What Are Dyslexia and Its Effects on Teaching Language Skills?

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Abstract—**The world of teaching comprises of a range of miscellaneous methods, plans, strategies and techniques and it gets more complex as we consider all factors affecting this world including the age group, context, the mother tongue and mental as well as natural abilities and disabilities of the students who are being taught. My main focus in this paper is to discuss language teaching tips effective for dyslexic students that can be considered as a subcategory of SEN (Special Education Needs) students and an explanation of BPMS Hypothesis I suggested helping dyslexic students overcome their learning difficulties. I also clarify my own teaching experiences in different situations throughout this paper any probably positive or negative feedbacks I obtained via teaching.**

Index Terms—**teaching, dyslexia, SEN, dyslexic students, experiences, BMPS hypothesis**

I. Introduction

Dyslexia is a major cause of reading, writing, and spelling difficulties. It is a condition that makes it difficult for a person to read and spell words correctly. Based on my own teaching experience, one to three students in each class can be considered as dyslexic students. This number may be different and it depends on the total number of students present in each class. A variety of strategies can help these students to become successful students. The earlier students with dyslexia are identified, the easier it is to treat their potential problems.

In addition, the observations of parents and teachers are also crucial and can lead to an early diagnosis of such group of children. Dyslexic students are very bright and frequently highly creative with extraordinary reasoning capabilities. The old saying that male students have a higher rate of dyslexia in comparison with female students is not true nowadays and has no scientific basis at all. (Moats, 2008)

A. Understanding Dyslexia

The word ***dyslexia*** originates from Greek language, and is made of following two parts:
Dys: meaning poor / difficult
Lexis: meaning word
The literal translation is ***"poor words"*** or ***"difficult words"***.

As per definition given by ***National Institute of Child Health and Human Development (NICHD)*** based in Bethesda, Maryland, this mental condition is "a specific learning disability that is neurological in origin."

Dyslexia is a specific learning disability in reading. Kids with dyslexia have trouble reading accurately and fluently. They may also have trouble with reading comprehension, spelling and writing. (The Understood Team, 2016)

According to available statistics, the National Institute of Health estimates that approximately 15 percent of the US population is affected by learning disabilities. In addition to that, the ***US Department of Education*** figures show that approximately 4.5 percent of American students receive special educational services for a reading disorder (Pastor, P. N., & Reuben, C. A., 2008).

B. Dyslexia and Brain Function

With the advent of functional brain imaging in the early 1990s, neurologists and researchers were able to view the brain function while people engaged in reading. The recent advent was a great help for them to actually see how the brain translates the alphabet letters into spoken sounds. Based on Noam Chomsky's theory of Universal Grammar, the human brain is naturally wired for language and human infants just need to be around other humans who speak in order to learn the language. (Shen, H. , 2013)

To get a better understanding of the said issue, we must discuss the aspects of oral and written language separately since each one has its own role in developing language in human beings.

Oral language is comprised of 4 different levels as described in the table below:

First Level	Phonology	Made of language sound elements called phonemes.
Second Level	Semantics	Made of vocabulary and word meanings.
Third Level	Syntax	Made of grammatical structures.
Fourth Level	Discourse	Made of the way sentences are connected to make meaningful communication.

As it is shown in the above table, the lowest level goes for phonology and the highest level belongs to discourse.

C. Written Language

Contrary to the oral language, the human brains are not naturally wired to read and reading skill has to be taught. Children must develop an ability to look at the printed letters and convert them into a phonetic or linguistic code. This ability is called ***alphabetic principle*** which is a missing part in students suffering from dyslexia. Unless a student can apply the alphabetic principle, the letters are nothing except meaningless squiggles on the paper.

The most significant issue that we need to keep in mind as a language teacher is that we have 44 individual phonemes in English language which can be linked together to form an unlimited combinations of words; however, the total number of English alphabet letters is limited to 26 letters only. Consequently, each letter represents more than one sound in spoken English.

The students who have phonemic awareness-which is explained in the following pages- of spoken words and their breakdown into smaller units of sounds will not encounter any reading challenges. They just link the written letters to the language sounds and then the letters begin to have meaning for the students.

