HÁSKÓLI ÍSLANDS

Hugvísindasvið

"The Limits of my Language are the Limits of my World":

The effects of language learning disorders on foreign language learning and the possible solutions

Ritgerð til MA-prófs í Enskukennslu

Ágústína Gunnarsdóttir

September 2014

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Abstract

There are a number of learning disorders that affect language acquisition in the native language but chief among them are dyslexia and specific language impairment (SLI). Their effects are found in the first language and extend to any subsequent languages, including foreign languages. As curriculum guidelines in Iceland feature the mandatory learning of a number of foreign languages and the Icelandic institutions of higher learning use foreign languages quite heavily in their instruction, proficiency in foreign languages in Iceland becomes paramount. Yet students with the dyslexia or SLI do not seem to receive any remedial teaching during the important secondary school years. The thesis seeks to describe what types of language learning challenges these students face, and what can be done to assist them in their education. To that end the thesis features an extensive literature review and a small study that employs interviews to gather information. Three interviews were conducted, two with dyslexic students attending secondary school and one with an English teacher teaching in secondary school. The main conclusions from the study showed that Icelandic students with language learning disorders frequently struggle in their language learning process and that the assistance that they are provided with is limited to external aids such as audio books and extended exam times. Teachers seem willing to assist these students but must usually forego this because of time constraints. The findings of the study are supported by previous studies. The thesis also showcases the various teaching methods and alteration to teaching methods that could better suit students with language learning disorders. However, in the current climate a concerted effort from school officials and teachers, as well as support from the government, is needed to implement these modifications.

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1. Introduction

Scientists and researchers have debated and investigated learning abilities in detail and have found that learning abilities are shaped both by biological and environmental causes (Simrall, 1947). Among the things that can, and usually do, disrupt learning are disorders of the brain such as autism, AD/HD and dyslexia among other. Therefore, they are often termed as learning disorders or disabilities. Some learning disorders are quite specific and even within one disorder such as dyslexia there are multiple definitions, manifestations and causes.

When it comes to learning a language, most of us start with our native tongue and the learning process is for the largest part implicit. This is however an important process as language is not only a person's main medium of communication but spoken language is a large part of any classroom and workplace. As a child grows, native language teaching becomes more explicit and reading and writing instruction begins. It is at this point that some children discover difficulties with what the majority of able minded children can generally learn quite easily. When a child struggles with literacy or speaking during the early stages there is a good chance that the culprits for the learning difficulty are language learning disorders, such as dyslexia that affects reading and writing and SLI (specific language impairment) that affects mastery of language skills.

Overall, dyslexia is both the most common and internationally accepted term for specific difficulties in learning to spell and read, especially in relation to encoding and decoding single words, and it is normally discovered as children begin their school education. Its connection to foreign language learning likely has to do with the impairment of phonological processing dyslexia entails. It is possible that this impairment carries over into the learning of different orthographies (Ho and Fong, 2005; Nijakowska, 2010). Dyslexia affects multiple aspects of the learning process and along with SLI it can wreak havoc with the language learning process and hinder students' learning across subjects.

In Iceland, as in practically all parts of the world, children will at some point learn to understand written speech to gain access to meaning, or in other words learn to read. To read children must learn the visual symbols their culture uses to represent speech or basically to match distinctive visual symbols to units of sound (phonology). In the majority of languages, the relationship between symbol and sound is systematic, while the relationship between symbol and meaning is completely arbitrary (Ziegler and

Goswami, 2005, p. 3). To become literate the child therefore has to acquire a system of mapping between symbol and sound and when the child has mastered this, he or she has access to thousands of words already present in their spoken lexicons. This process of learning and applying mapping has been named phonological mapping and disturbances in this type of phonological process are what hampers dyslexics in their quest to read and learn both their own written language and other foreign ones (Ziegler and Goswami, 2005, p. 3). Reading is a highly valued skill and Iceland has one of the highest literacy rates in the world (The World Factbook). However, reading is important in a foreign language context too and since Iceland has so few native speakers and is so reliant to other countries, foreign language learning is not only smart but necessary.

In Iceland, students learn two to four foreign languages depending on the length of study as well as the course of study they choose for themselves (Mennta- og menningarmálaráðuneytið, 2011a; 2011b). The first foreign language that students begin studying is English, and if they study beyond the obligatory schooling, they continue learning English until secondary school or even university. Furthermore, unusually high English-input in Icelandic society often leads to better basic communicative skills but an overestimation of overall English skills (Arnbjörnsdóttir, 2007, p. 59). Learning English or another foreign language is therefore a valuable and necessary skill to have in Iceland, even if a person does not foresee leaving the country. There are few, if any, that dispute the necessity of learning other languages in Iceland but as students get older there seems to be less focus on the learning impairments that can hinder foreign language acquisition. Studies have shown that most students with dyslexia or SLI struggle with foreign language learning just as they struggle with their native language (Meschyan and Hernandez, 2002). Therefore, it is important in Iceland, where learning of another language (especially English) is a necessity in such a wide context, to better accommodate the students that find this difficult or near impossible.

My interest in the subjects of learning disorders and their effects on language learning is fairly new. I have never experienced learning disorder myself and thus my experience of them is all second hand but when it occurred it was remarkable to me all the same. I had been aware of dyslexia before learning about it during my teacher education but never had I seen it in action until my significant other started his own studies. I knew he was severely dyslexic and his spelling therefore bad, his reading slow, as well as I had also frequently noted how he mixed together common idioms and

sayings. I had however never really given his dyslexia, or anyone else's, much thought beyond that. To me dyslexia meant you had trouble reading and spelling and that was it really. Then my partner started his studies and I watched as he struggled enormously to complete a handful of written assignments that I considered as basic and easy reading comprehension exercises. Each one of those assignments would have taken me 30 minutes tops but he needed hours for each one. This experience was eye opening and allowed me to not only realise how I had taken for granted my ease of learning, but additionally how debilitating learning disorders could really be. This experience was then compounded when I met a new friend during my teacher education. She had dyslexia, and also happened to be my partner's second cousin, and expressed gratitude over being placed in a group with someone that was confident in English. This, she explained to me, was due to her English learning problems that she stated were somehow related to her dyslexia. I just had to know more and thus this thesis came about. I have learned a number of new things during the course of its writing and my only regret is that I did not expand my interview study to include more teachers and students.

The focus of this thesis and the small study conducted is intended to gain a better understanding of language learning disorders and how they transcend native language and interfere with acquisition of a second or a foreign language. I moreover wanted to explore what is being done in foreign language instruction in Iceland to meet this problem and what could be done. Since I have not started teaching myself I needed to examine the realities of language learning and teaching for students with specific language learning disorders, within the Icelandic secondary school environment. This lead to the interview study which included an English teacher and two students with a diagnosed language learning disorder that study or work in a secondary school.

The overall goal of this thesis is to shed light on the nature of learning disabilities and how they affect language learning, as well as, how the Icelandic educational system and Icelandic schools in particular are meeting the needs of students with learning disorders, especially in foreign language learning. This is done through an extensive literature summary and interviews with a teacher and two dyslexic students. The goal of the interviews were firstly to understand what, if anything, language teachers do to meet the needs of those students that had foreign language learning difficulties because of dyslexia or other language learning disorders such as SLI. The

second objective was to determine how schools were accommodating these students. Thirdly, I wished to discover how the student has trouble in foreign language learning, generally and in English learning specifically, the students' family history of language learning disorders, and lastly how both students and teacher envisioned how things could be improved.

In chapter two of this thesis I offer definitions as well as explore that nature of the two learning disorders that are being focused on. This includes looking at the biological foundations and some of the more compelling hypotheses that can be found in the literature on the disorders. Chapter two further delves into how these disorders affect foreign language learning generally, and English language learning specifically, and it moreover offers some information on the Icelandic linguistic environment. I furthermore go into what possible recourses could improve language instruction for students with language learning disorders such as dyslexia and SLI. Chapter three details information on the methodology of the study itself and in chapter four I explain exactly what results came from the interview study and I discuss the findings, their implications and how they correlate with the research and findings explored in the literature review. I will conclude with a summary of the thesis, the weaknesses of the study and suggestions on what can be done in the future to improve the current situation. Ultimately, the information in the thesis should clarify the effects of dyslexia and specific language impairment on second or foreign language learning in general and the solutions available to language teachers in Iceland and elsewhere.

2. Theoretical Background

This chapter will focus on what type of disorders dyslexia and SLI are exactly. I begin by clarifying some definitions for the main elements of the thesis. I will then move onto explaining the biology, causes and hypothesises about these two disorders. This will offer insight into the complexity of these disorders and the difficulties inherent in a lack of a specific and recognised cause. The chapter will then further cover what effects the learning disorders have on learning a foreign language. I will focus specifically on the language that Icelanders start learning, which is English. In addition, I will explain the linguistic environment in Iceland and the effects of self-perception, or how you see yourself, on learning and conclude with a review on the many different ways possible to alter language teaching to better suit students with the learning disorders.

Learning a new language will always be a challenging process and there will be many learners that struggle. The Icelandic National Curriculum guidelines, which contains the general curriculum guidelines for teachers in Iceland and those who create the syllabus taught in Icelandic schools, states that all children must study English and one Scandinavian language during their compulsory education. If a child then goes beyond its compulsory requirement and into secondary school, he or she will then be required to study one additional language, such as French or Spanish (Mennta- og menningarmálaráðuneytið, 2011a; 2011b). Some learners however are burdened with learning disorders that further complicate the learning process and can have detrimental effects on the mastery of a great many subjects. A child with a language learning disorder, such as developmental dyslexia and SLI that affect native language learning, will almost unquestionably struggle when he or she begins learning a foreign language. While an individual's genetic mix plays a substantial part in determining how he or she will turn out, experts however have long said that this is not the only thing that matters. While this thesis will not delve into the big topic of "nature versus nurture" it does maintain that while the causes of learning disorders will be biologically the same, the manifestations are different from country to country, culture to culture and home to home (Reid, 2005, p.139).

2.1. Developmental dyslexia: definition and background

There are a number of definitions available for developmental dyslexia. Firstly however, the term 'developmental' as opposed to the term 'acquired', is used because the thesis focuses on those that have the disorder from birth and not those that have acquired it through brain trauma or disease (Nijakowska, 2010). Some scholars claim that developmental dyslexia, herein after referred to as dyslexia, is defined "as an unexpected, specific and persistent failure to acquire efficient reading skills despite conventional instruction, adequate intelligence, and sociocultural opportunity" (Démonet, Taylor and Chaix, 2004, p. 1451).

While there is nothing inherently wrong with this definition it does perhaps not entirely encompass the complexity of the disorder, as it remains problematic defining dyslexia without including three levels of description that cover behavioural, cognitive and biological causes. A more specific definition would perhaps be that dyslexia is a neuro-developmental disorder with biological origin and behavioural signs which

extend beyond problems with written language (Frith, 1999, p. 192). Nevertheless, this definition lacks depth, perhaps the clearest definition lies somewhere in between the two: "Dyslexia is a specific learning disability that is neurobiological in origin. It is characterised by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities" (Reid, 2005, p. 139). However, it should be noted that the three levels of dyslexia, biological, behavioural and cognitive all interact with cultural influences and the complexity of the native language, and these have a great impact on the clinical manifestation of dyslexia, the handicap the sufferer experiences as well as the possibilities for remediation (Frith, 1999). The complexity of dyslexia is great and because this disorder is ultimately affected by the environment of the afflicted person, its definition will continue to vary. Additionally, as countries vary in language and culture and attitude towards learning disabilities, so too will diagnosis and therefore frequency of dyslexia.

While dyslexia is fairly wide spread, its frequency varies on the range from 5-17.5% of people. This variability can be traced to the fact that the definition for dyslexia is unclear, along with other factors (Démonet, Taylor and Chaix, 2004: Frith, 1999). Scholars have debated about the nature of dyslexia as well as the nature of reading difficulties of those with dyslexia, particularly concerning the qualitative differences between those that are just poor readers and dyslexic readers. The main factor is the lack of consensus about the nature of dyslexia. There seems to be a gap between the use of the word dyslexia and an abstract understanding of its defining characteristics, features and the implications thereof for pedagogy (Reid, 2005). Children affected with dyslexia struggle to acquire the skills necessary for reading and spelling but they retain a normal ability to understand concepts and are often talented in, for example, science or art (Nijakowska, 2012). Someone that is considered dyslexic in one country could then be deemed a poor reader in some other country. Finally, social factors and the sex of the sufferer can translate into bias in terms of who is diagnosed and how. Things of this nature continue to cause trouble for those that suffer from reading difficulties and those that try to combat the reading difficulties. Furthermore, even if the general population is aware that dyslexia exists, most will not understand the consequences of this fully as people are generally unaware of the complexity of the different underlying factors which matter in relation to dyslexia.

Dyslexia is more commonly reported in males although researchers attribute that to referral bias or other factors such as IQ and severity of the reading deficit (Démonet, Taylor and Chaix, 2004, p. 1451). Furthermore, the frequency of dyslexia can as well vary between languages and is for example higher in English than in Italian because orthography and pronunciation are closer in Italian than in English (Démonet, Taylor and Chaix, 2004; Paulesu et al, 2001). The fact that dyslexia manifests itself differently between cultures and orthographies has hindered the recognition of dyslexia as a neurodevelopmental disorder and a specific diagnostic entity (Paulesu et al, 2001, p. 2165). The differing manifestations, frequency of variation and differences between cultures and pedagogy have then further resulted in conflicting research, theories and a clear definition of dyslexia.

2.2.   Specific language impairment: definition and background

SLI is defined as a developmental disorder with limitations in language learning and use, despite adequate opportunity and in the absence of factors such as hearing impairment, low nonverbal IQ and neurological damage (SLI consortium, 2002; Conti-Ramsden, Simkin and Botting, 2006). It is a disorder that is not diagnosed until other conditions that may increase the chances of language impairments, such as mental retardation, cleft palate, hearing loss or neurological disorders (e.g. cerebral palsy) have been ruled out (Conti-Ramsden and Hesketh, 2003; SLI Consortium, 2002). The percentage of children affected by SLI is estimated to be around 7 %, if that is narrowed down to only English-speaking children the percentage is estimated to be around 4% (SLI consortium, 2002; Conti-Ramsden, Simkin and Botting, 2006). A substantial proportion of these children experience persistent and severe language difficulties that are often associated with additional educational, social, psychological and behavioural problems. Some have broadly classified SLI into three subtypes: expressive-language disorder, phonological disorder and mixed expressive- and receptive-language disorder. There is however not a consensus on this as many researchers have proposed that the difference in the variability of the profile of the deficit is just a reflection of the severity of the underlying condition. Furthermore, it is to varying degrees which children with SLI have problems with articulating speech sounds, expressing themselves verbally and comprehending the speech of others (SLI Consortium, 2002). This native language difficulty further translates into problems with foreign language acquisition which can matter greatly for students of a country, such as Iceland, that relies heavily on

knowledge of foreign languages (Meschyan and Hernandez, 2002). SLI is a serious learning disorder that can not only affect first language acquisition but studies in general.

2.3. Dyslexia

The fact that dyslexia is so diverse in nature and manifests differently between cultures and orthographies has hindered the recognition of dyslexia as a neurodevelopmental disorder and a specific diagnostic entity (Nijakowska, 2010; Paulesu et al, 2001). This has had an effect on dyslexia research and the competing etiological theories that are present. The difficulties of learners with dyslexia are specific, and quite narrow and limited in range; however the severity of these deficits varies from learner to learner. These differences can come about due to difference in culture and orthography, genetic makeup or because of the presence of comorbidities such as hyperactivity or motor integration disorders. Therefore, a person does not become dyslexic because of negligence in care or inadequate homework support; the causes are neurological and genetic. Dyslexia is a disorder that a learner will always have, while age and development is known to bring about changes in characteristic features, error types (auditory vs. visual) or cognitive profiles (phonological vs. surface) (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010). Dyslexia is a complex and layered disorder with no single cause and no concrete universal manifestation. Nevertheless, it does not appear without reason and a thorough background research into the combining factors that result in dyslexia is essential for further study. To understand dyslexia and its causes a study of a number of disciplines, such as neuroscience, cognitive science and learning theory, is necessary. Yet, this will not point to one distinct cause and there are a number of theories that are still being debated. The general consensus is though that the likeliest theories fall within the framework of multiple memory systems with links to neural and cognitive substrates of language. These systems are separate in terms of neural basis and function although new findings suggest that they are interacting either competitively or positively throughout the learning process (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010; Paulesu et al, 2001). Dyslexia is almost certainly caused by a number of independent or interacting factors and there is at least agreement among scholars that it has a neurobiological foundation with references to genetic structure as well as structural and functional aspects of the central nervous system. The distal causes produce specific malfunctions on the cognitive level, which, in turn,

become the more proximal causes of reading failure (Nijakowska, 2010). Thus, a breakdown of layers and interacting factors must be attempted for further clarity.

