Maps can also help with dyslexia by breaking down large pieces of information into easy-to-read bite-sized chunks. Rather than ugly, difficult, dense text, Mind Mapping allows dyslexic learners to break down complex problems into simple, visual objects that anyone can use.

MIND MAPPING GIVES IDEAS STRUCTURE

Another huge benefit of using Mind Maps to help dyslexia is that they provide structure to thoughts. When planning an essay, the ideas in the Mind Map can be transferred into a linear form, which creates the structure, paragraphs and images for an ESSAY EASILY.

THE PROBLEM OF TOO MANY WORDS-

Mind mapping is often recommended as a way to support children with dyslexia. It is often suggested as a way to help with planning longer written work or sketching out ideas. It is a great way of reducing the number of words a child has to read and write to access and record information. However, mind maps can play a much more fundamental role in learning and revision. It is helpful for students with

literacy difficulties and finds them an invaluable support. It helps children how to write an essay and how to take notes.

Mind mapping turns monotonous information into colorful, memorable and highly organized diagrams that work in line with your brain's natural way of thinking and working. Although many learners embrace mind mapping using pen and paper, there are several software programs that can make the mind mapping process less cumbersome and more engaging.

CHAPTER 3

REVIEW OF RELATED LITERATURE

This chapter deals with studies conducted on the innovative strategies adopted for dyslexics in inclusive classrooms.

STUDIES CONDUCTED AT INTERNATIONAL LEVEL

National Council on Teacher Quality in their slirregey of US schools of Education, found out that teachers are not given proper training in content preparation, transaction strategies or even for developing professional skills for

dealing with dyslexics during their preserves programme. The International Dyslexics Association identified this above problem and is now developing a programme to prepare our in service teachers to deal with dyslexics in the classroom. Clarke Robert(2011) conducted a Teaching and Learning Innovation Project on inclusive teaching and learning strategies for dyslexic arts students. This project aimed to research, design and evaluate modes of teaching and learning which may offer more flexible alternatives to enhance student achievement of dyslexics. One of the major findings of the project was that achievement of dyslexics were enhanced while they adopted strategies involving visual presentations, mental images and associations like graphic organizers ,concept map etc than the others

A study conducted by the National Research Panel (NRP) in 2000 (Teaching children to – An evidence based assessment of the scientific research literature on reading and its implication for reading instruction) showed that the use of mind mapping helps in visual organisation and retention in dyslexics.

The Institute for the Advancement of Research in Education (IARE) at AEL conducted a research (2003) entitled Graphic Organisers. A review of scientifically based research. The study concluded that graphic organiser enhances achievement levels, reading comprehension thinking and learning skills of dyslexics.

A study for dyslexics students in a Nursing program conducted by David A Boley, professor at John Hopkins University found out that mind maps enhanced learning skills and test scores.

STUDIES CONDUCTED IN INDIA AND KERALA

The Dyslexia Association of India conducts Courses and Workshops that are tailor made to suit the requirements of teachers and parents of dyslexics to help them to cope with learning differences.

Chhavi Bhatia in an article in Indian Express about City schools putting special efforts to help dyslexic children reported that three schools in Chandigarh have been, making concerted efforts for the last five years to make learning easy for dyslexics. They make the children study with the mainstream students, instead of putting them in a separate section.. The school has appointed teachers who are specially trained to deal with dyslexic children. Apart from assisting parents to identify dyslexia in their wards at an early stage, the school also organises beginners and refresher courses for teachers. Children are given extra time of an hour during annual examinations. Moreover, teachers are instructed to take their oral tests too so as to better their performance.

Very few studies have been conducted on innovative strategies for dyslexics in India, especially in Kerala. So the present study is undertaken to develop professional skills among elementary school teachers to adopt mind mapping for dyslexics in their inclusive classrooms.