D. Speech Symptoms of Students with Dyslexia

Speech symptoms can be one or more than one out of the many signs listed below:
☐ Subtle delays in speech
☐ Articulation difficulties (i.e. baby talk)
☐ Spending long time to recall or give common vocabulary
☐ Misheard phonemes (i.e. dropping initial or final sounds in a word)
☐ Substitution of phonemes (Dyslexic student may say ***bar*** for ***bat***)
☐ Sound combination in multisyllabic words (Dyslexic student may say ***aminal*** for ***animal***)
☐ Sounding out (The dyslexic students is unable to connect a letter such as ***b***, with the sound /***b***/)
☐ Decoding problems and unable to sound out and spell CVC words (for example, ***bog-dog***)
NOTE: CVC acronym stands for Consonant-Vowel-Consonant combination in which a vowel sound is surrounded by two consonant sounds on either side.

E. Learning Behavior of Students with Dyslexia

The learning behaviors can be monitored in early learning environments before school and even at school. These behaviors can be summarized as below:
☐ Like to listen to stories in class
☐ Missing story events and fail to unscramble them again
☐ Not interested in nursery rhymes due to lack of the ability to hear phonemes
☐ Unable to analyze directional concepts (difference between right and left) or positional concepts (such as up and down)
☐ Switching from the right hand to left hand when performing a task
☐ Pretending to feel ill at reading time
☐ Untidy or dirty handwriting
☐ Dropping word parts while reading a text
☐ Failure to do timely homework assignment within a specified timespan
☐ Less mature motor skills in comparison with others of the same age
NOTE: Motor skills refer to the function of muscle movements in the entire body.

II. Methodology

Designated lesson plans for dyslexic students

Dyslexic students have average to above-average intelligence. A lesson plan including following components can lead to a higher probability of gaining success in these students: (Flora, Sherrill B.,2008)
• Creative thinking tasks
• Imaginative class activities
• Drama or artistic activities
• Music-related assignments
• Multisensory activities

The above-mentioned components will also help them read faster. If we introduce new concepts to dyslexic students, they always express a high-level of understanding. Some of famous people with dyslexia are named in the table below:

Name	Profession
Henry Ford	Inventor
Thomas Edison	Inventor
Walt Disney	Inventor
Albert Einstein	Inventor / Scientist
Jules Verne	Writer
Orville and Wilbur Wright	Inventors

Phonemic awareness and Q-chart

The ability to put the individual sounds, or phonemes and work with them is called phonemic awareness. When teaching to lower grade students, I usually utilize the following Q-chart (i.e. Question chart) to recognize the students with potential disorders.

Q 1:	Q 2:
How many words can you rhyme with the word **bag**?	What word do you hear when you put the sounds */b//i//g/* together?
Q 3:	Q 4:
What is the final sound in the word **tap**?	What word would you have if */p/* was taken away from the word **pit**?

Student status chart

In this phase, try to scrutinize the answers you received from the students and compare them to the chart below in order to pinpoint the students' problems.

Number of correct answers	Student Status
1	Needs immediate support. (Implement all the components of BPMS Hypothesis)
2	Discuss the issue with parents and the school counselor.(Implement in-school and at-home strategies to solve the problem)
3	Try to find the exact weakness area of the student. (Implement a direct instruction plan for that weakness by paying attention to BPMS Hypothesis and components)
4	The student is considered as an ordinary one and has difficulty in learning.

As soon as I recognize dyslexic students who need serious support, I prepare a separate observation sheet for each of them and register my monthly observations in that student specified sheet. These observation sheets can be used in order to prepare designated lesson plans for those students.

The observation sheet can be used for SEN students as well since students with dyslexia can be defined as a subcategory of SEN students but my main paper focus is on providing tips for students suffering from dyslexia.

The term *SEN* refers to **S**pecial **E**ducation **N**eeds Students and can include a broad range of both quick-witted and dyslexic students.