To begin breaking down the complexity of dyslexia it is important to introduce descriptions and explanations of various levels. Firstly, there are explanations of the genetic background to dyslexia, as that influences how the disorder is realised and provides background to the familial nature of dyslexia. Secondly, there are explanations of the current understanding of the brain's role in dyslexia, as understanding of the anatomical features of dyslexia can mean a great deal both to better understand the cause behind it and how best to focus remedial actions. Lastly, there are covered some of the common hypotheses of dyslexia as they provide a better understanding of how dyslexia affects cognitive functions.

2.3.1   Dyslexia and genetics

The oldest attempt to explain the causes of dyslexia comes from genetic theories. These theories generally presuppose a connection between inherited features of the central nervous system and the occurrence of the disorder, "determining the existence of difficulties in reading and spelling" (Nijakowska, 2010, p. 35). There has been a lot of research into these supposed links and findings suggest that reading disability is hereditary, which means that it is a feature of certain families. It is then assumed that inheritance is autosomal dominant, this means that the faulty gene only needs to come from one parent in order for the trait to be inherited (Démonet, Taylor and Chaix, 2004; Autosomal dominant). Démonet, Taylor and Chaix (2004) claim that researchers have used psychometric tests to confirm the familial nature of this disability. Research overwhelmingly indicates that genes play a significant part in dyslexia and that these genes run in families. In an American study of reading, 125 families (parents and siblings) of children with dyslexia were tested against an equally large group of control families. The study found that the reading performance of the relatives of those with dyslexia were substantially lower than those of the control families. Another reading study compared identical and fraternal twins and the results showed a higher concordance rate for reading disability in identical twins, with 84-100% rate versus the 25-30% in fraternal twins. Further, in a follow up study there were similar numbers and a clear discrepancy, with concordance rates for identical twin being 68% and then 38% for fraternal twins. Data collected from segregation analyses of family studies as well as multiple regression analyses of twins have shown that dyslexia is also genetically

heterogeneous and complex and not a classical single gene inheritance (Démonet, Taylor and Chaix, 2004, p. 1453). This familial element is still being researched and will probably become clearer as genetic research evolves.

When researchers have studied the link between reading disabilities and specific chromosomes, they have found that there are areas on chromosomes 1, 2, 3, 6, 15 and 18 that reportedly contain genes that have an effect on reading disability. However, as yet, there has not been found any specific gene but there seem to be several gene loci that have an effect on reading (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010). In brief, multiple chromosomes seem to have an effect on reading ability and that is certainly an integral part of dyslexia. Additionally, the aforementioned studies have been affected by the lack of a clear dyslexia definition.

The fact that the definition for dyslexia and its nature is still not agreed upon has considerable effect on studies, both in regards to variability of inclusion and contradictory results (Démonet, Taylor and Chaix, 2004). Additionally, there are some characteristics of people with dyslexia that affect apparent heritability. For example, "heritability of spelling deficits seems to increase with age whereas reading difficulties declined" (Démonet, Taylor and Chaix, 2004, p. 1453). Furthermore, it is evident how the definition of dyslexia continues to affect the research into the disorder. This definition will probably continue to differ somewhat between scholars and countries; nevertheless, hopes are that with genetic research the definition will become more universal.

Genetic research has pointed out that the severity of the specific reading disorder that children at risk for dyslexia come across is directly proportional to severity of the reading impairment of their parents. Furthermore, genetic researchers such as Richard K. Olson and David Fulker, have put forward ideas that word recognition and phonological decoding skills have strong genetic influences (Nijakowska, 2010). The connection of genes to the many layers of dyslexia is not yet conclusively proven but what has already been found seems to indicate that they have barely begun to scratch the surface of what is possible to find.

As yet, isolating gene variant remains a major challenge but offers great potential benefits for early diagnosis of dyslexia (Nijakowska, 2010). If scientific study manages to further isolate and identify the genetic foundation for dyslexia, and the

complications inherit in the disorder, it would not only lead to earlier detection but it could also further focus research into the brain's role in dyslexia.

2.3.2   Dyslexia and the brain

Investigations into the human brain offer fresh perspectives on dyslexia. Studies that have delved into the dyslexic brain have found that it has distinct anatomical features. While there are not a great number of dyslexic brain samples, the ones studied showed miniscule malformations in the perisylvian regions of the brain and the geniculate nuclei (a reduction in size of the m-neurons that travel along the magnocellular pathway). These results suggest that neurons are not maturing or migrating normally and this has prompted further research into the neurons role in dyslexia. Furthermore, alterations in brain structure and minimal brain damage in these areas that typically mediate the processes of reading and spelling may comprise the core cause of dyslexia (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010). As research findings of anomalies in the left hemisphere language area increase, researcher have urged caution in assigning them as a main cause of dyslexia as reduced reading experience in dyslexics becomes an environmental factor that can exert a certain influence on the structure and functions of brain circuits (Nijakowska, 2010). On the whole there have been interesting findings in the study of brain samples but researchers are correct to urge caution in assigning cause, as much more study is needed to conclusively provide that link.

Functional brain imaging studies have found dysfunction in people with dyslexia, in the neural systems that are implicated in reading and other related cognitive functions. For example, the functional neuroanatomy of reading, in a skilled adult reader, is spread widely but "dominated by a left-sided network with two posterior pathways for orthographic and visual information" (Démonet, Taylor and Chaix, 2004, p. 1454). Those are the ventral pathway and the dorsal pathway and they both connect to one anterior component that is centred in left inferior-frontal area of the brain (figure 1).
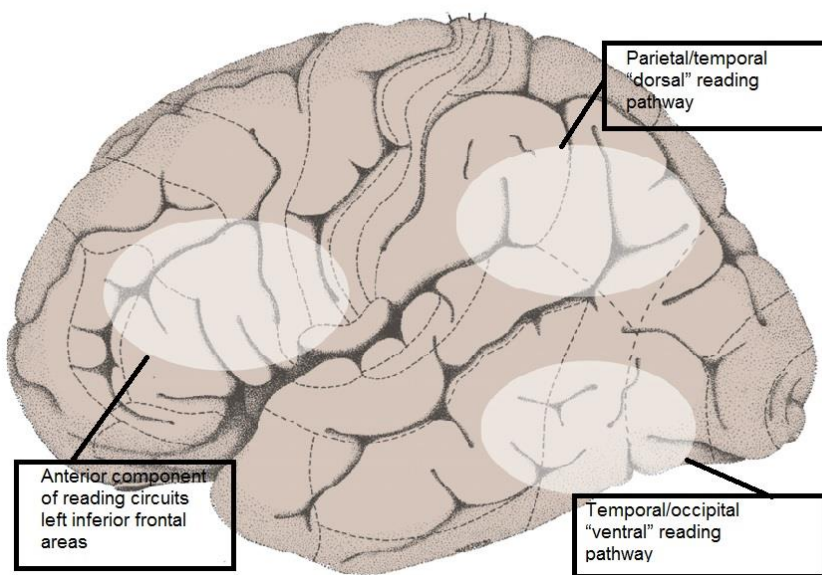
Figure 1. Areas of the left cerebral hemisphere. The figure illustrates where abnormal responses were found in neuroimaging studies of the adult dyslexic brain compared to controls

The former pathway possible represents a visual word-form area that can be automatically accessed and the latter a slow phonology-based assembly processes; the anterior component however is implicated in the output of phonological and articulatory aspects. However, in an adult with dyslexia, activation in posterior pathways is reduced. Furthermore, key sections of the dorsal pathway, show an activity that in normal readers is positively correlated with reading scores and negatively correlated in adults with dyslexia (Démonet, Taylor and Chaix, 2004, p. 1455). Results as these clearly show that much is to be learned by examining the brain and his role in dyslexia.

Further interesting results came of a PET study by Paulesu and Démonet, of homogeneous samples of dyslexic patients (and controls) from three countries (Italy, France, and The UK). Findings showed the same deficit in activation in the ventral pathway in the dyslexic patients regardless of language. Furthermore, that there are some areas in the brain that have a higher activation than normal, indicating a type of compensation for the absence of activation in the key regions normally connected with reading (Démonet, Taylor and Chaix, 2004). Paulesu and Démonet's study is especially interesting as various orthographies generally react differently with dyslexia and yet there was a similar deficit in patients from all the three countries included. Notably, this type of research works well in conjunction with auditory studies.

Auditory studies have been completed, for example the one by Kujala and Naatanen to investigate the difference between normal adult readers and dyslexic readers. With help from fMRI (functional magnetic resonance imaging) the investigators looked at brain activity in connection with rapid and slowly changing stimuli. Out of this study two effects relating to the underpinnings of dyslexia were found: "neural activity was enhanced by slowing down acoustic changes in speech in some cortical areas; and poor neural responses in the left supramarginal gyrus indicated the fundamental phonological deficit in dyslexia" (Démonet, Taylor and Chaix, 2004, p. 1456). Even though the many studies that have been completed on neuroanatomical features of dyslexia are often contradictory, mainly because of methodological differences, they seem to indicate overall that there exists an anatomical-physiological basis for dyslexia (Nijakowska, 2010). Until a more concrete cause for dyslexia is found, it remains vitally important to investigate the disorder from all sides.

2.3.3 Common hypotheses on dyslexia

A number of hypothesises about the nature of dyslexia are available in recent dyslexia literature. While these hypothesises cannot not be explained here fully, an attempt at clarifying them follows.

Phonological Coding Deficit Theory is according to Nijakowska (2010) one of the best-developed cognitive level theories on dyslexia. It states that phonological problems that occur prior to the emergence of reading constitute a cause of later reading impairment. The two assumptions that are made from this theory are as follows: "in children later diagnosed to suffer from dyslexia, phonological deficit pre-dates reading instructions, secondly, the severity of the reading impairment (consequence) can be predicted by the severity of the phonological processing (cause)" (Nijakowska, 2010, p. 47). It is subsequently claimed that a phonological deficit is present before and after reading development has begun and that if early phonological deficit is remedied before reading begins, reading development can be expected to be normal (Nijakowska, 2010).

Multitudes of studies have been done on the back of this theory and they have produced a large amount of strong converging evidence that support the supposition that weak phonological coding constitutes the cause of dyslexia. Furthermore, these studies have repeatedly demonstrated a link between phonological processing deficits and atypical brain activation patterns, as well as anatomical differences (Nijakowska, 2010). The description of phonological deficit generally includes three factors: phonemic

awareness, slow lexical retrieval and poor short term memory (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010; Paulesu et al, 2001). Firstly, *phonological awareness* is the "ability to identify, distinguish between, detect and manipulate the sound structure of words" (Nijakowska, 2010, p. 44). Nijakowska further explains that this ability is essential to be able to successfully map sounds to the appropriate symbols. Moreover, that phonemic awareness is a smaller scale of phonological awareness, in the sense that it refers to the identification and use of individual phonemes. This represents an important part of language acquisition as sensitivity to sound parts helps understanding of written language system and the idea that written words represent spoken words, in the sense that single sounds are symbolised by single letters or sets of letters. Secondly, *lexical retrieval* is the ability to recall words or vocabulary based on for example description or definition, or name objects, letters, or colours. In dyslexics this is process is often slow and can explains one aspect of their language learning problems. Lastly, dyslexia is often categorised by *poor short term memory*. Inherent in this is the inability to adequately keep linguistic material in short term memory, meaning that dyslexics often have trouble repeating back long non-words or strings of sounds.

Consequently, it is important to be aware of these aspects of dyslexia, as some of them can be detected before a child learns to read and write (Nijakowska, 2010). Furthermore, this is an interesting theory that offers great hope for remedial action; it does however have limitations when it comes to accounting for deficits inherent in dyslexia. For example, the *Phonological coding deficit theory* of dyslexia does not account for the low-level sensory, visual or motor coordination deficits that were reported in many of the participants (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010). The limits of this theory open the door for hypotheses that list additional deficits for the source of dyslexia.

Another hypothesis is *The Double-Deficit Hypothesis* (DDH) of dyslexia. The scholars that support that theory are not completely convinced that the sole and primary nature of poor phonological coding as the cause of dyslexia. DDH proposes that there are two independent underlying sources of dyslexia, specifically the aforementioned phonological core deficit and naming speed impairment. A study on DDH in college students with learning difficulties by Cirino et al. (2005), contends that both phonological processing and visual naming speed seem likely to predict reading deficits in adults. Researcher further stress that visual naming speed could be to blame for

slower decoding, with no effects on accuracy. With that in mind researchers could well foresee a diminished reading comprehension (Cirino et al, 2005). Research is conflicting on the presence of two core deficits in dyslexia, while some contend that visual naming speed lacks specificity, there are research findings that suggest otherwise. These are, for example, two studies that both looked at DDH and how the hypothesis fits with dyslexia, which indicate the presence of different deficits independent of phonological processing and visual naming speed, found both in children and adults (Cirino et al., 2005; Wolf & Bowers, 1999). These categories are not the only that have been proposed in connection with dyslexia, there are for example further categories in line with pathophysiological hypotheses, such as the one that deals with the dysfunction of the magnocellular pathway.

This leads us towards *Magnocellular Deficit theory*. The observation of dysfunction found in the magnocellular visual pathway is a key feature of this theory. But the magnocellular visual pathway helps us understand where we are and how we can move through our environment (see figure 2) (Démonet, Taylor and Chaix, 2004; Liu et al, 2006; Nijakowska, 2010; The Magnocellular visual pathway; Paulesu et al, 2001).
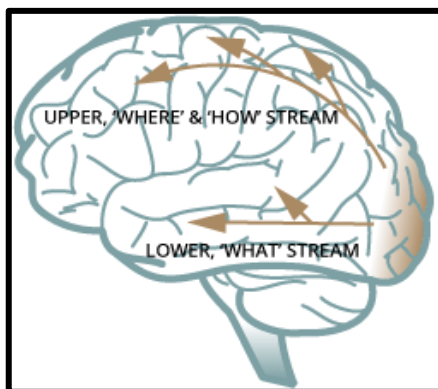
Figure 2. The visual pathways of the brain. Upper arrows show the magnocellular visual pathway

The magnocellular system is important in visual search, directing visual attention and control of eye movement and those skills all have a role in reading ability. Patients with dyslexia exhibited poor thresholds for stimuli and poor sensitivity to visual motion. "Pure deficits for visual contrast threshold might seem to be outside the above proposed memory systems framework; however, existence of such purely visual perceptive deficiencies is much debated" (Démonet, Taylor and Chaix, 2004, p. 1452). Furthermore, Démonet et al. (2004) explain that impaired hearing and touch perception

has been incorporated into magnocellular deficit theory as results of a auditory study showed that the impairment of perception of rapid transient events in the speech stream contributes to those deficits recorded in language-impaired children, such as those with dyslexia.

Magnocellular deficit theory could account for other deficiencies such as motor control or attention but it is not without criticism. This critique is mainly because findings that fall under that theory are not reproducible or specific but moreover because visual deficits in dyslexia extend beyond the frequency domain that is specific to magnocellular functions (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010). This theory is not the only one that has focused on an area of the brain in its search for a cause for dyslexia. An alternative model focuses on a malfunction of the cerebellar and it does not deny the strongly formed connections between faulty phonological processing and dyslexia, but rather believes that it all can be traced back to the biological level.

Thus, the review on hypotheses concludes with *Cerebellar Deficit Hypothesis*. Démonet et al. (2004) clarify that as dyslexia became conceptualised as a learning disorder the cerebellum acquired a role in the pathogenesis of the disorder. The cerebellum plays a key role in higher cognitive processes, including but not limited to linguistic and non-limbic neural networks sub serving procedural memory. This ensures the cost-free automatisation of sensory motor habits so it is not unusual that findings on dyslexics show that they sometimes have motor-coordination and balance disorders in attention-demanding circumstances. Time-evaluation deficits and impairment of automatisation in dyslexia have been linked dysfunction in the cerebellum and that this connection could explain the disorders of handwriting and articulatory skills, with the latter even possible affecting phonological awareness. However, it is not always that cerebellar signs are reported in dyslexia and while it is possible that compensatory mechanisms could account for the negative findings, it begs the question of how important cerebellar functions are to dyslexia? The construction of the memory system and the way it furthers procedural learning is not limited to the cerebellum and includes dynamic interplay between subcortical, cortical, and some cerebellar during skill learning (Démonet, Taylor and Chaix, 2004; Nijakowska, 2010).