CHAPTER 4

METHODOLOGY

As a teacher educator the investigator felt that the student trainees' encounter with various problems related to children with dyslexia in their inclusive classrooms during their practice teaching. While initiating a discussion with the student teachers, the investigator realized that children with dyslexia find it difficult to read, write or spell Malayalam language correctly ,finding it difficult to get along with their peers and hence are neglected by the mainstream teachers. As the service of resource teachers are limited to one or two days in a week,

dyslexics' students are not really benefitted from them, thus making inclusion pseudo in nature. Main stream teachers are not able to satisfy the needs of the dyslexics, as they lack proper training and expose to experts, during their pre service or in service training programme. This necessitated the investigator in planning a training programme for the mainstream teachers to adopt specialised strategies for dyslexics in overcoming their learning problems. In this study the investigator has trained teachers to adopt mind mapping strategy in their inclusive classrooms for helping the dyslexics to learn their subjects easily as their normal peers.

Initially a diagnostic test was conducted among fourth and fifth grade students of Kottayam, Pathanamthitta and Alappuzha districts. The prevalence of dyslexics in Malayalam is found to be 4.85%. After identifying the dyslexics, the investigator conducted a qualitative study to identify the problems of dyslexics in learning Malayalam languages in an inclusive classroom. For that an unstructured interview was arranged with the teachers who remarked on some of the problems of dyslexics.

The problems listed are as follows:

1. They are not able to connect letters to sounds in Malayalam
2. They cannot distinguish between letters

3. They cannot distinguish between associated sounds in Malayalam
4. They cannot decode text in Malayalam language
5. They cannot recognise sight words
6. They cannot read fluently

Malayalam script has the largest number of letters among all Indian languages and hence they find it difficult to read and write. After analyzing the problems it was found that they are confused by letters, numbers and verbal explanations sometimes they have to reread as they have little comprehension. They also experience trouble in writing or copying. Learning disabled students also have poor memory of facts and information that has not been experienced.

One of the positive cognitive abilities of dyslexics is that they can primarily think with images and feelings. They can see patterns, connections and similarities very easy. They also have the ability of visual, spatial and lateral thinking. They can alter and create perceptions. Taking into consideration, these aspects the investigator planned to adopt mind mapping strategy for dyslexics.

In the next stage, a thorough review of related literature on dyslexia and mind mapping strategy was done to get a clear idea about the problems of dyslexics and how implementation of mind mapping can be beneficial in solving

those problems. To collect details on the academic problems of dyslexics the investigator in collaboration with Seva Nikethan Thiru Hrudaya Special School, Changanacherry organized a workshop for the teachers of inclusive schools. The teacher has to deal with various categories of children with special needs in the inclusive classroom, among which majority are learning disabled. A discussion with the teachers dealing with dyslexics revealed the major academic problems encountered by them. A session on innovative teaching methods for disabled children especially dyslexics was dealt by the investigator in the same workshop so as to provide a theoretical knowledge on various innovative methods for instructing dyslexics for both teachers dealing with special children as well as normal children. The investigator discussed on various innovative strategies that can be adopted in an inclusive classroom including concept maps, graphic organisers, thinking maps, flash cards, eye catchers, mnemonics, story openers, etc. among which mind mapping was given more emphasis. They were made to differentiate between mind maps and other visual maps. During the next workshop they were given detailed description on mind mapping and its construction. The whole group of teachers was divided into groups and each group was given a topic instantly. A two hour session was provided for them to construct mind maps on various subjects in Malayalam language. Mind maps were scrutinized and

necessary suggestions for modifications were made and final mind maps were prepared. After constructing mind maps manually, they were introduced certain free open source software on mind mapping. They were also taught to construct mind maps using Xmind software. A discussion on the prepared mind maps was conducted to analyse its strengths and weaknesses.

The major strengths are listed as follows.

