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Multilingual = Multi-dyslexic?

Methods and Implications of Investigating Dyslexia in
three L2 English Speakers

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Abstract

There is plenty of research in the field on native English speakers with dyslexia, but there seems to be no research regarding dyslexic L2 speakers of English. Research has shown that there are linguistic differences between individuals' L1 and L2s but there is no research showing if that includes the language disorder dyslexia. This research paper aims to investigate if screening tests designed for L1 speakers of English can be used on L2 speakers of English and what the implications of that usage would be. Three dyslexic participants with three different L1s and four non-dyslexic participants with two different L1s were asked to do two reading screening tests and one questionnaire in their L2, namely English. The dyslexic participants were also asked to do a second part of the questionnaire and they were also interviewed regarding their backgrounds. The results indicate that it is very difficult to recognize dyslexia among L2 speakers as there are no guidelines indicating the difference between poor language acquisition and the language disorder dyslexia. The results of this study also indicate that different educational traditions might influence the results of dyslexia screening tests.

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1 Introduction

1.1 Theoretical background

In recent years, several noted language disorders have increased in number, dyslexia being one of them. According to the *Dyslexia Center of Utah* the increase is neither due to an epidemic nor by chance but is a consequence of new diagnostic methods leading to more people being tested and getting the correct diagnosis. Recently published statistics, by the same dyslexia center, show that 20% of tested students suffer from some kind of language disorder (Dyslexia Center of Utah, 2017).

Globalization has led to new era of a multicultural, multi-technical, multitasking and multilinguistic society in which being plurilingual is much of an advantage. Acquiring adequate and sufficient linguistic skills requires an overall knowledge in listening, speaking, reading and writing. However, attaining such knowledge in a new language can be a difficulty in itself; the task is even more arduous if it is done by someone with dyslexia.

During the past three decades there has been an increase in studies, in and across languages, conducted in the field of language disorders, particularly dyslexia. Dyslexia has become the largest research area within language disorders with focus on L1 and L2 due to the increased number of students with the diagnosis. Dyslexia is a language disorder which affects literary skills in terms of reading, writing and spelling, and in rare cases even speaking and hearing but does not affect the overall intellect. It is difficult to diagnose as symptoms vary between individuals, languages, types of dyslexia and which literary skills are impaired.

However, a few years ago some linguists and psychologists (Elbro, Duugaard & Gellert, 2011, Everatt, Ocampo, Veii, Nenopoulou, Smythe, Al Mannai & Elbeheri, 2010) began questioning if a diagnosis of dyslexia in L1 automatically means that an individual has dyslexia in L2. The discussion also pointed out that testing for dyslexia, or any other language disorders, in L2 or any new/foreign languages is difficult as there is not a clear line between symptoms of language impairment and poor language proficiency. This is especially true when it comes to older students that had no or little education in their home countries due to for example wars. How does one distinguish poor language skills from dyslexia, particularly among adolescents? Consequently, some researchers have suggested creating new tests specifically designed for second language learners reducing factors such as vocabulary and schooling (Elbro, Duugaard & Gellert, 2012, p. 172). Other researchers have suggested that regular dyslexia screenings in L1 can be adequately used also for L2 speakers. Even though

there is an ongoing discussion about how to test L2 speakers for dyslexia, most of the discussions concern young children and not adolescence or adults (Elbro, Duugaard & Gellert, 2012, p. 173).

Since the war in Syria began in 2011, Sweden is one out of three European countries that have received a large amount of Syrian and Afghani refugees seeking asylum. Many of the refugees are children and “about half of the refugee children are unaccompanied minors” (Rydin, Eklund, Högdin & Sjöberg, 2012). Furthermore, some of these minors have not attended school for a few years before reaching Sweden, if they have been to school at all (Crul, Keskiner, Schneider, Lelie & Ghaemina, 2016). At this point in time, it is almost impossible to give a (correct) diagnosis of dyslexia to adolescences and adults in L2 because there are seemingly no studies covering this area. Diagnosis of dyslexia should preferably be conducted in an individual’s L1 (Helland & Kaasa, 2004, p.45) but this is not always the case (See section 4.1.3). If there are no screening tests designed in the native language of the individuals with diagnosed dyslexia or if the individual has not learnt to read and write in their L1, the dyslexia screening tests may have to be conducted in an L2 language. However, there are virtually no dyslexia screening tests designed specifically for adolescent and adult speakers of L1 or speakers of L2, at least not in English, Swedish, Polish and Khoekhoe. The major part of the available screening tests are designed for children between the ages 6 and 13. As there is very little research about dyslexia among bilinguals/multilinguals (Nijakowska, 2010, p.104) and even less so in diagnosing the disorder among older L2 speakers (Elbro, Daugaard & Gellert, 2012, p.173), there is arguably a great gap in the dyslexia field, especially in today’s global society.

1.2 The case study

This research paper is a case study of three individuals between the ages of 22 and 25, two females and one male. The study was conducted in Sweden but in English. The first female has Polish as her L1, the second female has Swedish as her L1 and the male has Khoekhoe (a tongue clicking, Khoisan, language) as his L1. These three individuals have been diagnosed with similar dyslexia diagnoses under somewhat comparable circumstances yet in different languages and countries. Other common factors for the three subjects are that they all have English as an L2, live in Sweden, have not graduated senior high school because of dyslexia and all are personally known by the researcher.

1.3 Aims and research questions

The aim of this paper is to investigate whether standardized screening tests for detecting dyslexia in English for L1 users are adequate for assessing dyslexia in English for L2 users. This case study extends to the field by letting three dyslectics, with similar symptoms but with different L1's, take two specific screening tests, answer one questionnaire and be interviewed about their dyslexia. The research question consists of two parts: (a) what indications of dyslexia will the screening tests show in the three participants? (b) What similarities and differences are there between the three participants?

1.4 Outline

This paper is divided into six chapters, each divided into several sections. Chapter two begins by presenting theories and definitions concerning dyslexia and other relevant terminology. This chapter also deals with the diagnosis of dyslexia and the relations between dyslexia and reading in L1 and L2. Chapter three presents the method, material, participants and procedure. In chapter four the results of the study are displayed. Chapter five includes discussion and chapter six illustrates pedagogical implications. This paper ends with chapter seven rendering conclusions.

2 Theory and definitions

This chapter treats definition, terminology and relevant previous work on dyslexia and reading in L1 and L2.

2.1 Defining dyslexia

The definition of dyslexia is very broad and allows equally broad interpretations. Consequently, there is no unanimous definition but rather several different ones putting emphasis on different aspects depending on what federation or association constructed it. The latest definition given by the British Dyslexia Association (BDA) is adduced as

a specific learning difficulty which mainly affects the development of literary and language related skills [...] [and] is characterized by difficulties with

phonological processing [...] and the automatic development of skills that may not match up to an individual's other cognitive abilities.

(Kelly & Phillips, 2011, p. 8)

In other words, dyslexia can be understood as a cognitive language disorder that in one way or other interrupts or affects the process and the perception and awareness of words.

The complexity behind this language disorder is due to its many strands and subdivisions.

Firstly, the three main strands of dyslexia are acquired dyslexia, developmental dyslexia and behavioral dyslexia, the latter one being the least recognized (Nijakowska, 2010; Kelly & Phillips, 2011). Acquired or trauma dyslexia is due to outer biological factors occurring later in life, such as a head injury in a car accident. Developmental or secondary dyslexia means that its cause is pedagogically rooted in early childhood and sometimes even biologically inherited (Dyslexia Victoria, 2018). Behavioral dyslexia suggests that the underlying causes of the disorder are "social and cultural factors" (Kelly & Phillips, 2011, p. 21) i.e. that it is a learned behavior. There are two minor strands but they are not widely recognized since they consider dyslexia to sometimes be side effects or symptoms of other causes and disorders (see Fetal alcohol syndrome and ADD/ADHD or Dyslexia Victoria, 2018).

Secondly, the symptoms of any of the three strands can range from general to restricted and are then divided into classification codes representing the affected skills. The categories usually include phonological dyslexia, surface dyslexia, double deficit dyslexia, visual dyslexia and rapid naming deficit (Understood, Kelly & Phillips, 2011, p. 22).

Phonological dyslexia means that individuals have difficulties reading non-words, *surface dyslexia* regards difficulties reading irregular words, *double deficit dyslexia* concerns weakness in reading both non-words but also reading far more slowly compared to peers.

Visual dyslexia is an umbrella term for difficulties regarding sight. This category often includes surface dyslexia and even dyscalculia but also obstacles such as telling right from left, inconsistent eye movements or problems with word recognition and memorization. *Rapid naming deficit* simply refers to individuals reading slower when they are reading many words or numbers in a row, which is connected to overall slow reading speed.

2.2 Other terminology

In this research paper, *L1* refers to the native language or mother tongue and *L2* refers to a second language. Furthermore, the three terms *English as a foreign* (EFL), *English as a Second language* (ESL) and *English as an additional Language* (EAL) will be used as synonyms and they will also be interchangeable with *L2*. Additionally, within the field of dyslexia there are four terms that refer to the same phenomenon but from different aspects. The terms *interlanguage*, *long term memory*, *phonological loop* and *internal orthographic lexicon* often connote the same thing, namely the internal vocabulary of the individual, but from either a biological, psychological or linguistic approach, hence they will be used as synonyms in this essay.

There are several reading theories explaining reading acquisition but three models are more prominent in the field of reading disorders. The first one is *the dual route model* (DR model) which theorizes that there is a lexical and a non-lexical process going on simultaneously. The lexical process helps recognizing whole words in contrast to the non-lexical process where words are enunciated. The second one is *the parallel distributed processing model* (PDP model) suggesting that all parts in the working memory are working synchronously. This is a contrast to mainstream theories which suggest that information reaches sensory memory, short term memory and long-term memory one at a time. The third one is the *linguistic coding difference hypothesis* (LCDH) which implies that previous language skills make up the basis for new language acquisition.

There are several different types of words. *Regular words* connote words with transparent grapheme-phoneme conversion in contrast to *irregular words* which have an opaque grapheme-phoneme conversion. *Non-words* refer to fictitious words which are possible to pronounce through the deduction of phonological rules within a language. In this paper the abbreviation *PA* will denote both *phonemic awareness* and *phonological awareness*.

2.3 Diagnosing dyslexia

In order to get a dyslexia diagnosis, usually an educator needs to start an investigation. This occurs when individuals show signs or symptoms of not developing at a normal pace compared to peers. The investigation usually takes place during elementary school years. The educator (teacher, special teacher or sometimes even the school nurse) begins with a screening. The screening design varies depending on the age of the individual as well as in

which country the screening is conducted. Schools usually buy screening tests from different companies and send the results to authorized psychologists or neurologists for analysis. The screenings often include a questionnaire, some type of a reading test and notes from observations during class activities. In many countries, the reading screening tests are conducted every year in each grade to detect any possible dyslexics. If the screenings suggest impairment, further deep testing is conducted by authorized personnel.