The scale and scope of dyslexia research is quite impressive and reveals complex neurobiological patterns. However, the diversity of behavioural indications of

dyslexia adds considerably to the intricacy of the nature of the neurological and cognitive source of the disorder. "Altogether, it seems that a comprehensive causal explanation of dyslexia, incorporating a huge bulk of scientific facts, still remains a matter for the future." (Nijakowska, 2010). These hypotheses are only a few of many that seek to explain the cause/s of dyslexia and future research will hopefully clarify further which of these, if any, will prove correct. However, dyslexia is not the only common learning disorder that can disrupt language learning.

2.4. Specific Language Impairment

Many studies have been done on SLI but they quite often take very different methodological approaches, employ very different diagnostic criterion and category thresholds. This makes the studies difficult to compare but most do however agree on the importance of genetic factors in the conditions development and that many have demonstrated a strong familial aggregation of cases of language impairment (SLI consortium, 2002). The following sections firstly look at genetic research connected to SLI, secondly describe the subgroup that has been identified as having a specific form of SLI, thirdly survey the research that indicates a certain level of behavioural difficulties inherent in individuals with SLI, and lastly looks at research that seems to point to connections between SLI and autism.

2.4.1. SLI and genetics

Most investigators of SLI agree that genetic factors are important in the development of SLI. For example, one review of seven family studies reported that the prevalence of SLI in family members of affected participants was 24-78% (mean 46%) compared with 3-46% (mean 18%) in the control groups. Further support for the genetic basis of SLI and even other language disorders can be found both in the results of numerous twin studies that have been conducted, as well as in the series of investigations by Bishop et al. (1995, 1996, 1999) which looked at families affected by SLI, and demonstrated significant heritabilities in several psychometric language measures (SLI consortium, 2002). Research clearly indicates that there is a complex genetic basis behind language ability and it is in part this complexity that precludes the use of traditional parametric approaches in the genetic mapping of SLI (SLI consortium, 2002, p. 385).

In genetic research the first gene found that directly links to speech and language, and in which mutation has an effect on those abilities, is the so called FOXP2.

Furthermore, FOXP2 is located on a chromosome that research of other disorders that affect language has found linkage to (O'Brian et al., 2003). While the search for genetic markers for language impairment is important in determining language ability, it is also important to look at tests that reflect the cognitive difficulties of SLI. Research has for example also looked quite intently at the role of memory in language performance and in SLI children there has been investigation of the performance on phonological short-term tasks (Botting & Conti-Ramsden, 2001; van der Lely, 2005). Unfolding research and tests of this nature have then helped researchers identify a subgroup within SLI, in which the language impairment is specific to grammar.

2.4.2   Grammatical SLI

Within the group of individuals afflicted with SLI there is a subgroup which has been found to have a significant deficit in syntax and has been identified as grammatical-SLI. Even if this subgroup is not large, it is unique because of how different SLI is realised in those individuals that have this subtype. This has led to a number of studies of the subgroup, most of which have mainly focused on production, yet there are a few that have focused on the syntactic aspects of sentence comprehension (Friedmann and Novogrodsky, 2007; van der Lely, 2005). These studies have found a deficit in the ability to understand meaning signalled by grammatical elements such as word order or inflection. Additionally, the studies have found that children with this subgroup of SLI struggle with comprehending complex sentences. Friedmann and Novogrodsky (2007) name examples of this, such as impaired or poor comprehension of passives, as well as verbal compared to adjectives in English, referential object questions and questions with an embedded compliment. All the structures that this subgroup fails to understand shares one coherent property; they are all derived by movement of phrase and entail a non-canonical order of arguments. Normal language acquisition has shown that while children as young as three years old produce relative clause sentences, they do not fully comprehend them until two to three years later. It is quite unique that comprehension emerges after production and this realisation by researchers means that grammatical-SLI research must adapt to the fact that a study of production patterns by no means assesses comprehension (Friedmann and Novogrodsky, 2007). These issues are highly relevant to the understanding of language acquisition and reading development. Full understanding of these elements will aid in the development of remedial strategies.

2.4.3   SLI and behavioural difficulties

SLI researchers have done studies that catalogue the various socio-emotional behaviours of children with SLI or other language limitations. The repeated appearances of such behaviours in studies seems to indicate that not only children with SLI but others with language limitations have emotional and behavioural problems that set them social limitations. The relationship between these behavioural problems and language limitations is very relevant for those classified as language impaired, especially as the interpretation of this relationship is bound to affect the interventions these children receive (Redmond and Rice, 1998. There are two interpretive frameworks that Redmond and Rice (1998) rely on their study; the first is the Social Adaptation Model (SAM). SAM states that the behavioural differences between SLI children and their normally developing peers can be attributed to a combination of the children's primary language limitations, social context and the biases people associate with limited verbal proficiency. Yet, the latter framework, the Social Deviance Model (SDM), states that the differences between affected and unaffected children are due to manifestations of differences in underlying socio-emotional characteristics (p. 689). These different frameworks lead to vastly different assumptions, predictions and clinical implications but both must be included since as neither is yet conclusively proven (Redmond and Rice, 1998).

Within SAM, it is hypothesised that a child with SLI has the same psycho-social attributes as its peers; however, the range of its socio-emotional behaviours demonstrates how they have adapted socially to their language limitations. To elucidate, there are three elements of a child's social situation that are filtered through the psychosocial system to adequately produce compensatory behaviours. These are firstly the communicative demands of a situation, secondly the child's language limitations, and lastly the biases and conduct of the people in their environment. Children with SLI will make adjustments to their discourse behaviour, in a peer interaction this includes less initiation and response compared to their unaffected peers, fewer assertive acts during peer negotiation, and a stronger reliance on an adult mediator (Redmond and Rice, 1998). Furthermore, SLI children have to adjust and get accustomed to more instances of peer rejection, to adults making pejorative assessments of their intelligence, and to social competence bases solely on their verbal proficiency. By making these adjustments the child likely develops authentic social difficulties and limitations and the

SAM perspective is that these disparities are natural and easy to predict outcomes of language limitations (Redmond and Rice, 1998). A fundamental difference between the SDM and the SAM is how the former views behavioural adjustments such as seeming shyness and withdrawn behaviour.

The SDM model is based on developmental psychopathology and its core belief is that it is underlying socio-emotional trait structure that guides a person's socio-emotional development. It further contends that these traits can be impaired and affected during a child's development, resulting in social behavioural problems. The classifications within this model mean that the socio-behavioural adjustments of the child with primary language deficits is thought to be an inherent defect in much the same way as behaviours of other children with psychopathologies such as AD/HD or personality disorder. The SDM model does have more drawbacks and it does assume that the behaviours of SLI children or others with language limitations, while similar to psychiatric populations, have the same underlying mechanisms. These two models are not in agreement with the nature of SLI or what the best clinical interventions might be (Redmond and Rice, 1998). However, it seems clear that the language impairment inherent in SLI affects those afflicted in a social and behavioural sense too. It is therefore important to help language impaired students throughout the education as this is problem that does not disappear overnight.

Dyslexia and SLI are alike disorders, in the sense that the both affect language learning, they are however different when it comes to overall cause and manifestation. Learning a language, communicating effectively, and being able to read are important aspects of humanity, and struggling with these can have deep and lasting effects on a person. Now, as Icelandic students typically learn a few languages and these language learning disorders affect more than just native language learning, it is important for teachers to understand these disorders and be prepared to work through them.

2.5 Language learning, teaching and learning disorders

In today's world, boundaries between countries have never been as open and people are more involved with the internet and social media than ever before. This means that people are connecting with each other via technology irrespective of actual distance. Since the world is more connected, there is added value in foreign language acquisition and those with poor language ability, whether that is because of learning impediments

or just generally poor language skills, are at risk of falling behind in this fast paced and interconnected world (Ganschow, Sparks and Javorsky, 1998; Nijakowska, 2010). As English is becoming a world language, its acquisition is of special importance (Helland and Kaasa, 2004). However, language learning is not always an easy and straightforward process.

Generally, learners with learning disorders such as dyslexia and SLI struggle with foreign language learning to the same or similar extent as they do with their first language. Of course, no two people are the same and two students with the same disorder can struggle in different ways. Additionally, it matters how the linguistic environment of a student is and how that could affect his studies overall. Furthermore, it is important to note what part of language learning is affected by these two learning disorders previously mentioned, and moreover what other emotional effects there are of having these two disorders.

2.6 The effects of self-perception on language learning

There is one aspect of having a language learning disorder that generally affects all study, be that the study of languages or any other subject, and that is the emotional aspect. Lindsay & Dockrell (2000) stated that "the development of language competency is arguably the cornerstone for a child's ability to access the curriculum and develop their social competence." (p. 584) Sense of identity is invariably affected by what your society values and in today's society, literacy is a valued skill. Therefore, if a learner struggles to acquire this skill, or feels he suffers in comparison to his peers, his conception of himself will almost certainly be negatively affected (Burden, 2008). It is thus not particularly surprising that children with learning disorders that affect language acquisition often deal with a number of emotional, social and behavioural problems (Lindsay & Dockrell, 2000; Csizér, Kormos & Sarkadi, 2010).

Not too long ago research began to focus on the effects of learning disorders on personal, social and emotional development of those afflicted. As research has developed in this direction researchers have become more aware of how much constructs such as self-esteem and self-concept contribute towards factors such as peer relations, academic achievement and motivation (Humphrey, 2002). In this context it can matter greatly what type of learning disorder the learner is afflicted with, behavioural problems for example affect the social self-dimension but those learners

with moderate learning difficulties, which affect across many academic areas, have been shown to have low global self-esteem (Humphrey, 2002). Moreover, researchers have noted how behavioural difficulties seem to be linked to language difficulties, both in reading and speech. Thus, children with language impairments have additionally been found to show deficits in social cognitive processing. When this finding is considered in context of the reciprocal interaction between self-perceptions and performance, it can take on a broader meaning. Subsequently, a child that has a relatively negative perception of itself, often because of lack of success in school and personal relationships, usually has reduced motivation that then leads to further impaired learning performance (Lindsay and Dockrell, 2000). One thing affects another until a cycle is created and once a negative cycle of learning is created it can be very difficult to escape. Therefore, individuals with learning disorders cannot be forgotten in the classroom because maintaining a positive relationship with learning and increasing motivation for further study can benefit such a student throughout his or her life.

Throughout the history of L2 research motivation has been considered a key characteristic of successful language learning and most educationalists agree that motivation is a very important part of the learning process (Burden, 2010). However, motivational study researchers, such as Dörnyei and Ottó, only started factoring in temporal changes in motivation fairly recently. Since then research has indicated that number of external influences and internal factors affects motivation in language learning, even if those researched are not afflicted with a learning disorder (Csizér, Kormos & Sarkadi, 2010). Study's, like that of Ushioda from 2001 and Kormos & Csizér from 2005, find that examples of outside influences are things such as the students' milieu, their instructional setting and practices. Whereas internal factors are things such as students' self-concept, their language learning anxiety, their perceived level of competence, their cognitive abilities as well as interest shown by those closest, such as parents, teachers and peers (as cited in Csizér, Kormos & Sarkadi, 2010). Furthermore, Burden's (2008) study states that motivation is ultimately decided by the outcome of an internal decision making process that is governed by attitudes, self-concept and agency (p. 189). These influences on motivation can mean that in the course of a learner's language study, he can vary in his intensity of motivation Students with learning disorders will be especially sensitive to external influences because of their impaired cognitive abilities (Csizér, Kormos & Sarkadi, 2010). While it is difficult

to try and exert some control over the effects of peers on individuals with learning disorders, teachers and parents can work together towards creating those environments most conductive to study. Understanding of what works best means that those closest to the student and his study must observe what is most beneficial and if this can lead to better results it is likely that the self-esteem of the student will increase as a result.

Humphrey (2002) performed a study into self-esteem in children with dyslexia and he noted that, considering empirical evidence that showed effects on self-concept and self-esteem in other learning disorders, it was highly unlikely that dyslexia was unique in this sense. As other research had clearly shown that there were links between academic performance and self-esteem or self-concept, he felt it was important to investigate this to further understand the dyslexic child. Humphrey included three groups of children in his study, dyslexics attending mainstream education, dyslexics attending a specific learning difficulty unit (SpLD) and a control group of children with no learning difficulties. The study found main effects for self-esteem in relation to reading, writing, spelling and native language ability, as well as intelligence, popularity, neatness and importance. The main differences were between the dyslexic mainstream group and the control group on the one hand, and between the dyslexic mainstream group and the SpLD unit group on the other hand. Furthermore, the SpLD group normally scored as high as the control group and in only one aspect, self-esteem related to English (native language) ability, did the SpLD unit score lower on measures of self-esteem than the control group (Humphrey, 2002). This was considered quite unusual but was accredited to the SpLD unit's group revelation that they felt more valued and cared for within the unit than they did while in mainstream education. This was believed to have led to the participant's increased levels of self-esteem and more positive self-concept. Meanwhile the group in mainstream dyslexic education reported feelings of isolation and exclusion and those translated into their lower self-esteem scores. Humphrey does however stress that he does not believe that segregation of students into learning disorder specific groups is ideal and that mainstream schools ought to rather take this as challenge to create an environment in which all children feel valued and secure (p. 34). There has been a push towards inclusion in education in the past decades, it therefore remains important for teachers to consider how best to create a safe environment within the common classroom. Motivation is a key element of second

language learning and segregating students and taking them outside their normal class must be detrimental to their motivation to learn (Csizér, Kormos & Sarkadi, 2010).

Research into self-perception and learning, in students with learning disorders, has yet areas to uncover. Some researchers have for example pointed out that is important that research in this field accepts both the heterogeneity of the population and the multidimensional aspect of the self-concept so that it can fully understand the self-perception of children with learning disorders such as dyslexia (Burden, 2008). It is possible too that with time and better coping mechanisms the individual with learning disorder can strengthen his or her academic self-concept. However, continued struggle with learning will almost certainly deteriorate a person's academic self-concept further. Therefore, it is important to improve the quality and support these students receive in their education (Burden, 2008). Stage and Milne (1996) pointed out less than twenty years ago that academic performance of students with learning disabilities, in American colleges, was both lower than their peers and moreover lower than their high school performance predicted. Further findings from Stage and Milne's study showed that all the students tested, reported negative feelings of self-consciousness and a reluctance to inform people of their learning disability. While any learner can have a low self-esteem and experience moments of self-consciousness it seems to be almost a feature of the learners with a learning disorder. As this frequently affects learning at any age, teachers of older students must not mistake coping mechanisms for complete self-sufficiency and always strife towards supporting the student towards a stronger sense of self. This is especially important in areas of study that are obligatory but those students with language learning disorders so often struggle with, such as foreign languages.

2.7 Dyslexia, SLI, and foreign language learning

Researchers have investigated those who have not performed well in foreign language courses versus those that do perform well. This meant identifying and agreeing on what constituted as foreign language learning aptitude. Over 50 years ago John Carroll came up with a coherent explanation of what language variables were related to foreign language learning (Ganschow et al, 1991). With the help of factor analysis Carroll identified four specific areas. These were:

> ➢ Phonetic coding: the ability to code auditory phonetic material so that it could be known, distinguished and remembered over time.

➢ Grammatical sensitivity: the ability to manage grammar.

➢ Inductive language learning ability: the capacity to infer linguistic patterns, forms and rules from new linguistic material.

➢ Rote memory for foreign language material: the ability to be able to remember a great quantity of grammatical and phonetic associations (Ganschow et al, 1991, p. 531).