- **Remember more:** It is widely accepted that a mind map can greatly stimulate a brain in new ways than normal linear notes can't. Using mind mapping tools enable to generate a lot more new ideas, identify the right relations among the information stored in the brain and ultimately improve retention. Ultimately, a person is able to remember up to six times more than the normal notes.
- **Eases the study process and makes it fun:** Not only that we will learn faster, but it also provides fun along the way. The use of colors, keywords and images can boost creativity while giving a feeling of happiness and self-content.
- **Easy to add ideas later on:** mind mapping tools make it easy to add new ideas. It's as simple as adding more branches to a virtual tree.

- **Connected facts:** Mind mapping tools teach how to focus on relationships and links that exist between ideas in order to help to get connected facts.
- **Adaptable:** Mind mapping tools can easily adapt to a wide variety of tasks, from lectures to reading from books and writing essays or business plans.
- **Perfect overview of your ideas:** Probably the biggest advantage of mind maps is that it can create a deeper understanding of the topic of interest, which means it will give a perfect overview of all related ideas, concepts and thoughts.

However, mind maps also come with their set of drawbacks. Here are some of the most notable ones.

- Time Consuming
- More effort is required in the initial stage
- Mind maps cannot be prepared for certain topics

The constructed mind maps are kept in the appendix. After developing skill to prepare mind maps, the investigator suggested the teachers to adopt the technique for dyslexics in their inclusive classroom. After three months of

administering the technique in the classroom, they were provided a professional skills inventory. In addition a feedback is also collected.

TOOLS USED FOR THE STUDY

The major tools used for the study are :

- 1.Diagnostic test in Malayalam prepared by the investigator
- 2.Professional Skills inventory prepared by the investigator
- 3.Feedback form prepared by the investigator

CHAPTER IV

ANALYSIS - INTERPRETATION AND RESULTS

The analysis of the study is dealt in four sections.

SECTION – I

PREVALENCE OF DYSLEXICS IN MALAYALAM LANGUAGE IN ELEMENTARY INCLUSIVE CLASSROOMS

To find out the prevalence of dyslexics in Malayalam language, a diagnostic test in Malayalam prepared by the investigator was administered among 400 students studying in 4th and 5th grades of Kottayam, Pathanamthitta and Alappuzha districts. The data obtained in analyzed and the result is depicted in the table below

Table-I: Prevalence of dyslexics in Malayalam language.

SL No	No of School	Total No Students	No.of dyslexics				
Kottayam	6	310	285	10	14	3.2	4.9
Pathanamthitta	6	212	198	13	11	6.1	5.5
Alappuzha	6	371	287	21	12	5.6	4.1

From table I, it is clear that the percentage of dyslexics varies with districts. Dyslexics in both grades are more in Pathanamthitta than in Alappuzha and Kottayam districts. In addition the table also reveals that the prevalence of dyslexics in Malayalam language in elementary inclusive classrooms is found to be 4.9% in fourth grade and 4.8% in fifth grade which is more or less the same.

SECTION - II

PROBLEMS OF DYSLEXICS IN LEARNING IN AN INCLUSIVE CLASSROOM

To understand the academic problems of dyslexics in an inclusive classroom, an unstructured interview was conducted among the teachers who attended the workshop. In addition a group wise discussion was also arranged to validate the ideas collected through the interview. The major problems are listed as follows.

1. Difficulty to read
2. Trouble to decode words
3. Makes many Spelling errors
4. Poor retention of long sentences
5. Poor social interaction with peers
6. Poor organization skill

7. Difficulty to keep pace with the teaching
8. Easily distracted
9. Cannot distinguish letters
10. Difficulty to recognize sight words
11. Difficulty to concentrate for more than 2 to 3 minutes
12. Difficulty to cope with the curriculum
13. Poor achievement in all subjects

SECTION III

PROFESSIONAL SKILL DEVELOPMENT THROUGH MIND

MAPPING

To assess whether professional skills are developed through mind mapping, a professional skill inventory was administered to all the teachers who attended the workshop and practiced mind mapping in their classroom for three months.