In Sweden, being diagnosed with dyslexia often facilitates school work for both the student and the school itself. If there is a dyslexic student in school, the school can demand extra money from the government to cover additional expenses related to the student. In Sweden, dyslexic students are provided with special rulers, special fonts (Marinus, Mostard, Segers, Schubert, Madelaine & Wheldall) and colored paper (as white paper can impede reading for dyslexics) when working without a computer. They are also provided with various computer programs which contain speech-to-text functions or functions where texts are read out loud (Husni & Jamaludin, 2009) and other technological resources (Forgrave, 2002; Reid, Strnadova & Cumming, 2013). Furthermore, the students also have the right to extra time or no time limit at all for tests and are often provided with tutoring time with a special education teacher in order to learn methods and strategies to facilitate school work.

There are certain aspects that need to be taken into consideration when diagnosing dyslexia, or any other language disorder. On one hand, as mentioned above, there are advantages in terms of extra funding and it can also be a relief to the student to know and understand that he/she has a disorder and learn how to deal with it. It can also facilitate for teachers in the sense that they know that this particular student has other needs and that other pedagogical methods and strategies are required. On the other hand, getting a dyslexia diagnosis can have negative consequences for the student. There is a possibility that the self-esteem and motivation might disappear when faced with the fact that certain things in school will always be more difficult for him/her compared to peers. Additionally, there is also the risk of “labeling” meaning that the individuals are not able to distinguish between the diagnosis and their own personality and individuality. Labeling also connotes the fact that many believe that once you have a label you cannot change it; it is something that haunts you forever. Under negative circumstances being labeled can lead to side effects such as depression and even to suicide attempts

Until recent years, it was assumed that a dyslexia diagnosis meant that the symptoms occurred in all languages acquired and used by the diagnosed person. If dyslexia was diagnosed in L1 it was assumed that the same symptoms and difficulties occurred in L2, L3

etc. Today, however, this assumption is questioned and recent research suggests that the assumption is incorrect. It is theorized that dyslexia symptoms vary between L1 and L2 and that symptoms can be either stronger or not occurring at all in L2 among dyslexic. The occurrence of the symptoms presumably varies depending on which language combination the dyslexic has. Linguistic researchers such as Smythe & Everatt (2000) and Lundberg (2002) hypothesize that orthographic structure of a language affects the number of dyslexics within a language as well as the symptoms. In other words, if a language is opaque the number of dyslexics will be higher; if a language is transparent the number of dyslexics will be low or non-existent (Beaton & Davies, 2007, p. 314). This will be more thoroughly explained in the following sections.

2.4 Aspects of reading & reading theories

Defining all the parts that constitute reading is a difficult task because several physical and mental skills are required. There are however two aspects which need to be differentiated. The first aspect is the mental information-process system that changes written text into oral speech. The second aspect is the mental information-process system that transfers written text into meaning. Simply put, there is a difference between simply reading out loud and reading comprehension (Kelly & Phillips, 2011, p.55). Furthermore, the National Reading Panel Report suggests that reading consists of the following six components; *phonics, phonemic awareness, vocabulary, fluency, guided oral reading and comprehension*. It is theorized that insufficiency within at least one of the components leads to reading difficulties.

As aforementioned, there are several reading theories suggesting explanations regarding how reading skills are acquired and what factors might hinder or facilitate reading and acquiring reading skills. Within the field of dyslexia, there are two theories that are often referred to as they suggest explanations to, not only how reading skills are acquired, but also what factors might cause dyslexia. The most prominent and recognized theory is the *dual-route models of reading*; one model deals with the aspect of reading aloud and the other with the aspect of comprehension. The relevant model is the dual-route model of reading aloud which was presented in the early 70's. The model suggests that reading is a process that consists of two parallel but cooperative routes, or systems, a lexical and a non-lexical one (Lundström, 2004). The lexical system, or route, connotes an individual internal lexicon containing words that are familiar and that have been processed through experience. These words are stored in the long-term memory and are easily and directly accessed when read.

The words stored in the internal lexicon are familiar graphically and acoustically and therefore phonological mediation is not necessary; these words do not have to be enunciated. The non-lexical, sometimes referred to as sub-lexical, route deals with unfamiliar words that are not included in the internal lexicon. These words are not recognized graphically and there is therefore no acoustical knowledge about how the word should be pronounced. Consequently, phonological mediation, in terms of dividing words into constituent parts and converting graphemes to phonemes, is often present. In order to be able to enunciate new words, there has to be prior knowledge about how graphemes are written and which the corresponding phonemes are. The dual-route model suggests that dyslexia is a consequence of one or both of these routes not being fully or correctly developed and therefore create difficulties when trying to read out loud (Coltheart, 2005).

The second relevant theory is *the simple view of reading model* which was introduced in the middle of the 1980's by Gough and Tunmer. The model theorizes that the two aspects of reading (word decoding and comprehension) are components that make up the skill of reading and both skills are required to acquire good reading skills. The simple view of reading can be illustrated through a formula:

$$\text{Decoding (D)} \times \text{Language Comprehension (LC)} = \text{Reading Comprehension (RC)}$$

Furthermore, the consequences of lacking either *D* or *LC* are often illustrated as a quadrant which illustrates four possible outcomes. According to Gough's and Tunmer's model, dyslexics often have a strong language comprehension but have difficulties decoding unfamiliar words and are therefore found in the top left quadrant.

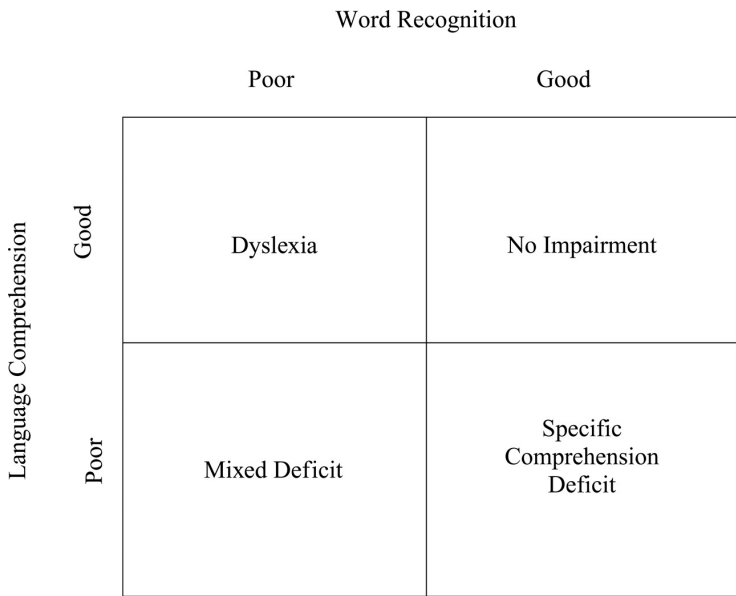


Diagram 1: Simplified quadrant of Gough & Tunmer's Simple view of reading

2.5 Diagnosing dyslexia in L1 and L2

There are different ways of diagnosing dyslexia and several studies show that there are neurological symptoms of the language disorder.

In 2002, Luca, Borelli, Spinelli & Zoccolotti recorded eye movements while participants were asked to read. The results indicated that dyslexics read longer words differently compared to non-dyslexics. Two years later, Zoccolotti, Luca, Pace, Gasperini, Judica and Spinelli (2004) found that vocal reaction times among dyslexic 9-year-olds were severely slower compared to their peers.

Furthermore, there are studies showing large correlation between L1 and L2 reading skills (see Kim, 2012) in terms of vocabulary, phonological rules and grammar, and it is hypothesized that the same principles are applicable to dyslexic people which is why a diagnosis can facilitate in terms of getting adequate help. Yet another perspective that is relevant to consider is the influence of an orthographic structure of a language. It is theorized by Lundberg (2002) and Peer and Reid (2000), and others, that there is a difference in learning a language depending on if the language has a transparent or an opaque language structure. Studies investigating this hypothesis are, among others, *Developmental dyslexia in different languages: Language specific or universal?* a study by Ziegler, Perry, Ma-Wyatt, Ladner and Schulte-Körne in 2003 and *Semantic errors in deep dyslexia: Does orthographic depth matter?* by Beaton and Davis in 2007. It is however important to remember that no such studies have been conducted regarding dyslexia or dyslexia in L2.

2.6 Linguistic implications of dyslexia

Having a dyslexia diagnosis can imply many things. Firstly, from a biological point of view, there are several studies suggesting that developmental dyslexia is inherited and that it occurs more frequently with boys rather than girls. It is common that several people in a family have some type of dyslexia diagnosis, or dyslexia but have never been diagnosed.

Furthermore, there are researchers such as Zifcak (1981) that claim that results among dyslexics are neutral when it comes to age and gender among other things, and there are researchers such as Berninger, Nielsen, Abbott, Wijsman and Raskind (2007) which claim that dyslexia is in fact gender related. It is also implied by researchers such as Mann (1986) that reading skills are closely connected to reading habits, thus the reading habits should be considered when talking about symptoms of dyslexia.

From a Swedish school perspective a full diagnostic assessment by an authorized caregiver facilitates for the student in means of getting extra resources. Students that have a confirmed dyslexia diagnosis allows the Swedish schools to ask for extra funding in order to supply the student with additional materials and resources meeting his or her needs. It is worth mentioning that there is a model in Sweden called *Modell för utredning av läs- och skrivsvårigheter*, a model for reading and writing difficulties, compiled by the Swedish dyslexia association (Svenska Dyslexiföreningen, 2017). This model is somewhat of a guideline and proposes a four step program including several references to various screening tests as well as recommendations for what and how professions can provide with within their field. It is however also important to note that not many schools are aware of this model and that more than 90% of the screening tests recommended are designed for children up to the seventh grade.

2.7 Dyslexia and reading in L1 and L2

One relevant study on reading was conducted by Coltheart and Rastle (1994). The researchers asked 43 participants to read 96 irregular words aloud. The words were chosen from the Medical Research Center Council Psycholinguistic Database. The words were read from a computer screen and both mispronunciations and time of reading were recorded. The participants were given ten practice trials before the actual test and during the testing the word order was mixed differently for each participant. The results indicated that “size of regularity [has an] effect on word naming latency” (Coltheart & Rastle, 1994, p.1208) indicating that word length impacts reading. When participants were faced with long unfamiliar words they more often mispronounced and used enunciating, thus supporting the dual-route model of reading. Other similar studies supporting the dual-route model of reading are conducted by Coltheart (2006) and Coltheart, Rastle, Perry and Landon (2001).

