

Dyslexia: Learning Difficulty or Hidden Talent?



Background:

What is dyslexia?

Dyslexia is a term for disorders that involve difficulty in learning to read or interpret words and letters. Children of all intellectual abilities - can be affected by dyslexia. A child's difficulty with reading and spelling is not determined by their intelligence, but by how severe their dyslexia is.

Dyslexia and Languages Most people with dyslexia choose not to learn second languages as they find them too difficult. We wanted to discover a way that people with dyslexia could learn a second language.

Background Research We found an article from Yale University suggesting that people with dyslexia find it easier to learn languages written with graphic symbol characters, like Japanese kanji, where the characters represent complete syllables or words.

Research Question This led us to pose the research question: "Would people with dyslexia find it easier to process and learn graphic symbol-based languages than would the average person?"

Methods:

Participant Group Selection We used random selection to make up a participant group of 84 students covering all age groups and genders in our school. The group included a mix of people with and without dyslexia. To avoid bias, we did not tell any of the participants that we were researching dyslexia.

BTYS
memorisation assessment

You will be shown a series of letters, images, numbers and miscellaneous symbols for an allocated time and then the image will be removed from the screen and you will be asked to recall these letters/numbers/images/symbols on the piece of paper in front of you.

1

2.

f8xs6m45

3.

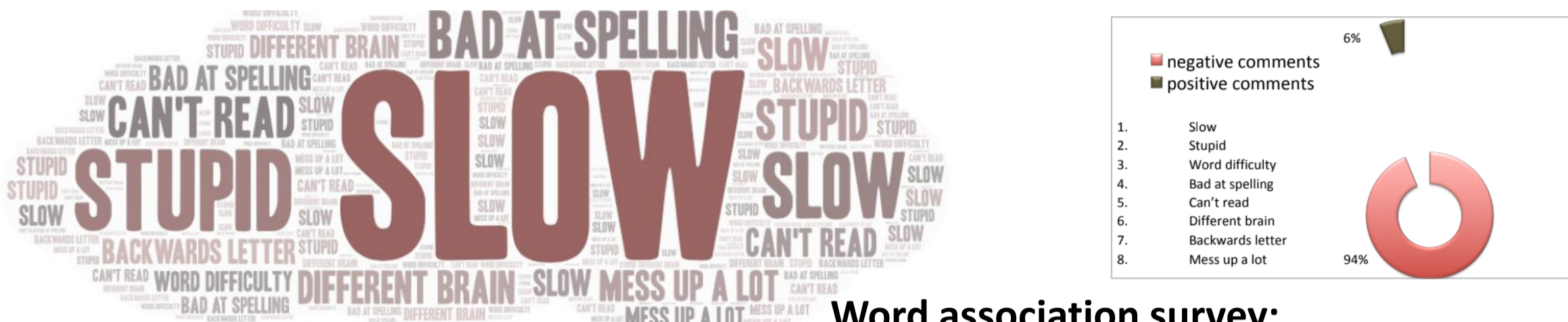
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Memorisation test

We designed a timed PowerPoint show with slides. It consists of a 20 slide timed powerpoint which was made up of 4 main sections; the introductory page, letters + numbers, familiar symbols and East Asian characters. Each of the 3 latter sections consisted of 3 rounds, each increasing in difficulty. A hand out sheet the student would answer everything on which was also made using word documents. We asked a participant group of students to look at the show and to write down afterwards what they could remember from the show