When researchers started to notice linkage between native language difficulties, usually in those with a learning difficulty, and foreign language difficulties they set out to figure out if a problem in native language acquisition would lead to further problems in foreign language acquisition (Ganschow et al, 1991). This began by looking at components of foreign and native language acquisition. Firstly, in native and foreign language learning there is a term named phonological loop and is a component of working memory. It "mediates language learning by temporarily storing unfamiliar sound structures until more permanent memory representation of these novel phonological forms are constructed in long-term memory" (Meschyan and Hernandez, 2002, p. 14). Research of second language ability, among students that had lower vocabulary skills in the second language, showed a strong correlation between phonological ability and second language vocabulary learning (Meschyan and Hernandez, 2002). Undeniably, phonological loop is one of the important components of language acquisition. Therefore, the children who progress quicker in their first language will additionally score higher on foreign language aptitude tests. This conclusion is drawn from the claim that fruitful foreign language learning and foreign language aptitude draws on intact language skills and native language proficiency. Other researchers, such as Chodkiewicz in 1986, believe this is because good native readers apply their competences in a foreign language too. Based on those conclusions, logic dictates that the acquisition of a foreign language can be hindered by any biological or physiological restriction that handicaps the learning of a person's native tongue (Miller-Guron and Lundberg, 2000; Nijakowska, 2010). This includes the debilitating effects of language learning disorders such as dyslexia, which for example affects phonological processing, and SLI, which affects, for example, phonological areas such as speech and articulation. Furthermore, phonological loop has been found to be a very important component as it precedes and causally contributes to a child's vocabulary development. The contribution of the phonological loop is minimised with

age and existing vocabulary knowledge becomes a mediator for the learning of new vocabulary terms (Meschyan and Hernandez, 2002). Therefore, the importance of phonology is not to be underrated, especially when it comes to second language learning

It was not until around 1970 that Peter Dinklage, a psychologist from Harvard University Health Services, published the first study (1971) linking learning impediments and foreign language learning (DiFino and Lombardino, 2004). Dinklage further cited that the symptoms of the learning impediments fit, amongst others, a learning impediment that a few years earlier had been named developmental dyslexia in a study by Critchley (DiFino and Lombardino, 2004; Ganschow, Sparks and Javorsky, 1998; Nijakowska, 2010). It was then in the 1980's that a credible link between difficulties in foreign language learning and native language learning was put forward. It stated that foreign language learners with specific learning disorders shared certain features of language functioning that could negatively shape their ability to learn a foreign language (Nijakowska, 2010). Since then researchers have investigated both this link as well as other variables that might affect foreign language difficulties such as language aptitude, native language skill, anxiety, motivation and even personality. Results of this research seems only to have strengthened this link between learning impediments and foreign language learning, even though factors such as motivation and aptitude cannot be completely ignored. For example, in a comparison study, by Sparks and Ganschow from 1996, of good and poor foreign language learners researchers compared grades and found that those students that obtain higher foreign language grades revealed remarkably stronger native language skills as well as foreign language aptitude, than those students with lower grades. Further research, by these investigators, consistently show that students that achieve higher foreign language grades have significantly stronger native language skills (Ganschow, Sparks and Javorsky, 1998; Nijakowska, 2010; Sparks, 2006).

While problems with learning a foreign language can occur without any specific learning disorders, and no study by, for example Ganschow and Sparks, has found that there is a difference in IQ between those that struggle in foreign language learning or those that do not struggle (Ganschow, Sparks and Javorsky, 1998). Students that do have learning disorders will struggle with different type of foreign learning problems than those who do not have a learning disorder. Conversely, on the continuum of

foreign language learning difficulty, dyslexics are categorised as severely afflicted (DiFino and Lombardino, 2004; Ho and Fong, 2005; Nijakowska, 2010; Sparks, 2006). However, SLI is mainly classified as a primary language deficit and this author could not find any studies that have researched what happens to children with SLI specifically, when they embark on their foreign language learning. However, the research that has focused on how a difficulty in your native language affects foreign language learning shows that those with SLI will likely have problems in foreign language learning too (Meschyan and Hernandez, 2002). This is important when it comes to the SLI learner because he faces many difficulties in his native language acquisition. The complexity of the language learning disorder will certainly correlate positively with the problems that the disorder incurs.

Now, an individual with dyslexia can be found to have a number of problems that probably will affect foreign language learning. These problems include some overlap with factors inherent in a phonological deficit and are listed above in relation to common hypotheses. Full lists of problems connected to dyslexia are as follows:

1) Faulty auditory sequencing, but auditory sequencing is the ability to remember what you heard and in what order you heard it.
2) Poor self-esteem which is generally derived from the fact that dyslexic spend a lot of time struggling with learning.
3) Difficulties with motor skill and automaticity, the former refers to intentional and learned motor or muscle movement and the latter is the facility to do things without thinking about it in detail.
4) Poor working memory, which is when the part of your brain that juggles information that you are both processing and storing, using both short term memory and attention, is weak.
5) Confusion over syntax, which means not understanding how words correctly fit into sentences and clauses.
6) Weakness in phonological processing which is when a person's auditory skill that helps detect and discriminate differences in phonemes or speech sounds is poor.
7) Slow speed of information processing meaning a person is slower to accept and understand new information, and has limited attention span and difficulties in

object naming (Crombie, 1997; Crombie, 2000; Auditory sequencing- what is auditory sequencing; Improving teens' reading speed and comprehension).

In that long list of things that dyslexia affects, there are some areas that are more affected than others.

It is the deficits in phonological processing which seem to be especially pronounced in dyslexic individuals. Within these deficits falls phonemic awareness or the capability to consciously manipulate and isolate the sounds of the language, Research has observed that those with difficulties in phonological processing continually perform poorer in measures on word attack, word recognition and foreign language aptitude, as well as having higher failure rate. While some pupils manage to compensate for their problems with phonological and/or orthographic processing and achieve above average or average grades in their other subjects, the processing problems re-emerge again when the student has to learn a foreign language system (Downey, Snyder and Hill, 2000; Nijakowska, 2010). This type of re-emergence of problems occurs even if the differences between the native and foreign language are great, such as between English, which is alphabetic, and Chinese, which is non-alphabetic (Ho and Fong, 2005). Additionally, there is a lot of elements included in phonological processing.

Sensory difficulties that occur in dyslexia have been linked to the universal features of phonological processing. This link exists partly because of the speech segmentation strategy employed initially in infant's speech production. Moreover, the characteristics of phonological systems can often differ between languages (Goswami et al, 2010). If this link between sensory difficulties and universal features of phonological processing, that are important in understanding syllable structure, is solid, acoustic cues such as pitch and duration would be expected to have different weighting across languages. However, things such as the deliberate rhythmic timing of speech seem to rely on the same sensory cue across languages, namely "the rate of change of the amplitude envelope at the onset of the syllable, or rise time" (Goswami et al, 2010). This finding indicates a more universal element of phonological processing, rather than a reliance on orthographic variations and environment in processing tasks. Deficits in phonological processing are often mentioned in relation to dyslexia because they affect very much of the range of problems that are inherent with that learning difficulty.

Problems with reading, writing, spelling, speaking are most linked, at least to some extent, to poor phonological processing.

Some studies have focused on the problems dyslexics have with facets of phonological processing that relate to spoken language. This includes grammatical morphology and inflectional morphology (for example past-tense verbs and noun plurals). One Canadian study that focused on past-tense morphology hypothesised that the reason dyslexics might be afflicted with past-tense deficit is that when a person is figuring out the structural relationship between the present- and past-tense form of a verb, phonology plays an important part. With verbs, even though they are irregular, it is important to look at the phonological stem to correctly input a verb ending between the present- and past-tense and because this is aided by phonology it is often something that dyslexics struggle with (Robertson et al, 2013). Nevertheless, it is important to remember that the phonological processing problems in dyslexia affect more than writing and speaking, listening is also affected.

Research has looked specifically at listening skills with dyslexia and investigated which elements of listening with dyslexia are universal, which is language specific and what early listening and deducting skills can predict for learning and reading acquisition. Firstly, across languages, people who are listening attend to syllable-internal events most often referred to as stress beats, rather than to the physical onset of syllables to adequately determine speech rhythm. Secondly, all pre reading children that have been tested, learning all languages, seem to be aware of syllables and be able to divide them at the vowel, making two phonological units referred to as onsets (onsets are any sounds before the vowel, such as the "bl" sound in "blood"). Therefore, the development of phonological awareness seems to follow a very similar course across languages; children initially become aware of syllables, then onset-rime units and lastly, if taught an orthographic representation of this grain size, of phonemes. Lastly, it is the measurement of onset-rimes and syllables that can best predict if a child will struggle in its reading acquisition (Goswami et al, 2010). Summing up, the signs of dyslexia appear before children begin reading and it is important for parents and guardians alike to listen to their child's speech production in the years leading up to reading instruction.

Furthermore, listening remains important in the developmental process of phonological awareness. Perceptual insensitivity to rise time, which is the auditory cue

to rhythmic timing in speech and connected to syllable stress, will hinder precise syllabic segmentation of speech. Moreover, it will affect the effectual separation of syllables into onset-rime units. What is more, this is regardless of the language and its rhythm class (Goswami et al, 2010). The plentiful literature that explores the auditory sensory deficits present in dyslexia has mainly focused on the very quick changes in intensity and frequency that typify formants. Formants are "the spectral peaks of the sound spectrum" (Formant: What is a formant?). However, it is becoming clear to researchers that "slower amplitude modulations in the speech stream for speech perception" (Goswami et al, 2010, p. 326) is gradually becoming more important. "Accurate perception of the slowly varying amplitude envelope cues is now thought to be important for phonological development" (Goswami et al, 2010, p. 326). The conclusions of Goswami et al (2010) is supported by findings in children that have received cochlear implants and have subsequently developed age-appropriate phonological systems. Cochlear implant is a small electronic device that provides a sense of sound to an individual that is deaf or hard of hearing; in addition, the implant provides envelope information but not fine time structure cues (Cochlear implants; Goswami et al, 2010). Accurate listening will matter greatly for phonological processing in the years before a child begins to read.

When children start to learn to read the print-sound correspondences, they begin to discover a reciprocal effect on phonological development. This process differs accordingly with different orthographies of languages. However, it is clear that phonological processing is changed forever a soon as children begin learning to read (Goswami et al, 2010). The dyslexic reader, which generally reads his native language texts with poor efficiency and low automaticity, is expected to experience the same limited efficiency and low automaticity in the foreign language text as well (Miller-Guron and Lundberg, 2000). Consequently the dyslexic learners, by not possessing the stronger sub skills needed to enable faster and more accurate reading acquisition in the foreign language, will have a much inferior reading experience. Naturally, a favourable reading experience is almost habitually needed to produce skilled readers and since dyslexics consistently labour over reading, their comprehension and motivation suffers. Additionally, developing the proficiency to read (up to a certain level) in a foreign language is believed to spark progress of the parallel skill in a native language and vice versa, meaning that the dyslexic student, without tutoring or assistance, is constantly

trying to play catch up (Nijakowska, 2010). Unsurprisingly, this complication is not the only potential problem that the dyslexic student can expect to face as he begins school.

Introducing a foreign language at a primary school level is potentially problematic for the dyslexic learner. Not too many years ago foreign languages started being introduced earlier in the primary school syllabus in Iceland. However, this is a potential problem for the dyslexic learner. As this policy change comes into effect there are a number of dyslexic pupils that now have to begin learning another language, all the while having potentially not reached an adequate level of competency in their own language. Accordingly, a pupil in this position is bound to encounter problems and little research has been done to figure out if attending foreign language courses at that young an age is of any use to the dyslexic pupil (Crombie, 2000). However, it has not been shown that withdrawing these students from foreign language study is a positive move either. Clearly, an educator cannot fail his or hers student's educational needs or admit defeat in the student's ability to overcome the problems with effective tutoring (Crombie, 2000; Nijakowska, 2010). Nevertheless, an educator must evaluate if persistent failure in learning a foreign language, is making the dyslexic pupil unmotivated and/or anxious. Because those type of emotions could naturally attribute to emotional or behavioural problems that would then affect the rest of the students study. Therefore, in those types of situations, at least temporarily, it could be best to withdraw the pupil from such study. Yet, this should be avoided at all cost. Furthermore, until the teacher has exhausted all possibilities and tested the effectiveness of different teaching methods, this absolute last resort should not be used (Crombie, 2000; Nijakowska, 2010). All students are different and it is difficult to generalise for such a varied group of people as that of dyslexic individuals. Hopefully, teachers can always, with enough information and preparation, help these students to find what suits them best in the study of a second language.

There are a few dyslexic studies, such as that of Ho and Fong's (2005) study on Chinese students with dyslexia, which have important aspects that have not been found in studies where the dyslexic's native language is English. In this study this aspect had to do with reading problems. Namely, the Chinese dyslexics, despite of their poor phonological skill and therefore foreign language difficulty, did most often not have reading problems in their native Chinese. This means that reading difficulties in Chinese (L1) and English (L2) occur due to both common and specific causes (Ho and Fong,

2005). This emphasises the problem with defining dyslexia because clearly there will always be some differences between individuals and countries. In brief, while learners with dyslexia are similarly affected in the brain area, it depends on the culture, orthography and the foreign languages he or she learns how this manifests itself (Nijakowska, 2010). Therefore, it is quite possible that certain impairments are less visible in the L1, but will then come to light as the student embarks on foreign language study.

The studies done with college students that are about to start foreign language learning found that there is little difference in motivation before the studying starts. However, the students with learning disorders such as dyslexia perceive themselves less able to master the foreign language course (Nijakowska, 2010). Accordingly, educators should try to inspire confidence and belief in their students and emphasise that learning disorders can generally be worked around with persistence and alternative learning methods. Additionally, studies show that students with dyslexia have often complained that the pace of a lesson can make things difficult as they take a slightly longer time processing what is being said. Finally, studies on dyslexic students report that they often have trouble realising where words begin and end, something that an educator should keep in mind (Downey, Snyder and Hill, 2000; Rontou, 2012). These aforementioned considerations are small issues that should not present a teacher with much trouble.

It can be quite problematic to predict if a learner will have problems acquiring a foreign language, especially since children in Iceland start learning them so young. Current prediction studies have mostly focused on the years leading up to foreign language study, which abroad often come later in the compulsory school period. To this author's knowledge, Icelandic children with language learning disorders such as dyslexia and SLI that start learning a foreign language almost as soon as their official schooling begins, have not been studied. Meanwhile, in the studies that have been done findings strongly indicate that there is a connection between reading and spelling in a person's L1 and subsequent reading, spelling, listening and speaking skills in the L2 (Sparks, 2006; Sparks et al., 1997). Accordingly, these results support the claim that foreign language learning difficulties are not induced by affective variables, such as low motivation and poor attitude, but rather that the affective variables depend on the depth of the learning difficulty (Nijakowska, 2010).

2.8 Dyslexia and learning English

A large part of the world speaks English either as their native tongue or as a second or foreign language and there has been, especially in the past 15 years, growth in research on dyslexics studying English as a foreign language. This includes Ho and Fong's research mentioned previously and also research done in Poland, Sweden, Norway and Finland (Helland and Kaasa, 2005; Ho and Fong, 2005; Miller-Guron and Lundberg, 2000; Nijakowska, 2010).

Firstly, when considering L2 acquisition, or English acquisition in Iceland, it is important to take into consideration the L1 deficits that are generally associated with dyslexia. These have been covered here and include phoneme awareness difficulties, short term and working memory deficits, problems with perception of fast and varying sounds and complications with vision or scanning eye movement as well as movement and balance due to deficits of the cerebellum (Helland and Kaasa, 2005). Generally, in normal language development, it is not especially hard to overcome cross-linguistic difficulties but research and theories indicate that the transition between L1 and L2 will be very challenging for the dyslexic learner. Helland and Kaasa's (2005) Norwegian study on 12 year old dyslexics and their L2 (English) skills after having studied it for 5 years, is quite interesting because of the cultural similarities between Norway and Iceland and the fact that Norwegian and Icelandic are related languages. Furthermore, as Helland and Kaasa explain, their orthographies differ in classification, with English being classified as deep and Norwegian being classified as semi-transparent. On a continuum of the regularity of the orthography documented in a 1992 study by Elley, where 1 is highly irregular and 5 highly regular, English scores 1 and Norwegian (and Icelandic) score 3. Other similarities between Norway and Iceland are found in the educational system that begins orally teaching English (L2) very early in primary school and in an environment that has a very high English input. Children therefore encounter English both explicitly and implicitly (Helland and Kaasa, 2005). While it the two countries are not identical, the similarities are many enough so that assumptions can be made about the results of this Norwegian study being comparable to Icelandic dyslexics studying English. Helland and Kaasa's (2005) testing firstly targeted differences between L1 and L2 in typology, syntax, morphology, pragmatics, semantic and orthography, secondly it had to integrate knowledge of classic symptoms of dyslexia in L1. Thirdly, it had to target the typical symptoms of dyslexia in transition from L1 to

L2, both from a clinical and theoretical standpoint. Finally, the test had to be based on essential components of a language test and a dyslexia test and these components had to be adjusted to age expectancies and school curriculum, as well as allowing for a minimum of testing time and have face value (Helland and Kaasa, 2005). The testing was done on two equal number groups of students, one group with diagnosed dyslexic children, and the other with normally developed children. The dyslexia group was further split into two subgroups depending on comprehension ability. The conclusions of the overall testing were clear:

First, there were highly significant differences between the Control group and the Dyslexia group as to skills within morphology, syntax, semantics and orthography. Second, comprehension skills in L1 and L2 differentiated these skills within the Dyslexia group. Third, the scores on the test battery indicated which areas in the transition from L1 to English as L2 were problematic to Norwegian pupils in general, and in dyslexic pupils in particular. Fourth, the findings may shed light on problems in the transition to English as L2 in languages comparable to Norwegian, as for instance German, Dutch, Swedish and Icelandic (Helland and Kaasa, 2005, p. 55). As these findings show, the dyslexic students' skills in morphology, syntax, semantics, and orthography were far below those of their normal peers. Furthermore, there was also a difference in comprehension abilities between the two dyslexia subgroups in the L2, just as there was in the L1. Lastly, that the most difficult areas of transition from L1 to English (L2) were to do with orthography, which is an area that dyslexics in particular, struggle with in language learning (Helland and Kaasa, 2005).