The most relevant study regarding this research paper is the one conducted by Łockiewicz and Jaksuulska in Poland (2015) where they found that the dyslexic participant in fact read less sufficiently in their L2 than in their L1 as well as less sufficient compared to non-dyslexic peers. The study contained many findings that supports the LCD hypothesis. Similar studies were conducted in 1997 by Landerl, Wimmer and Frith in Germany and later in 2004 by Oren and Breznitz, and although those results supports those of Łockiewicz and Jaksuulska they were not as clear as the ones presented in 2015.

As seen above, although there some studies investigating dyslexia in L1's there is very little done in L2 and most studies include young schoolchildren. There are extremely few studies conducted with older dyslexia participants but one such relevant study was conducted by Ghani and Gatherole in 2013 where they investigated the working memory between dyslexic and non-dyslexic adult learners. The results concluded that dyslexics performed more poorly in comparison to the non-dyslexics.

3 Method and material

This chapter is divided into several sections explaining different aspects of the conducted study.

3.1 Rationale

The qualitative research method chosen for this study was conducting a case study with three participants. The study approach was chosen since the aim of the study was not only to find out *if* screening tests for detecting dyslexia are adequate L2 speakers, but in extension also give possible reasons *why* they are or are not adequate to use. In order to investigate underlying differences and similarities factors in the results, an in-depth approach was required to give “attention to the many variables that might be a factor in answering the research question” (McKay, 2006, p. 17). The “interview guide approach” (McKay, 2006, p.52) was therefore chosen and conducted with all three participants.

The dyslexic participants were known by the researcher which allowed and gave opportunity to conduct a case study. The case study was somewhat constructed around the participants according to language levels in English based on previous knowledge by the researcher. However, the participants had no direct impact on the method and methodology itself.

Furthermore, it is arguable that this paper could be three case studies and not one case study with three participants. However, because these three participants' results are not treated and analyzed singularly but rather compared and contrasted with each other as well as a control group, the researcher of this paper argues for it being one case study with three participants and not three case studies.

3.2 Method

The study included two female participants and one male participant between the ages of 22 and 25 with a dyslexia diagnosis and a control group consisting of four participants between the ages of 18 and 28. The three dyslexic participants were interviewed and went through two ‘standard’ screening tests for dyslexia and were asked to orally answer a questionnaire. The dyslexic participants were also tested and interviewed separately and the interviews were conducted before the testing. The control group, consisting of two native Swedish speakers and two native Polish speakers, was subjected to the same screening tests and questionnaire but they were not interviewed. The two screening tests included a one-minute reading test (see appendix 5) and the Hertfordshire reading test (see appendix 6).

During the one-minute test the dyslexic participants, as well as the control group, were asked to read as many words as possible for one minute. The results were recorded and analyzed in terms of how many words were read incorrectly, how many words were read per minute and how many letters were read per minute. When taking the Hertfordshire reading test, the dyslexic participants were asked to read the sentences out loud without pre-reading silently and trying to do so as fast and correct as possible. The same was asked by the control group and all the readings from the Hertfordshire reading test were also recorded and analyzed the same way as the one-minute reading test, namely in terms of how many words were read incorrectly, how many words were read per minute and the amount letters read per minute. Additionally, notes were taken during the test and while analyzing the test in terms of eventual pattern making by the participants. Examples of such patterns would be omitting words or letters, adding words or letters or continuously misreading certain phonological sounds.

The interviews and readings were recorded on a cellphone and the interviews were then transcribed and used as background information and observation material. The interview material, together with the screening test results was used as the basis for the discussion concerning the issue of whether regular English L1 screening materials could and should be used to screen test L2 speakers of English and what similarities and differences occurred between the dyslexic participants.

3.3 Materials

The interview design had a guide approach where all the dyslexic participants were asked the same questions but in different order or phrasing and depending on the answer follow up questions were asked. There were 45 questions divided into six sections, namely background, school, languages, reading habits, dyslexia, consequences and family (see appendix 1).

As aforementioned, there are seemingly no screening tests specifically designed to screen adolescent L2 speakers of English available and therefore “it has not been possible [...] to find any assessment tool for L2 skills in dyslexia” (Helland & Kaasa, 2004, p.45.). Consequently, a particular combination of two different screening tests and a questionnaire was constructed for this particular study. The vital principle was that the combination was ought to be diagnostic since the purpose was to see if the participants’ performance in English gave reasons to suspect dyslexia. There are many screening tests available both online and in physical form yet most were not suitable for testing young adults as the tests were too simple in terms of vocabulary and phonological rules. The two tests included in this study were a *one-minute reading test* (see appendix 5) and *the Hertfordshire reading test* were seemingly the only two that could be used with participants older than 13. The *one-minute reading test* was previously used by Michael Lock in 2001 where performance norms for dyslexia assessment for adolescents were recorded (see appendix 5) which allows for a comparison with an external control group. *The Hertfordshire reading test* was discussed with peers regarding the phonological level of the words included and the words were also compared to the lexical thresholds (Laufer, 2013) and were accordingly approved as a screening test. The *one-minute reading test* consists of 158 short, non-related regular words. The words are between two and four letters long (see appendix 5). *The Hertfordshire reading test* consists of 452 words divided into 31 non-related sentences (see appendix 6).

The questionnaire, which is also a type of a screening test, was found online and was the only one available for free. The questionnaire consists of two parts. The first part is called “dyslexia screening test” and includes 14 questions, each question being worth 10, 20 or 30 points. If the score is above 75 it is recommended to do the second part called “information for the full diagnostics assessment & report” and consider the included statements. There are 28 statements to consider and three boxes where additional information can be added. Moreover, the 28 statements are divided into three sections, *reading and perceptual difficulties*, *writing problems* and *other difficulties* (see appendix 7).

During the study, a mobile phone was used as a recording device.

3.4 Participants

The dyslexic participants include two females and one male in their early twenties with diagnosed mixed dyslexia. Their diagnoses and symptoms are relatively similar but they were diagnosed in different countries and different languages. One of the participants is a Swedish resident, one lived in Poland until she was 15 and one lived in Africa until he was 14. They all have English as an L2 and have had difficulties in school when growing up due to their dyslexia. None of the dyslexic participants have graduated senior high school. Two of the participants were diagnosed in their mother tongue and one was diagnosed in English in Sweden. Additionally, none of the three dyslexic participants have been tested as adults.

3.5 Procedure

Firstly, the participants were interviewed one by one at different times in English regarding their persona, reading habits, academic results, family history and their diagnosis (see appendix 1). The interviews were constructed as *interview guide approaches* in order to make sure that all three participants were asked more or less the same questions within the same topic. Standard interview questions were constructed beforehand but these were not always asked in the same order or phrasing (McKay 2010, p.52). The interviews were conducted in order to map and eliminate factors that could affect the results. The interviews were also used both as a source for background information and as observation material to detect any language inconsistencies in semi-natural speech. The interviews were recorded and have been transcribed (see appendix 2, 3 & 4).

Secondly, the participants were asked to answer a screening questionnaire where different questions regarding reading, spelling, memory etc. are posed (see appendix 7). The screening questionnaire facilitates the mapping of experienced dyslexia symptoms. The screening questionnaire was read out loud and participants were asked to answer orally.

Thirdly, the participants were then told to take the “one-minute reading test”, they were asked to read as many words as possible out loud in one minute, reading word by word from left to right but without the numbers on the right. The results were both timed and audio-recorded.

Finally, the participants were asked to read the 31 sentences aloud. The sentences were all printed on white paper but varied in sentence length and font size. The test starts out with fairly short sentences written in large font, then expanding in length while the font gets

smaller (see appendix 6). These readings were also recorded and the very closely studied in order to find mistakes and any eventual patterns regarding those mistakes. While listening to the recording notes regarding which mistakes and what kind of mistakes were taken, each recording was listened to 50 times.

3.6 Ethical issues

The participants are semi-confidential because some of the information enclosed in the study must be public in order to draw some of the conclusions. This is something that all participants agreed to and all three have read through the information concerning themselves. They were all asked for permission to publish their answers and results. Although they disclosed their names during their interviews they wanted that information to be anonymous, thus no names can be found in the interview summaries or in the transcriptions.

The participants were informed that they were asked to partake in a study concerning dyslexia. They were informed how the study was out to be conducted but not why or what was exactly tested. They were told beforehand that the session with the testing and questioning would take about two hours. The type and number of tests was not disclosed, neither was the total number of participants.

All three participants mentioned that they were feeling slightly nervous and uncomfortable about the screening testes due to past negative experiences while being tested. They all recall it as stressful, time consuming and at times pointless. The previous testing had included, besides reading, writing, drawing, problem solving in terms of puzzles and mathematics. Based on the information received from the participants during the interviews, it is very likely that there was high emotional pressure and performance pressure. All three of the dyslexic participants asked what would happen if they couldn't complete any/all the tasks. They were informed that they could do the tests another time or completely stop or resign at any time.

In addition, it is of importance to portray the fact that all three dyslexic participants are well known by the researcher. It is possible that the previous relationship might have an impact on the study. On one hand, the relationship between the researcher and the participants might have facilitated the process for the participants as they were neither shy nor ashamed to talk about their diagnosis and they were comfortable taking the screening tests. On the other hand, the researcher might have been affected by the relationship and thus perhaps viewing

certain answers, especially from the interview, from a slightly subjective point of view rather than having a clear and objective point of view.

4 Results

The test results from each test are displayed in separate sub-sections and the results from the dyslexics and the control group are rendered in separate tables. The one-minute reading test tables show the number of mistakes, words read per minute and letters read per minute. The *mistake* column accounts for words that were either misread and words that were severely mispronounced. The *WPM* column stands for words per minute and the *LPM* column shows how many letters the participants read per minute.

Additionally, the Hertfordshire reading test result tables are divided into six results columns indicating *elapsed time*, *mistakes*, *SPM*, *WPM*, *LPM* and *comments*. The first column indicates time elapsed in minutes and seconds as well as in minutes only. The second column indicates the number of words that were either misread or severely mispronounced. The third column renders *sentences per minute* followed by *words per minute* and *letters per minute*. The *comments* column shows if the participants showed any clear patterns when reading such as omitting or adding words or letters.

Furthermore, interviews were only conducted with the dyslexics and not the control group. A summary of each interview is given in 4.1.4. The complete transcribed interviews can be found in the appendices 2, 3 and 4.

4.1 One-minute reading test results

Table 1.1 *The dyslexics' one-minute reading test results*

	Mistakes	WPM	LPM
Participant 1	5	91	245
Participant 2	1+ skipped a full row	98	269
Participant 3	3	91	245

Table 1.1 above illustrates the dyslexic participants' results when taking the one-minute reading test. During one minute the first participant managed to read 91 words, 254 letters, of which five were incorrect. The second participant read 98 words, 269 letters, but skipped reading a full row. That does not count as a reading mistake in this study, thus the second

participant only had one mistake. The third participant also managed to read 91 words, 254 letters, and had three mistakes. It has to be pointed out that the incorrect words were included in the total word amount read.