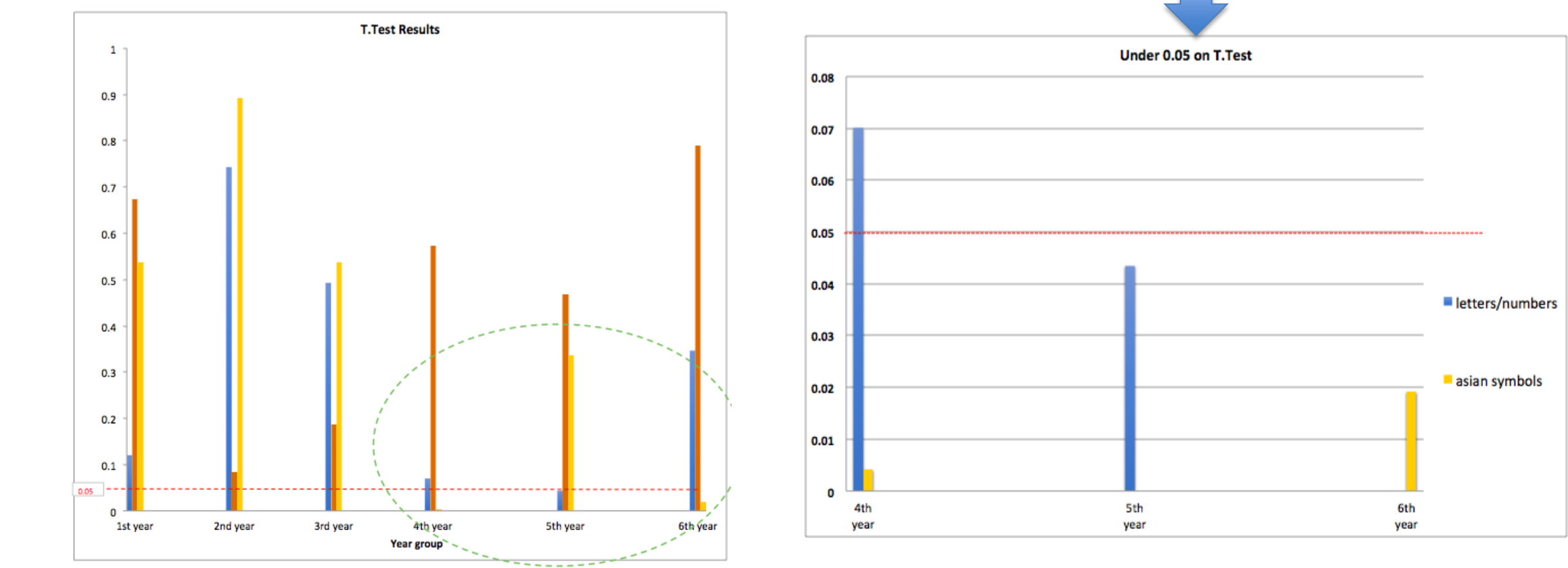
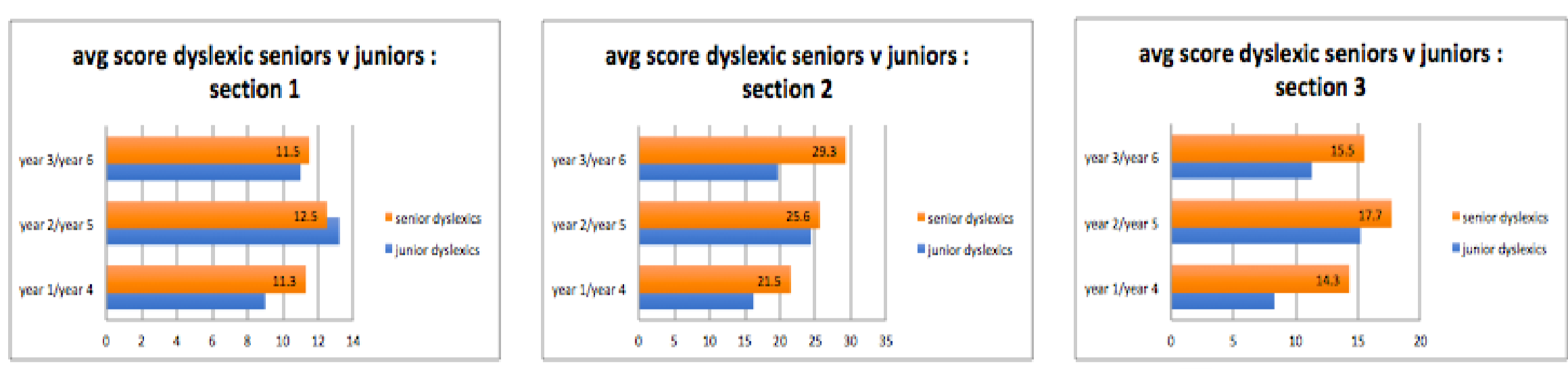
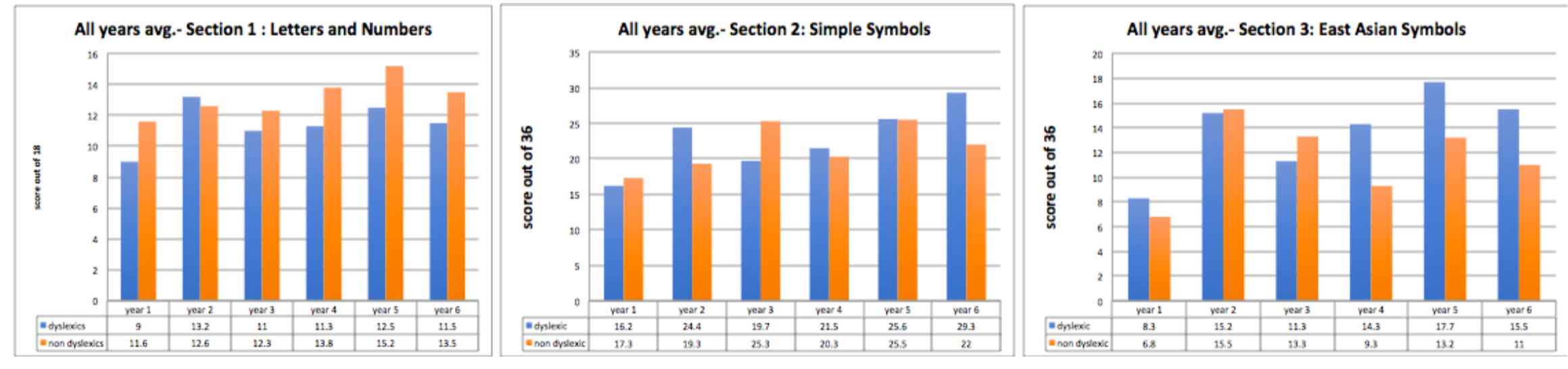
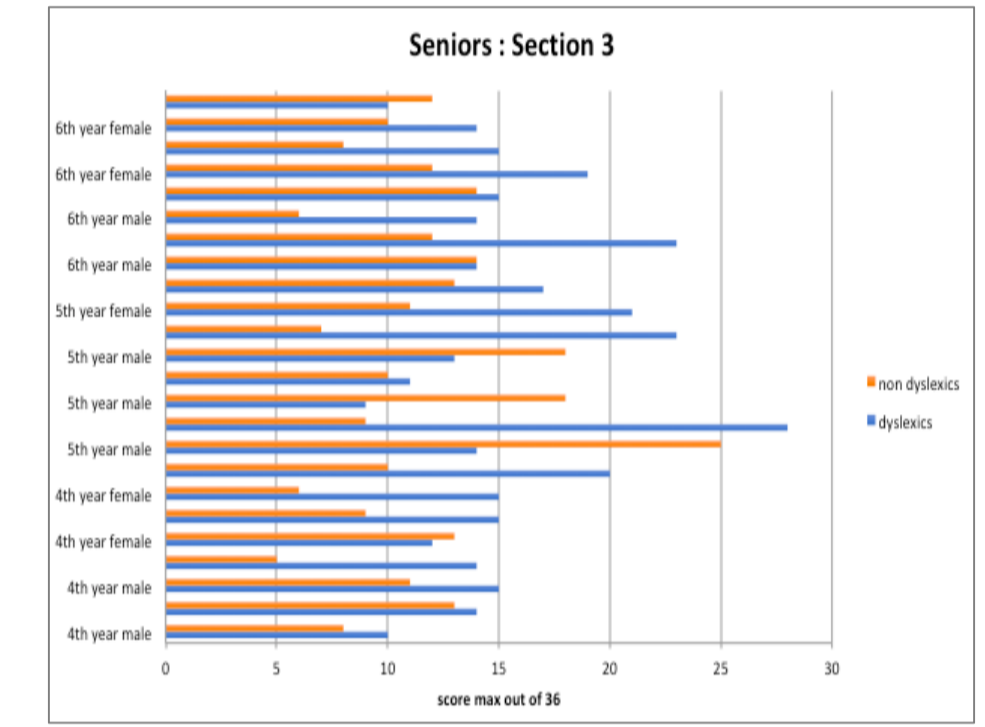
We developed a specific marking scheme for which to follow when grading the papers. One member was in charge of handing the pages to the other members while correcting, this was so the members marking wouldn't know if the student they were marking had dyslexia or not. This method was used so the members marking wouldn't be biased.

