

# MASTEROPPGAVE

Adapted English Teaching for Dyslexic Learners in  
Norway

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## Abstract

Teaching Norwegian dyslexic students English as a second language (ESL) is a challenging task. Norwegian, a fairly phonetic language, can be complicated enough for a dyslexic student to learn to read and write in, and English, a highly non-phonetic language, may seem nearly unattainable. Many teachers in Norway do not have sufficient competence to teach foreign languages to dyslexic learners (Barneombudet, 2017). Yet students have a law-given right to adapted education (Opplæringsloven, 1998, § 5-1). Much of the research on the topic of Norwegian dyslexic students learning English as a foreign language is centered around the students' experience and emotional response regarding their education. Although such a focus is important for teachers, as it makes them aware of the struggles of their students, it does not directly help them adapt their teaching. Importantly, it is not the students' job to tell the teacher how to teach. Their job is to learn. This study, which focuses on the teachers' experience-based expertise, can be of great help for recent graduates within education or others who are just struggling with adapting their teaching to their dyslexic students. The study shows that most teachers adapt their English teaching to dyslexic students with a variety of different aids, even though they feel they were not properly prepared to do so by their education.

*Key words:* dyslexia, ESL teaching, education, L2 acquisition

# Contents

## 1. Introduction

### 1.1 Background

### 1.2 Aim and research questions

### 1.3 Thesis overview

## 2. Theoretical framework

### 2.1 What is dyslexia?

### 2.2 Dyslexia stereotypes

### 2.3 Positive traits of dyslexia

### 2.4 Steering documents

### 2.5 Dyslexia and L1 versus dyslexia and L2

### 2.6 Research review

#### 2.6.1 Understanding dyslexia

#### 2.6.2 The importance of learning English

#### 2.6.3 Lack of teacher training

#### 2.6.4 Students' experience versus teachers' experience

#### 2.6.5 International research

## 3. Methodology

### 3.1 Method

### 3.2 Distribution and participants

#### 3.2.1 Age of participants

#### 3.2.2 Gender of participants

#### 3.2.3 Work experience as teachers

#### 3.2.4 Grade level

#### 3.2.5 Educational background

### 3.3 Overview of the survey

#### 3.3.1 Experience with dyslexia

#### 3.3.2 Aids and methods in general

#### 3.3.3 Non-digital aids and methods

#### 3.3.4 Digital aids and methods

#### 3.3.5 Other

## 4. Findings and discussion

### 4.1 Teachers' education

## 4.2 Non-digital teaching methods and resources

### 4.2.1 Use of non-digital teaching methods and resources

### 4.2.2 No use of non-digital teaching methods or resources

### 4.2.3 Adapted teaching

#### 4.2.3.1 Extra time

#### 4.2.3.2 Reading aloud

#### 4.2.3.3 Teaching sounds and letters

#### 4.2.3.4 Conscious use of feedback

#### 4.2.3.5 Simplified texts and tasks

#### 4.2.3.6 HELP teaching materials

#### 4.2.3.7 Focus on oral activities

#### 4.2.3.8 Games and play

#### 4.2.3.9 Picture cards

#### 4.2.3.10 High frequency words

#### 4.2.3.11 Writing frames and model texts

#### 4.2.3.12 Structure

### 4.2.4 The benefits of non-digital methods and resources

## 4.3 Digital aids

### 4.3.1 Knowledge of digital aids

### 4.3.2 Lingdys/Lingright/Textpilot

### 4.3.3 CD-ORD

### 4.3.4 Intowords

### 4.3.5 Audio files and audio books

### 4.3.6 Functions in Word

### 4.3.7 Aski Raski

### 4.3.8 Other digital aids

## 4.4 Training and information through the workplace

## 4.5 No experience with dyslexic learners

## 5. Conclusion

### 5.1 Lack of knowledge and teacher training

### 5.2 Adapted teaching

### 5.3 The successes and failures of adapted teaching

#### 5.3.1 Reading with their ears

#### 5.3.2 Phonological awareness

5.3.3 Time

5.3.4 Independence

5.3.5 Lack of knowledge, training and experience

5.5 Further research

6. References

# 1. Introduction

## 1.1 Background

Teaching Norwegian dyslexic students English as a second language (ESL) is a challenging task. Norwegian, a fairly phonetic language, can be complicated enough for a dyslexic student to learn to read and write in, and English, a highly non-phonetic language, may seem nearly unattainable. Today, English is spoken and learned by 1,5 billion people and most of those who speak English do not have it as their first language (Hundstadbråten, 2020, p. 3). English, as an international language, is used in everyday life, travelling, education, business, culture, and entertainment. In this context it is increasingly important to ensure that dyslexic learners are able to use the English language in the same manner as others. Being able to use English is a door opener for most people. Many teachers in Norway do not have sufficient competence to teach foreign languages to dyslexic learners (Barneombudet, 2017). Yet students have a law-given right to adapted education (Opplæringsloven, 1998, § 5-1). Much of the research on the topic of Norwegian dyslexic students learning English as a foreign language is centered around the students' experience and emotional response regarding their education. Although such a focus is important for teachers, as it makes them aware of the struggles of their students, it does not directly help them adapt their teaching. Importantly, it is not the students' job to tell the teacher how to teach. Their job is to learn. Thus, research which focuses on the teachers' experience-based expertise can be of great help for recent graduates within education or others who are just struggling with adapting their teaching to their dyslexic students.

## 1.2 Aim and research questions

The aim of the present study is to examine if and how English teachers in Norway successfully adapts their teaching to dyslexic learners. The objective is to uncover concrete and applicable methods and resources to inspire teachers in their planning and teaching. In addition, there is a wish to understand how these methods and resources help dyslexic learners. The research questions are as follows:

- 1) Do English teachers in Norway say that they have been prepared through their education to teach English to dyslexic students?

- 2) Do English teachers in Norway claim to implement specific methods and procedures when teaching dyslexic learners? Which methods and procedures are used?
- 3) According to the teachers, do these methods and procedures help the learners achieve their goals, and if so, how?

There is an apparent lack of focus on dyslexia in teacher training in Norway (Gilje, 2021). This study will look into if English teachers in Norway feel that they have not been prepared through their education to teach English to dyslexic students and if they claim to adapt their teaching in any way when teaching dyslexic students.

### 1.1 Thesis overview

This study is made up of 5 sections. In the first section, the topic and research questions are introduced. In the second section, the theoretical framework on relevant theory on dyslexia is presented. A presentation of Norwegian steering documents, as well as previous research done on this specific topic follows. The third section discloses the study's methodology. The choice of method, distribution and disposition of the questionnaire is discussed in this section. The fourth section presents the findings of the study and the findings are discussed in relation to the theoretical framework. The fifth and final section concludes the study and presents an outlook for further research.

## 2. Theoretical framework

### 2.1 What is dyslexia?

Dyslexia is a specific learning disability. This means that the learner develops normally within most areas, but has difficulties acquiring knowledge in specific areas, such as reading and writing. Several other terms encompass much of what dyslexia also entails, such as the general term 'reading and writing difficulties'. There can be many reasons why some learners have difficulties with reading and writing. Poor teaching, low motivation, bad concentration or general abilities can lead to such difficulties (Dysleksi Norge, 2020). Dyslexia cannot be explained by these factors, it is a *specific* disability which is lifelong. In this thesis, I will be focusing on and using the term dyslexia. I am interested in the specific language difficulties which defines dyslexia, and less in the more general difficulties, such as motivation and concentration. Since learners with specific disabilities must be allowed to compensate with

certain aids (Dysleksi Norge, 2020), it is undoubtedly more fruitful for this thesis, which will focus on the potential use of strategies and methods in language teaching, to concentrate on a specific language disability. In addition, dyslexia is a specific learning disability which the vast majority of teachers will have had experience with. It is the most widespread learning disability among young learners (NHI.no, 2018).

There are many different definitions of dyslexia. Defining such a complex disability is difficult, especially since it comes to show in diverse ways depending on the learner. Dalouso (2017) provides a definition from the British Dyslexia Association:

Dyslexia is a specific learning difficulty that mainly affects the development of literacy and language-related skills. It is likely to be present at birth and to be lifelong in its effects. It is characterized by difficulties with phonological processing, rapid naming, working memory, processing speed, and the automatic development of skills that may not match up to an individual's other cognitive abilities (p. 14).

This definition highlights some of the key aspects associated with dyslexia with phonological processing perhaps being the most important one. Learners with dyslexia struggle with phonological awareness, meaning that they struggle with connecting letters and sounds – from letter to sound when reading and from sound to letter when writing (Midtbø Aas, 2021, p. 15). Phonological processing is often what causes most difficulty in a learner's literacy development and this has, at least, two consequences. The first is that the “learners may have difficulty with the processing of sounds, so they might struggle to distinguish between different sounds and find it hard to follow what someone is saying because they are speaking too quickly for them” and, the second, that learner's “reading process might be slow and/or imprecise” (Dalouso, 2017, p. 15).

A slow and imprecise reading process is also connected to another aspect of dyslexia, specifically rapid naming. Dyslexic learners struggle with the ability to quickly and accurately name which sounds are connected to which letters and this can affect their reading speed (Midtbø Aas, 2021, p. 15). In addition, dyslexia can affect working memory, which is a “component of human memory that enables us to hold some information temporarily so we can process it and reuse it later on” (Dalouso, 2017, p.15). For example, a dyslexic learner can struggle with remembering instructions for a task given by a teacher long enough to get

started independently.

## 2.2 Dyslexia stereotypes

There are many stereotypes associated with dyslexic learners. One is that such learners are less intelligent than other learners. This is a stereotype that is important to counteract. Both teachers and learners need to know that this view of dyslexics is simply not true. Dyslexia does not affect the ability to think, reflect or understand, but it can make it harder to obtain knowledge through reading without aids (Midtbø Aas, 2017, p.15). In other words, a dyslexic learner can obtain the same knowledge as a learner without dyslexia, but they might need to do so in other, perhaps more untraditional, ways.

Another stereotype is that dyslexia is a temporary disability. Dyslexia is a lifelong learning disability. Dyslexic learners can be helped and guided to better help themselves through the obstacles of dyslexia, but the disability does not go away. Dyslexic learners therefore need facilitating throughout their entire academic career to ensure that they achieve their goals. An improvement in a learner's learning outcome, does not mean that the learner is cured or does not need aid anymore.

A third stereotype is that not many people have dyslexia. 5% of the Norwegian population has dyslexia, and some researchers go as high as 10%, according to Dysleksi Norge (2020). That means that one can expect there to be a dyslexic learner in every classroom (in class sizes of 25). Teaching dyslexic learners is therefore an everyday occurrence for most teachers. It is important to not diminish the considerable amount of the population that struggle with dyslexia by saying that dyslexia is a rare learning disability. Such a stereotype can make some teachers absolve themselves from the responsibility of learning about dyslexia and from adapting their teaching to dyslexic learners.

## 2.3 Positive traits of dyslexia

Dyslexia is, evidently, a disability but can also come to show in strengths in many areas. Midtbø Aas (2021, p.23) highlights some common strengths among dyslexic learners:

- The learner is good at problem-solving
- The learner shows a lot of imagination in their texts
- The learner thinks outside the box and is able to see the big picture

- The learner is curious
- The learner perseveres
- The learner is intuitive
- The learner is a visual learner
- The learner thinks quickly
- The learner has a big vocabulary and many ideas

Just as a teacher needs to consider a dyslexic's learning difficulties, they must also consider their strengths. Knowing and recognizing both strengths and weaknesses is a tool to adapt teaching in a way that allows learners to utilize their strengths and not be held back by their weaknesses.