Words per minute were simply counted when listening to the recordings and the number of letters was calculated based on the number of words. The first 25 words have two letters, the following 65 words (word 26-91) have three letters and the last 67 words consist of four letters, for example $(25 \times 2) + (65 \times 3) = 245$.

Table 1.2 *The control group's one-minute reading test results*

	Mistakes	WPM	LPM
Participant 4	2	158	480
Participant 5	3	158	480
Participant 6	1	153	460
Participant 7	2	156	472

In table 1.2 the control group's one-minute reading test results are presented. Participant 4 and 5 both read all the 158 words, 480 letters, during one minute and had two, respectively three mistakes, when doing so. Participant 6 in the control group read 153 words, 460 letters, and made one mistake and participant 7 read 156 words, 472 letters, during the one-minute test.

4.2 The Hertfordshire reading test results

Table 2.1 *The dyslexics' Hertfordshire reading test results*

	Elapsed time	Mistakes	SPM	WPM	LPM	Comments
Participant 1	5 min 4 s ~5,07m	37	$31/5,07 =$ ~6,1	$452/5,07 =$ ~89,2	$2200/5,07 =$ ~ 433,9	Adds words
Participant 2	4min	41	$31/4 =$ ~7,8	$452/4 =$ 113	$2200/4 =$ 550	Adds words Changes words
Participant 3	7 m 56 s ~7.9m	55	$31/ 7,9 =$ ~ 3,9	$452/7,9 =$ ~ 57,2	$2200/7,9 =$ 278,5	Adds words Changes words Skips words

Table 2.1 displays the results of the Hertfordshire reading test of the dyslexic participants. The first column shows the time it took the participants to read all 31 sentences consisting of 452 words, pauses included. The second column illustrates the number of words being mispronounced or misread. SPM stands for *sentences per minute* and was calculated through dividing the number of sentences by the time elapsed. WPM stands for *words per minute* and was calculated by dividing number of words by time elapsed. LPM stands for *letters per minute* and was calculated in the same way as SPM and WPM but with the number of letters instead. The last column includes observed patterns based on the mistake column.

The first dyslexic participant read the 31 sentences in five minutes and four seconds which is 5.07 m. ($4s + 5 \times 60s = 304s$, $304s/60s = 5,066 \sim 5, 07$ m). She had 37 mistakes and read about 6.1 sentences per minute, 89.2 words per minute and 433.9 letters per minute. A pattern that appeared during the testing was that the participant added words that were not in the text. An example of this is sentence 13 (see appendix 6) where “the” is missing (on purpose) before the word “scene” but the participant still read the missing word. This type of pattern occurred 19 times during the screening test. The other mistakes were seemingly random and concerned misreading words according to phonological rules.

The second dyslexic participant read the 31 sentences in four minutes. She had 41 mistakes and read about 7.8 sentences per minute, 113 words per minute and 550 letters per minute. The mistakes made by the participant were that she often added words that were not in the text in sentence 13 (see appendix 6) where “the” is missing and in sentence 20 (see appendix 6) where she also added “the” in front of the word “Dad”; this pattern occurred 13 times. Another pattern was that the participant often changed the written “a” or “an” to “the” and vice versa like in, for example, sentence 16 (see appendix 6) where she read “at *the* famous London theatre” instead of “at *a* famous London theatre”. This occurred 9 times during the screening tests. The remaining 19 mistakes were simply misread words which did not seem to follow a noticeable pattern.

The third dyslexic participant read the 31 sentences in seven minutes and 56 seconds which is 7.9 m. ($56s + 7 \times 60s = 476s$, $476s/60s = 7,933 \sim 7, 9$ m). He read 3.9 sentences per minute, 57.2 words per minute and 278.5 letters per minute. The 55 mistakes can be divided into three categories, *adding words*, *omitting words* and *changing words*. An example of *adding words* is sentence 16 where the participant reads “The girl had an audition for a part *or* in a major production” adding the word *or*. Sentence 8 (see appendix 6) is an example of *omitting words* where the participant reads “the Mystery of Disappearing Jewels” omitting the “the” before “disappearing”. The dyslexic participant also seems to

sometimes change words, or is perhaps guessing, when reading. This particular pattern was the most frequent one and occurred 43 times during the screening like in for example sentence 4 (see appendix 6) where he reads “ we are going to the same sweets” instead of “ we are going to get some sweets”. The words “crisps” becomes “crips” in sentence 6, in sentence 13 the word “scene” is read as “sign” and characteristic” in sentence 20 becomes “catastrophic”.

Table 2.2 *The control group’s Hertfordshire reading test results*

Results	Elapsed time	Mistakes	Sentences per minute	Words per minute	Letters per minute
Participant 4	3 min 3 sec = ~ 3, 05 m	2	31/ 3,05 10,2	452/ 3,05 148,2	2200 / 3,05 721,3
Participant 5	3 min	0	31/3 10,3	452 /3 150,7	2200 / 3 733,3
Participant 6	3 min 21 sec = ~ 3, 35 m	3	31/3,35 9,3	452 / 3,35 134,9	2200 /3,35 656,7
Participant 7	3min 15 sec = ~ 3, 25 m	2	31/3,25 9,5	452 / 3,25 139,1	2200 / 3,25 676,9

Table 2.2 illustrates the control group’s results. Participant 4 read the sentences in three minutes and three seconds making 2 mistakes. That adds up to 10.2 sentences per minute, 148.2 words per minute and 721.3 letters per minute. There were no noticeable patterns regarding his mistakes. The fifth participant had an elapsed time of three minutes thus resulting in reading 10.3 sentences per minute, 150.7 words per minute and 733.3 letters per minute. This participant did not make any mistakes while reading the sentences. The sixth participant in the control group had an elapsed time of three minutes and 21 seconds and made three mistakes. She read 9.3 sentences per minute, 134.9 words per minute and 656.7 letters per minute. Also here the mistakes seem to be without a pattern. The last participant did the screening test in three minutes and 15 seconds with two random mistakes resulting in 9.5 sentences per minute, 139.1 words per minute and 676.9 letters per minute.

4.3 The questionnaire results

Table 3.1 *The dyslexics' questionnaire results part 1*

	Score s	Very unlikely 0	Moderate possibility 0-75	Strong possibility Should book appointment 76-150	Strong possibility + Needs to book appointment 150 +
Participant 1	190	-	-	-	X
Participant 2	170	-	-	-	X
Participant 3	230	-	-	-	X

In table 3.1 the scoring results from the questionnaire are compiled. According to the information on the questionnaire sheet scores 0-75 indicate a moderate possibility of dyslexia, 76-150 indicate a strong possibility and perhaps a psychologists should be consulted and scores 150 and over strongly suggest the possibility of dyslexia and a diagnostic assessment with a psychologist is very highly recommended. All three dyslexic participants scored over 150 points where participant one had 190 points, participant two had 170 points and the third participant scored 230 point out of 240.

Table 3.2 *The control group's questionnaire results part 1*

	Score s	Very unlikely 0	Moderate possibility 0-75	Strong possibility Should book appointment 76-150	Strong possibility + Needs to book appointment 150 +
Participant 4	10	-	X	-	-
Participant 5	0	X	-	-	-
Participant 6	50	-	X	-	-
Participant 7	30	-	X	-	-

The control group also answered the first part of the questionnaire and the four participants scored between 0 and 50 points as shown in table 3.2. Three of the participants had scores indicating moderate possibility of having dyslexia and one participant was very unlikely to

have the diagnosis. As the questionnaire also suggest to only answer the second part if the score is higher than 75 points, only the dyslexic participants were asked to undergo the second part of the questionnaire.

Table 3.3 *The dyslexics' questionnaire results part 2*

	Reading & perceptual difficulties	Writing problems	Other difficulties	Total YES answers
Participant 1	2 / 10	3 / 6	8 / 12	13 / 28
Participant 2	5 or 7 / 10	2 / 6	6 / 12	13 or 15 / 28
Participant 3	8 / 10	6 / 6	5 / 12	19 / 28

During the second part of the questionnaire the dyslexic participants took a stance regarding 28 statements divided into three categories. The first participant answered yes on 13 out of 28 statements indicating that she mostly had “other difficulties”. The second participant answered “it depends” on two occasions thus she answered “yes” on between 13 to 15 questions and not indicating any particular category being more adequate. The last participant answered “yes” to 19 statements indicating that he has reading and perceptual difficulties as well as writing problems. It has to be mentioned that statements were not merely answered but also discussed and the researcher also observed whether the statements seemed correct or not.

4.4 Summary of interviews

Interview summary participant 1

The first participant is 22 years old and has Polish as her mother tongue and has been diagnosed twice, first at the age of 10 and the second time at the age of 13, both times in Polish in Poland. Her second language is English and her third language is Swedish. She had never been tested in Sweden for dyslexia in Swedish or English before the present study. The subject has studied for 15 and a half years; nine years in Poland and six and a half years in Sweden. The participant has not finished high school (yet). The participant knows four languages but can only read and write in three of those. According to the participant, English is the most frequently used language in her everyday life. She talks and reads in English

regardless of the subject or situation. The participant likes to read and have been doing so since six years of age. She reads less since she gave birth to her daughter but still reads on an almost daily basis. Her choices of reading are mostly various DIY books and blogs. The participant refers to herself as a bad student as she lost her school motivation. She explains that she was bullied for being dyslexic and that she did not receive adequate help with the disorder to manage school. The participant also knows that dyslexia runs in her family; both her father and aunt on her father's side have been diagnosed. The subject has no other diagnosis than mixed dyslexia.

Interview summary participant 2

The second participant is 25 years old and has Swedish as her mother tongue. She was 15 years old when she got her diagnosis and she was tested in Sweden in Swedish but had requested to be tested three years earlier. The participant has only studied for nine years in total and has thus not finished high school. She knows three languages but can only read and write in two of them. According to the participant, Swedish is the most frequently used language in her everyday life but she often uses English words when she does not know them in Swedish. She mostly speaks Swedish and chooses to read things such as general information on the internet in Swedish. The participant enjoys reading fantasy books and reads almost every day but only in English. She stopped reading a few years back after giving birth to her son, but began to do so again when he grew a little bit older. In terms of everyday information the participant prefers reading in Swedish but if she does not comprehend the information, she will read it in English. The participant refers to herself as a problematic child in school because she was not understood and helped by the teachers. She considered school to be difficult so she stopped listening during class. She explains that her teachers often sighed and were tired of her asking questions. According to her, they called her stupid and she feels that they did not have the required patience. The participant says that she could read the materials and understand them but she simply did not know what to do with them or how to start with her work. Besides being diagnosed with dyslexia the participant has also been diagnosed with ADHD, which she did not mention during the interview but disclosed when we went through the questionnaire. Dyslexia also runs in her family, her father and her brother have the diagnosis as well.