Negative Stigma:



Results:

The graph shows how dyslexics and non-dyslexics students from the senior cycle (4th to 6th years) compared in Section 3 (East Asian Characters). From each year we chose 4 females and 4 males, 2 of each gender were dyslexic. The results demonstrated that the dyslexic groups excelled within this section, proving that our hypothesis was in fact correct.



Issues:

We faced a few issues when creating this project, firstly there were only 2 dyslexic females in 5th year, therefore to make it as even as possible we had to test 6 males rather than 4. Next, within the junior years (1st to 3rd) it is more difficult to tell when someone is dyslexic and therefore

Data analysis methods

We calculated the score of each participant and the averages for different categories. We also applied the t-test to identify the statistical significance of our results.

Overall t-test results:

The t-test compares the "p-value" - the actual difference between two means in relation to the variation in the data. A p-value less than 0.05 means that the results have statistical significance and are not a random occurrence.

For the Asian Character Tests:
Overall T-test = 0.04302243
Senior Years T-test = 0.00236056

For the Letter/Number Tests:
Overall T-test = 0.00794923
Senior Years T-test = 0.01054136

These are all < 0.05, meaning they hold statistical significance.

Conclusions:

The results showed us that the question: "Would people with dyslexia find it easier to process and learn graphic symbol-based languages than would the average person?" is in fact correct. Therefore we believe that in the Irish education system we as students should have the opportunity to learn languages with east Asian characters.

Recommendations:

People with dyslexia should be encouraged to learn graphic symbol-based languages