#### 2.4 Steering documents

This study has been prompted by steering documents, namely the Norwegian curriculum for English grades 5-7 and 8-10 (Kunnskapsdepartementet, 2019), and the Education Act (Opplæringsloven, 1998).

The Norwegian curriculum for English for grades 5-7 sets clear aims for the learners, and they can be especially challenging for a learner with dyslexia. Many of the aims focus on reading and writing. For example, the learner should be able to:

- Follow rules for spelling, word inflection and syntax (Kunnskapsdepartementet, 2019, p. 7)
- Read and present content from various types of texts, including self-chosen texts (Kunnskapsdepartementet, 2019, p. 7)
- Write cohesive texts, including multimedia texts, that retell, tell, inquire about and express opinions and interests adapted to the recipient (Kunnskapsdepartementet, 2019, p. 8)

The same tendencies can be seen in the curriculum for grades 8-10 as well. For example, when graduating from 10<sup>th</sup> grade, the learner should be able to:

- Use knowledge of word classes and syntax in working on own oral and written texts (Kunnskapsdepartementet, 2019, p.9)

- Follow rules for spelling, word inflection, syntax and text structure (Kunnskapsdepartementet, 2019, p. 9)
- Write formal and informal texts, including multimedia texts with structure and coherence that describe, narrate and reflect, and are adapted to the purpose, receiver and situation (Kunnskapsdepartementet, 2019, p.9)

Learning a language must include reading and writing skills, there is no way around that. Therefore, one cannot propose that dyslexic learners may simply be disregarded in the curriculum. However, the curriculum contains aims that are difficult, but not impossible to attain for dyslexic learners. Dyslexia makes it hard to differentiate between letter sounds, which can make aims like “Use knowledge of word classes and syntax in working on own oral and written texts” and “Follow rules for spelling, word inflection, syntax and text structure” challenging without the fundamental knowledge of letters and letter sounds (Midtbø Aas, 2021, p. 15). To make it even more challenging, the English language has 26 letters, but 44 phonemes (sounds) (Dysleksi Norge, 2019, p.22). This lack of correlation between letters and sounds also makes the aims focused on writing skills hard for dyslexic students. Such aims would include, “Write formal and informal texts, including multimedia texts with structure and coherence that describe, narrate and reflect, and are adapted to the purpose, receiver and situation” (Kunnskapsdepartementet, 2019, p. 9), and they will be extremely demanding for dyslexics. Thus, making it possible for dyslexic students to achieve these goals fully, could be a challenge for many teachers.

The Education Act states that learners who are unable to benefit adequately from ordinary teaching have the right to special education (Opplæringsloven, 1998, § 5-1). Special education is an individual right for learners with a disability, such as dyslexia. Receiving special education would require that the learner is diagnosed with a disability. However, half of the learners with dyslexia in Norway were not diagnosed until grades 8-10 or even later (Dysleksi Norge, 2021a). Nonetheless, no matter how late a learner is diagnosed, the Norwegian school system must give all learners the opportunity to learn and develop based on their specific abilities (Utdanningsdirektoratet, 2021). Adapted teaching is not an individual right but something all schools are obligated to provide through varied activities and adapted tasks which is suited for the diversity in each class (Utdanningsdirektoratet, 2021). Therefore, no matter if the learner has been diagnosed with a disability, the teaching must be adapted to their needs.

## 2.5 Dyslexia and L1 versus dyslexia and L2

Much of the research on dyslexia is focused on the learner and their acquisition of their native language or L1. However, dyslexia comes to show in different ways for L1 acquisition and L2 acquisition. Many learners have other L1s than Norwegian so face even more challenges. Not only does the challenges depend on the learner's native language and which foreign language they are acquiring, it also depends on emotional and social aspects, in addition to linguistic factors.

English is an especially difficult L2 to learn for Norwegian-speaking dyslexic learners. English has 26 letters, but 44 phonemes (sounds) which can be expressed through 561 graphemes (a letter or several letters which represent sounds) (Dysleksi Norge, 2019, p. 22). Norwegian has 29 letters and approximately 40 phonemes represented by 36 graphemes (Helland & Kaasa, 2005, p. 43). Undoubtedly, this makes English a much more complex language to learn than Norwegian, not only for dyslexics, but for all Norwegian learners. A study done on a group of Norwegian dyslexic 6<sup>th</sup> and 7<sup>th</sup> graders who learns English as an L2 showed that morphology and spelling were especially difficult for the dyslexic learners compared to non-dyslexic learners (Helland & Kaasa, 2005). English spelling can seem unpredictable and the morphology illogical for dyslexic learners, who often thrive when they can detect patterns in language which can be applied in many contexts. For example, the graphic combination 'ea' is pronounced in different ways depending on the word, like in 'neat' and 'deaf'. Although 'ea' can make an [i] sound, the word 'coffee' is not spelt 'coffea'. Such irregularities are hard to grasp for anyone, but especially learners with dyslexia, who struggle with phonological awareness and spelling.

The relationship between sound and letters is, as stated earlier, a problematic area for dyslexic learners. In the L2 classroom, it is common practice to use the communicative method – a method in which one considers communicating (without an excessive focus on sounds and grammatical perfection) the most successful way of learning English (Daloiso, 2017, p. 50). However, this often comes at the expense of phonics (a method where letters are associated with sounds) and spelling. Dyslexic learners need to study the relationship between pronunciation and spelling and they especially need to focus on the sounds which are present in the English language but not in their L1 (Daloiso, 2017, p. 50). Thus, the methods used in conventional classrooms can be an obstacle more than a help for dyslexic learners.

Another linguistic factor which can be challenging for dyslexic learners in the L2 classroom is the concept of top-down language learning. For an L1, the learner acquires the language bottom-up – from practice to theory. But for an L2, they acquire language top-down – grammar rules are often presented from the beginning and it is often a problem for dyslexic learners if rules are presented in an abstract way (Daloiso, 2017, p. 50). This is because the learner has acquired one type of strategy to learn grammar in their L1, but this strategy is not applicable for learning an L2. It is therefore important to teach dyslexic learners strategies for learning L2 grammar.

Learning an L2 usually happens in formal settings, such as a classroom, while an L1 is learned in a range of settings, most of which are familiar and comfortable. Therefore, one must consider the emotional aspects of learning an L2 in a classroom. Foreign language anxiety is one aspect which dyslexic learners might need to deal with. Foreign language anxiety is made up of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning which arise from the uniqueness of the language learning process (Daloiso, 2017, p. 40). Foreign language anxiety is something everyone can experience, but it is perhaps more likely that a dyslexic learner will encounter this feeling because they are battling a language learning disability in addition to other stress-inducing factors. One such factor is communication apprehension. Daloiso states that communication apprehension “refers to the sensation of nervousness and tension that learners may experience when they are required to communicate in another language” (2017, p. 40). This stems from not having everything under control and a fear of making a mistake or not be able to communicate effectively. Another aspect is test anxiety where learners “become apprehensive about performing poorly” (Daloiso, 2017, p. 41) and fear of negative evaluation where learners are “afraid of making a mistake and being negatively evaluated” (Daloiso, 2017, p. 41). Although these are emotional factors which all of us can recognize, studies show that those with dyslexia “maintain high levels of anxiety throughout the learning process”, while learners without dyslexia mostly experience this at a beginner level (Daloiso, 2017, p.41). Daloiso also points out that language anxiety often causes learning failures for most of us, but for learners with dyslexia, it might be a consequence of failures as a result of their dyslexia conflicting with mainstream teaching practice (2017, p. 41).

## 2.6 Research review

There is not much research specific to Norwegian dyslexic learners and the acquisition of English as an L2. When it comes to resources for teachers on this specific topic, the selection is scarce. This research review covers research which has been carried out in a Scandinavian setting, not just a Norwegian setting, precisely because the selection is so limited. Therefore, one can propose that there is a gap in the research. It is within this gap that this study will make its contribution.

### 2.6.1 Understanding dyslexia

Much research on dyslexia aims to explain what dyslexia is and how to detect dyslexia in learners, such as Midtbø Aas (2021). She explores what dyslexia is, how to detect it, the cooperation between the learners' home and their school, dyslexia-friendly teaching, and several other topics. However, Midtbø Aas (2021) does not cover dyslexia in the ESL classroom but serves more as a general resource for all teachers and lacks the specific focus foreign language teaching.

Daloiso (2017) explores what dyslexia is explicitly covering the topic of teaching English as an L2. Daloiso does not have a specific native language as a starting point, but rather concentrates on English as a foreign language, no matter what the native language may be. Daloiso (2017) presents methodological guidelines for accessible language teaching, how to work on sounds and letters, developing communicative skills, and accessible language testing and assessment – all for dyslexic learners explicitly.

### 2.6.2 The importance of learning English

When researching how Norwegian dyslexics learn English as an L2, it is important to note *why* Norwegian learners need to learn English. Storkaas (2014) highlights the important role that English has in Norwegian society. Not only is it widely used in academia, it is also the language which dominates, among other areas, pop culture (p.19). Elvebakk (2018) states that there is a strong expectation of Norwegian students to learn English, because it is the foreign language that Norwegian people use the most (p. 34). Because of this, many dyslexic students do not want to be exempted from learning English. They state that “English skills are very important in one’s adult life in increasing their job prospects, making it easier to communicate when travelling abroad, or being a common requirement for many universities” (Szaskiewicz, 2013, p. 44). Caglar-Ryeng (2010) states that with the increased global

challenges of today's world, both children and adults need to learn at least one foreign language and that people with dyslexia are no exception (p. 11). Gjerde's (2010) research also shows that Norwegian students consider English to be an important subject (pp. 54-56). The Norwegian research referred to above is based on the presumption that mastering English is mandatory in Norwegian society today. Exemption from English training is generally not an option, not even for dyslexic students. Thus, the debate is not based around whether or not dyslexic students should learn English, but how learning English could be made easier/manageable for them.

### 2.6.3 Lack of teacher training

Most of the research on the topic concludes that teachers' knowledge of dyslexia is not sufficient and, evidently, that many teachers "acquire more methods for teaching the more experience they have with students with dyslexia" (Storkaas, 2014, pp. 38-39). Teachers are therefore learning by doing and this may result in students not receiving the help they need early on. Reports show that many students do not receive the help they need because the teacher lacks knowledge about dyslexia (Barneombudet, 2017). Dysleksi Norge (Dyslexia Norway) states that around 5% of the Norwegian population has dyslexia, while as many as 20% has reading difficulties. This is over one million persons. The apparent lack of training in methods which benefit learners with dyslexia is therefore perplexing. This lack of knowledge creates harmful learning environments, and Storkaas (2014) highlights that many students feel that "their work was praised too little and critiqued too much" (p. 24). When teachers evaluate dyslexic students' work by comparing it to non-dyslexic students' work, their negative feedback decreases motivation and creates standards that might be impossible for dyslexic students to live up to.

A common trait found in dyslexic students learning English, is that their motivation to learn is often brought on by knowledgeable teachers. Szaskjewicz (2013) highlights that even though English is often one of the most difficult subjects for Norwegian students with dyslexia, it is not necessarily their least favorite. She argues that "the attitude to learning shifts to more positive as impacted by the English teacher" (p. 43) and that "the pedagogical strategies used by the teachers, their attitude towards the students, understanding and respects have been reported in this study as having great significance for the students' own perceptions on their

difficulties” (p. 50). In other words, there is little to no controversy surrounding the need for better trained teachers on the topic of dyslexia.