Interview summary participant 3

The third participant is 24 years old and has Khoekhoe as his mother tongue. He was 17 when he got his diagnosis and he was tested in English and in Swedish in Sweden. He has only been tested once. It is slightly unclear how long the participant has studied, but his guess is around 17 years in total after several calculations. He studied nine years in his home country and around eight years in Sweden and has not finished high school. The participant knows 14 languages, he can speak fluently in six of them and he can read and write four of them. According to the participant, English is the most frequently used language in his everyday life which he speaks with his wife but he mostly speaks Swedish at work. The participant does not like to read and does so very rarely, but once he does read he reads in English or Swedish depending on the subject. The participant got a little help in school due to his diagnosis, especially in math and with reading and writing. He thinks the help would have been better if he had gotten help with reading and understanding and not just with reading in order to be able to read. The participant does not have any other diagnosis but he thinks that he might have dyscalculia and dysgraphia but he has never been tested for these disorders. He also thinks that his mother has dyslexia but as far as he knows she has never been tested.

5 Discussions

The results above indicate that there are differences as well as similarities between the dyslexic group and the control group but there are also striking differences between the dyslexics.

5.1 Discussion 1, the one-minute & Hertfordshire test

To start with, the dyslexic participants over all read slower both on the one-minute test and the Hertfordshire test compared to the non-dyslexics. However, differences regarding the reading speed between the two groups were only visible when looking at the results from the one-minute test but there were no large differences within the groups. Almost everyone in the control group was able to finish the one-minute reading test in contrast to the dyslexic participants where no one was able to read past 98 words (see table 1.1 and 1.2.). However,

when it comes to the second participant with dyslexia it is questionable how to calculate her results; she made one word mistake but she also skipped a whole row; in other words, she omitted seven words. That can either be counted as one mistake or eight. In that scenario the mistakes are maybe not the vital point, the fact that this participant skipped a whole row could be a sign of dyslexia.

When analyzing the Hertfordshire test, the results indicate that there are reading speed differences between the groups as well as within the groups. In table 2.1 the results illustrate that within the dyslexic group the third participant reads more slowly compared to the other two, 4 min and 5.07 min compared to 7.9 min. He also makes the highest number of mistakes during the reading test and shows several patterns while reading. Although there are differences between the groups, the reading speed of the first and second dyslexic participant does not differ very much compared to the control group. The difference between the fastest dyslexic reader and slowest reader in the control group is 39 seconds (see table 2.1 and 2.2).

In addition, when comparing the results between the two tests, it becomes clear that there is a difference in speed when reading single words and words in full sentences. All participants in both groups read slower when faced with whole sentences except the second dyslexic participant who read faster when reading full sentences and not when reading single words (compare table 1.1, 1.2, 2.1 and 2.2). Besides showing differences in reading speed, the greatest differences appear when comparing mistakes between the groups. As mentioned before, the reading speed differences are really visible in dyslexic participant three, but the number of mistakes clearly differs between the two groups. The dyslexic group made 133 mistakes combined compared to the control group which had seven mistakes. The result does indicate that there are differences between the two groups when it comes to the reading skill but it does illustrate why. The reasoning behind the reading mistakes will be discussed in chapter six under pedagogical implications.

5.2 Discussion 2 – the questionnaires & interviews

As discussed in section 5.1 the differences were not between the control group and the dyslexic participants but rather the third dyslexic participant and the rest of the participants. The analysis of the questionnaire, however, displays greater differences between the groups rather than the participants. All three dyslexic participants scored over 150 points on the first part of the questionnaire indicating a strong possibility of dyslexia and a recommendation to do the second part as well in contrast to the control group in which no one scored over 50

points (see table 3.1 and 3.2). It is also vital to mention that the third dyslexic participant had the highest score on the questionnaire as well, yet again indicating that he is the one that has the most severe language difficulties among all the participants. Similar results are presented when the dyslexic participants were asked to do the second part of the questionnaire. Participants 1 and 2 had similarly equal “yes” answers, namely 13, towards the statement, whereas the third participant answered “yes” 19 times. These results yet again indicate that the third participant has severe language problems.

Moreover, after summarizing the interviews and comparing their answers to the questionnaires certain aspects become very clear in terms of their symptoms. Participant 1 and 2 had better reading habits and enjoyed reading in contrast to participant 3. The third participant also speaks more languages and comes from a different educational culture. His culture includes oral and singing traditions on contrast to the western writing and reading traditions. The only comparison that can be made with the control group is the fact that the group has an educational advantage and therefore is perhaps more used to the notion of overall reading. Consequently the control group might also have a greater habit of being faced with unfamiliar words and have developed language strategies which the dyslexic participants do not possess.

5.3 Discussion 3 – overall results

The overall results indicate that it is, to a certain point, possible to detect adolescents with weaker language skills but that it is not entirely possible to detect symptoms of dyslexia based on solely the two screening tests and the questionnaire. As aforementioned, there are several factors playing at hand distinguishing between a dyslexia diagnosis and poor language sufficiency, and the tests combined with the interviews are not enough to do a diagnostic assessment. What the results do indicate, however, is that screening tests designed for L1 speakers are not optimal to use on L2 speakers as there are other factors affecting the results, such as reading habits and perhaps even educational culture. Moreover, the results also indicate that there are reading differences in terms of accurate reading between adults that have a higher and a lower education. If the differences are due to dyslexia, poor language knowledge or years of attending school is at this point impossible to answer. Finally, the overall research also displays that conducting simply one of these tests could be very misleading as the results from the one-minute reading tests and from the Hertfordshire test did not show the same differences between the participants. It is clear that it takes more than one

test to suspect dyslexia in an L2 speaker but also that there are different factors affecting the results of an L2 speaker compared to an L1 speaker.

6 Pedagogical implications

The pedagogical implications based on the results, indicate that it is very difficult to assess the language disorder dyslexia among L2 speakers. The difficulties lie mainly in the fact that there is no clear line between dyslexia and poor language acquisition, but also because it might be a question of a different educational tradition rather than difficulties learning. For L2 language teachers it means that we have to consider that poor reading may not be caused by learning difficulties but maybe because there is no reading tradition in the students' background, both personally but also culturally. We have to be careful before we disclose our suspicions of a language disorder to our students, we have to be sure that there is not yet another underlying cause of why the student has difficulties reading, especially reading out loud.

One of the more interesting things that the results indicated is that the dyslexic group made noticeably more reading mistakes during the Hertfordshire screening test. The mistakes do not necessarily have to be an indication of dyslexia, as all three dyslexic participants have had problems during their school years which might have led to skipping class or not concentrating. Thus, one explanation behind the mistakes can be a result of not fully knowing the phonological rules when reading. Simply put, the education levels between the groups do differ as every participant in the control group has finished senior high school and has attended at least one university course.

Furthermore, the third dyslexic participant was not tested for dyslexia in his mother tongue but in Swedish and in English in Sweden. The results illustrate that he is weaker compared to the two other dyslexic participants as well as the control group but there can be several other explanations besides dyslexia. Firstly, the participant comes from a different education culture where oral tradition, including signing, is more prominent than reading and writing, which perhaps can account for his reading and writing skills being weaker. Secondly, the dyslexic participant clearly stated that he does not like to read and does not engage in the activity very often. This certainly has an impact on his reading skills as the skills have not been practiced adequately. Thirdly, the participant was tested in two different L2s and there is no certainty about how much schooling he had got in those languages and what level of knowledge he has learnt. In other words, because the participant comes from a different

cultural background, certain schooling features do differ from the western schooling culture. To some extent he had to learn certain aspects, such as reading and writing, from the beginning and therefore perhaps never reached the level of learning all the phonological rules in English and Swedish. It is therefore questionable if this particular participant actually has dyslexia or if his results are a consequence of not having adequate knowledge in these languages as well as in the culture. It would be interesting to test this participant in his own language as well as test in him through tests that perhaps are not culturally biased.

In sum, it is unreliable to test L2 speakers with tests designed for L1 speakers if further investigation regarding background and schooling is not conducted. It is also important to remember that the screening tests only show if and what problems individuals have, but not what the cause is. It is possible that students show symptoms of dyslexia in L2 but in real life have poor language knowledge due to prior bad school experience or a different educational tradition. The implications are that teachers should focus on trying to find the root of the reading disabilities and very much focus on letting them practice on their reading skills rather than avoiding them. All dyslexic participants mentioned that they would have liked more help when it comes to practice reading; this is something that should be profoundly considered.

7 Conclusion

Acquiring adequate reading skills in a second language is often difficult and for dyslexic people it is even more arduous and it is therefore very important to recognize these people and offer sufficient help and resources while they still are in school regardless their age.

Unfortunately, it is difficult to attain help since there are seemingly no designed screening tests for adolescents and for adults. The difficulty increases if the adolescence has not been diagnosed in his or her own language and country and is ought to be diagnosed in a different country and perhaps even in his or her L2. Since there are no screening tests designed for L2 speakers, many teachers use tests designed for L1 speakers and therefore the results can be questioned. When testing someone for dyslexia it is prominent that the screening test should be equivalent to the educational tradition that the individual has attended and that the screening test is done in an adequate language; namely a language that the individual has learnt to read and write in. In Sweden, that is not always the case and students that have a diagnosis from their respective countries are not re-tested here. This is problematic on many levels. Firstly, Sweden, and other European countries, do not always approve grades from

non-European countries, how is it then possible to simply accept that someone has a diagnosis of dyslexia? Secondly, as this study has indicated, dyslexia is not necessarily discovered in an L2, this means that arriving immigrants that are tested for dyslexia in their L2 might have the disorder but they might be symptom free in that particular language. It is also the other way around, because someone has a diagnosis in their L1 it does not mean that the diagnosis affects the other L2s.

Furthermore, it would be interesting if there were future studies that would conduct the same procedure with more participants, both dyslexic and non-dyslexic and perhaps try to find clear lines between dyslexia and poor language knowledge. If around 1000 participants would be tested from both groups maybe it would be possible to establish what certain reading speed and number of mistakes indicates dyslexia. Furthermore, it would also extend to the field if culturally different dyslexic groups would be tested. Is there a general difference between dyslexics that have been educated in the western culture and African or Middle Eastern culture? It might also be of value to analyze if the dyslexic screening tests are culturally biased or not by comparing them to screening tests from other educational cultures. Finally, much more research needs to be done within this field, particularly in terms of analyzing if the screenings are culturally biased, if they take into consideration all the factors that affect L2 speakers and if dyslexia is language bound or if someone can be multi-dyslexic.