The Swedish research team of Miller-Guron and Lundberg (2000) found quite surprising results in their dyslexia study, namely, that dyslexic Swedish adults preferred reading in the foreign language they were learning, which was English. They named this DPER, an acronym for *dyslexic preference for English reading*. This finding was hypothesised to be due to several emotional and socio-cultural factors, such as enhanced English input through television and music media, early exposure to English literature as well as factors that are specific to the English orthography (Miller-Guron and Lundberg, 2000). Hence, Swedish dyslexics, who have poor phonological skills, may paradoxically develop some preference for reading the deeper English orthography. This is likely because they are so unsuccessful in applying grapheme-phoneme strategy when encountered with Swedish texts. However, reading English texts requires

strategies in word recognition revolving around larger segments of orthography, such as complete words and rimes (Miller-Guron and Lundberg, 2000).

In contrast, a study done in Greece on Greek dyslexics studying English hypothesised that they struggled especially with reading and spelling in English because the alphabet system is not as transparent as in Greek. According to a study by Spencer (2000) the correlation between grapheme and phoneme in Greek is quite clear cut in reading, another study by Miles from 2000 found that is not the case in writing. This means that Greek dyslexics, and dyslexic learners with a similarly transparent native language, can perform quite well in native language reading tasks (Rontou, 2012, p.140; Spencer, 2000). This finding is very different from the findings of the Swedish study where DPER was prevalent.

It was as early as 1970 that Critchley surmised that there was some connection between orthographic depth and commonness of dyslexia. Early on, some researchers even believed that dyslexia was a disability limited to those that spoke English as a native language, however, that is of course not the case. Nevertheless, the orthography of English, and to some extent French and Danish, is somewhat distant from the phonology of those languages. It has a complex syllable structure, pronunciation that often differs from its spelling and contains many plosive syllable sounds, which are the least sonorant sounds a person can make and thus more difficult to perceive. These hindrances in the language will soon make things difficult for the dyslexic learner (Brunswick, 2010; Goswami et al, 2010). Put in more general terms and according to studies by Hagtvet, Helland, and Lyster from 2003 and 2006, dyslexic children from countries where there is a deep L1 orthography, start falling behind at the alphabetic stage. In contrast, dyslexic children in countries with more transparent L1 orthography seem to fall behind at the orthographic stage, "when greater automation of reading is required" (as cited in Helland and Kaasa, 2005, p. 43). Researchers have since hypothesised that even though a deficit of the phonological core is to blame for the transference of reading difficulty between L1 and L2, that orthographic competence varies and could in fact occur independently from phonological decoding. Consequently, that could possible explain the differences between those that are reading-impaired in L2 with a deep orthography and L1 with a shallow orthography (Nijakowska, 2010). In conclusion, English orthography is deep, fairly irregular and not very transparent, however, due to it being so widely spoken it is also quite frequently

taught as a student's second language. Yet, studying English as L2 seems to be especially difficult for the dyslexic individual, particularly where the orthography of the first language is shallow or transparent. With the notable exceptions being found in Sweden, where the first language places greater morphosyntactic demands on its reader than English, and where English input is also high, which could help explain this anomaly.

A functional brain imaging study done by Paulesu et al (2001) clearly shows that there is a biological basis for dyslexia but that it translates in unison with the orthography (p. 2166-2167). Thus all dyslexic readers, across cultures and languages, will have trouble converting the written word into the matching sounds. Yet, readers with orthographies that are distant from the spoken word, such as English, will experience the most reading trouble in their native language. Additionally the dyslexic individuals studying a foreign language, such as English, can expect significant reading trouble, especially if their native language is orthographically shallower or more transparent than English. Accordingly, dyslexics of deeper orthographies, such as English, will likely be identified earlier than those of shallow ones and by different means. Very slow and poor reading, spelling and phonological processing will quickly alert someone of the learning difficulty for the former. Meanwhile, slower but accurate reading, exerting phonological processing and deficient spelling will in the end point to dyslexia for the latter (Brunswick, 2010).

While the majority of scholars involved with dyslexia research point out that phonological deficits are what make language acquisition difficult for those affected there are a few that do not agree completely. Landerl and Wimmer (2000) for example point out that the difference in dyslexics between orthographies can be more than just a case of the deep and shallow orthography. These scholars feel that some research that has found this link is lacking and uses methods and samples that do not give the right picture. They too feel that much of the previous research has been done on English dyslexics and that is not an accurate enough base for a universal conclusion on dyslexia links (Landerl and Wimmer, 2000).

While Landerl and Wimmer (2000) perhaps have a point in research being too focused on English dyslexics, the evidence collected throughout the world on dyslexia would seem to disagree with their consensus of a lack of universal links (Helland and Kaasa, 2005; Rontou, 2012). Then again, there are scholars that believe that dyslexia

hardly exists and that if it does it is on a far smaller scale than current numbers suggest. These scholars feel that dyslexia is becoming a diagnosis that is bandied about as soon as a child has any difficulty learning, both to serve as an excuse for parents and teachers that are obviously just poor at their job. They further believe that this diagnosis is not helpful and adds little value and probably is more of a disservice to students (Knapton, 2014).

It is not uncommon to find sceptics that believe that modern society is too quick to bandy about diagnoses for everything out of the developmental ordinary. There might even be some truths found in that assumption, but to believe that dyslexia is some sort of myth or a tool to extort money out of parents is quite absurd. Dyslexia is real; research has backed up that assertion time and time again. Additionally, it is only normal for there to be more people diagnosed with it as now there is awareness of how it manifests, whereas before those afflicted were often simply assumed to be stupid. It is right to be vigilant that dyslexia does not become an excuse or a convenient label but it is likewise foolish to dismiss this disorder out of hand just because it has become more visible.

2.9 Teaching English to students with language learning disorders

In this section the focus is on introducing teaching methods, strategies and the possibility of alternative course design that have been used around the world to meet the needs of student with language learning disorders. These are only an example of the great number of alternative teaching recourses often borne of decades of research into learning disorders.

While learning disorders such as dyslexia and SLI are now recognised in most countries there are some differences in perceptions from country to country. Because many learning disorders vary in definition and severity, there is often difference of opinion on how they should be tackled. This is especially true when it comes to learning disorders that affect language learning, as each language's orthography varies and as a result affects the student with learning disorder differently. These variations in perception can then affect the way educational institutions provide for such students (Reid, 2005). Consequently, not all students get the assistance or support needed to do well.

In Iceland there is great awareness of various learning disorders but remedial teaching seems to mainly be used in primary education. However, remedial teaching in primary schools for dyslexic students is mainly in the native language and not in the foreign one, with one study showing that some primary schools do not even acknowledge that dyslexia affects foreign language study (Dal et al, 2005). When students reach secondary school or university the remedial teaching disappears but different measures are implemented. There is, for example, a committee of special measures in the University of Reykjavik and has been since 2008. Students with learning difficulties, due to documented disorders or disabilities, can apply to get special measures in their exams (Sérúrræðanefnd Háskólans í Reykjavík). Even though it is positive that there is something being done, it is disheartening that the only assistance available centres around exams. Students with SLI and dyslexia will continue to struggle throughout the course of their studies and the help that is currently available is simply not sufficient. Foreign language learning is a fairly large part of the curriculum in Iceland and it is in those courses, just as in the native language ones, that the students with language learning disorders will struggle. Teaching languages to students that struggle with language learning is naturally a challenge. Students with learning disorders almost universally do not want their deficiencies pointed out or to be taken out of class for specific instruction, perhaps especially when they are in their teens (Rontou, 2012). However, there are a number of things that the teacher can try in his class to better meet the students' needs, such as differentiation of instruction, which refers to tailoring instruction towards the individual. Instead of singling out the students that have learning disorder, a teacher can individualise this differentiation to every student in the class. Doing so should then diminish any stigma associated with being different and is generally just the teacher using appropriate teaching methods to match a student's learning strategy (Rontou, 2012). Most student, whether consciously or unconsciously, have a learning strategy that serves them well. Now, if a teacher is willing to accommodate the students' learning strategies with some teaching methods or by tweaking assignments, he or she has already taken a big step towards serving the students better.

There are some resources for Icelandic students with learning disorders in secondary school, such as listening to audio version of novels used in instruction, as opposed to reading them, extended time for test taking and oral exams instead of written

ones (H. Hauksdóttir, personal communication, March 18, 2014). However, teachers in higher education in Iceland generally seem to work under great time restraint and have many students per each class. This makes differentiating instruction or implementing teaching methods that might work better a difficult task. Yet, there is much literature on methods that might better suit students with native language difficulties that are beginning their foreign language learning. Moreover, there are college and university courses globally that take into account the difficulties that most students with learning disorders encounter and try to offer alternatives. Therefore, with effort and cooperation within the country's educational system, alternative teaching methods such as those introduced in the following section, could well be utilised here in Iceland.

2.9.1. Teaching methods and strategies

The amount of research that has been done in relation to what methods and remedial strategies work best for the student with foreign language learning difficulty such as dyslexia is quite extensive. Since the 1980's, Ganschow and Sparks (2000) have been conducting research on foreign language learning for those that struggle with reading and writing in their first language, such as those with dyslexia and SLI. They have focused on the nature of the difficulties, why they are encountered and what can be done to minimise them. Ganshow and Sparks' (2000) research revealed that instruction was, at least at the time, quite focused on teaching language through communicative approaches. But communicative teaching methods expect the student to acquire the language by communicating in it (Ganschow and Sparks, 2000). However previous research, by for example Wong (1987) and Swanson (1989), on native language instruction and dyslexics had shown that those students struggling with language did not learn reading, writing and spelling with this manner of instruction. Rather that they needed structure and systematic instructions on rule systems in the language they were learning (Ganschow and Sparks, 2000). While individuals vary, researchers seem to be discovering that the communicative teaching methods are ill suited for students with language learning disorders (Ganschow and Sparks, 2000).

However, pinpointing what to do can be difficult when there are so many conflicting research outcomes. There are some issues that intensely debated but there are additionally facts that have already gained much recognition and acceptance in the research community. For instance, there is agreement that it is important and necessary to implement some phonological training into the class work. It is accepted also that to

minimise literacy problems it is necessary to enhance automatisation of reading and spelling skills through specifically designed long-term reading instruction (Nijakowska, 2010). This type of reading instruction applies to the bilingual and multilingual context also, as well as, in teaching English as a second or a foreign language. While there is less commonly specific reading intervention programmes prepared for second or foreign language learner, the ones designed for native language instruction should be just as beneficial to these learners. Therefore, foreign language teachers could easily use methods that are popular in remedial reading instruction in elementary school.

2.9.1.1 Simple strategies and study aids

Margaret Crombie (1991), a noted British dyslexia researcher, wrote a guide booklet for teachers in the UK, with advice and information about dyslexia. In it there are a number of ways suggested to better aid learning for the students with dyslexia. Firstly, a teacher should for example try to offer the option of oral response as opposed to written. Secondly, it is advised to rather mark written assignments on content, so that a student does not become unmotivated by frequent spelling mistakes. Spelling can then be tackled through computer games or a structured multisensory spelling program. Thirdly, rather than write a lot on the whiteboard for students to copy down, it is better to distribute photocopies. Additionally, care must be taken to figure out how long home assignments take and try and adjust for the dyslexic student. Subsequently, if a dyslexic student is uncomfortable with reading aloud for the class and struggles with the language a teacher should avoid calling on him and rather try including him or her in discussion groups. Also, it is vitally important to teach all students how to effectively use a dictionary. This will prove to be skill that all students benefit from and especially dyslexic students, which often have to look up words they do not understand. Finally, if possible a teacher should try and work with the student on organisation and memory exercises to improve those areas. Crombie (1991) stresses too that foreign language learning can be traumatic for a dyslexic student and that it matters what language is being learnt. If the language is phonetically regular and fairly similar in pronunciation to the native language then that would be easier for the dyslexic student to master. But since it is rarely the student's choice what becomes his second language and it so happens that the language studies is very different from the native language, then there are bound to be considerable problems. This is because unknown phonic structure and strange pronunciation will make existing problems in the native language even worse in

the second or foreign language. In these instances Crombie recommends the principles of multisensory teaching and, in the severest cases, to prioritise oral responses over written. These easy-to-execute study aids should help teachers build a solid base for a further differentiation in the teaching of students with learning disorders.

Schneider and Ganschow (2000) have also recommended dynamic assessment to help the foreign language learner. Dynamic (cognitive) assessment started as a method to assess intellectual potential and remediating cognitive deficits in individuals with mental retardation, but evolved into a way for educators to assess a person's metalinguistic knowledge. Furthermore, dynamic assessment is an on-going prescriptive/diagnostic approach to instruction and allots the continuous interaction between student and teacher that is needed for some individuals to discern solutions to various learning problems. Additionally, unique to this method of assessment are that role of the teacher or instructor as both the mediator and facilitator of student learning, the intertwining of teaching and assessment, as well as the emphasis on processes as opposed to products of behaviour. Moreover, this method assumes that students can modify and/or improve their learning by working with trained teachers who can deliver "mediated learning experiences" (Schneider and Ganschow, 2000, p. 73). Thus, the teacher selects concepts that need to be taught and guides the student through them by utilising prompts, such as questions, non-verbal gestures and hints. Additionally, this process would then provide the teacher with the insight into the student's current understanding of the topics being taught. To clarify, Schneider and Ganshow (2000) say that this means that the teacher must often model a problem solving strategy quite explicitly until the student fully adopts this strategy. However, in this environment the student is encouraged to ask questions yet a teacher tries not to give the answer but rather ask a carefully structured question that can guide the student towards finding the answer on his or her own. Nevertheless, this sort of give and take approach, where the learner's response shapes the teachers response, might suit best with smaller groups. Furthermore, then the teacher can collect frequent anecdotal data to see how effective the instruction is for the struggling student. While it best suits a small group there is nothing inherent in it that suggests that it cannot also be utilised in the secondary school language classroom.

Schneider and Ganschow (2000) additionally recommend a few easy instructional strategies that, like dynamic assessment, strengthen metalinguistic

processing skills. These strategies are both suited in a classroom setting, as well as one-on-one work and can be used in a variety of combinations. Firstly, there is the strategy of creating an "error-making" atmosphere by allowing for rethinking time. The teacher tries to model and explain to students that not only are errors a great way to learn but moreover that they are often made because of very logical assumptions. Secondly there is the strategy of using "thought-provoking" questions to lead the student towards the answer without giving it outright. That is so the student can take charge of his own learning process. Thirdly there is the strategy of training students to use mnemonic devices for foreign or second language patterns. Furthermore, a teacher should give examples but preferably allow the student to find their own non-verbal mnemonic devices, using for example colour, shape or movement. Next, the fourth strategy focuses on finding patterns and similarities within the target language, and then similarities and differences between the target and the native language, in areas of grammar, spelling and pronunciation. This type of "analogical reasoning" is instrumental in building metalinguistic awareness in both the native and the target language (Schneider and Ganschow, 2000). Lastly, a teacher should help students to structure their learning material according to language concepts. Thus, the student is encouraged to keep a language folder divided into categories of grammar patterns, pronunciation and spelling and then vocabulary patterns.

Reid (2005) points out that some schools have taken on board whole-school approaches that make this a school problem that needs tackling throughout, and not just something that individual teachers have to deal with. Included in whole school approaches are literacy projects, counselling strategies and study skills programmes. Additionally, a teacher can input support approaches and strategies that are perhaps more easily integrated into normal class activities, such as word games and visual acuity activities. For the latter it is, for example, possible to utilise Nancy Bell's Visualising and Verbalising program that develops concept imagery from language and helps the student picture what he is reading, thereby aiding comprehension and memory (What is Visualizing and Verbalizing?). Lastly, it is possible to use some assisted learning techniques that utilise a variety of methods, but a core part they share is the aspect of learning from others, whether that is a peer or an adult. These are techniques such as paired reading, reciprocal teaching and peer tutoring. A teacher might feel some pressure working towards a change in teaching methods alone, but a whole school

approach or even just an inter-departmental approach could help teachers implement changes gradually and with support (Reid, 2005). Additionally, there are many other methods that are easy to implement, either partially or fully.