#### 2.6.4 Student experience versus teacher experience

As stated earlier, a common denominator for much of the research done on dyslexia is that it is centered around the student. Szaszkievicz (2013) focuses on the emotional responses of Norwegian students learning English. She found that “the central theme that emerged from the students’ perceptions of their English teachers was the lack of understanding which consequently was reflected in the important pedagogical decisions and attitude of the teachers” (p. II). This lack of understanding among teachers seems to be a common problem. For example, Strandvik’s (2017) research centres around how dyslexic students experience school based on the students’ own testimonies. Similarly, Gjerde’s (2010) research, in which she explores dyslexic students’ self-perception, shows that English was the hardest subject for most of her participants (p. 47). In addition, several of the students experienced that the English teaching was not adapted to their needs (pp. 61-62). Caglar-Ryeng (2010) is the only one of the research papers selected for this research review that explores specific areas that dyslexic students need guidance in, namely morphological awareness.

Lack of research leads to lack of knowledge, which in turn makes it difficult for teacher to know how to adopt the perspective of dyslexic students. However, English teachers in Norway could greatly benefit from more research being done on the teachers themselves, as a way of sharing experiences and building knowledge together, as opposed to each teacher being left to figure out how to adapt their teaching on their own. The students can explain how it feels to have dyslexia in the Norwegian school system, but without pedagogic and linguistic education, it is difficult for them to properly explain what they need. For example, in Strandvik’s (2017) research, 4 out of 5 students state that they hate English (p. 84). The reasoning behind this was that English was difficult. However, English does not have to be difficult for this group of students. As stated earlier, Szaszkievicz’s (2013) research shows that an English teacher can change this attitude to the subject. English teachers need to be aware of the fact that their subject is often a source for frustration for dyslexic learners. Yet, they have it in their power to make the subject manageable, and even enjoyable, for dyslexic learners. Knowing this, however, does not automatically help teachers adapt their teaching.

Dysleksi Norge's (2019) *Tilpasset opplæring i engelsk for elever med dysleksi*, which focuses on adapting teaching to dyslexic learners in the ESL classroom is the only source discussed here on the specific topic of teaching English as a foreign language to Norwegian learners. Its reference list contained general sources on dyslexia, but none about Norwegian students and English as an L2 in particular. Dysleksi Norge (2019) gives concrete advice on how to teach English to dyslexic learners with focus on framework and methods, such as reading aloud and use of ICT (pp. 18-19). The aim is to develop dyslexic learners' reading and writing skills and less about developing oral communicative skills.

### 2.6.5 International research

There is little peer-reviewed research on the topic of ESL learners with dyslexia. There is even less research on Norwegian dyslexic ESL students in specific. One can find research on dyslexic ESL students in general (Geva & Schuster, 2000) or Sri Lankan (Indrarathne, 2019), Polish (Lockiewicz et al., 2020), Dutch (Van Setten et al., 2017) or Chinese (Kałdonek-Crnjaković, 2021) ESL students which focuses on topics such as individual differences between the dyslexic students' word recognition, reading skills and how to accommodate dyslexic learners. The material found on the topic are mostly master's dissertations, such as Strandvik (2017) and Szaszkievicz (2013), who both focus on the emotional and social experiences of Norwegian students struggling with dyslexia in the ESL classroom.

This study explores what methods teachers have tried and continues to use, what digital tools they have found helpful, and further, how and if they find time for adapted teaching. Tools and methods are explained in Caglar-Ryeng (2010, pp. 39-40), but mainly in reference to other sources. These sources are not focused on Norwegian dyslexics learning English. Seeing what methods and resources actual Norwegian teachers use when teaching dyslexic learners could be an indicator of what can reasonably be done in the ESL classroom in Norway.

## 3 Methodology

### 3.1 Method

To execute this research project, a quantitative approach with qualitative aspects have been chosen. Namely, a survey with some open questions. The survey was structured around the research questions and allowed me to gather data from a range of teachers of different ages,

who work at different grade levels, and with mixed degrees of experience and education. It also allows for collection of data from a larger group of people than interviews, for example. Since the survey was carried out online, the survey could reach teachers from all around the country quite easily. In addition, it has the benefit of being convenient: the teachers can choose to participate when they have the time and in the comfort of their own home or wherever else they might choose. The survey combines open-ended questions and closed-ended questions in order for the participants to specify when needed.

The survey was created in Google Forms. No personal information was collected in the data material and the survey is completely anonymous. Besides protecting the informants and making them comfortable in sharing their knowledge and experience, keeping the informants anonymous makes the research project adhere to the Norwegian Centre for Research Data's privacy policy (NSD, n.d.).

### 3.2 Distribution and participants

The survey was posted in a Facebook group for English teachers in Norway. This generated much interest and the survey received 79 responses from the Facebook group alone. I therefore closed the survey and did not distribute it anywhere else.

The first section of the survey collects background information about the participants, such as age, gender, work experience, which grade level they teach, and their educational background. This information is of interest because it may show which groups of teachers adapt their teaching and if the aids differ depending on factors such as gender and age.

#### 3.2.1 Age of participants

Question 1 asks the age of the participants. The largest group of respondents were between the ages of 26-35 with 33 respondents. The second largest group were between the ages of 36-45 with 26 respondents. 14 people between 46-55 responded, while only 4 were between 20-25 and 2 were between 56-70.

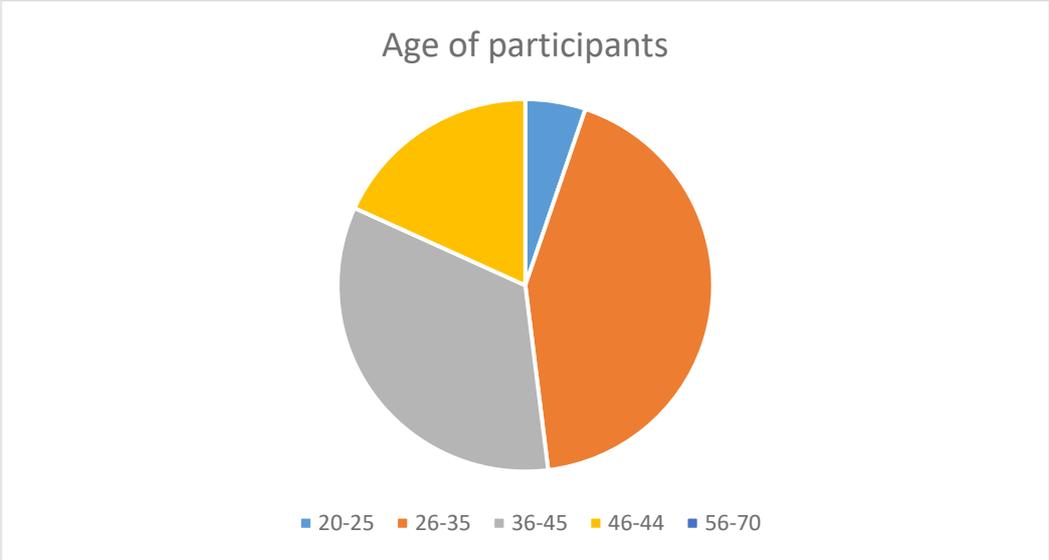


Figure 1: Age of participants

### 3.2.2 Gender of participants

Question two asks the gender of the participant. 73 out of 79 participants were female, while the final 6 were male. The gender balance is therefore disproportionate, and it will not be possible to see any differences between the genders.

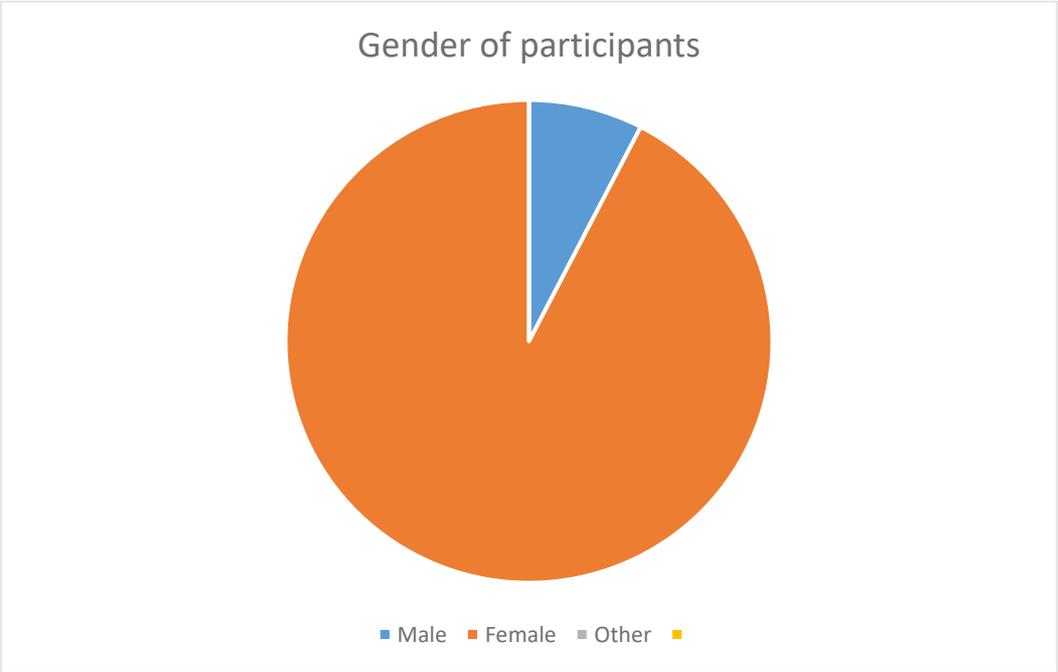


Figure 2: Gender of participants

### 3.2.3 Work experience as teachers

Question 3 asks for how long the participants have worked as teachers. 30 of the participants have worked as teachers for 6-15 years and 30 of them have worked for 0-5 years. 16 has worked for 16-25 years and only 3 for more than 25 years. Work experience is of interest, because it may show if there is a correlation between experience and adapting teaching.

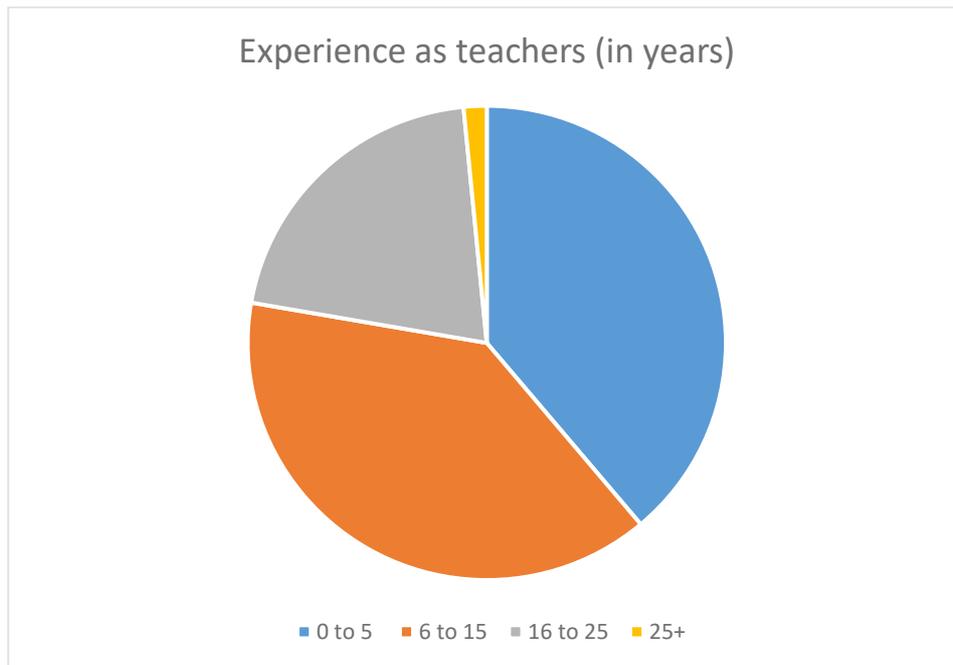


Figure 3: Experience as teachers

### 3.2.4 Grade level

Question 4 asks about which grade level the participants teach. 36 of them teach grades 1-7 and 43 teach grades 8-13. Knowing which grade level the participants teach is of interest because half of the learners with dyslexia in Norway are not diagnosed until grades 8-10 or later (Dysleksi Norge, 2021a). However, the effect of adapted teaching is at its most effective in grades 1-2 (80% effective). This is reduced to 50% effectiveness in 3<sup>rd</sup> grade and 10-15% in 5<sup>th</sup> grade and later (Dysleksi Norge, 2021b).