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Appendices

Appendix 1 – Interview questions

Background:

- Who are you?
- How old are you?
- How long have you lived here in Sweden?
- What is your current occupation?

School:

- How many years have you gone to school?
- Where did you go to school?
- What did you study?
- What is the highest level that you have graduated?

Languages:

- How many languages do you know?
- How many do you speak?
- Can you read and write in all of them?
- Which language is your strongest one?
- Which language is your weakest one?
- How many and which languages do you use on a daily basis?

Reading habits:

- Do you like to read?
- How old were you when you started to read?
- What do you usually read?
- In what language/s do you read?
- How often do you read?
- Why do you read?
- Do you read different things/subjects in different languages?

Dyslexia:

- Do you have dyslexia?
- Do you know what kind?
- How old were you when you got the diagnosis?
- Who tested you?
- Why were you tested?
- How did they test you?
- What did they tell you about your diagnosis?
- Do you agree?
- Has your dyslexia become better/worse?
- What symptoms do you think you have?
- Do you have the symptoms in all of your languages?
- How many times have you been tested?

Consequences:

- Has dyslexia affected you when it comes to the following:

- School
- Work
- Friends
- Personality?
- Did you get any extra or special help in school?
- Where and what kind?
- Could the help be better?
- In what way?

Family:

- Does anyone else in your family have dyslexia?
- Who, on whose side?
- Did they read to you when you were little?
- In what language?

Any questions you think I have forgot or anything else you want to add?

Appendix 2 – Transcription of interview with participant 1

Background: -Who are you, where are you from and how long have you lived here?

My name is XXXX, I come from Poland I'm 22. Ehm, Almost seven years. It's gonna be 7 years in July.

-What do you do right now? *I'm a stay at home mom.*

-How long have you been doing that? *For last almost 6 months .I was studying. I was a student.*

School: -How many years have you gone to school and where?

Ehm, oh boy. Ehmm...I can't count..here comes mathematic. 9 years in Poland and then ...6 and a half year here...so..its 15...15 and a half year.

-What did you study?

In Poland it was just primary school. And here first languages. Then introduction program. And the fashion design. Intro like...3 years/3.5 or 4...no let's say 3.5and then 2,5 of the fashion design.

-What is the highest level that you have graduated? *Well I didn't graduate high school yet.*

Languages: -How many languages do you know?

Like know? Like I can speak or like how many I understand? Let's say 3.

-How many do you speak? *Oh you see then I know 4 languages but I speak 3.*

-Can you read and write in all of them? *Yeah (read and write).*

-Which language is your strongest one? *Hm...that's a hard question. I would say both Polish and English.*

-Which is the weakest? *Swedish.*

-How many and which languages do you use on a daily basis? *Hm...I would say English...Definitely. Polish I use less than English. I use Polish only when I speak to my mother.*

Reading Habits: -Do you like to read? *Yeah I do.*

-How old were you when you started to read? *Ehmm..Probably around 6 years old. Like more properly reading.*

-What do you usually read and in what language?

Right now? Like some fantasy books or some....some sort of some DIY books and stuff like that..Mostly English.

-How often do you read?

Hmm.. right now maybe twice a week. Before I was a student so I had to read a lot of different things

-Do you read less after having the baby? *Yeah (reads less)*

-Why do you read? *I read a lot of blog though....blog posts and stuff like that. (most of them are in English).Well I'm looking for information about something or ...just for fun...not to learn languages no.. Although I do practice English by reading English.*

-Is it easier for you to read in a particular language? *Yeah..I think in English. Because in Polish...I didn't...I didn't go to high school and plus I was very bad student also because of dyslexia and stuff like that so...I just feel stronger in English..I do understand better because I didn't learn those high school words in Poland. Yeah.*

Dyslexia: -Do you have dyslexia? *Yes I do.*

-Do you know the name of your diagnosis? *I have no idea*

How old were you when you were diagnosed? *10. I was 10*

-You diagnosed you? *Ehm...Some psychologist I think.*

-Why did you get tested? *Ehm.. well I had very very good teacher from Polish and she say that I probably have dyslexia because I have a a lot troubles and problems with reading and stuff like that...yeah..and misspelling words and all this stuff..so she just suggested that I just be checked up...*

-Do you remember how you were tested? *Yeah I do...I do remember that perfectly... (laughing) because i didn't like it. I was very upset so..Ehm...they were giving me a bunch of different tests and....*

-Do you remember what the test looked like? *Oh yeah there was like... (sight) it was like 2.5 hour ...and it was probably more than 40 pages...yeah so it was a lot of pages...*

-What did you have to do? *It was everything...drawing...reading, painting the psycho...psychologist also did.. I think he did read something and I had to spell it or....and different things like that.'*

-Did they tell you what diagnosis you had? *Ehm....they just told me I had....I mean...they mostly spoke with my mom...since I was very upset about the whole thing...they. ehmm*

-Why were you upset? *Because I was an only girl which had dyslexia in my class .. and it was mostly boys which had it so...and I was already bullied by having dyslexia ..and you know...that I had to get tested and stuff like that ...so yeah ..I was upset about the whole thing. But they mostly say that, you know... I have to go to those meetings to get help and...know how to spell better and read better and how just to leave (live) with dyslexia.*

-Do you think your symptoms have become better? *Yeah I do.*

-How come? *Ehh....I was working hard on it so...and with it so...I think I just got better with finding the system which works for me...so...yeah..*

-Do you still have problems? *Right now? Ehm... Well definitel if I hear a ward (word)..and I have to write it ... I will in probably 80 % spell it incorrectly...if it's a new word... ehm..... then it depends...specially depend if the ward (word) sound similar to another word...then there is a chance I will spell it one way or another incorrectly*

-Is it easier or more difficult in any language? *Yeah..yeah...It's harder in polish because there is a lot of different...different things....yeah...then Swedish ...(then the least) English...*

-How many times have you been diagnosed? *Twice*

-When was the second time? *When I was.....13....*

-Where you tested the same way? *Yeah...more or less...almost the same...yeah*

Consequences: -Did you have any difficulties because of dyslexia in for example school?

Yes! Ehm...school yes. Definitely...except the fact that I was bullied because of not having the best grades and stuff like that...it was very hard for me to study , it was very hard for me to ...write all exams and tests and...stuff like that ...

-Has it affected your friendships? *No..no at all...*

-Work? *No.*

-Personality? *Hahaha..yeah probably ...I'm more stubborn*

-Why? *Ehm...because I had to put so much effort in studying and I always DO have to put so much effort to study and ...you know I have some my own system , you know, of doing studies in general which works for me and there is no other way I can study.*

-You have found a system that works? What is it? *Yeah...well I have to rewrite everything. So for me it's just impossible to (aurora talking) like read something and remember ..yeah..*

-Rewrite the important parts? *If it's not so long I will probably rewrite the whole text.*

- How many times? *3..at least 2. At least 2. It depends like on what subject it is and stuff like that ..*

-By hand or on the computer? *By hand. It has to be by hand. Eh.. I think I remember better .*

-Is your spelling better when you write on the computer or by hand?

I think it's the same . I do write pretty much on the computer so.. it really doesn't matter.

-Did you get any help? *Yes, I did. In Poland. Eh.. I had to go to the special meetings for dyslectic people and they would like teach me how to handle dyslexia and....how...they would give you like ..like different exercises and stuff like that...*

-So you got help in and outside of school?

Both. Yeah...and plus I was going to...the last year which I was going to school ..they would ..ehm. put very very high pressure on dyslectic people to help them ...yeah ..so they would really really do a much for a lot of people.

-Did you get the same help here in Sweden? *No*

-What help did you get here? *Just an extra time on the exams and stuff like that .*

-Did they test you here in Sweden for dyslexia? *No*

-They trusted the rapport from Poland? *Yes..yes ..exactly. Especially that I've made it twice ..so yeah..*

-Do you think the help could be better? *What do you mean better/by that?*

-I mean, could they do more things to help you? Hmm...I don't know. I think that in Poland they do pretty good job about it. I think in Sweden they could do more meetings, you know, more helping like that, like specifically that you take the people in dyslexia, put them in one classroom and just help them you know. Instead of going personally to every single person that has dyslexia.

(You will probably end up having dyslexia too tush – talking to the baby).

-You both have it right? *Yeah.*

Family: -Does anyone in your family have dyslexia? *Yeah, my father. And his sister and his father.*

-Ok so it runs in the family? *uhuh.*

-Have they been tested for it? *Yes .Um...I think my father was about ... 11 or something like that...*

-And his sister? *His sister probably the same...but his father I don't know*

-Did anyone read to you when you were little? *Um..yeah.*

-In what language? *Polish.*

-How often did they read? *When I was like little little I don't remember but when I was like about 7 or 8 then probably every day or every second day or something like that...*

What did they read? *Ehm...like Harry Potter books and other stuff like that.*

-Anything you think I have forgotten or anything you want to add?

Ehm...yeah..I think , as you say there is a lot of different type of dyslexia and I don't think people are much educated about it. Same as I didn't know there is so many kind of dyslexia ... So I think like people should be more educated especially at school about it ... and how to help dyslectic people...teachers should be more educated about it....because as you know every person is different and specially every person with dyslexia is different ...sooooo much different ..So yeah I think they are supposed to be much more educated...

-Thank you. *You're welcome.*

Appendix 3 – Transcription of interview with participant 2

Background: -Who are you?

I am god. It's god speaking baby. XXX

-How old are you? *25.*

-Where are you from and how long have you lived here? *Sweden, Gothenburg and, in Denmark for four years.*

-What do you do right now? *I'm sitting at a table, having an interview. Right now? I'm on sick leave.*

School: -How many years have you gone to school and where?

From daycare to..? Nine. I think. I started gymnasium(?). High school. I went to six different schools in Gothenburg, and I went to one gymnasium, no - High School, in Partille.

-And in Denmark. *Yeah, but I only went to first class in Denmark.*

-What did you study? *Elementary school & the 'dog programme'.*

-What is the highest level that you have graduated? *Nine & Bartender school.*

-How many languages do you know? *Like, do I speak fluently or? Una cerveza por favor. Swedish, Danish, English, some in Spanish, and then I can say "oui" and "ja". Four plus some "oui" & "ja".*

-How many do you speak? *Four. Or no, three and a little Spanish.*

-Can you read and write in all of them?

In Swedish and English, yes. Write is a little bit harder in Danish but I can. But I can read it write it is (inaudible).

-Which language is your strongest one? *Swedish.*

-Which one is the weakest? *Danish.*

-How many and which languages do you use on a daily basis? *Swedish and English.*

-When do you use Swedish and when do you use English? *Oh, I kinda mix it together.*

-So for example if you go to the doctor? *I speak Swedish, but sometimes I have problems remembering the Swedish words so I have to say the English words.*

-Is there any time when you specifically use English, in any kind of situation?