Exley (2003) did a study in the UK, where he tried to find out if instructing dyslexic children according to their preferred learning style would improve their performance and attainment in literacy and numeracy. While the study sample was small and the study executed just before and just after summer break, all students improved and most maintained their improvement through the summer break. The level of improvement varied but interestingly, those who improved the least had emotional and/or behavioural problems alongside their dyslexia. However, all students reported that they felt better about their learning and many dyslexic students felt they could employ their learning style preferences in their mainstream schooling to better achieve focus and use their differences (Exley, 2003). To employ this strategy the teacher first needs to assess the student's strengths and weaknesses. Furthermore, the assessment used to do this must also be carefully selected. For example, to assess spelling Exley (2003) utilised Young's Parallel Spelling Tests and to assess learning styles Exley utilised a inventories, interviews (structured and unstructured), observation, and checklists. This would undoubtedly take time but if a few teachers got together and shared the assessment load they could collectively figure this out. Now, teachers might think that it is idealistic to strive to teach every student, in a populated secondary school, according to his or hers preferred learning style. However, students need not be catered to in the minute and there are not an infinite number of learning styles. Furthermore, teachers could begin by doing this just for those students that seem to be struggling and then slowly incorporate the whole class. Therefore, this need not be an unattainable goal and with a clever course design and collaboration, not even too much work.

2.9.1.2. Complete teaching methods

There are a few extensive methods that have been used for teaching students with dyslexia that have shown some success. These are the Orton-Gillingham approach and teaching systems that have been created from foundations of Orton-Gillingham's systematic and multisensory approach. When researchers talk about multisensory methods such as the Orton-Gillingham approach, and the ones derived from it, they are pointing out the need to go further than using "look-and-say", where words are taught as

a whole and not as a collection of sounds, and "phonic" approaches, where students are taught individual phonics and how they blend to form a word. Multisensory methods try to activate coordinated interaction of all the requisite senses, seeing, hearing, speaking and writing simultaneously (Crombie, 1991; Look and Say Teaching Method; Oakland et al, 1998; Reid, 2005; Teaching Phonics). This type of learning integrates the student's visual, kinaesthetic, auditory and oral capabilities and tries to utilise the student's strengths but work on the weaker areas as well. Materials and exercises are broken into smaller units and the learning is structured so that the knowledge is built in a cumulative way, so that new knowledge is based on what has already been acquired (Crombie, 1991; Rose, 2009). Success of this type of teaching is largely part built on correctly matching task complexity with a student's capabilities. Therefore, a teacher must gather some sense of his student before fully implementing these strategies. Nijakowska (2010) points out that in foreign language instruction there has been special emphasis on training the metacognitive skills more directly than is traditionally the norm in the use of these types of multisensory methods. Metacognitive skills for example involve recognising what are your capabilities, what a task is like, and how best to solve it. Furthermore, it is the understanding how of you learn best (Metacognitive Learning Skills). Variations of multisensory methods have been used in both native and second language instruction in Britain, USA and Poland to name but a few (Nijakowska, 2010). Moreover, specialised instruction based on methods used to teach dyslexic children to read, write and spell in their native language, i.e. Orton-Gillingham methodologies, seem better suited than communicative approaches (Ganschow and Sparks, 2000). It is however imperative to realise in this context that not all dyslexic students are the same and what suits one may not suit all. To that effect, some individual tailoring must take place to make foreign language instruction as successful as possible (Nijakowska, 2010). Ganschow and Sparks (2000) did a number of studies and found that dyslexic or language learning impaired students appeared to benefit from systematic, direct and multisensory instruction in the rule systems of language: grammatical/syntactic; semantic; phonological/orthographic; and morphological (suffixes, prefixes, roots). This finding concurs with the strategies employed by the previously mentioned Orton-Gillingham approach.

The Orton-Gillingham approach "is a systematic, sequential, multisensory, synthetic and phonics-based approach to teaching reading. Explicit instruction is

provided in phonology and phonological awareness, sound-symbol correspondence, syllables, morphology, syntax and semantics" (Ritchey and Goeke, 2006, p. 171). A key element of this type of reading instruction is that is utilises visual, auditory, and tactile learning pathways. Thus, a teacher has to constantly show what a letter or word looks like, how it sounds, and how the speech organ (or hand) feels when producing it. Moreover, the dyslexic student learns how to read and spell a word by hearing, seeing, pronouncing, forming, and finally tracing and writing it. Another key rule is to familiarise students, both directly and explicitly, with phonological (phonemic awareness), alphabetic (letter-sound correspondences), morphemic (prefixes, suffixes, roots), and syntactic structures of language (Nijakowska, 2010, p. 125). Furthermore, a teacher employing this method should, according to Clark and Uhry's 1995 book, teach language components directly, systematically and cumulatively. Consequently, students should overlearn and master what is being taught before they move on to the next item. Additionally, this instruction should be based on on-going diagnostic information and assessment and individualised as much as possible for each student. There are a few programs that have evolved from this reading methodology to better suit a student with language learning disorders, such as Alphabetic phonics, The Herman method and The Slingerland Approach (Ritchey and Goeke, 2006). A common element of all these approaches is the reliance on multisensory instruction. Furthermore, research shows that the systematic, sequential, cumulative, and overlearning elements inherent in Orton-Gillingham work, even if they are only used in part of the weekly classes. Reid (2005) additionally points out that it is possible to use different individualised programme for dyslexic students, such as the Bangor Dyslexia Teaching System.

The Bangor Dyslexia Teaching System focuses on not using rote learning tasks and supporting the classwork auditorily, kinaesthetically and visually. Moreover, the students are made to keep their own "dictionary" or a type of record of spelling patterns that can be referred back to if needed. This type of dictionary could even be illustrated by the student if he/she so prefers, and is a meaningful way of giving a student control of his/her own studies. Furthermore, in BDTS there is recognition that the English language is not a strict system of rules and exceptions but rather a melting pot of influences from other languages that have invaded upon it. Hence, there are reasons for these variations in spelling and sometimes explaining that can yield meaning and aid memory retention (Miles, 1997). Additionally, theoretical evidence suggest that the

systematic, concentrated and patient teaching inherent in BDTS is very effective, thus it could well be implemented, at least partially, into second language learning in Iceland. BDTS's instructional strategies or like multisensory methods can then serve as way to further help the students with language learning disorders to excel.

Therefore, there is no reason why these types of methods should not prove successful here in Iceland. Nevertheless, if a teacher is hesitant on taking on the multisensory methods straight away, he can tackle the smaller teaching strategies mentioned previously.

2.9.1.3. Specific courses and course design

Teachers with classes that include both students with and without language learning difficulties have the option of designing their course so that is inclusive for all of their students. Arries (1999), for example, recommends a course design that is makes the material more inclusive for students with learning disorders that affect their foreign language learning. Furthermore, it is possible to utilise this course design in a secondary school setting.

First, Arries (1999) states that when designing inclusive language courses a teacher needs to start setting instructional goals, something that is included in most current course outlines. Additionally, a teacher should study previous work of students with learning disorders to pinpoint where there seem to be gaps in knowledge and make sure these instructional goals are aimed at rectifying these gaps. Next is the use of instructional analysis, which refers to analysing material and figuring out a way to make rules and systems into series of steps. There are no guarantees of course, but by breaking the material down the student with a language learning disorder should process the information better. Thirdly, the teacher designing the course should examine entry behaviours and learner characteristics, in the sense that he/she needs to get to know and evaluate the students to better prepare for their needs. At this point a teacher/designer needs to develop performance objectives. This step is so the teacher sets detailed performance (instructional) objectives that enable clear communication of the desired outcomes of the learning process. An example of such objective would be: "The student pronounces colour-coded vocabulary with 90% accuracy with no prompts from teacher." (Arries, 1999, p. 104). Moreover, well-defined objectives aid the teacher in evaluating his or her own instruction and assess the student's learning. Subsequently, the next step in the design focuses on criterion-referenced test items. In this instance

that refers to the composition of tests, and that they are designed to measure to which degree a performance objective has been achieved. Furthermore, it is important when composing tests that students are made aware of an outline of examination topics and the scoring mechanism that will be used. Especially, since students with learning disorders often have trouble identifying goals and understanding how to meet them. By introducing outlines and scoring mechanisms a teacher will help the student develop such metacognitive skills and better grasp what is expected of them. Next, a teacher needs to examine instructional strategies and materials. This can, for example, mean altering strategies from being teacher-centred to being student-centred or adding content or media that better address the instructional goals that have already been set. Furthermore, this step in the design is necessary to identify a combination of teaching strategies and teaching materials that will be successful in an environment with students that have no or some learning difficulties. Keep in mind that Arries' (1999) course design is a sequential process and objectives and outline of test content must come before the teacher identifies strategies and media. Finally, the design focuses on formative and summative evaluation. Formative evaluation may be a field test set to identify the strengths and weaknesses of the course material and/or design. Arries' field test is not only an achievement test but rather involves a three-step process that begins with an interview with some students (with and without a language learning difficulty). The second step involves a comparison of performance findings from a similar group of students to obtain mean scores and corroborate interview findings. Lastly, in the third step of the field test the findings from step one and two are utilised to make necessary revisions and the test applied to a whole class. A summative evaluation on the other hand is an achievement test on various groups of students. After statistical comparison, and if these comparisons are positives for both students and with and without learning disorders, there are justifications to replicating the course design (Arries, 1999). In brief, Arries' course design might seem complicated because of the number of steps. It is however not difficult to follow these steps and they are explained more thoroughly in his writings. These even include suggestions of strategies that can be utilised.

Successful strategies that have worked well in such a course design are for example a mnemonic, colour-phonics system introduced on flash cards, which was developed from an Orton-Gillingham method and has been found to correct pronunciation and improve listening comprehension (Arries, 1999). A couple of

strategies designed to help with memory difficulties is a modified use of The Gouin Series (a direct method of teaching a foreign language in which language is presented in a controlled context), and additionally using images which too have colour-coded subtitles and much choral repetition to reinforce new vocabulary and pronunciation (Arries, 1999; Gouin series). Generally, students with learning disorders benefit from added time, brief stops between activities and help with organising their study time. Additionally, Arries (1999) suggests strategies that can help students, both those with and without learning disorders, to reduce anxiety and stress that can occur with tests and in the classroom environment:

1) Be patient, supportive and available.
2) For students that are shy about speaking in front of the class it can be good to pair them with someone more outgoing and make the two do a brief pair exercise and joint presentation.
3) Make students take tests that do not have very high-stakes and use frequent mini-quizzes to test current material and condition the student on test format.
4) Try and minimise or eliminate noise and distractions, both in the classroom and in exam settings.
5) Make sure the students with learning disorders take their exams in separate rooms so that they feel less pressure and anxiety when their classmates finish earlier and exit the room. It can furthermore be helpful to have the faculty member who is overseeing the test read instructions aloud, so that students properly take note and understand them.

Arries' suggestions are not only easy-to-use but can also be implemented even if a teacher does not utilise the inclusive course design.

Finally, in the USA there is a specially designed course that is only for college students that need help to meet their mandatory (only in the USA) foreign language requirement. This requirement has hampered many students with language learning disorders. To provide these students with options and accommodate them in their fulfilment of the foreign language requirement, The Foreign Language Modification Program was established in Colorado. In this program the classes are modified to meet the students' need but there is emphasis on maintaining the academic rigors and requirements of a university (Downey, Snyder and Hill, 2000). The program offers a choice of three languages taught by master instructors that are not only experienced but

have educated themselves on learning disabilities. Students are expected to take reduced course load (12 semester hours) and spend at least two hours daily on their chosen language. Tutoring assistance is available out of class as well as extended times on exams. The lessons themselves run at a slower pace when covering new material, utilise frequent repetition and review, are very structured and the course content designed to provide predictable lessons (Downey, Snyder and Hill, 2000). While it may be too drastic to send all Icelandic language students with language learning disorders to do a specific language program, it is possible to utilise the elements of The FLMP in foreign language classrooms of Icelandic secondary schools. On the whole, modifications such as these mentioned here only serve to further adjust foreign language teaching towards a method or style better suited to students with language learning disorders.

Whether a teacher wants to start small or big, change his or her course design, try and cater to individual students through specialised instruction or simply modify what he or she is doing currently, there are options available. Moreover, these options need not be cost consuming or complicated, even a small change can make a big difference to a student with language learning disorder. There is absolutely no reason why some of the strategies and methods mentioned above cannot be implemented in every Icelandic secondary school.

2.10   Foreign language learning in Iceland

English, as today's lingua franca, has usurped the previous L2 in Iceland, which was Danish, and become the second language taught throughout Iceland (Jeeves, 2013). Linguistically there are a number of differences between English and Icelandic. Although both are Germanic, the languages have developed quite differently and differ in orthography depth and regularity (Helland and Kaasa, 2005).

All of us learn, generally without much trouble, our first language with some necessary physical features and much input from our environment. When people begin learning a second or a foreign language it is quite a different process. Generally, the only input comes from the classroom and therefore teachers emphasise teaching the core language components, starting with letters and sounds and moving towards words and grammar (Niyogi, 2006). However, learning a foreign or a second language is not only to learn the elements of the communication code such lexical items and grammatical

rules but additionally to take part in a social event that incorporates a range of elements of the culture of the language (Dörnyei, 2003). In Iceland, the youth culture is somewhat influenced by the English input from popular culture.

According to Birna Arnbjörnsdóttir (2007), Icelandic students are quite frequently exposed to English but the exposure is mostly of one kind, which is colloquial and contextual. This type of register mostly comes from visual materials of popular culture and while students generally understand what they are watching, some of that understanding is derived from visual clues. Furthermore, this often leads to students developing passive language skills and in turn overestimating their language proficiency. However, most language learning theories maintain that to adequately acquire a language a person has to experience it interactively, as the production of language and reception of language requires different mental tasks. Additionally, recent studies on Icelandic students showed that those in the last years of mandatory education watched English language films and TV programs, as well as listen to music with English lyrics quite frequently, but only a small percentage was frequently exposed to English books. This finding seems to be a constant of most studies done on the subject in Iceland, the content of exposure is overwhelmingly basic informal language register and as a result student's usage is limited to informal and conversational purposes (Arnbjörnsdóttir, 2007, p. 55-56). Moreover, professors in the English department of the University of Iceland have observed that the modern students has better proficiency in oral language expression, conversational English especially, whereas he used to be more proficient in reading and writing the language. Students seem to speak colloquial English like a near-native and this ability often hides their lack of reading and writing skills. Not having these skills can then seriously hamper a person's academic performance, especially in university where the vast majority of the curriculum is in English (Arnbjörnsdóttir, 2007). However, if a secondary school student is to adequately prepare for the rigors of university education in Iceland or elsewhere, which is more reliant on academic English, he or she needs exposure to a different kind of output. A teacher of secondary school level English needs to be aware of his or her responsibility to demand more subject knowledge, teach better reading strategies and awareness of cultural and specific topical discourse patterns (Arnbjörnsdóttir, 2007, p. 56-57).

In Iceland there is a lot of focus on dyslexia in primary schools as during that time children are learning to read in their native tongue. Students, at least ideally, get help from their teachers and allowances and considerations are made for exams and school projects. Dyslexia is however a life-long disorder and considerations really have to be made throughout the years that an afflicted person goes to school. "The data suggest that while phonological processing deficits persist into adulthood, students with dyslexia are able to acquire appropriate skills and information to successfully complete the University's foreign language requirement in classes modified to meet their needs" (Downey, Snyder and Hill, 2000, p. 101). This study on college students in the US is important as it highlight that teachers are doing specific things to help the dyslexic student. Even if the student is now nearing or has reached adulthood it is still necessary to modify teaching and teaching material. This is however not common in secondary education in Iceland and students of secondary schools generally only get assistance in the form of extra exam time, audio books and similar study aids. At least that is the consensus derived from review of several school websites as well as the three interviews concluded in the author's study (Dyslexíuráðgjöf: Lengri próftími; Þjónusta við nemendur með námsörðugleika).

Summary:

Language learning, both of the first language and any subsequent foreign ones, is an important aspect of any modern study. This is especially true for Iceland, which due to its smallness and few inhabitants is heavily reliant on communication in other languages, equally for business, study and leisure. However, the study of languages, both native and foreign, is often hindered by language learning disorders such as dyslexia and SLI. Dyslexia is characterised by poor decoding abilities, poor spelling and inaccurate word recognition whereas SLI is characterised by problems with articulation of speech sounds, verbal expression and speech comprehension. Research is still unravelling the causes of these disorders, how the environment affects them, what connections there are between them and other disorders. Furthermore, researchers are approaching these language disorders from a variety of aspects. Some focus on the genetics, some on the biological, while some look at cognitive and behavioural effects of the disorders. This wide approach to language disorder research has already found interesting links and shed some light on the complex system of language. Nevertheless, much is yet unknown.

Now, as the world gets more open and connected, the importance of knowing a foreign language grows. Students with language learning disorders are however at a severe disadvantage both when it comes to their native and foreign language learning. Firstly, these language learning disorders have been found to negatively affect self-esteem and motivation when it comes to learning. Secondly, students with dyslexia and SLI will struggle with issues such as auditory sequencing, automatisation and memory problems in their quest to learn a foreign language. Furthermore, these issues will be similar to native language issues and their severity will correlate between languages. Finally, this is especially true for students that have a native language with a shallow orthography and study English as a first language and is due to the orthographic depth and complexity of English. There are methods and strategies that English (or other foreign language) teachers can utilise to better enable students with these language learning disorders to study English. An extensive number of these methods and strategies are listed, but these remain a mere fraction of the possibilities available.