The questionnaire provided the participants with two alternatives, namely grades 1-7 and 8-13. However, it should be noted that a more differentiated choice might have given more precise results here, seeing as the effect of adapted teaching for dyslexic learners, is most effective in the lower grades (Dysleksi Norge, 2021b).

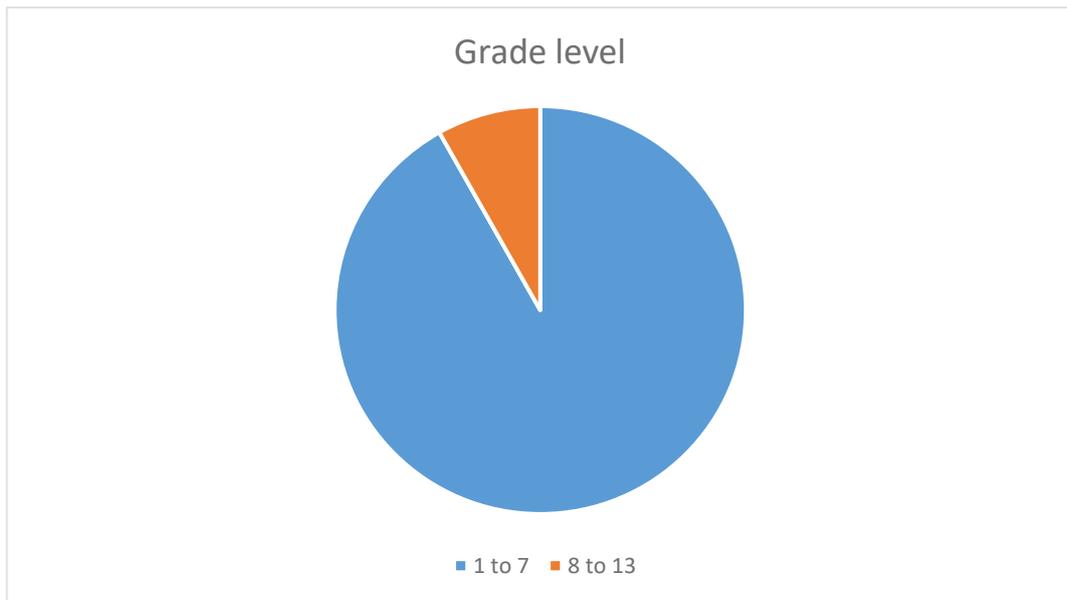


Figure 4: Grade level the participants teach

### 3.2.5 Educational background

Question 5 asks the participants about their educational background. Most of the participants, 46 out of 79, were ‘adjunkts’ – teachers with a 4-year education. The second largest group was ‘lektors’ – teachers with a master’s degree.

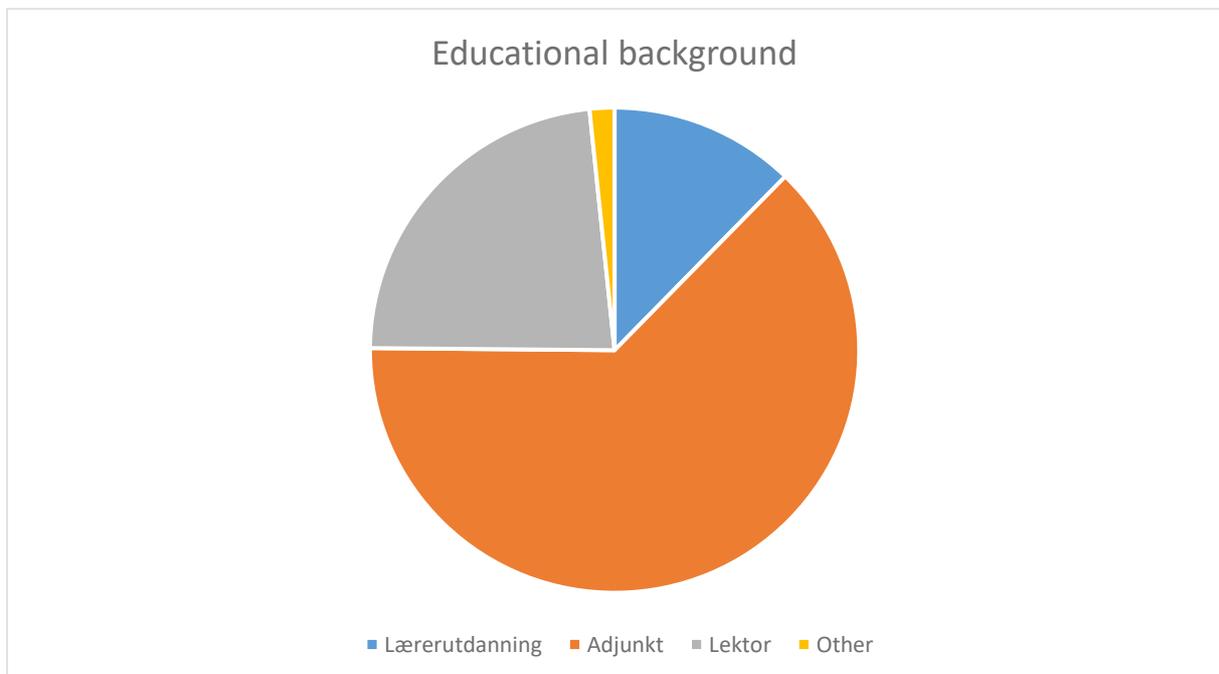


Figure 5: Educational background of participants

### 3.3 Overview of the survey

#### 3.3.1 Experience with dyslexia

Question 7 asks the participants if they have experience with learners with dyslexia. If they have, they will answer the rest of the questions. If not, they are sent to the two final questions, the first being: “Why do you think you have not encountered dyslexic learners?”. Since there is at least one dyslexic learner in each classroom (statistically), the participants are encouraged to think about how it can be that they have not had any dyslexics learners in their classroom. Finally, they are asked an open-ended question: “Do you have anything else to add which can be of relevance for this topic?”.

#### 3.3.2 Aids and methods in general

The teachers who have experience with dyslexic learners, are sent to question 8: “Which aids do you use in your teaching of English to dyslexic learners?”. The participants are told that this entails both non-digital methods and resources *and* digital aids.

#### 3.3.3 Non-digital aids and methods

The participants are then sent to the next section where they will be asked to specify which non-digital aids they use when teaching English to dyslexic learners. Question 9 asks: “Do you use any specific non-digital teaching methods or aids when you teach English to dyslexic learners?”. Next question asks: “If no, why not?”. Question 11 asks: “If yes, which non-digital aids or methods do you use?”. The participants are then asked to explain how these methods and aids help dyslexic learners reach their goals.

#### 3.3.4 Digital aids and methods

The next section focuses on digital aids and methods. Question 13 asks if the participants are familiar with any digital aids or methods that are available for learners with dyslexia. If they are, they are asked to specify which ones and if they have used them in their classroom. If they have used digital aids, they are asked to list which ones. If they have not used any digital aids, they are asked why not. Next, the participants are asked if they have received any training or information about aids for dyslexic learners through their workplace. Finally, they are asked which aids are of most value when teaching English to dyslexic learners and how

the aids help the learners reach their goals.

### 3.3.5 Other

The final section asks two questions. The first is “Does the administration at your workplace facilitate for learning about aids and methods which can be of help when teaching dyslexic students?” and the second is an open-ended question: “Do you have anything else to add which can be of relevance to this topic?”. This is to let the participants add any thoughts or reflections which they feel are relevant, but did not have the chance to add in other parts of the survey.

## 4 Findings and discussion

### 4.1 Teachers’ education

Question 6 asks the participants to what degree their education prepared them for teaching English to learners with dyslexia. They are asked to rate their education on this aspect from 1-5. 1 represents ‘To a very small extent’, while 5 represents “To a large extent”. Most of the participants (46) rated their education 1, while none rated it 5.

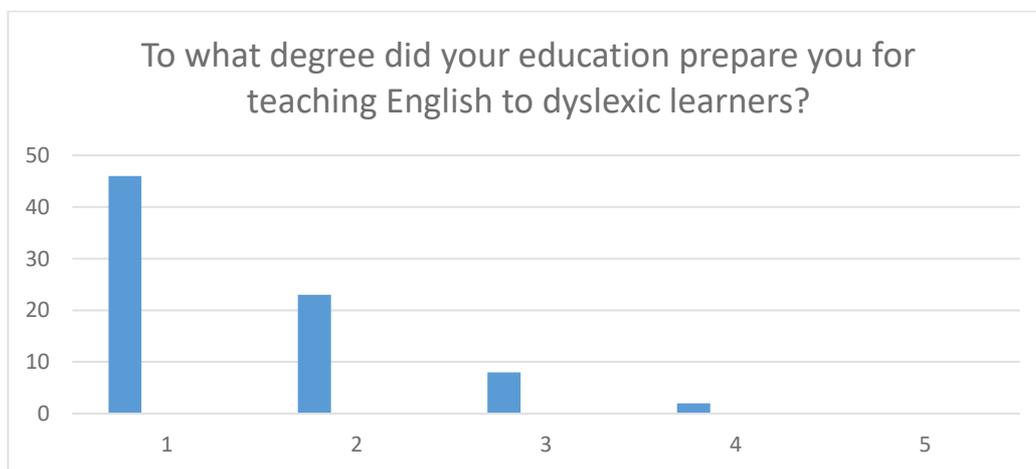


Figure 6: To what degree did the participants' education prepare them for teaching English to dyslexic learners

One could argue that teacher training has come a long way and that these results point to a time where dyslexia was not as well known as it is now. However, since most of the participants stated that they had between 0-15 years of experience as teachers, one can assume that most of them finished their teacher training 0-15 years ago, in other words, quite recently.

By checking the individual answer sheets from those who answered that they had 0-5 years of experience, it is clear that also these participants found that their training did not sufficiently prepare them for teaching English to learners with dyslexia.

One can interpret these results as there being little to no teaching on dyslexia in the ELT classroom in teacher training in Norway today. Dysleksi Norge (Dyslexia Norway) has advocated for required training in dyslexia in Norwegian teacher training and claim that it is completely random if the dyslexic learner will meet teachers who have knowledge about dyslexia or not (Gilje, 2021, Kolberg, 2015). This pattern comes to show in the results of this study as well. Despite answering that their education did not prepare them for teaching English to dyslexic learners, the following results will show that many of the participants have extensive knowledge about digital aids and non-digital teaching methods for teaching learners with dyslexia. It seems many of the participants have taken it upon themselves to learn about dyslexia. Seeing as there is, statistically, at least one dyslexic learner in each classroom (Dysleksi Norge, 2020), teachers will have to face the challenges that come with teaching a dyslexic learner and it is therefore plausible that many have seen the need for educating themselves on the topic.