Observation Chart Sample

A sample of my observation sheet for each student is shown below:

Student Monthly Observation Sheet

Student's Name:
Class:
Teacher's Name:

Class Date	Teacher's Observation	Signature

This observation sheet can be used as an evaluative tool by other school subject teachers to judge the student's progress within a month or even an academic year.

III. RESULTS AND ANALYSIS

Designated plan and criteria achievement

Based on my own observation from my own students, I prepared a designated plan for one of them suffering from dyslexia. The prepared plan is given as a sample below:

Teacher's Name: Mohammad Mahdi Mobinizad

Student's Name: Arya B.

Class: Grade 6D

Targets to be achieved	Achievement Criteria	Possible Resources / Techniques
I. Improving communication behavioral skills	1. Engaging in any class program/activity	• Monitor and modify his progress
II. Learning organizational and study skills	2. Teacher always involves him to be part of his job	• Positive behavioral interventions and support
III. Catching his concentration	3. Competing an art activity with peers	• Team activities, team games and problem solving session
IV. Following up the academic instructions at his level	4. Self-management	• Use simple concise instructions with concrete steps
V. Topping up the student level on English skills	5. Listening to the teacher with concentration and following up the relevant instructions	• individual work in every subject and use special worksheet based on his level

Sample school rewards for dyslexic students

Sometimes it may be necessary to provide school-based rewards as a kind of incentive for students with dyslexia. Teachers need to make sure that a child wants one of these potential incentives and will work for it before it is applied. Students should be given a menu of rewards such as the one I prepared below from which they can choose their favorite ones.

1) Talk to best friend
2) Listen to an iDevice player with headphones
3) Applaud the dyslexic student during school morning assembly and in the presence of other students
4) Increase the period for PE(i.e. Physical Education) class for the student during the week
5) Be teacher's helper / assistant
6) Be the class monitor / class president
7) Draw a picture or do other artistic activities in class time
8) See a movie / footage on the Web
9) Decorate the class notice board
10) Mark his classmates' exam papers
11) Be the class messenger to pass on the teacher's request to the principal assistant
12) Have treats in class or out of school
13) Be a candidate for the Student of the Day / Month
14) Give permission to play board games / card games in class
15) Assign a Certificate of Appreciation
16) Draw a gift for him from the grab bag (or lucky dip)
17) Give the student a special gift in the class

Spelling suggestions for students with dyslexia

Students suffering from dyslexia struggle with spelling problems throughout their lifetimes. As part of their primary and secondary education, they will be expected to take part in various spelling tasks and quizzes some of which are cited below.

Spelling Bee Test:

This is an annual quiz held in most of the countries across the globe and is world-famous one.

In order to get more information about the above test, you can pay a visit to the following website on the Net:
www.spellingbee.com
This website belongs to *The E.W. Scripps Company* and a variety of spelling bee samples are published on the said website.

Spelling word flash cards:

You can write a word on each card and ask the students to draw an illustration on the back of each flash card. The flash cards can be prepared manually or via computer programs. If the student has difficulty remembering part of the word marked on the card you can highlight that part in a different color or with a highlighter marker. Differing colors can help the student learn the word more easily.

Improving fluency skills in students with dyslexia

Oral reading can be a painful experience for students with dyslexia and they must never be forced to read aloud. The

best time to encourage a dyslexic student to read aloud is during quiet times when nobody is around except you and one of his / her parents.

Fluency improving techniques

There are some remarkable fluency skill techniques such as:

A) Participation in story telling or reader's theater activities

In storytelling, students are asked to read a piece of writing in chorus but a reader's theatre task refers to a text that has been formatted for characters to read aloud. Each student can take the role of a character in the story and read the lines for that particular character. Both of these activities bring a lot of fun to whole class including dyslexic students.

B) Beamer / Projector reading

The teacher projects the story onto a screen and the students are requested to read the story lines. The whole class can be divided into different groups with various level of reading. In this technique, the new words of the story are either circled or highlighted no matter whatever times those words are repeated throughout the text.

C) Listening to the audio CD/ DVD

Nearly all of the story books are sold with an audio CD/DVD. The audio CD/DVD will definitely motivate the students in reading and will benefit from hearing stories prepared according to their interest levels. A list of ***Children's Read Aloud and Poetry Book List*** is provided in the appendix section of this paper.