Due to the information and research on dyslexic students struggling with self-esteem and learning I wanted to understand students' views on their school environment. This led me to the following research question:

➢ What is dyslexia and how does it go together with secondary school studies?

Because there is a growing body of research and investigations into helpful special measures and different ways of teaching students with learning disorders, I wanted to investigate what elements of these strategies, if any, were utilised in secondary school. This evolved into the following research topics:

➢ What resources or special measures are available for students with dyslexia?
➢ How do teachers meet dyslexic students' needs?

Additionally, as there is much written about how dyslexia interferes with the language learning process. I wanted to delve into a language teachers and dyslexic students' perspective on how, if at all, dyslexia affected their language learning process. This led me to the following research question:

➢ How does the dyslexia affect the language learning process?

Next, dyslexia research is filled with studies on families. Therefore, I wanted to know if the dyslexic students that I spoke with had any immediate relatives that were also diagnosed with dyslexia. This formed the background to this research question:

➢ Is there a history of dyslexia in your family?

Lastly, I wanted to understand if there was anything further that teacher and students wanted to do or implement for future students. This ultimately became the last research question:

➢ What would teacher and students like to implement or accomplish for dyslexic students?

3.   Methodology

In this chapter I will review the methodology of the small interview study I performed. It starts with a list of the research questions that were behind the information gathering done in the study. It then describes the participants that took part in the study and lastly goes on to explain in detail the procedures employed in the performance of the study and how the data was analysed.

3.1.   Research questions

➢   What is dyslexia and how does it go together with secondary school studies?

➢   What resources or special measures are available for students with dyslexia?

➢   How do teachers meet dyslexic students' needs?

➢   How does the dyslexia affect the language learning process?

➢   Is there a history of dyslexia in your family?

➢   What would teacher and students like to implement or accomplish for dyslexic student?

3.2.   Participants and procedures

Firstly, to gather information about the resources on offer for students with learning disorders I conducted a limited survey of three secondary school websites. This survey was very informal and just served as an extended background to what was inquired after in the interviews. In the interview study there were three participants:

The first is a newly graduated Icelandic secondary school student with dyslexia, henceforth student participant A. He is male, born in 1990 and was diagnosed with dyslexia when he was 14 years old. He finished two years of secondary school and then went to study agricultural science in agricultural college and finished that in 2011. He then took a break and worked and has now returned to secondary school to finish his matriculation degree. He finished his studies in the spring of 2014. Student participant was interviewed twice via Skype and the interviews recorded on a Samsung SIII smartphone. The first interview took place on the 15th of March 2014 and took thirteen minutes and 50 seconds; the second interview took place on the 21st of June 2014 and took three minutes and thirteen seconds.

The second participant is also an Icelandic secondary school student with dyslexia, henceforth student participant B. He is male, born in 1996 and was diagnosed with dyslexia when he was 14-15 years old. He finished his second year of secondary school in June 2014. Student participant B was interviewed once in person and the interview took place at a personal residence. The interview took place on the 16th of June 2014 and took thirteen minutes and forty-nine seconds, and was recorded on a Samsung SIII smartphone.

The last participant is an Icelandic secondary school teacher of English. She is female, born in 1976 and has been teaching for 10 years this autumn (2014). She has a BA degree in English, a teaching certificate, is a certified medical secretary and is half way through a MA degree in educational sciences, which she does alongside her work. The teacher participant was interviewed twice, both times in her own home and in person, with the interview recorded on a Samsung SIII smartphone. The first interview took place on the 18th of March 2014 and took seven minutes and forty-two seconds; the second interview took place on the 19th of June 2014 and took six minutes and fifty-three seconds.

The list of interview questions was slightly different between interviews; this was partly due to the fact that some participants were interviewed twice and because students and teacher were not asked the same questions. However, all interviews started with the participants stating their age, sex, and education. The following questions were not arranged by topic, although inevitably questions in a similar vein regarding a particular aspect came in a sequential order. Furthermore, some interview questions gathered information about more than one research question. To gather information regarding the first research question the students were asked fourteen questions, two of which had possible follow up questions, and the teacher was asked eleven questions. For the students the questions inquired after the time of diagnosis, the effects of dyslexia on the studies, any possible remedial studies that they had attended, if any current teacher had offered any additional support due to the dyslexia, and if they had had to seek out special measures themselves as opposed to being offered them. The students were also asked to describe the effects of their dyslexia on them and their schoolwork, and their experience with various reading materials, as well as to clarify how much they knew about the disorder. The questions for the teacher inquired after her over all experience with dyslexic students, if there had been many such students, was

there more of one gender than the other, did they do well, and what was their attitude and so forth. She was also asked about her knowledge of dyslexia, if she had employed any particular teaching methods for these students and if they carried their diagnoses with them from primary education. From these questions there was one clear theme of *self-esteem* that emerged, which is further presented in section 3.3.

For the second research question the students were asked eight questions and the teacher was asked three. These probed after what type of resources or special measures were available to the students, what of them they utilised, if the students had had any remedial teaching, if the teacher had utilised any specific strategies to accommodate these students, and if there were any resources that the students were aware of that might help them better. From this, one clear theme of *limited resources* emerged.

To find out more about the third research question the students were asked one question with an option of a follow up question, and the teacher was asked eight questions with an option of one follow up question. The students were asked if any particular teacher had given them added support because of their learning disorder, and if yes, what type of support they had received. The teacher was asked if she utilised any specialised teaching methods for the dyslexic students, and if yes, which method worked the best and if she was aware of the tenets of the Orton-Gillingham method. Furthermore, she was asked about her knowledge or education of learning disorders and ways of tackling them. Additionally, she was asked what more she thought could be done for dyslexic students, if she had access to any materials or methods in her workplace to adjust study material, or had utilised any possible adjustments for study material. Lastly, she was asked if she utilised any strategies or methods to aid students' memory and organisational skills. From this the theme of *students' needs* was developed.

For information gathering for the fourth research question there were eleven questions asked of the student participants and four of the teacher. The student participants were asked how, if any, effects dyslexia had on their foreign language learning in general and English learning specifically. They were also asked about their abilities in various aspects of English, if they received or felt they needed any specific resources in foreign language learning, and lastly if they felt they would utilise their English and if yes, then in what circumstances. Meanwhile, the teacher participant was asked how dyslexic students generally did in their English learning specifically and

generally in other foreign language learning. Furthermore, she was asked what part of English the dyslexic student struggled with mainly and also if she had noticed any correlation between poor native language skills and poor second language (English) skills. These questions revealed the theme of *effects on language learning*.

To find out more about the fifth research question the students were asked one question, with the possibility of four follow up questions. Firstly, there was the question if someone in the students' immediate family had been diagnosed with dyslexia. If that was affirmative the students were asked who that was, if they were diagnosed at a similar age to the student, if the family member (if he or she was older) had been diagnosed and then someone had looked towards the student, and lastly how well the dyslexic family member had done in school. This revealed the very clear theme of *familial connections*.

For information gathering regarding the final research question each participant was asked one question, revealing the theme of future recommendation.

3.3.   Data analysis

Since this is a small sample the author analysed the information that was gathered and compared to the research questions that were set in the beginning. To do so the author transcribed the interviews, then read them thoroughly and arranged together thematically and in relation to the research questions. The author then summarised and presented this information. There were six themes that emerged from the interviews; *self-esteem, limited resources, students' needs, effects on language learning, familial connections, and future recommendations.*

4. Results and Discussion

In this chapter I will describe the findings from the interview study and how they shed light on the research questions. I will further explore the research questions and findings of the small interview study to see how these findings relate to the definitions and research that is covered in the extensive background portion of the thesis. The main reason for these three interviews was to get three different perspectives on language learning and language teaching in the secondary school environment with the added complication of a learning disorder. This would then provide an opportunity to see what is congruent from the research with what is taking place here in Iceland.

4.1.   Self-esteem

The theme of self-esteem emerged from the research question of what dyslexia was and how it goes together with secondary school studies. Answers from all participants seemed to indicate that the secondary school environment could be a bit daunting for the dyslexic student. Furthermore, that a student's previous experience of schooling, family support and the family's familiarity with the learning disorder, as well as personal outlook mattered greatly in how he or she feels about school and their learning disorder. There were some differences in how the student participants felt about their schooling but both indicated some type of difficulties, anxiety, stress, or embarrassment associated with various aspects of their education. A telling example of this comes from student participant B; "I often get stressed when I am supposed to read aloud and sometimes I cannot read, you know it's just uncomfortable". The interview questions also revealed that current privacy laws mean that a student does not have to carry his official diagnosis from elementary education up to secondary education if he so chooses. This has resulted in some students hiding their diagnosis and therefore not receiving the support that is currently available. Furthermore, even if students hand in their diagnosis to a school administrator the whole team of teachers are not necessarily notified.

Therefore, findings both from this interview study and foreign research seems to indicate that the school environment can be a difficult place for dyslexic students. Societies such as ours set great emphasis on literacy; it is a valued and necessary skill to progress in life. Identity is predictably shaped by what a person can accomplish or not accomplish of what society values. As a result it is a rational to assume that children and teenagers that struggle with learning disorders, such as or similar to dyslexia, will be adversely affected in their feelings of self-worth or self-esteem (Burden, 2008). The teacher participant in the study when asked about the students' belief in their learning ability spoke of them often being a bit broken and suffering from low self-esteem. The older student participant in the interview study did not seem very adversely affected when it came to self-esteem but it is uncertain whether this is because he does not equate self-worth with being a good reader or that he has become more confident with age in his abilities to overcome his hindrances. However, the younger student participant emphasised how bad he felt being constantly behind when it came to reading, how he had anxiety about reading aloud and how hard it could be to focus.

Additionally, he described how he had acted out in elementary school before he was diagnosed with dyslexia.

American studies have long noted that many dyslexic students, that reach college level, fail when it comes to completing their mandatory foreign language requirement. When this happens repeatedly and despite great work effort, motivation and self-esteem unquestionably suffer and many simply give up on college education (DiFino & Lombardino, 2004; Downey, Snyder & Hill, 2000). Researchers agree that while a person's level of achievement is directly linked to how they feel about themselves other factors matter as well. Burden (2008) and Humphrey (2002) further explain how much motivation matters in study and how motivation is decided by a combination of external and internal actors. Thus, how a person feels about themselves matters when it comes to how they will do in school and learning. This is especially true since self-worth or self-concept matters when it comes to motivation. In the interview study the teacher participant spoke of a number of dyslexic students, females especially, that had managed to harness study methods to better tackle their own deficiencies, thereby increasing their motivation for the task. My study, and others such as by Burden (2008) and Humphrey (2002), shows that learning disorder will undoubtedly affect how the learner feels about himself and the school. It is also a concern that privacy laws, although important and necessary, can hamper teachers in supporting students. Furthermore, that even if a diagnosis is available that it is not more effectively shared among teachers, as dyslexia can affect most subjects to some extents.

Thus, a key element of creating a more positive school environment and experience seems then to be how teachers and parents work towards building a positive self-concept or self-esteem, attitude and reinforce the skills for a child to build up their own agency. Furthermore, teacher cooperation and communications are important so that everyone is working towards the best solutions for students that need them. Possible methods to boost self-esteem would be speak to the student about his strength and weaknesses, and try and tailor activities to his strengths and thereby bolster his self-esteem and motivation.

4.2. Limited resources

This theme arose from the research question of what possible special measures or resources were available for the dyslexic student. Information gleaned from the interviews revealed that students could get the following resources. Extended time on

exams (extra twenty minutes per hour), exams questions read aloud, larger font on exams, coloured overlays, and access to audiobooks. This theme is, for example, clearest in the teacher participant's answer to the question of if there are any special measures offered in school; "yes there are, but perhaps not enough". Quick perusal of three secondary school websites indicated that these are the standard resources available in secondary school, aside from one school that had a specific dyslexia specialist on staff to offer extra guidance ((Dyslexíuráðgjöf Lengri Próftími; Þjónusta við nemendur með námsörðugleika). The interviews further indicated that the special measures on offer were not automatically given when a diagnosis was presented but rather that students had to seek out these resources specifically. Additionally, that no remedial teaching was offered in secondary school except if the students paid teachers for extra lessons and that teachers felt limited in the help they could offer. Lastly, the interviews showed that the students did not know what other special measures or resources could help them in their studies.

Findings from this interview study, as well as a quick survey of a few secondary school websites indicate that similar resources are available to the student struggling with dyslexia or a similar language learning difficulty in secondary school. Only one Icelandic secondary school of those surveyed, Borgarholtsskóli, has a dyslexia specialist on staff and in that school there are a few classes and one course that are thought to further benefit those students. However, there is a chance that there are more Icelandic secondary schools with similar services to Borgarholtsskóli. Research from abroad seems to indicate that accommodations for students have progressed a bit further than offered in Iceland. In Colorado the Foreign Language Modification Program has offered student the chance to attend modified foreign language lessons with great success, but that is of course a specialised program. Federal mandates, legislation and increased awareness in the USA has meant that colleges and universities have increasingly started developing special services for students with documented learning disorders. However, it has been noted that many of these special services mean only that a student gets a waiver to skip the course he has difficulty with, often the foreign language course (DiFino & Lombardino, 2004; Downey, Snyder & Hill, 2000).

It is unclear why special measures for secondary school level students in Iceland is limited to what we could call the external framework of learning, such as exams and study materials. There seems to be little focus on the possibility of altering teaching

methods, differentiating learning and altering courses to better suit students with learning disorders. It is unclear whether this is because Icelandic secondary school teachers work for relatively little pay and under great time constraints, which in turn limits the possibility for such alterations in the ways of teaching. The facts are that the Icelandic educational system has had to deal with ever increasing cut back in funding for a number of years (Fjárlagafrumvarp 2013). Furthermore, since it relies almost solely (there are only a couple of private schools in the country) on government funding and does not charge students with large entry fees or tuition, cutbacks have to be made somewhere in the school system. Remedial teaching is not normally on offer in Icelandic secondary schools; laws from 1992 state that handicapped student have the right to additional support in their secondary school studies. However, each school has to apply for government funding for each specific student and then assess how best assist that student within the secondary school framework (Lög um málefni fatlaðs folks nr 59/1992; Compulsory (Primary) Schools; Sérkennsla). Seemingly, both here in Iceland and abroad, there is an increase in students with learning disorders entering institutions of higher learning. Yet, it is as if secondary schools and universities have not fully caught up to this reality. This leaves these students a bit invisible or at least fending for themselves on many levels (Stage and Milne, 1996).

4.3. Students' needs

The third research question focused on finding out what teachers do to meet with dyslexic students' need and from it emerged the theme of students' needs. A great example of this theme can be found in student participant A's answer regarding helpful special measures for language learning; "perhaps just going over things more slowly, less at a time". The interviews revealed that teachers' time constraints were great and limited the ways they could accommodate students with learning disorders. Furthermore, that the measures utilised by teachers for students with learning disorders included breaking the study material into smaller parts, taping short readings, and offering the possibility of oral exams. Additionally, interview findings indicated that teacher's experience was that students were opposed to drawing attention to their learning disorder and thus help in class had to be given very subtly. Lastly, the interviews revealed that secondary school teachers receive limited education on learning disorders and ways to tackle them, did not have access to a type of common resource

bank within their workplace, and while employing some strategies that can benefit dyslexics, teachers were unaware of the Orton-Gillingham approach.

There are a great many options for what can be done to better meet the needs of students with a learning disorder such as dyslexia. The study shows that if the teachers are doing anything specific in Iceland, it is purely off their own backs. The individual teacher can make a difference but the help would undoubtedly be better supported and worked if it were a whole-school initiative. The teacher participant that was interviewed for the study has tried to meet the needs of her dyslexic students by, for example, offering them the option of delivering projects orally and breaking the material into smaller and more manageable pieces. Student participant A mentioned too how he would benefit from smaller pieces of learning at a time and at a slower pace. This is concurrent to research of other dyslexic students that frequently mention the need for a slower pace and more segmented presentation of facts (Downey, Snyder and Hill, 2000; Rontou, 2012). There are many ways available for the teacher to use, differentiated learning or teaching according to learning style has been written about quite frequently and studies to check its validity have shown positive results (Exley, 2003; Rontou, 2012). Approaches like the Orton-Gillingham method, or variations thereof, have also been used for quite some time and studies indicate that in the majority of cases their principals are effective for students with dyslexia or other language related learning difficulties. They are of course not full proof and in some cases there will be other methods and strategies that work better but their use in instruction has been mostly positive (Ritchey and Goeke, 2006). There are various other strategies available, as well as options that call for a specific course design that have been used around the world and served some well. These include but are not limited to, dynamic assessment, peer tutoring and study skills or intervention programmes (Arries, 1999; Reid, 2005; Rose, 2009; Schneider & Ganschow, 2000).