## 4.2 Non-digital teaching methods and resources

After the section on background information and rating of their education, the participants are asked to answer questions about non-digital teaching methods and resources. Non-digital teaching methods and resources can be books of a certain type, or structuring lessons in a certain way that benefits dyslexic learners, or anything else that does not include digital tools such as iPads, computers, phones, et cetera.

### 4.2.1 Use of non-digital teaching methods and resources

The section on non-digital aids and methods starts by asking the participants if they use any specific non-digital teaching methods or resources when teaching English to learners with dyslexia. 49 participants answered yes, while 28 answered no.

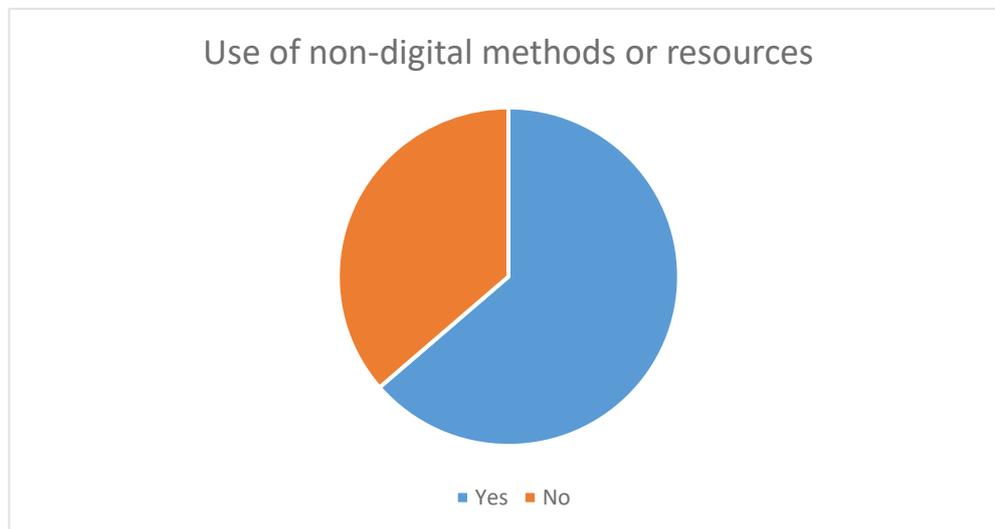


Figure 7: Use of non-digital methods or resources

Of the 28 who answered no, 16 were in the age group 26-35. This was the largest group of participants with 33 of 79 which makes it no surprise that many of the ones who answered no are in this age group. 17 of the 28 taught grades 8-13, while 11 taught grades 1-7. It therefore seems that not utilizing any resources or methods for dyslexic learners is quite common in both grades 1-7 and 8-13, but as stated earlier, effects of adapted teaching is most effective in the lower grades. It is therefore most worrying that teachers in grades 1-7 do not adapt their teaching. 2 of the 11 participants who teach grades 1-7 also answered that they do not use digital aids in their teaching of dyslexic learners.

Of the 28 who answered no to using non-digital aids and methods, 14 had 0-5 years of experience as a teacher. This could mean that they do not have much experience with dyslexic learners. Seeing as most of the participants answered that their education did not prepare them properly for teaching dyslexic learners, experience in the classroom is the only way for many to learn about dyslexia.

#### 4.2.2 No use of non-digital teaching methods or resources

Those who answered no when asked if they use any non-digital teaching methods or resources are encouraged to answer why that is. The most common answer is that they do not have enough knowledge of such methods or resources, an answer given by 12 of 28. This can be traced back to their education. 9 out of the 12 gave their education the lowest rating on preparing them to teach for dyslexic learners, 2 of them gave the second lowest rating, while 1 one of them gave an intermediate rating.

Several of the participants also mention that the reason for not using any non-digital methods or resources is that the learners have their own computers or iPads, or that they work at a fully digital school. However, none of them elaborate on why that would stop them from applying dyslexic-friendly teaching methods to their teaching. For example, Midtbø Aas (2021, p. 90) explains that a dyslexia-friendly teacher can:

- Start the class by explaining the learning aims and how the learners are to work to achieve those aims
- Use short sentences
- Repeat important statements
- Explain new words/terms
- Explain things in different ways
- Check the learners' understanding by letting them retell
- Help the learners structure their everyday life

These are methods that are applicable in all classrooms, even fully digital ones. One aspect to consider is that one cannot just give learners, dyslexic or not, access to multimedia material, in the way they access it through their iPads or computers, and then expect deep, integrated understanding to come of its own accord (Vartun, 2021). The participants' answers do not give any insight into whether or not the learners have been properly trained in digital strategies, but research shows that teachers need more knowledge on how dyslexic learners can be supported when they are learning in multimedia learning environments (Vartun, 2021). The rapid digitalization of the classroom has given both teachers and learners many opportunities. But the research on measures to promote digital reading skills among weak readers is far behind (Vartun, 2021). Many of the sources discussed earlier, such as Midtbø Aas (2021), highlight the importance of sufficient training in digital aids. If the learners are properly trained and supported in their use of digital aids, they can increase their reading

skills just as much as they would if they were given traditional training in reading (Midtbø Aas, 2021, p. 121). It is therefore important to ensure that the dyslexic learner has the strategies they need to use their digital aids efficiently and that the teacher has the knowledge to support the learner in their use of digital aids. However, even a fully digital school, with teachers and learners properly trained in digital aids, can apply non-digital methods in their classrooms, many of which will be covered in the next sections.

It is possible that providing examples of non-digital methods or resources could have given the participants a better understanding of what is asked. 3 of the participants who stated that they do not use any non-digital methods or resources, said that they did not quite understand the question when they are asked why not. 3 other participants state that they do not 'have' any non-digital methods or resources. One can interpret these answers as either a lack of knowledge of teaching methods that does not include any physical resources, or that the participants are not mindful of what is actually encompassed by 'non-digital methods and resources'. If there had been a more thorough explanation of what is meant by non-digital methods or resources, which is quite a wide range, it might had given different results.

#### 4.2.3 Adapted teaching

The 49 participants who answered that they do use non-digital methods and resources are asked to specify which ones. Most of the participants state that adapt their tasks and teaching in different ways.

##### 4.2.3.1 Extra time

Reading and writing can be quite time consuming for dyslexic learners. 2 of the participants recognize this and therefore provide their learners with extra time. The participants do not specify in which learning situations the learners are given extra time, but extra time on tests and examinations is recommended by Dyslexia Norway as a beneficial way to adapt for dyslexic learners (Dysleksi Norge, 2021b). In addition, giving the learners the time they need to complete all kinds of work is considered one of the general ways to adapt teaching for all learners (Dysleksi Norge, 2021b).

##### 4.2.3.2 Reading aloud

9 of the participants specifically mention reading aloud as a method they use in their teaching of English to dyslexic learners. Dalouso (2017) encourages this method in the development of

reading skills in dyslexic learners. She states that “bimodal presentation, i.e. the presentation of a text in two different formats, is claimed to have a positive effect on word-recognition skills and vocabulary acquisition, as well as on reading comprehension and information recall” (p. 138). Reading aloud can therefore be considered a simple and not very time consuming way of adapting for dyslexic learners.

#### 4.2.3.3 Teaching sounds and letters

Five of the participants state that they focus on teaching the connection between sounds and letters. As stated earlier, dyslexia makes it hard to differentiate between letter sounds. This is made even more challenging when learning English as a second language, because the English language has 26 letters, but 44 phonemes. This is in contrast to Norwegian, which is a more orthophonic language (Helland & Kaasa, 2005, p.43).Daloiso (2017) highlight the importance of teaching phonology. She states that there are two key scientific findings which ESL teachers need to take into consideration. The first is phonological sensitivity in early childhood. She highlights three sensitive periods “during which the plasticity of the brain gradually declines, with language acquisition becoming increasingly difficult” (Daloiso, 2017, p. 101). These three stages are:

- 0-3 years old: “If constantly exposed to one or more languages, children can later reach a native level of competence in both languages” (Daloiso, 2017, p. 101).
- 4-8 years old: “If a second language is introduced in this period, children can still reach a native-like level of competence, depending on the degree of exposure to the language” (Daloiso, 2017, p. 101)
- 9 years old and beyond: “If a second language is introduced during this period, a native-like level of competence is very difficult to achieve. Success will depend on a number of variables (degree of exposure to the language, motivation, learning styles, etc.)” (Daloiso, 2017, p. 101)

This deterioration in brain plasticity seems to primarily affect the development of phonological and grammar skills – i.e. automaticity in the use of morphology and syntax, but not other language skills (Daloiso, 2017, p. 101).

The second scientific finding which Daloiso highlights is the impact of phonological processing skills in language acquisition. She states that “a crucial requisite for predicting

later success in reading acquisition is phonological awareness, i.e. the ability to focus on the sounds of speech as distinct from the meaning, and to identify the different phonological subcomponents of words such as syllables, rhymes, and single sounds” (Daloiso, 2017, p. 101). Since dyslexia is associated with poor phonological processing, it can explain why many learners with dyslexia have difficulty learning English as a foreign language (Daloiso, 2017, p. 102). Studies show that programs focusing on phonological and orthographical work provide the most successful kind of support for learners with dyslexia (Daloiso, 2017, p. 102). Based on these two findings, one can argue that teaching the connection between sounds and letters is crucial in language learning. It is also better for the learner the earlier this connection is made because of the periods of phonological sensitivity in childhood. 5 of the participants state that they focus on sounds and letters, but none of them specify how they do so. Daloiso suggests implicit phonological awakening through nursery rhymes and storytelling (2017, pp.104-107) and explicit phonological awakening by designing a sounds syllabus to target sounds to work on (2017, pp.108-113).

#### 4.2.3.4 Conscious use of feedback

Only one of the participants answered that they are conscious in their use of feedback for dyslexic learners. The participant stated that they do not correct any errors in grammar or spelling. When asked how this helps dyslexic learners, the participant answered that this gives the learner a sense of accomplishment and the possibility for progression.

It is extremely important to ensure that a dyslexic learner feels a sense of accomplishment at school according to Midtbø Aas (2021). She states that dyslexic learners often can get caught in a vicious circle where a lack of relational and instrumental support leads to a shortage in feeling accomplishment in their schoolwork. This leads to a declining motivation for the students, which leads to less learning and less effort. This leads to a sinking self-confidence which is connected to behavior problems (2021, p. 81).