The inventory consists of 15 items among which all are positive statements.

Two options Yes/No are provided in the right side among which the subject has to put a tick mark against the response he selects. The maximum score an individual can get in the inventory is 15 and minimum is 0. The data collected through the tool is analysed and the results are presented in the table.

TABLE 2 : t value of Professional skill Development Trough Mind mapping among elementary school teachers

Groups	N	M	S.D	T	Level of significance
Before mind mapping	60	6.2	2.6	5.12	0.00*
After Mind mapping	60	13.7	3.1		

* Significant at 0.05 level of significance

Initially mean scores of 60 teachers were find out and subjected to t test.

Table 2 explores the difference in the professional skill development among elementary school teachers, teaching in the inclusive class room before and after applying mind mapping for dyslexics in their classroom.

The t value of 5.12 ($P < 0.00$) for df 59 at .05 level of significance is higher than the t table value which indicates that there is a significant difference in the professional skills development among elementary school teachers teaching in the inclusive classrooms before & after applying mind mapping technique in the classroom. The mean value 13.7 shows that they acquired more professional skills after applying mind mapping technique.

SECTION IV

EFFECTIVENESS OF MIND MAPPING ON DYSLEXICS IN AN INCLUSIVE CLASSROOM

Effectiveness of mind mapping on dyslexics in an inclusive classroom is assessed through a feedback form from teachers who attended the workshop. The same feedback form is administered before and after the use of mind mapping. The feedback form consisted of 10 items indicating the effectiveness of mind mapping. The maximum score an individual can score in the tool is 10 and minimum is zero. The data is collected and mean scores of 60 teachers were found out. The mean scores are further subjected to t test, the results of which are depicted in the table 3.

TABLE 3: EFFECTIVENESS OF MIND MAPPING ON DYSLEXICS IN THE INCLUSIVE CLASS ROOMS

Groups	N	M	S.D	T	Level of significance
Before mind mapping	60	4.2	1.9	6.18	0.00*
After Mind mapping	60	8.7	1.2		

*Significant at 0.05 level of significance

From table 3 it is noticed that the t value 6.18 for df 59 at .05 level of significance is greater than the t table value. Therefore it is concluded that mind mapping is effective for learning Malayalam language among the dyslexics studying in inclusive classrooms, which is evident in the mean scores too ($8.7 > 4.2$).

RESULTS

- The prevalence of dyslexics in Malayalam language is found to be 4.9% in fourth grade and 4.8% in fifth grade.
- Teaching through mind mapping enabled the elementary school teachers teaching in inclusive classrooms to develop professional skills. (t value is 5.12, $P < 0.00$ at 0.05 level of significance)
- Mind mapping is effective for dyslexics in learning Malayalam language

CONCLUSION

It is a known fact that working with mind maps helps students organize their ideas and understand concepts better. Since an outline is sequential,

it can be difficult to work with, especially for students that struggle with the process. Mind mapping is a freer, non-sequential way to organize material, making the process more coherent; in particular for students that may not be process oriented, but visually oriented. Mind mapping is also recognized as an assistive tool where for instance, students with Asperger or dyslexia will benefit from the mind mapping method. Mind mapping helps students to understand and absorb information. Research shows that the use of mind maps increases critical thinking and memory skills, particularly for students who are visual learners. Mind maps capture each individual's thought process and make it easier for students to communicate and present their ideas.