*When I swear at people. "Douchebag" & "F**k you".*

Reading habits -Do you like to read? *Yes. English books.*

-How old were you when you started to read?

I don't know. I think I started reading in Denmark. I was around four when we moved there so maybe around six or seven.

-What do you usually read? *Books. Fantasy.*

-In what language/s do you read? *Only English.*

-How often do you read? *Almost every day.*

-Why do you read? *Do you really want me to answer that (laughter)? No, but I like reading, coming, err, getting away from the ordinary life.*

-So it's not to learn a language it's just for your own entertainment?

Yeah, and I enjoy the English language and the jokes.

-Do you read different things/subjects in different languages?

Well, I most almost every time I google in Swedish first and then if I can't find anything I google it in English.

Dyslexia -Do you have dyslexia? *Yup.*

-Do you know what kind? *What do you mean?*

-Do you know the name of your diagnosis? *No.*

-How old were you when you got the diagnosis? *15.*

-Who tested you? *Yeah it was at school.*

-How did they test you? *I had to do a lot of tests on time, where I had to find words or I had to write words. Or I had to say words. I had to kinda like build things, if I don't remember wrong. And there were different kind of pictures I had to look at, ehh, and I had memory things. Also I needed to remember things. She told me things and I had to remember them. And then she said some numbers and I had to say them backwards. And that went to hell. It didn't go well (inaudible).*

-What did they tell you about your diagnosis? *I haven't been tested for (Interviewer: dyslexia) after that, no. Yeah, I wanted to be tested for this with math too, but they said I had problems with my memory. Short term memory. And I had problems with reading, kinda like, putting it in practice. So if I read something I could read the same line, over and over again. And not understanding. So I was more of a visual person, I needed someone to tell me and maybe explain. Have me read it out loud so I could ask questions.*

-Do you agree? *Uhh, yeah I do. Cause she said to me "You don't have a problem with your, err..., with how many words you have." (Interviewer: "with your vocabulary?" Yeah, it's big. It's unusually big for this age. Continued quote-> "And you don't have problems with talking, and you often find the words." But it's harder for me writing, reading.*

-Has your dyslexia become better or worse? *I think I got to say I put myself in a situation where I do what's best for me. So I don't have to put myself in situations where I have to kinda put myself through the pain of understanding. (*

But that's interesting because you say you read English books? *Yeah.*

-Do you have a problem when you read them? *Nope. But Swedish, I can't read in Swedish. Cause I read the same line over and over again.*

-What symptoms do you think that you have? *Yeah, but I know what I'm kinda avoiding, and that's reading out loud. I don't like it. Cause I often stutter. But it's easier in English. Yeah, Swedish is harder. But I kinda get this problem with forming the words, ehh, and I usually don't understand what I'm reading, ehh, mostly just in Swedish because in English its just flows. In Swedish its more harsher words. So I have problem with understanding, forming words when I read, ehh, and the biggest problem I have I think is kinda reading something, ehh, say I wanna cook some food. And I gotta follow a recipe, and then put it into practice. That's so hard for me because I can't get from A to B. I can't form the bond between.. yeah.*

- Do you have them in all of your languages? *No.*

-So if you read a recipe in English, is that a problem? *Not if I understand what the shit is that I have to put in the food. (Laughter) But then I just google it.*

For example if you had a recipe in Swedish and one in English, which one would you choose? *I would probably try the Swedish first just because I don't wanna avoid to that point that I become worthless in Swedish.*

Consequences -Has dyslexia affected you? *Yup.*

-In what way? *Yeah well, I requested testing when I was in sixth grade. And I didn't get it until was in ninth. And I had a lot of trouble, the teachers didn't know how to help me. And I didn't listen, so I gave up. And I think I'm kinda scared today to go back to school.*

-Has it affected your work? *No cause I can talk. I have the talking, math is harder, but if I need to, kinda like, do some counting in my head or write - it's hard.*

-When it comes to friends? *No I don't think so.*

-Personality? *I'm God (laughter). I'm better than everyone.*

-Has it made you more secure or insecure or has it been something you sort of label yourself with?

It's what made me the person I am today.

-So it's a big part of you? *Yeah I don't go around and like buhu, I have dyslexica, eller, I read something and like 'I can't read this' or.. ehh, I try. Every day. If I find something hard I try, I don't give up. And if I feel it's hard then I just try to find other ways.*

-Did you get special help? *I got my diagnosis right after Christmas in ninth grade.*

-A very short time? *yeah. I was almost flunked in all classes, but I graduated with a hundred-ninety points. So I had full.. what do you say?*

-Say it in Swedish if you don't know it. *Godkánt?*

-Passing grade? *Yeah, in everyone. And I have "VG" in all my "SO-ämnen". And I didn't take any help. I said they could take that help and shove it up somewhere.*

-What kind? *I didn't take any. They said I could take the national test in all the special ways, in a computer or longer timer or speak.*

-Did they offer you any kind of materials in class? *No.*

-Could the help be better? *Yeah.*

-In what way? *They could have example not called me a stupid. They could have stopped with the moaning and *sigh* every time I didn't get it. Yeah, I was often asking and saying "I don't understand, can you please help me? I don't understand what this is saying. I (inaudible). I can understand what it's saying but what am I supposed to do? I could read it and understand, -Ok -, this is what I'm going to do. But where do I start? What is it I'm going to do? I couldn't find (inaudible). Yeah, if they just had pointed me at one way and said "start with this" I would have gone through the rest of myself. But I needed to go from the paper where we had projects. Six weeks and you had projects in chemistry or in civics. And you had to build something or you had to kinda like write about world war 2 or something like that. If they had just helped me understand I would have been more successful.*

Family -Does anyone else in your family have dyslexia?

Yeah, my brother. I think my father has it too, but he's not admitting it.

-So your brother and your father, do you know when they were diagnosed?

My brother was six, I think. I'm not sure about my father.

-Did they read to you when you were little? *My mom did*

-Do you remember how often? *Not that often. I think it was when I asked.*

-So it was not regular every evening before night time? *No.*

-What language? *Swedish.*

-Are there any questions you think i forgot or should ask? *No. No!*

-You think I've asked anything that's relevant? *Yeah, basically.*

-Well then, I thank you.

Appendix 4 – Transcription of interview with participant 3

-Who are you? *You mean like who am I like as a person or..?*

-However you would like to answer. Do you understand that question ‘who are you?’

Who am I? I’m a human being of course but as a person but my name is XXXX.

-How old are you? *24*

Where are you from? *Originally or blood related or just?*

-Everything. *Well I am born in Namibian which is in Southern Africa, yeah.*

-And where have you lived?

*But now I do li.. I have lived there for sixteen years and now *inaudible* I live in Sweden for almost eight years.*

-And what do you do right now? Do you study, do you work? What do you do?

*I finished my, *erhm*, college as we say in Swedish you say gymnasiet last year and now I’m currently working.*

School questions -How many years have you gone to school? *In total?*

-In total, how many years? *Ehh, 24. 23 years.*

-You started when you were one? *No, I.. wait, wait a sec. Ah, twelve years.*

-And where did you go to school? *In total in my country I have went for ten years and in Sweden I go for four years.*

-That’s fourteen years. *Ah, fourteen.*

-Yeah, that’s fine. If you ask me I couldn’t answer that question either. And what did you study?

*Wait, in Sweden I did stu, I did went to, eh, IV for two years fortsättning for two, ehh, one year and half Svenska *inaudible*, fortsättning in Munkebackgymnasiet for one and a half year. And then I went to gymnasiet in Framtid for three years so it is eight years I.. In Sweden. Yeah, eight years.*

-In Sweden? And in your own country?

Nine years. Basically my whole life I have been to school.

-Ok, what did you study? *Where?*

-The latest thing. *The latest I have studied Swedish and industrial programmes.*

-What is the highest level that you have graduated? *College right? - High school. Yeah.*

Languages. How many languages do you know?

Know and can talk or just know?

Just answer that question first and then I have a second one. *I, I know like four ten (14) languages.*

How many do you speak? *Out of four teen I speak, ehh, four. Atleast. Of which I know of, but not hundred percent talking, but yeah. Mother language yes of course, English yes, Swedish yes, understand little bit of Polish, understand bit of Afrikaans. Ok fluently Afrikaans so it is like five, six languages.*

Can you read and write in all of them?

No, not in all of them, but yeah, I can English, Swedish, Afrikaans, Damara. And I can read just a little bit of Polish.

Which language is your strongest one? *English.*

Which is the weakest one? *Afrikaans. Yeah. Afrikaans and Damara.*

How many and which languages do you use on a daily basis?

Swedish, English and Damara. Daily basis I use English mostly every day, ninety-five percent of the day, and

Swedish I use twenty-five percent of the day, at, while, when I'm not at home.

Reading Habits Do you like to read? *Nope.*

How old were you when you started to read? *Don't remember.*

When you read, what do you usually read? Is it magazines, blogs, articles?

Any, that I can find interesting and short, I don't read that long.

In what language do you read? If you read.

If I do read, if I do find something which is interesting then it should, it is, then it is in Swedish and English.

How often do you read? How often does that happen? *Not often.*

Why do you read when you read? Because you're bored.? *Cause it's, it can, it interests me of what I'm reading.*

Do you read different things or subjects in different languages? For example do you read sports in one language and then medical things in another language? *Well, it depends on what it is I'm reading.*

In which languages do you read then? *Mostly it's in Swedish and English.*

Dyslexia Do you have dyslexia? *Ehh, as the Swedish, ehh, doctor or nurse diagnoses me – yes.*

Do you know what kind? *Reading and understanding.*

How old were you when you got the diagnosis?

*Currently when I came to Sweden seventeen years. Seventeen years old. Cause in my country they did not diagnose me so I got diagnose here. Cause *inaudible, cause of my mom's *inaudible* wanted to know how, why am I not reading out loud or why am I not concentrating when I'm reading.*

Who tested you? *A doctor in Angered.*

Ok, was it like a psychiatrist, psychologist, or was it like a regular doctor, do you know?

Ehh, I don't know I went like few courses, like you know, it was just like they handed me blogs, papers to read, and then take some blood test.

How did they test you? So you got to leave blood, read, write.

And.. like to put stuff together quick, or not quick and then they test with math, mathematics. Yup.

And what did they tell you about your diagnosis?

That I do have dyslexi and dis, concentration that is not alright.

Do you agree? *Yup.*

Has your dyslexia become better or worse? Or is it the same? *I would say it is in-between.*

What symptoms do you think you have? *Hearing disability and concentration.*

Do you have them in all of your languages? *Yes.*

So even if you speak Swedish or Afrikaans or English, you have the same..?

Speaking is not a problem, reading and understanding or reading fast or slow.