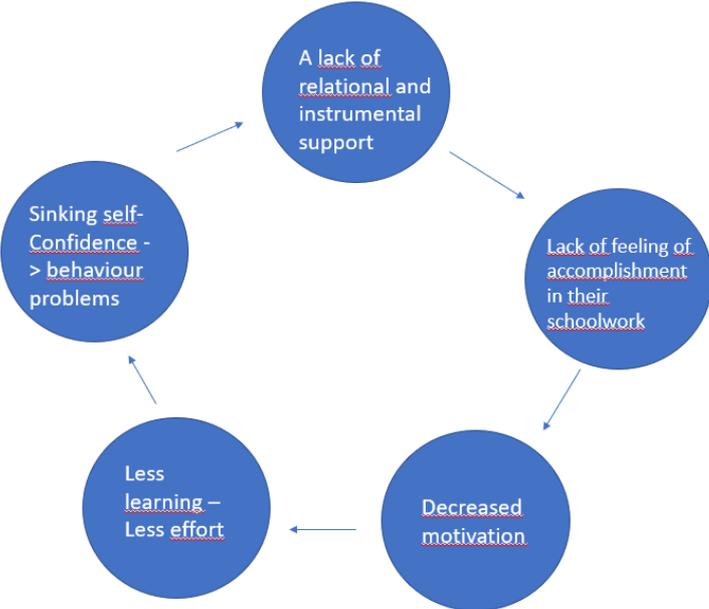


Figure 8: The vicious circle

A teacher can lift a learner out of this vicious circle by providing relational and instrumental support. Midtbø Aas highlights that both are equally important and need to happen simultaneously. Relational support, according to Midtbø Aas, is how the learners experience being encouraged, appreciated, accepted and respected by the teacher. Instrumental support is defined as the way in which the learner experiences getting concrete advice and guidance in their schoolwork (Midtbø Aas, 2021, p. 82). By providing these two types of support for the dyslexic learner, the teacher can help give the learner a feeling of accomplishment which can send them in to a virtuous circle instead of a vicious one (Midtbø Aas, 2021, p. 85).

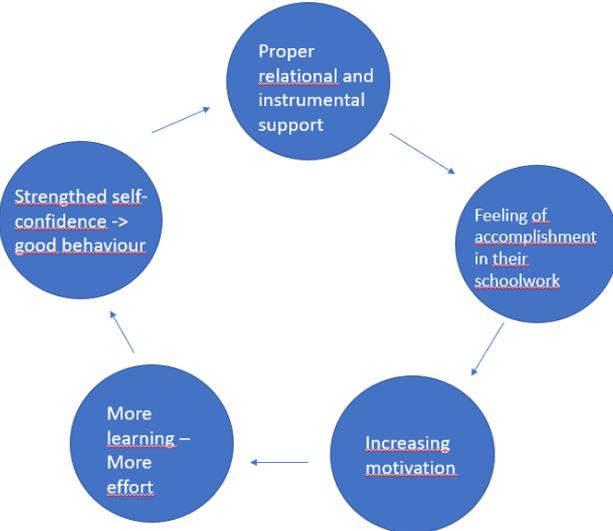


Figure 9: The virtuous circle

Thus, being conscious in the use of feedback can be a valuable way to increase the dyslexic learner's feeling of accomplishment and therefore reinforce the virtuous circle.

#### 4.2.3.5 Simplified texts and tasks

12 of the participants stated that they simplify or shorten texts and tasks to adapt for their dyslexic learners. Several of them stated that they created tasks for different levels of English proficiency, so that the learners can choose for themselves.

Reading can be a time-consuming task for learners with dyslexia. Daloiso (2017) suggests three types of extra support for the dyslexic learner: bimodal presentation (i.e. audio and text), accessible format, and time (p. 138). Dyslexic learners may need more time to read the same passage as a non-dyslexic learner, but there is not always enough time in the classroom to give them that time. In addition, reading can demand a lot of the learner's energy and concentration. The teacher can therefore "Introduce some forms of differentiation, such as providing groups of learners with reading passages of different lengths according to their decoding speed" (Daloiso, 2017, p. 138). Simplifying or shortening text according to the learners' decoding skills can therefore be of advantage for the learner's reading comprehension and information recall.

As stated earlier, making sure the learners experience a sense of accomplishment in their schoolwork is an important step of the learning process. By giving them texts and tasks that they can master and achieve on time, teachers can help learners feel accomplished. It is important to note that many dyslexic learners struggle with a feeling of being different in the classroom. They want to do the same tasks and work through the same resources as all other learners. Szaszkievicz highlights that "The most common feelings which accompany their [the dyslexic learners] experiences of learning English, is the feeling of being different, lonely, judged and stupid" (2013, p. 49). She also highlights how individual teaching and how "the students feel that this form of help aggravates the negativity from their peers by sending a signal that they are not like everyone else and need special help" (Szaszkiewicz, 2013, p. 51). Although these statements do not specifically mention shorter and simplified tasks and texts, they illustrate how painful it is for young learners to feel different and how much they compare themselves to their peers. It is therefore important to consider the social aspect when adapting to dyslexic learners. Consider if the adaptation makes the learners' disability visible

for others. If so, consider if the dyslexic learners in the classroom is comfortable enough in their dyslexia to let it be visible for others. If they are not, then the teacher must make adjustments, - or perhaps decide on arrangements - with the learners in order to make them feel comfortable. For example, providing the learners with the reading passage ahead of time (Daloiso, 2017, p. 138) can be a way of adapting in a way that is not visible for other. The learner can then read the passage as many times as needed before class.

Another aspect to consider, is if the adapted and shortened texts are really necessary or even helpful for the learner. A participant who stated that they provide shortened texts for their dyslexic learners explained that this helped the learner retain the information they need about the topic in question without losing anything on the way. Another participant states that an adapted text is adapted teaching. To discuss this, we must look at the core elements of the subject of English. The three core elements of the subject are communication, language learning and working with texts in English (Kunnskapsdepartementet, 2019, pp. 2-3). The language learning element is of particular interest:

“Language learning refers to developing language awareness and knowledge of English as a system, and the ability to use language learning strategies. Learning the pronunciation of phonemes, and learning vocabulary, word structure, syntax and text composition gives the pupils choices and possibilities in their communication and interaction. Language learning refers to identifying connections between English and other languages the pupils know, and to understanding how English is structured” (pp. 2-3)

The curriculum clearly states that the aim of the English subject is not just to retain information, but a continuation of language learning and improvement of language skills in order to communicate. The simplified texts and tasks must therefore ensure a developing of language awareness and the ability to use language learning strategies, as the curriculum asks for (Kunnskapsdepartementet, 2019, pp. 2-3).

#### 4.2.3.6 HELP teaching materials

Three of the participants stated that they use the teaching materials called HELP when they have dyslexic learners in their English classroom. HELP (Holmberg English Learning

Program) are teaching materials specifically designed for dyslexic learners who struggle to read and write in English. HELP consists of a textbook, a workbook, and a teacher guide. A drawback to using teaching materials such as these is that it can make the learner feel different from the rest of the class. Just as with simplified/shortened tasks and texts, the teacher must be careful in their differentiation. One of the participants states that they consider this and only use HELP when the dyslexic learners are out on 'alone time'. When they are with the rest of the class, they follow the same topic as them with adaptations. One teacher states that HELP allows the dyslexic learners some variation and that they do not have to 'stare into a screen' every time an activity is adapted for them. Another says that HELP helps the young dyslexic learners figure out the 'jumble of English sounds, both logical and illogical combinations of sounds and letters'. Yet another says that the teaching materials works well in the teaching of recognition of sounds, both orally and in writing.

#### 4.2.3.7 Focus on oral activities

Eight of the participants stated that they have more focus on oral activities when teaching English to dyslexic learners. They do so through games, music, and play. Just as the participants who stated that they focus on reading aloud, the participants who focus on oral activities also have an understanding of how dyslexic learners read with their ears. The participants may have noticed that the learners have a higher degree of understanding when activities are done orally instead of through reading or writing. One teacher stated that oral activities help dyslexic learners show more of their knowledge and it increases their sense of accomplishment. Another says that oral activities allow dyslexic learners to show their knowledge about subjects without the struggle of writing and that this is motivating and creates a better and more secure relation to the teacher. This relation makes the learner more susceptible to try aids for dyslexics which the teacher suggests. Another participant states that oral activities allow the learner to demonstrate their vocabulary without having to worry about writing. Many of the participants who focus on oral activities want the dyslexic learners to feel accomplishment in their schoolwork and to facilitate situations in which the learner can demonstrate what they know. This is, as mentioned earlier, important for the whole learning process and to ensure that the learner enters the virtuous circle instead of the viscous circle (Midtbø Aas, 2021, pp. 82-85).

It is important to note that although dyslexic learners can be quite proficient in spoken English, one cannot only focus on oral language. Oral activities are important, as one participant stated, to not only practice the spoken language, but to make sure the learner knows that they have valuable language skills and to make sure that they are able to demonstrate them. The motivation and security that this creates can be used as a way to prove to the learner that their dyslexia does not prohibit them from mastering a language, but that they need a little extra assistance in some areas of the language. As one participant stated, when a learner felt motivated and secure within the relationship with the teacher, the learner was more likely to accept help through aids meant for dyslexic learners. Such aids can help in the more challenging areas, such as reading and writing. If motivation can be achieved through oral activities, then these activities are very valuable in the adapted teaching of dyslexic learners.

#### 4.2.3.8 Games and play

Seven of the participants state that they focus on games and play when they have dyslexic learners in their English classroom. Board games, role playing, and finger puppets are mentioned specifically. One participant states that “dyslexic learners also likes to play” [sic], while another says that games help dyslexic learners develop their language skills through activity with others. Fremmedspråksenteret (Center for foreign languages) highlights memory-cards as a good way to practice vocabulary for dyslexic learners (2016, p. 10). Thomson highlights games and role play as ways to build vocabulary, understand syntax and grammar, and to practice the spoken language (2007, pp. 9-11).

#### 4.2.3.9 Picture cards

Four of the participants stated that they use picture cards in their teaching of English with dyslexic learners. Picture cards are cards with words and a visual representation of a specific word. Thomson encourages the use of picture cards as a support strategy for dyslexic learners (2007, p. 9), especially when it comes to building vocabulary. This strategy is one that appeals more to the strengths of the dyslexic learner than the challenges. As presented earlier, dyslexic learners have problems, but also strengths. One is that they are often visual learners. This means that they do well when they can understand and remember things by sight. Another strength is that dyslexic learners often have a big vocabulary, meaning that their challenges do not include vocabulary acquisition. Picture cards are therefore excellent tools in vocabulary building for dyslexic learners because they help maximize one strength, by

utilizing another. One participant state that this helps their learner because it provides repetition, another state that it helps because it takes them away from their computer or tablet, which they can become sick of using all the time.

#### 4.2.3.10 High frequency words

Four of the participants state that they work with high frequency words when they have dyslexic learners in their English classroom. High frequency words are the words which appear most often in printed materials. These are words that the learners will encounter often and they are often function words or words that have little meaning on their own, but are very important to the overall meaning of a sentence. They are therefore crucial to know when learning a second language.

One participant states that working with high frequency words helps simplify English for the dyslexic learners, while another says that practicing high frequency words helps the learner identify more words more easily when reading.

#### 4.2.3.11 Writing frames and model texts

Three of the participants use writing frames and one of them also state that they use model texts. Writing frames present the learner with the structure of a specific type of text. The writing frame can show the learner which features to include in their text and in which order. Writing frames can make it easier to initiate the writing process because they specifically tells the learner how to structure a text and/or how to word a topic sentence or a summary. A model text is, in contrast to writing frames, a finished text. When using a model text, the teacher can connect the genre characteristics to specific examples in the text and the learner is able to see the full composition of a text.

The participants state that writing frames and model texts help the learner in the writing process and that it gives the dyslexics learners a sense of accomplishment to have the same aims as the other learners, but with adapted teaching.

#### 4.2.3.12 Structure

None of the participants mention structure or a fixed framework of the lessons as a non-digital method, even though research shows that this is extremely important for learners with dyslexia (Midtbø Aas, 2021, p. 90).