SUGGESTIONS FOR FURTHER RESEARCH

- Studies can be conducted in schools of other districts of Kerala
- Studies can be conducted for teachers teaching in lower grades too.
- Effectiveness of other innovative methods could also be studied

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APPENDICES

APPENDIX I
PEET MEMORIAL TRAINING COLLEGE MAVELIKARA
DIAGNOSTIC TEST IN MALAYALAM

Standard: 5th

amĀ;v -p25

kabw p 6o an\n«v

I **icn-bmb A£cw tNĀv]qcn-,n-jpI**

1. AXn-..... (-Zn, Yn, [n])
2.]qĀtW.....(μp, 'p, Ôp)
3.]Xm..... (K, l, J)
4. a..... (Uw, Tw, Vw)
5. N.....Xn (Km, im, §m)

5

II **hn]-coX]Z-sa-gp-XpI**

1.]vSw X
2. [oc³ X
3.]p-am\w X
4. \nb-'nXw X
5. kzmX'yw X

III **]ncn-s"-gp-XpI**

1. _mjn-bm-bnĀ p
2. Xr,-XmI p
3. Ah-fpsS p
4. tZi-`àn p

5. eoem-hn-em-k-šÄ þ

IV hmlyw \nÄ½zn-jpl

1. XSn-X-,pl þ

2. Xhn-Sp-s]m-Sn-bmbn þ

3.]pl-gv̄pl þ

4. NnŊn-˙n-Xdn þ

5. kzo1-cn-jpl þ

V Bh-iy-amb NnÓ-šÄ tNÄs-gp-Xpl

cmPpHPw cm[bpw lqSn lm«n-eqsS \S-jp-l-bm-bn-cpŊp s]s«Ŋv lpän-jm-«nÂ h-en-sbmcp
]m¼4n-s\-l-v AhÀ sR«n cm[D˙-nÂ \ne-hn-fn˙p At;m c£n-jtW Ahn-sS acw sh«n-bn-cp-Ŋ-hÀ HmSn-sb˙n
 Ah-cn-sem-cmÄ tNmZn˙p FhnsS]m¼4v Gsd Xnc-sª-!nepw]m¼4ns\ ln«n-bnÄ \ncm-i-cmb acw-sh-«p-lmÄ
 Xncnsl t]mbn cmPpHPw cm[bpw ho«n-te-jpÅ \S-,nsâ thK-X-lq«n



APPENDIX II
PROFESSIONAL SKILLS INVENTORY

Read carefully the following statements and put a tick mark against the response which you select.

CONTENTS	Yes	No
1. I am confident while using mind mapping for dyslexics		
2. I was able to communicate properly while teaching dyslexics using mind mapping		
3. I could help my colleagues in preparing mind maps		
4. I am more creative while planning lessons for dyslexics		
5. I became more organized in my classroom after adopting mind maps for certain lessons		
6. I could arouse and sustain interest in learning among dyslexics by using mind maps.		
7. I was able to empower the dyslexics by learning through mind maps		
8. Diagnosis and remediation became easier for me through mind mapping.		

9. Teaching through mind maps enhanced my passion towards teaching		
10. I became more patient after adopting mind mapping for dyslexics in my classroom		
11. Teaching through mind maps helped me to engage the dyslexics throughout the teaching learning process		
12. Using mind maps in the classroom boosted my confidence in Teaching		
13. I am able to manage my class while teaching using mind maps.		
14. Teaching using mind maps enhanced my desire to adopt other innovation methods in the classroom further		
15. I became more imaginative and innovative through mind mapping technique		

APPENDIX III**FEED BACK FORM FOR THE TEACHERS**

Read the statements carefully and put a tick mark against the option

CONTENTS	Yes	No
1. Mind mapping boosted the confidence of dyslexics		
2. Mind mapping improve the retention capacity of dyslexics		
3. Mind mapping made dyslexics independent learners		
4. Mind mapping enhanced the achievement among dyslexics		
5. Mind maps motivated the dyslexics to learn		
6. Dyslexics became consistent learners through mind mapping		
7. Mind mapping developed positive attitude towards learning among dyslexics		
8. Mind mapping enhanced the interest in learning among		

dyslexics		
9. Mind mapping reduced the distractions among dyslexics in the classroom.		
10. Mind mapping made dyslexics more creative and innovative		