And you have it in all languages? *Yes.*

How many times have you been tested? *Once.*

And when you were tested in which language did they test you? *Both Swedish and English.*

Ok, but no one tested you in your mother-tongue? *Nope. Cause no one can write or read in my mother-tongue in Sweden, I mean that's only time I got tested so..*

Consequences Has the dyslexia affected you when it comes to school or work or friends or personality? *Yes*

In what way? *Grades.*

Did you get special help? *I did, in IV, in SFI the first year, the first six months I did.*

Ok, what kind? *Eh, mathematically and reading and writing.*

Ok, but what kind..?

I got special, when I was having mathematic exam test I did use a book that I could use to count and stuff.

And did you get anything else? Like did you have special teachers or?

No I didn't. It was just a book that I have to read and then.

Do you think the help could be better? *Yeah.*

In what way? *Understandable way.*

What could they do to help you better? *Ehh, I guess reading.*

How? By practicing? *Practicing yes. Read more and then read to understand, not just read to read.*

Family Does anyone else in your family have dyslexia?

*I have no idea, maybe my mom. She had, maybe, I think *inaudible*..*

But they were not tested, but you think she has?

Yeah, she did, I think she did. She overcome it I think, I don't know. I don't know how she did it.

Did they read to you when you were little? *I don't remember because I didn't grow up with my mom.*

But did anybody? *Anybody, nooooo, just singing.*

Just singing? *Yes.*

Ok, in what language? *Mother-tongue.*

So, Afrikaans? *No, Damara.*

That's the clicking language? *Yes.*

Any questions you think I have forgot or anything else you want to add?

I don't know. You are the one interviewing so.

Appendix 5 – One-minute reading test

ONE-MINUTE READING TEST

is	me	on	at	by	so	us	7
an	it	or	be	to	as	he	14
of	in	go	up	am	if	no	21
we	my	ox	do	the	and	for	28
but	him	are	can	she	dog	let	35
you	not	was	out	try	see	mix	42
cat	now	boy	saw	bit	met	top	49
run	man	pet	lot	get	dig	van	56
bad	red	cup	bee	lit	pin	had	63
ran	pen	nut	big	old	yet	rob	70
gun	leg	fun	lip	new	fog	has	77
sit	sly	wig	mud	box	ink	sat	84
end	cut	pay	fed	who	six	lad	91
met	dry	cow	his	peg	tin	say	98
eat	any	far	set	bud	kid	pup	105
fox	ask	egg	cab	ill	use	jam	112
all	pit	got	sad	tea	sky	one	119
yes	fur	act	toe	her	own	ten	126
arm	rock	gone	feel	that	rich		132
till	long	flat	this	part	foot		138
maid	upon	came	mile	back			143
sand	time	said	then	wall			148
into	were	done	walk	much			153
loss	seen	went	with	come			158

Performance norms on the One Minute Reading Test1 derived from 192 University referrals for dyslexia assessment age 18 – 29 (Mn 119.2 wpm, SD 28.5). Michael Lock, February 2001.

WPM	Percentile	WPM	Percentile	WPM	Percentile	WPM	Percentile	WPM	Percentile
200	99.7	164	95	128	62	92	16	56	1
199	99.7	163	93	127	62	91	16	55	1
198	99.7	162	93	126	58	90	16	54	1
197	99.7	161	93	125	58	89	14	53	1
196	99.7	160	92	124	58	88	14	52	0.8
195	99.7	159	92	123	54	87	14	51	0.8
194	99.5	158	92	122	54	86	12	50	0.8
193	99.5	157	90	121	54	85	12	49	0.6
192	99.5	156	90	120	50	84	12	48	0.6
191	99.4	155	90	119	50	83	10	47	0.6
190	99.4	154	88	118	50	82	10	46	0.5
189	99.2	153	88	117	46	81	10	45	0.5
188	99.2	152	88	116	46	80	8	44	0.5
187	99.2	151	86	115	46	79	8	43	0.4
186	99	150	86	114	42	78	8	42	0.4
185	99	149	84	113	42	77	7	41	0.4
184	99	148	84	112	38	76	7	40	0.3
183	99	147	84	111	38	75	5	39	0.3
182	99	146	82	110	38	74	5	38	0.3
181	99	145	82	109	34	73	5	37	0.2
180	98	144	82	108	34	72	4	36	0.2
179	98	143	79	107	34	71	4	35	0.1
178	98	142	79	106	31	70	4	34	0.1
177	98	141	79	105	31	69	4	33	0.1
176	98	140	76	104	31	68	4	32	0.1
175	98	139	76	103	27	67	4	31	0.1
174	97	138	76	102	27	66	3	30	0.1
173	97	137	73	101	27	65	3	29	0.07
172	97	136	73	100	24	64	3	28	0.07
171	96	135	73	99	24	63	2	27	0.07
170	96	134	69	98	24	62	2	26	0.05
169	96	133	69	97	21	61	2	25	0.05
168	96	132	66	96	21	60	2	24	0.05
167	96	131	66	95	21	59	2	23	0.03
166	95	130	66	94	18	58	2	22	0.03
165	95	129	62	93	18	57	1	21	0.03
								20	0.02

Appendix 6 – Hertfordshire reading test

1. The dog has a ball
2. The cat is in the tree.
3. I go to bed at six o'clock
4. We are going to get some sweets.
5. I have a cup of hot milk at bedtime.
6. The children had crisps and cake at the party.
7. My aunt gave me a whole pound for my birthday.
8. The book was called the Mystery of the
Disappearing Jewels.
9. Nearly every car needs petrol, oil, water, air and a
good engine.
10. The puppy escaped through a hole in the fence
and it was difficult to catch him.
11. The teacher had a very stern face and so the
boy did not argue.

12. The thief took all the beer from the refrigerator as well as other valuables.
13. The ambulance came quickly to scene of the accident as the victim appeared to have hurt his knee and wrist.
14. They went to a foreign restaurant which had an orchestra playing and waiters wore smart black suits.
15. The giant ate a huge dinner and as a result suffered from violent indigestion.
16. The girl had an audition for a part in a major production at a famous London theatre.
17. The yacht, which cost half a million pounds to build, was launched by the distinguished visitor.
18. Severe weather conditions hampered the delivery of essential food throughout the north-eastern region.
19. The judge stopped the trial because the jury had been intimidated.
20. It was characteristic of Dad to say that, unless we took reasonable precautions, we could not go.
21. The nature Conservancy is to proceed under a compulsory purchase order to acquire land for a national reserve especially for wading birds.
22. Smoking is a known cause of bronchitis, cancer, asthma and, in exceptional cases, of pneumonia.
23. The prevailing tendency to abandon our artistic tradition leaves contemporary life bereft of philosophical significance.

24. For some unknown reason the majority of the audience missed the ironic humor of the comedy.
25. As societies process the organization of a legal system is indicative of the development of stable government.
26. The production of an anti-caries vaccine may prevent the controversy over water fluoridation becoming a significant issue.
27. The first practical initiatives by the Alliance will be the circulation of a parliamentary newsletter and distribution of a questionnaire.
28. For some inexplicable reason my predecessor had disliked using photocopying facilities in the office.
29. The benign influence of certain Roman Deities was thought to protect the children from malignant forces.
30. The psychiatrist diagnosed that the patient undergoing analysis was suffering from schizophrenia.
31. Conspiracy to kill is an indictable offence and punitive measures are invariably taken.

Appendix 7 – Questions & observations form

Part One: Dyslexia Screening Test

Do you find it difficult telling your left from right? **Yes** **No** [10]

Do you get tired quickly when you read? **Yes** **No** [10]

Do you frequently find yourself thinking about something else when you are reading?
Yes **No** [10]

Do you often make a lot of errors when reading? **Yes** **No** [20]

Do you find it difficult stay focused? **Yes** **No** [20]

Do you find it hard to remember names? **Yes** **No** [20]

Do you find it hard to pronounce words correctly when talking?
Yes **No** [10]

Do you forget how to spell short words you know sometimes?
Yes **No** [20]

Do you find it difficult spelling words that you have not seen written down before?
Yes **No** [30]

Do you find it difficult to read words you are unfamiliar with?
Yes **No** [30]

Do you understand and use big words that you cannot spell?
Yes **No** [20]

Do you get stuck with words you cannot read? **Yes** **No** [10]

Do your eyes feel a little out of coordination when reading text?
Yes **No** [10]

Do words appear to move, appear blurred or hard to focus on when reading?

Yes No [30]

Add up the scores on the right hand side of the page. If your score is zero, it is very unlikely that you suffer from dyslexia, if your score is between 0 – 75 there is a moderate possibility that you suffer from dyslexia. If your score is between 76 to 150 there is a strong possibility that you suffer from dyslexia and you should book a full diagnostic assessment with a chartered psychologist accredited who will use restricted tests and their clinical judgment to diagnose dyslexia. A score above 150 indicates a strong possibility that you suffer from dyslexia but the results of the screening test will need to be confirmed by a chartered psychologist who will use regulated tests and their clinical judgment to confirm a diagnosis.

Part Two: Information for the Full Diagnostic Assessment & Report

Please fill in the form below and indicate below whether you have been affected by any of the following and bring this form with you to the assessment or email it to: <mailto:wecare@advancedassessments.co.uk>. You should also bring a copy of your examination results, school reports, current job description, CV and performance appraisal reports if you have them.

Reading and perceptual difficulties

- Early difficulties in acquiring phonic skills Yes No
- A high proportion of errors in oral reading Yes No
- difficulty in extracting the sense from written material without substantial re-reading Yes No
- Slow reading speed Yes No
- Inaccurate reading, omission of words Yes No
- Frequent loss of the place when reading Yes No
- An inability to skim through or scan over reading matter Yes No
- A high degree of distractibility when reading Yes No
- Perceived distortion of text (words may seem to float off the page or run together) Yes No
- A visually irritating glare from white paper or white-boards. Yes No

Additional Information: (The questionnaire is designed as force choice please put any additional information here.)

Writing problems

- An intractable spelling problem Yes No
- Confusion of small words such as which/with Yes No
- Omission of words, especially when the writer is under pressure
Yes No
- Awkward handwriting and/or slow writing speed
Yes No
- An unexpected difference between oral and written expression, with oral
Yes No
- Contributions being typically of a much higher quality than written accounts of the same subject matter in terms of structure, self expression and correct use of words.
Yes No

Additional Information:

Other difficulties

- Early speech and language problems. Many dyslexic children have received speech therapy, usually for phonological difficulties, especially between the ages of 3 and 7.
Yes No
- Glue ear (Otitis media) which usually affects the acquisition of auditory discrimination skills, which in turn impacts on development of phonics in reading.
Yes No
- Immune system disorders (e.g. asthma, eczema) amongst children with dyslexia.
Yes No