Knowing what is going to happen during a lesson and what to expect is very useful for all learner, and especially perhaps for dyslexic learners. As stated above, Midtbø Aas (2021, p. 90) recommends for teacher to state the aims of each lesson and also explain to their learners how the aims are to be achieved. Writing the aims and the plan for the lesson on a whiteboard (or the equivalent), allows the learner to go back to it independently. Instead of asking their peers or teachers, or maybe not asking at all, the learner can redirect themselves back to the lesson with the help of the instructions on the whiteboard. Moreover, many dyslexic learners struggle with starting tasks. To help with this, a teacher can pre-activate the knowledge the learners have on the lesson's topic to guide them into the tasks (Midtbø Aas, 2021, p. 91). Simply asking the learners what they know about the topic, letting them create mind maps or discuss in pairs, are a few ways of pre-activating knowledge. Again, this is no different from other learners' needs, but perhaps especially important for dyslexic learners.

Helping the learners structure their everyday lives is also a way of adapting. Many dyslexic learners, but not all, struggle with structuring (Midtbø Aas, 2021, p. 95). This applies to many non-dyslexic learners as well. Many find their own strategies to structure their everyday lives and are able to keep up with when there is testing or hand-ins at school, when a class starts, where to look for information, how to organize, and so on. But many go a long time without figuring out any strategies and the stress of everyday life can therefore be overwhelming. Midtbø Aas therefore states that many learners, not just dyslexic ones, would manage school and other areas of their lives, much better if teachers prioritized strategy-teaching in their subjects (2021, p. 95). This can be applied to English teaching by focusing on teaching language learning strategies, such as using a dictionary or where to look for information.

#### 4.2.4 The benefits of non-digital methods

When asked how the non-digital methods help dyslexic reach their goals, many of the participants give the same answer. Giving the learners a sense of accomplishment is a very important outcome for many. One says that a sense of accomplishment equals motivation, and that motivation prompts hard work. Others state that finding methods which allow them to

demonstrate what they know is important, while many find it important that the learners can show what they know without the struggle of writing and reading, since many find it easier to do it orally. For some, the most important aspect was creating a sense of belonging in the learner. One participant state that when a learner has access to the proper aids, he or she can feel acknowledged and included by not having to read something else than the rest of the class. Yet another says that they think that facilitating with the proper aids creates a sense of security within the learner and that it therefore helps their motivation.

Motivation is a word that is frequently comes up when the participant try to explain how the adapted teaching is helping their learner. One says that variation helps with the learners' motivation, while another says that it motivates their learner when they do not have to struggle with writing in order to participate.

### 4.3 Digital aids

#### 4.3.1 Knowledge of digital aids

This section starts by reporting on the answers to the questions asking the participants if they are familiar with any digital aids that are available for learners with dyslexia. The majority of participants, 62 out of 79, said they were familiar with a few aids, 10 said they were familiar with many aids, and 5 participants said they were not familiar with any aids at all.

In what followed, the digital aids that were indicated by the participants will be discussed, with a focus on how these aids may benefit dyslexic learners.

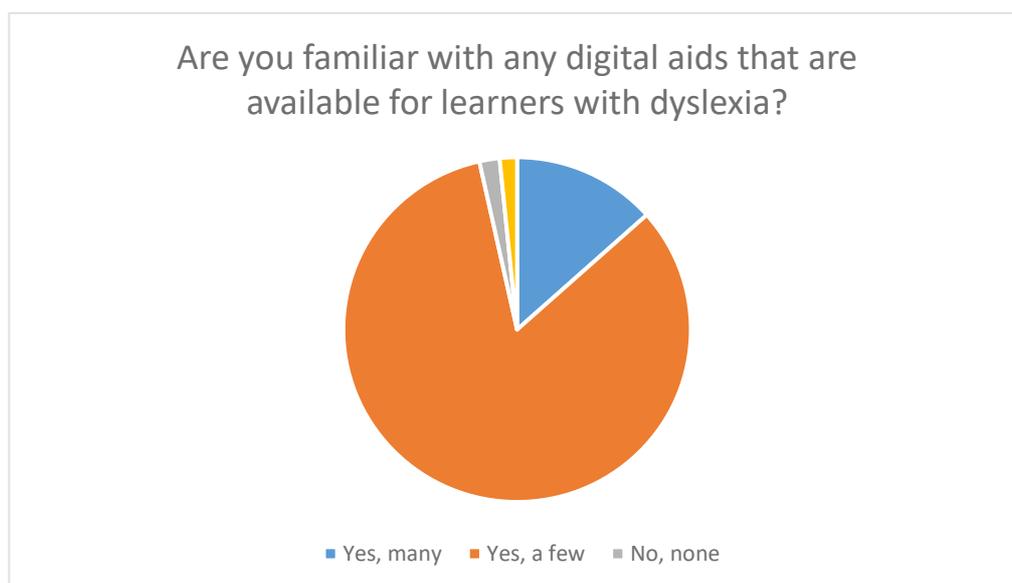


Figure 10: Knowledge of digital aids

#### 4.3.2 Lingdys/Lingright/Textpilot

The majority of the participants (44 out of 79) stated that they have used the digital aids Lingdys, Lingright and/or Textpilot when adapting their teaching to dyslexic learners. These were the most used aids. They were also, without a doubt, the aids that were mentioned most frequently when the participants were asked which aids were of most value, with 25 mentions. Lingdys, Lingright and Textpilot are software developed and sold by the company Lingit. Lingright was a software made specifically for English reading and writing support, while Lingdys was used for Norwegian reading and writing support. Today, Lingdys provides support for both languages. Lingdys and Textpilot have the exact same functions but look different. I will therefore not be differentiating between Lingdys, Textpilot or Lingright when discussing the results of the survey and I will only be referring to TextPilot and Lingdys, since Lingright does not exist anymore.

One of the functions in Lingdys and Textpilot is the possibility of having all digital text read out loud, regardless of which application the text is in. The user can also have letters read out loud, as well as words and whole sentences while writing. Another function is word prediction. This function works in two ways. One is that it can complete words while the user is writing them. The function gives suggestions for whole words and the user can choose the right word among the suggestions. The second way word prediction works is that it suggests the next word in the sentence. This function is based on the experiences that Lingdys/Textpilot has with the user's word choice from previous texts. In addition, Lingdys/Textpilot will also be able to see words in the context of the rest of the text to provide more relevant suggestions. The learner can choose if they want to use this function or not. Word prediction can be very useful for many, but for some learners it disturbs them – they lose the flow of the writing process. If the learner has big difficulties with reading and writing, they might not be able to see if the word is correct quickly enough for it to be useful (Midtbø Aas, 2021, p. 135). It is therefore important to explore these functions with the learner and figure out which are most useful for them.

A third function is spell check. Spell check works while writing and the software provides suggestions for right spelling. Such a function is pretty standard, but Lingdys/Textpilot also provides a function called text control. This function checks for 'invisible' mistakes, such as words that are spelled correctly, but used in the wrong context, such as homophones. This

function happens on a sentence level. Lingdys and Textpilot also provide a dictionary. This is available directly in the text. If a word does not exist in the dictionary, the software searches for the word in Wikipedia and shows a definition of the word from there.

25 of 79 participants answered that Lingdys/Textpilot was of most value when they were teaching English to dyslexic learners. One participant specified that the learner must have had proper training for the software to be valuable and one said that the degree of dyslexia was of importance. If the learner had major difficulties, then they benefitted little from Lingdys/TextPilot.

Daloiso (2017) highlights the importance of accessibility in the language teaching classroom. The Language Teaching Accessibility Theory (LTAT) “aims to provide teachers with a framework of reference for redesigning the learning environment to make it more accessible to students with a learning difference” (Daloiso, 2017, p. 68). Redesigning the learning environment can be done on a macro-level or on a micro-level. Accessibility on a macro-level entails “general methodological choices that have an impact on the whole language course (Daloiso, 2017, p. 70), while accessibility on a micro-level entails “specific interventions to maximize the accessibility of single units of the language course (p. 70). Providing the learner with a digital aid such as Lingdys/Textpilot could be considered accessibility on a macro-level. Lingdys/Textpilot could be available for the learner throughout the entire language course and enable the learner to access class materials and own sources in an independent way. However, it does not require anything from the teacher. The teacher should be familiar with the software, but ultimately, it does not require much ‘resedesigning’ of the learning environment.

Independence is key when it comes to Lingdys/Textpilot. This is an aid that does not require much intervention from the teacher. In addition, it is practically invisible to others. One participant in the survey said that what was most valuable for them, was getting the learners to understand that digital aids are positive for them. The participant stated that this could be an issue because the learners want to do as everyone else and they wish to not stand out in any way with their digital aids. The participant also said that the learners need experience with digital aids early on, because when they reach middle school, they might not want to use them because it becomes visible that they need more support. However, in the last two decades, the Norwegian classroom has undergone a digitalization process. The need for individual digital

devices became especially apparent during the covid pandemic (Bagharzadeh, 2021). Aids such as Lingdys/Textpilot can be easier to implement for dyslexic learners in classrooms where each learner has their own digital device. The aid becomes ‘invisible’ for the others since they are also using digital devices and the learner does not have to worry about standing out.

One participant stated that they had stopped using Lingdys because they did not want to have ‘red lines’ (under words which are spelled wrong according to the program) and to be corrected all the time. Such features must be considered by the teacher. For some, correction is no problem, for others, it can be defeating.

A few of the participants highlight how important it is that their learners receive proper training in the program and time to practice it. One states that if the learner does not get time to practice and master the program, it will not help them sufficiently. They also state that this is a responsibility for both the home, the school, and the learner. Another participant states that one of the problems with Lingdys in elementary school is that some learners are distracted and disturbed by the many functions.

#### 4.3.3 CD-ORD

5 of the participants say that CD-ORD is a digital aid they use. CD-ORD is software by the company VITEC MV for Windows PC. CD-ORD has many of the same functions as Textpilot and Lingdys, such as the option of having all digital text read aloud, word prediction, spell check (especially sensitive to typical mistakes made by dyslexic learners), and dictionary.

When using CD-ORD while reading, the learner can make many adjustments based on the purpose of the reading session. For example, the learner can choose if they are proof reading or skimming. They can also choose if they want just one word read aloud or even every letter. For reading of longer text, they can choose to have entire paragraphs read aloud. They can also create their own profiles with their preferred settings which can be easily accessed. Moreover, there is the option of adjusting the speed of the reading and the learner can have their text read aloud while writing. The learner can also use a screen reader, which helps them

read menu buttons, links, and so on. This helps the learner manage different programs and even games.

When using CD-ORD while writing, the learner can also benefit from contextual word prediction, glossary based on the topic of the text, and the option of using the symbol \* when they are unsure of one or more letters in a word. CD-ORD will then try to figure out which word the learner is trying to write.

The participants state that CD-ORD is valuable because the learners are provided with word prediction and because they can listen to the sentences they have written and therefore find mistakes in their spelling. They also find it valuable with spell check while the learners are writing. Having text read aloud is mentioned several times as a very valuable function.

#### 4.3.4 Intowords

14 participants mention Intowords as one of the digital aids they use when teaching English to dyslexic learners. Intowords is an application for Google Chrome, Microsoft Edge, iPads, Mac, Iphone, and Androids, also by the company VITEC MV. The application is based on CD-ORD and has mostly the same functions. Intowords works across different platforms and is automatically updated. It does not work offline, and users cannot customize word predictions as in CD-ORD. It seems that CD-ORD has a more extensive repertoire of functions, but Intowords was still mentioned more than CD-ORD in the participants' answers. That might be because Intowords works across different platforms, while CD-ORD only works on Windows PCs. Many classrooms use iPads as their digital tool of choice, which means that dyslexic learners need applications such as Intowords. Although a PC could be of more benefit to a dyslexic learner than a tablet, because of the wider range of aids, one can imagine that being able to use the same digital tools as the rest of the class is important to dyslexic learners. It is therefore very important that aids for dyslexic learners are available across different platforms and digital devices.