Increasing comprehension skills in students with dyslexia

We hereby discuss the major techniques involved to aid the dyslexic students to acquire a higher level of comprehension.

A) Story comics: Prepare a four-panel comic strip of any story read to the students and ask them to illustrate four significant parts of the whole story in each panel. Speech balloons can be used over each panel as well to show the actions of story characters. These panels can be copied and distributed among the class students as a fun reading handout.

B) Big version of a favorite story: Ask your students to prepare an oversized book of a story that is popular among their age group and is liked by most of their peers in other countries. Famous stories such as ***Wimpy Kid*** and ***Harry Potter*** can be typical examples of this case.

C) Map-It-out: Ask the students to prepare a T-map as given below and include details of the story in this table:

Setting	Characters
Plot	

Setting: refers to the place the story happened.
Characters: refer to the animals or people present in the story.
Plot: refers to a brief summary of the details and events of the story.

D) Visualize and take a picture: After reading a story is over, invite the students to come to the board and illustrate the most important scene of the story on the board. As students follow the lines of the story, they usually take a picture of the story events and form mental images of the events. These mental images made in the brain are often referred to as visualizations. The students can also add captions to their illustrations on the board.

E) True or False statements: Make a two-sided card out of thick cardboard with the word ***TRUE*** written on the front side of the card and the word ***FALSE*** written on the back side of the said card. Then, distribute a copy of each card among the students. Choose an excerpt of a piece of writing and write a list of True or False statements on the board. You can prepare and write your onboard statements in a table format like below:

STORY STATEMENTS TABLE

1.	True ☐	False ☐
2.	True ☐	False ☐
3.	True ☐	False ☐
4.	True ☐	False ☐

Depending on the size of the selected text and the number of statements, you can expand the total number of statements. The students will respond to each statement by showing either the front or back side of the card and the two-sided card(s) can be laminated for higher durability.

Developing writing skills in students with dyslexia

Fabulous imaginations are the major key to success in dyslexic students and can be regarded as a potential asset in their writing. It is important to tell the students that writing is a two-step process. The first step comes up with "writing ideas" and the second step goes back to proofread and correct what the student has written.

Color books can be the best choice for dyslexic students who are at the beginning level. Sometimes a drawing is worth a thousand words. In the next step, the teacher can motivate the student by making use of some of the writing prompts such as those given below:

• I am the happiest student when ---
• My best adventure ever was --
• My hero in life is --
• My toys are --

• I would like to be --
An overview of the writing process stages is described under the next heading of this paper.

The writing process steps via a story organizer

1. Writing: Ask students to jot down their ideas by using a story organizer in the shape of ice-cream cone, a spider web organizer, etc. whichever sounds more interesting to them. Let them choose their favorite one freely.

2. Drafting: With reference to story organizer, students can prepare the draft copy of their writing

3. Revising: Tell students to review their draft copies and make the necessary revisions. At the end of this step, remind the students of this fact that anyone reading their work should be able to understand it.

4. Editing: Have students to prepare the final draft of their writing work by paying attention to the writing mechanics including spelling, punctuation and capitalization.

5. Sharing (or Publishing): This is the final step where the whole writing process is over and the students' work are ready to be either published on the school website or posted on the class notice board.

IV. DISCUSSIONS

BPMS Hypothesis and its components

With attention to my previous research on topics related on dyslexia, its diagnosis and the effect(s) brought on language learning skills, I reached to a hypothesis that I called it BPMS Hypothesis. This BPMS Hypothesis covers all learning challenges in dyslexic students and can be used on a large scale as an appropriate solution to such group of students.

The BPMS Hypothesis I suggested is made of 4 components as per following details:

Component Type	Component Definition	Target Zone
B	Backward reading	Reading
P	Phonics booster	Listening(and spelling)
M	Mnemonic words	Speaking
S	Scrabble game	Writing

We have 26 letters in alphabet but these letters represent 44 sounds in English. It means each letter represents more than one sound. Each component concentrates on one zone of language skills. Let's take a look at each component in detail.