These are all options that can be used to partial or full extent in Icelandic secondary schools to further language education for students with dyslexia. It may of course be necessary to tailor or individualise some of the programmes out there. Nevertheless, there are generally not a great number of students (total number of dyslexics in Iceland is thought to be 10%) with a learning difficulty in any one class, thus individualisation should pose few problems (Náðargáfan Lesblinda). I, for example, like the ideas from The Bangor Dyslexia System about students inputting

grammar rules and spelling patterns into their very own "dictionary" and offering multisensory support to classwork. It is however clear schools cannot tackle this as a unit until there is more funding allocated into the educational system and teachers and school officials work together to create the type of environment that is all inclusive.

4.4.   Effects on language learning

The research question here was how dyslexia affects the language learning process. From the interviews the above theme was revealed. Interviews uncovered that dyslexia has various effects on language learning, especially English. This theme is exemplified in this quote from student participant B; "I find it difficult to write in English and I just do not get how to write it". Furthermore, findings indicated that students had little belief in their language learning abilities and tended to struggle with their second and third language especially. In English it was reading speed, spelling (writing), pronunciation, and vocabulary that participants felt that were the most adversely affected, and all interviews found that the participant had experienced negative effects. Moreover, findings showed that the most successful dyslexic students were those that were ready to work twice as hard as the others, and that this single-mindedness served them well in all their studies. Lastly, there were some findings that indicated that some students preferred reading in English rather than Icelandic.

This small study showed quite clearly that dyslexia affects the language learning process of dyslexic students and all evidence from research seems to further back up that finding. The student participant A spoke of problems in spelling and pronunciation specifically but his answers revealed that even if he understands basic conversational English, which he frequently encounters in film and TV, he is not confident about his skills in any other area. The student participant B struggled most with spelling and writing but reported that he was more comfortable with reading in English than Icelandic. This finding is concurrent with the Swedish research that has pinpointed DPER, or dyslexic preference for English reading. This Swedish finding was hypothesised to be due to several emotional and socio-cultural factors, such as enhanced English input through television and music media, early exposure to English literature as well as factors that are specific to the English orthography (Miller-Guron and Lundberg, 2000; Nijakowska, 2010). The teacher participant stated unequivocally that the dyslexic students always struggled in English and the extent was merely based on the severity of their dyslexia as well as the way the student was accustomed to working

through his learning disorder. Research from abroad hypothesises that when a student is struggling with second language learning it is because of problems with his native language (Downey, Snyder & Hill, 2000; Ganschow et al, 1991; Meschyan & Hernandez, 2002). Dyslexia and SLI both severely affect that native language learning process and this generally means that there remain gaps or deficiencies in their native language use and knowledge. This then makes the foreign language learning process troublesome since the foundation to build on is faulty (Meschyan & Hernandez, 2002; Nijakowska, 2010). Studies on this have shown that the native language problems are often more severe in the foreign language and that remains especially true if the second or foreign language is very different from the first (Downey, Snyder & Hill, 2000; Ho & Fong, 2005).

The problems that dyslexics face in language learning are not a topic that has been much discussed publicly in Iceland even if it is something that most language teachers and those with interest or degrees in education and/or linguistics have realised. But rarely, if ever, has there been a mandate or pressure from the powers that be, or even parents with demands or suggestions to better combat these foreign language problems. There are some measures taken to help these students in their native language but it seems as the learners grow older the measures move from classrooms and covering only materials and help with exams. It remains a mark on the Icelandic educational system that the students who have learning disorders do not receive better accommodations in their foreign language learning. Especially since foreign language learning is such a large part of the curriculum and students are expected to master more than one foreign language in just their mandatory studies. It is hard to tell if this lack of help is derived from the old-school belief that since the students have got this far (into secondary school or university) they must be smart enough, or good enough to overcome their learning disorders. Educators know of the problem so why are they not trying to fix it? Is it really only because of the money or is the progress just moving so slowly that it barely registers?

4.5.   Familial connections

This theme emerged from the research question of there being any family history of dyslexia. This interview quote from student participant A encompasses this theme; "yes my brother, he has dyslexia too". The interview findings were very clear on this point, and showed that dyslexia was common among family members of those diagnosed.

These family members had been diagnosed late or not at all, and had as a result struggled to complete their education. However, the majority of these family members managed to complete some type of higher education.

The genetics and hereditary research findings from around the world indicate that reading disability is hereditary, which means that it is a feature of certain families. It is then assumed that inheritance is autosomal dominant, this means that the faulty gene only needs to come from one parent in order for the disease to be inherited which corresponds with what the participants of the study mentioned in their interviews (Démonet, Taylor and Chaix, 2004; Autosomal dominant). Both student participants are diagnosed quite late in their elementary education and also have both had elder siblings diagnosed similarly late. Therefore, there seems to have been little awareness or initiative about testing the younger sibling when the elder was diagnosed. As a result the participants' dyslexia has manifested similarly as their elder sibling and remedial teaching started so late that fairly little benefit was derived from it. Thus, even if dyslexia research on families is consistently indicating that dyslexia is a genetic trait that runs in families there seems to be little impetus in Iceland to test early those students that have dyslexia in the immediate family (Démonet, Taylor and Chaix, 2004). Whether this speaks to the fact that, unless specialised, Icelandic teachers do not get enough education on the mechanics of learning disorders or because parents do not know enough about learning disorders and that they often run in families. While I only interviewed a two student participants I conversed with a number of older dyslexic individuals for my own education and a common trait among them was the fact that someone else in their immediate family also suffered from dyslexia, whether that was a parent or a sibling. Conclusively, the research findings from around the world, the findings of the interview study and personal experience all indicate that dyslexia is a disorder that occurs in families. Furthermore, my study seems to indicate that both the sufferers and the people in their surroundings have little understanding of what dyslexia is and little idea of what would help those that have the disorder.

4.6. **Future recommentations**

The last theme was identified from the interview questions that inquired what teacher and students would like to implement or accomplish for future dyslexic students. This quote from the teacher participant is telling for this theme; "often I think it would help the most if a student gets more time with the teacher". The interviews showed that those

with dyslexia are unsure of what else can possible be done and rather have confidence that the resources available are the only ones that are possible. Furthermore, the interview findings showed that participants would like to get the study material in smaller, more manageable parts. Additionally, that in the future it would be good to have more time to cover material slower and adjust it better for individual students, as well as time to spend with students.

The interview study gave all participants an opportunity to speak about the future and what could be done better to provide for the students with language learning difficulty. The views of the student participants about all being already done is at best a positive outlook and at worst a viewpoint of students that have never known there to be any other ways to help besides what Icelandic schools currently offer. Both these student participant were diagnosed fairly late (penultimate year of elementary education). They have received little or no remedial or differentiated teaching and genuinely believe that there are no other recourses that could be utilised for students such as them. Some of this attitude in student participant A can certainly be attributed to his ambivalence about the learning disorder and the fact that his dyslexia is not very severe. Student participant B seems on the other hand trusting in the school system and certain that his diagnosis enables him to get all the help that is available. Their dyslexia does however affect their studies in a number of ways and the student participant A has for example already dropped one foreign language that he was interested in learning, because he could not keep up with what was demanded of him. In this and other learning obstacles they face in the secondary school, extended time in exams is of little use and does little or nothing to help students that would have needed some accommodation. In this sense they have become what Stage and Milne (1996) refer to as the invisible scholar (p. 426).

These students, despite their learning difficulty want a higher education and are entering secondary school and universities. These educational institutions should be providing for them and in Iceland the government's educational laws and curriculum guide state that schools should be all inclusive (Aðalnámskrá framhaldsskóla, 2011, p. 10; Lög um grunnskóla nr. 91/2008; Stage and Milne, 1996). However, the way this is done is left to the schools themselves and with the restraints they operate under, teaching reform seems a far-fetched idea. In USA there is extensive documentation about how students with learning disorders struggle to cope with foreign language

learning and what can be done but it is still not something that is implemented throughout (Downey, Snyder and Hill, 2000, p. 110). This indicates that the educational system changes slowly and there are many research findings that the schools have yet to catch up with.

The teacher participant in the interview study stated that she would above all want more time to dedicate to these students. Her experience was that students were adverse to receiving help in class that seemed above the norm and completely opposed to being taken out of class to get more help. Consequently, that means that if a teacher is to provide these students with help to break up the material and figuring out how to best help them to learn, they would need to take time outside of classes. However, as the teacher participant points out, the secondary school teachers' timeframe is limited. A teacher in a full time position is expected to teach a specific number of classes every week. Moreover, he or she is expected to have some class under his or her purview for which there is some time set a side weekly. Then there are a few more hours allocated to prepare for class and then to grade assignments. The time allocated and paid for is nearly never sufficient to encompass these duties and this means that there is as well not time to sit down with a student with specific needs, to figure out how best to accommodate their needs. These issues mean that there is really only the classroom left as a venue for assistance.

Somehow, teachers must find the time to introduce different methods into the classroom that help the non-traditional student as well as the traditional. There is no research that I have found that indicates that the traditional student finds it difficult to study with ways that are better suited to the students that need something beyond the traditional. Therefore, it seems evident that changes need to be made and the sooner the better. Those of us that become teachers usually come from the background of being capable and good students. It is not unusual that we do not fully understand what the students with learning disorders are going through or struggling with, but we should do more than just empathise, we should change.

5. Conclusion

Through the extensive summary of literature on language learning disorders, overview of teaching methods and the small study I have discovered that there are many issues that stand in the way of providing Icelandic secondary school students with adequate

help in foreign language learning. In Iceland there is no foregoing of foreign language instruction and no waivers available for those that struggle. The only question the Icelandic student need ask himself is how far will I go in my studies and how many languages must I learn on my way there. Now, the study I performed looked at dyslexic students' secondary school experience, the effects the dyslexia had on language learning, as well as the students' family history of dyslexia. Furthermore, I investigated the special measures available for dyslexic students, if teachers were doing anything specific to accommodate them, and what these participants would want done for dyslexic students in the future. The findings of this study have shown that having a language learning disorder such as dyslexia and SLI, that severely affect not only native language acquisition but so too second or foreign language acquisition, can be a terrible experience.

Not only do these disorders complicate language learning but because foreign languages are prevalent in university education in Iceland they can affect many of the courses of study the student with language learning disorder would like to complete. These disorders' far reaching complications additionally have a negative impact on self-esteem and by default motivation, which matter greatly in learning. There are a number of things that teachers can do that goes beyond what is currently the norm for secondary school education in Iceland. These are methods available for use in classroom instruction or in preparation for classes and courses.

Previous research and the study clearly showed that the practical and emotional effects of the disorders are real and that the help which is currently provided, is insufficient. The interviews showed me too that teachers are aware of these short comings and would like to do more. It briefly touched on the fact that the most successful students with the disorder have not only had good support from home but have also adopted efficient learning strategies and a work-hard attitude.

The interview study had a number of limitations, which I would try and remedy were I starting it today. Chief among them is the fact that this is such a small study. While that appealed to my initially, I think the study could have been a lot more conclusive had the sample been larger. Another possible limitation is the fact I knew two of the participants to some extent before the interviews took place and this can always affect impartiality and how participants choose to answer. It would perhaps have been better to interview people that I did not know beforehand. Nevertheless, I believe

that my familiarity with the participants did offer me more in-depth answers than if I had not known them at all. The study could possibly as well have been stronger had it included a small anonymous survey among a few language teachers and dyslexic students. This would have confirmed that the information gleaned from the interviews was fair and accurate.

It is clear to me, as a future language teacher, that I can and want to do more for students such as those afflicted with learning disorders. From my experience, this is something that most teachers agree with wholeheartedly. It is therefore my hope that school officials and the government realise the need for changes and make them possible with better funding for the school system, higher pay for the teachers and more time available for the students. Icelandic researchers should moreover take upon the mantle of research into language education for those with learning disorders. This is too large and important a part of the Icelandic curriculum to simply be pushed aside and ignored. Diversity among students in higher education is increasing and hopefully, the term "inclusive education" that is so often quoted in Icelandic curriculum guides, becomes a reality instead of a political catchphrase and an ideal.

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7. Appendices

7.1. Appendix 1: Interview questions for student participants

Aldur

Kyn

Námsár

Námsbraut:

Hvenær varstu greindur með dyslexíu:

Veistu til þess að einhver annar í fjsk þinni hafi verið greindur með dyslexíu?

EF JÁ Hver:

Er ættingi þinn greindur á svipuðum tíma og þú?

Hvernig gekk ættingja þínum í námi?

Var hann greindur og svo athugað með þig/Var athugað með dyslexíu hjá þér í framhaldi af greiningu ættingja þíns?

Hvað er dyslexía fyrir þér?

Hefur þú setið einhverja fræðslu eða frætt þig sjálf/ur um dyslexíu?

Veistu eitthvað nánar um líffræðilegu orsakirnar sem liggja að baki dyslexíu?

Hvar koma áhrif dyslexía helst fram?

Lýstu upplifuninni af því að lesa?

Er þá einhver munur að lesa bækur, tölvuskjá eða á lituðum blöðum?

En hvernig er þá eins og að lesa á blað sem er rautt með svörtum stöfum, er það erfiðara eða auðveldara en að lesa hvítt með svörtum stöfum?

En munurinn á bókum og tölvuskjá?

Hvaða áhrif hefur dyslexía almennt á námið

En að gera verkefni?

Hefur dyslexían þér áhrif á önnur fög?

Eru einhver sérúrræði í boði fyrir þig í náminu?

En lengri próftíma?

Þarftu að biðja um það sjálfur eða færðu það sjálfkrafa afþví að þú ert með dyslexíu?

Hefur þú nýtt þér einhver sérúrræðana sem eru í boði.

Eru einhver önnur úrræði sem að þér ekki hafa verið boðin en sem myndu koma þér vel?

Er eitthvað sem hægt væri að gera sem myndi gera þér auðveldara að taka próf eða læra?

Hefur þú einhvern tímann fengið sérkennslu?

Ef JÁ, hvað fólst í sérkennslunni?

Hefur dyslexían áhrif á enskunám þitt.

Hvernig gengur að tala ensku?

Hvernig gengur að skrifa á ensku?

Hvernig gengur að hlusta á ensku?

Hvernig gengur að lesa á ensku?

Hefur dyslexían áhrif á annað tungumálanám?

Hvernig áhrif?

Færðu einhver sérúrræði í tungumálanámi?

Myndiru þurfa sérúrræði í tungumálanámi?

Helduru að þú munir nota ensku eða þau tungumál sem þú hefur lært í framtíðinni?

 ef já við hvaða aðstæður þá helst?

Hafa kennarar eða einstaka kennari sýnt þér meiri stuðning en aðrir vegna dyslexíu/námsörðuleika? Ef já, hvernig?

7.2. Appendix 2: Interview questions for teacher participant

Aldur

Kyn

Menntun

Starfsaldur

Hefur þú kennt mörgum nemendum með dyslexíu

Hefur þú notast við aðrar kennsluaðferðir við kennslu þeirra með dyslexíu

Ef JÁ, hvaða aðferðir finnst þér gefast best

Hvernig finnst þér nemendum með dyslexíu almennt ganga í enskunámi

Býður þú eða skólinn upp á einhver sérúrræði fyrir þessa nemendur

Nýta nemendur sér þessi sérúrræði

Virðast nemendur með dyslexíu hafa minni trú á námshæfileikum sínum en aðrir nemendur

Hvað er það helst sem virðist dyslexíunemendum erfiðast við tungumálanám (enskunám)

Hvað meira væri hægt að gera fyrir þessa nemendur?

Hver er þín hugmynd af dyslexíu (í hverju felst dyslexía í þínum huga)

Hvaða kunnáttu hefur þú á námsörðugleikum almennt

Hefur þú fengið einhverja fræðslu um námsörðugleika og hvernig á að takast á við þá í kennslu

Hefur þú aðgang að einhverju sérstöku efni eða leiðum til að aðlaga námsefni (að nemendum með námsörðugleika) á þínum vinnustað

Þekkir þú einhverja af Orton-Gillingham aðferðina (aðferð útskýrð í stuttu máli), eða aðferðir útfrá henni, sem notaðar hafa verið í tungumálakennslu fyrir nemendur með dyslexíu

Þekkiru og/eða notarðu einhverjar æfingar eða leiðir sem að geta hjálpað nemendum að þjálfa minni og skipulagsgetu

Þekkir þú, eða hefur þú nýtt þér einhverjar aðlaganir á námsefni eða námsaðferðum sem gætu gert það aðgengilegra fyrir nemendur með dyslexíu