Component Type B (Backward reading)

In this component, the students are asked to divide the word into different parts such as prefixes, base word and suffixes and are told to start reading backwards. For example, the student can read a long word such as the word civilization in three simple steps:

Example Word: civilization (civil/iz/ation)
Step No. 1: Say **–ation**
Step No. 2: Say **–ization**
Step No. 3: Say **–civilization**
Note: Here the word breakdown is based on the base word and any probable prefix (es) or suffix (es) that the word may carry.

In my own experience, this approach turned out to be very effective for many students holding a different level of English knowledge and language abilities and skills and it was much easier for them to memorize and recite that specified word but it is better to apply this approach for long words that are much more difficult to pronounce than one-syllable words.

Component Type P (Phonics booster)

Phonics is a method of teaching people to read in which they are taught to recognize the sounds that English letters represent. Start assigning activities with one syllable words and then expand it to the longer and more complex words.

Any of the one-syllable words such as cat, bat, pat, pet, etc. can be suitable to be chosen as first choice words. Try to make a ruler-shaped box out of thick cardboard and buy or prepare at least three packs of English alphabet flash cards. The need for three series seems to be more tangible whenever you start teaching more than one syllable word at the same time.

PHONICS BOOSTER (FRONT SIDE)

Cut out 7 squares on the front side of your ruler-shaped box and leave a distance of 1.5 cm between adjacent squares. Finally, assign a number to each square. The total number of the squares must not exceed seven. Cut a narrow opening on the top of each square and along the ruler-shaped box. So that you can slide the alphabet letter flash cards inwards or outwards via the top narrow opening. Most of one-syllable words are made of three English letters. Leave square No. 4

empty and start teaching two words simultaneously in squares1-2-3 and squares 5-6-7. You can divide the whole class into 2 groups of students and teach the new words to both groups and then ask each group to read the word assigned for another group and vice versa.

The back side of your ruler-shaped box is shown below. It must exclude any cutouts.

PHONICS BOOSTER (BACK SIDE)

Phonics Booster

If you like, you can also mark the Phonics Booster on the back side of the said box you prepared in advance.

Component Type M (Mnemonic words)

This component assists both dyslexic students and ordinary students to form an individual acronym of either long phrases or words and encode those phrases or words in their mind. When there is a must to retrieve those chunks of information, the students can locate and decode the required data previously kept in their memory more easily. In this example, the chunks of information are same as the beads in a rosary that are linked together by a string and the mnemonic word here plays the same vital role of a string which keeps all the information together and in one place.

See the following examples:

What: Who **h**as **a t**reat?

Was: Wally ate **s**paghetti.

Component Type S (Scrabble game)

Scrabble is a kind of board game in which players try to make words from the separate letters they have been given. Although dyslexic students are creative thinkers, this board game can encourage the students to overcome the writing problems they may face at the preliminary stages of the writing process or afterwards.

In the long-run, this board game along with other supplementary components of BPMS Hypothesis will increase the students' interest in writing and will successfully control their prior fear or doubts that had prevented them from achieving desired results in their writing tasks. The statistical community I chose to try the effectiveness of my Hypothesis consisted of a total number of 500 hundred students in both primary and secondary school of Towheed International School in Dubai where I have gained a great deal of teaching experiences since three years ago up to the moment.

I gathered all the information I needed to verify my Hypothesis based on the student's monthly observation sheet which I provided a copy of that earlier in this paper. In order to scrutinize and analyze the results gained, I also sought for the professional advice of the school counselor.

V. CONCLUSION

In the end, The BPMS Hypothesis seemed to have solved the problem of almost the majority of the students involved in this project. The dyslexia will affect the learning behavior, speaking, reading, spelling and writing skills of the students suffering from this special condition and tips introduced in this appear along with BPMS Hypothesis will be effective for both the teachers and parents to help the dyslexic students tackle the challenges or difficulties they encounter in some or all of their language learning process.

APPENDIX.   (CHILDREN'S READ ALOUD AND POETRY BOOK LIST)

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