#### 4.3.5 Audio files and audio books

12 participants state that audio files and audio books are digital aids that they use in their classroom. Audio files and books can be used in different ways. For example, if there are audio files accompanying the textbook, the learner can listen to the texts instead of reading.

There are different ways of accessing audio files and audio books. Eight of the participants mentioned NLB specifically. NLB is a public Norwegian library which produces and lends out audio books and Braille books for anyone who struggles with reading. NLB provides an app called Lydhør. Another way of accessing audio files and audio books is through the publisher of the textbook used in class. Many textbooks have accompanying audio books and files which can be accessed online or even with a CD.

Audio files and audio books are an important aid for dyslexic learners who often has an easier time ‘reading with their ears’. Audio books have the same advantages as reading aloud, which was mentioned by many in the section about non-digital methods. If the learner has access to both the audio and the written text, the bimodal presentation can “have a positive effect on word-recognition skills and vocabulary acquisition, as well as on reading comprehension and information recall” (Daloiso, 2017, p. 138), just as with reading aloud.

#### 4.3.6 Functions in Word

Immersive reader, a function in Microsoft Word, is mentioned by 5 of the participants as the most valuable digital aid. The immersive reader function allows users of Microsoft Word to have text read aloud in the speed and voice of their choice. The user can also have the different word classes of the text highlighted, the words split up into syllables, and change font, background color and font size. There is also the possibility of having one individual line in focus. Another function, which does not work as well on more complex texts, shows the reader pictures of the words.

Since Immersive reader is a built-in function in Word Microsoft it is available for all learners, and it is easy and quick to access. One of the participants stated that the functions in Word are of most value for them and their dyslexic learners because they are so easily available. When asked which aids were of most value when teaching English, one participant stated that having text read aloud is valuable, but that Word did it just as well or even better than Lingright and Textpilot.

Dictation, another function in Word, was mentioned 7 times as the most valuable aid for English teachers of dyslexic learners. Dictation entails digital transcription of words uttered by the user. The user can therefore speak, and the computer or tablet will take care of the

writing for them. One of the participant states that dictation gives the learners independence when producing texts in a language which they master orally, but struggle with written. Another states that dictation allows the learner to process and comprehend information and create texts, with decoding and writing out of the way.

#### 4.3.7 Aski Raski

2 of the participants use the program Aski Raski for their dyslexic learners. Aski Raski is an online aid for use in intensive beginners reading training and both teachers who use Aski Raski teach grades 1-7. Aski Raski is a program which is especially focused on phonological awareness. As stated earlier, one of the key aspects of dyslexia, is the struggle with phonological processing. When using Aski Raski, the learner is to learn to connect letters and sounds. The goal is to reduce the need for intervention later in the learner's education, by giving the learner the proper training in phonological processing from the start. The program is divided into four parts. Part 1 is an introduction to phonemes and graphemes with a focus on letter sounds and analysis. Part 2 includes repetition of phonemes and graphemes with a focus on high frequency words and analysis. Part 3 also includes repetition of phonemes and graphemes with a focus on letter forming and analysis. Part 4 has a focus on extensive reading and writing training and complex syllables and the ng-sound. For the learners who are still struggling, there is an adapted course.

Aski Raski is an aid which goes straight to the cause of many reading and writing issues, namely the phonological processing. However, the program is in Norwegian only. The participants who referred Aski Raski do not elaborate more on the use of it and might have missed the part of the question which specifies that I am asking for aids used in the teaching of English. Alternatively, they might use Aski Raski as a supporting program when teaching phonemes and graphemes in English. English, as stated earlier, has 26 letters, but 44 phonemes (sounds) which can be expressed through 561 graphemes (a letter or several letters which represent sounds) (Dysleksi Norge, 2019, p. 22). Norwegian has 29 letters and approximately 40 phonemes represented by 36 graphemes (Helland & Kaasa, 2005, p. 43). Understanding the relationship between sounds and letters in the L1 can become a steppingstone to understanding it in an L2. The similarities and differences between the languages can then be taught, which is something that the curriculum asks for in both grades 5-7: "explore and talk about some linguistic similarities between English and other languages

that the pupil is familiar with and use this in their language learning” (Kunnskapsdepartementet, 2019, p. 7) and grades 8-10: “explore and describe some linguistic similarities and differences between English and other languages the pupil is familiar with and use this is one’s own language learning” (Kunnskapsdepartementet, 2019, p. 9).

#### 4.3.8 Other digital aids

Appwriter is an aid developed for learners with reading and writing difficulties. Three participants state that they use Appwriter in their classrooms. Appwriter works on all platforms and is free for all users. It offers many of the same functions as previously mentioned aids, such as having text read aloud, word prediction and dictation. It also offers OCR scanning.

Three other participants claim that they use TxtAnalyser. TxtAnalyser claims to save teachers time and help students become better writers by finding and correcting students’ spelling and grammatical mistakes. TxtAnalyser can also provide the teacher with an overview of the group of learners and allows them to track the individual progress of the learners.

Two of the participants specify that the selection of font can be important when teaching dyslexic learners. There are fonts specifically made for dyslexic learners. Midtbø Aas highlights that the choice of font can be important. She proposes that the dyslexia-friendly teacher should always use digital writing, since the dyslexic learner often struggle with hand writing (2021, p. 97). One participant says that they do not write in cursive on the whiteboard to make it easier to read for their dyslexic learner. Using digital writing on the board would require the teacher to have a digital whiteboard. Making sure their handwriting is neat, clear and big enough to read is therefore a good solution for teachers without digital whiteboards. Midtbø Aas also says that fonts have not been much researched, but that many dyslexic learners say that it is easier to read fonts such as Calibri, Arial, Verdana and Dyslexia font (2021, p. 97). Some can struggle with Times New Roman, which is many people’s go-to font, because it has serifs (Midtbø Aas, 2021, p. 97). Small changes, such as changing the font, can have a meaningful difference for dyslexic learners, and is not labor-intensive for the teacher.

Another digital aid, mentioned by one of the participants, is Grammarly. Grammarly is a writing assistant, not specifically developed for learners with reading and writing difficulties,

but for everyone who writes anything on computers or tablets.

#### 4.4 Training and information through the workplace

The final question asks the participants if they receive any training or information about dyslexia and/or digital aids through their workplace. 39 of the participants answered 'yes', while 38 answered 'no'. When asked if they had anything else to add overall, one participant stated that they did not feel that their answers were representative of their place of work. They say that they use a lot of time to learn about new aids and how to get access for their learners. One participant states that there is too little information on which aids are allowed on written examinations, while another says that dyslexia is a topic that is focused on at their school and that they work on it in the time allocated for pedagogical development. One participant says that they have a special education teacher for each grade, while yet another says that it is time-consuming and very challenging to adapt for dyslexic learners with large learner groups and no extra support. It seems that there are big differences in schools and what kind of support is offered to both the teacher and the learner. Some are left to their own, while others are thoroughly supported with special education teachers, training, information, and so on. The questionnaire did not provide a follow-up question here on what kind of training the participants receive and if it was helpful. The training and information on dyslexia through the workplace could be a topic for further research.

#### 4.5 No experience with dyslexic learners

Two of the participants answered that they have no experience with dyslexic learners. They were then asked to reflect on why that might be. One answered that they just have not had any learners with dyslexia, while the other said that they worked in a small town with few learners. There had been cases with learners with dyslexia, but they had an individual teaching plan and their own teacher in the classroom.

Although there is statistically one dyslexic learner in each classroom, it is certainly possible for some teachers to not have encountered any, especially if they are new to the profession.

## 5 Conclusion

### 5.1 Lack of knowledge and teacher training

The first research question of this study was “Do English teachers in Norway say that they have been prepared through their education to teach English to dyslexic students?”.

Although there are a few exceptions, the answer to this question is no. An answer that recurs throughout the entire survey is that the participants claim to lack knowledge on the topic of dyslexia in the ESL classroom. In question 6, the participants were asked to rate their education on how well it prepared them for teaching English to dyslexic learners. None of the participants gave their education the highest rating, while 48 of them rated it the lowest. This also came to show in the answers to other questions. When asked if they have anything else to add, 7 of the participants said that there should be a clearer focus on dyslexia in their education, while another said that they recently took an English one-year program where dyslexia was not mentioned once. Of the 28 participants who said they do not use any non-digital aids or methods when teaching English to dyslexic learners, 12 said lack of knowledge was the reason for not doing so. Of the 14 participants who said they do not use any digital aids when teaching English to dyslexic learners, 8 said lack of knowledge was the reason for not using them. Dyslexic learners not receiving the adapted teaching they need may thus be a direct consequence of teacher education programs not focusing on dyslexia.

### 5.2 Adapted teaching

The second research question of this study was “Do English teachers in Norway claim to implement specific methods and procedures when teaching dyslexic learners? Which methods and procedures are used?”. The short answer is yes, most English teachers in Norway claim to implement specific methods and procedures when teaching dyslexic learners. 49 out of 77 participants (who had had dyslexic learners in their classroom) claim that they implement specific non-digital methods and procedures, while 63 out of 77 claim that they use digital aids when teaching English to dyslexic learners. This means that 63,6% of the participants claim that they implement specific non-digital methods and procedures, while 81,8% of the participants claim that they use digital aids.

The most used digital aid was Lingdys/TextPilot with 44 of the participants claiming to use it when they teach English to dyslexic learners. Other frequently mentioned digital aids were Intowords, audio files and books, and CD-ORD. The most used non-digital method or resource was simplified texts and tasks, reading aloud, as well as as focus on oral activities, games and play.

### 5.3 The success and failures of adapted teaching

The third research question of this study was “According to the teachers, do these methods and procedures help the learners achieve their goals, and if so, how?”. Participants who stated that they used non-digital aids and/or digital aids, were asked to specify which ones and how the aids help their learners reach their goals.

#### 5.3.1 Reading with their ears

The most common answer to how aids, both digital and non-digital, help dyslexic learners reach their goals, was that it helped them ‘read with their ears’. Many aids covered in this study, had to do with having text read aloud. Many said that by using aids, the learners do not have to read, which saves them energy. Several said that it is helpful that the learner can hear the text being read aloud while reading it. This helps them connect words/letters and sounds. Another participant claims that having text read aloud helps the learner understand tasks and to retain information when the learner is not able to sound out words. Yet another said that it allows the learner to spend less time and energy on reading and the learner is therefore granted a greater possibility of understanding and keeping up with the class. One also mentions a lessening of the workload as helpful when a learner can have text read aloud. Several of the participants also find it valuable that the dyslexic learner can have the same reading experiences as the rest of the class.

#### 5.3.2 Phonological awareness

A development of phonological awareness was mentioned by a few of the participants who used both non-digital and digital aids. One participant stated that aids helped the learners figure out English sounds, both the logical and illogical word and letter combinations. Another participant claimed that the aids allowed the learners to recognize sounds, while another said that aids could help the learner sound out words. The definition used for dyslexia

in this study, emphasizes that dyslexic learners have problems with phonological processing and rapid naming (Daloiso, 2017, p. 14), which is why many aids focus on the relationship between sounds and letters.

### 5.3.1 Independence and a sense of accomplishment

The gaining of independence for dyslexic learners was an important part of using aids for many of the participants. The independence which many aids provide also leads to a sense of accomplishment for the learners, according to several of the participants. One participant claims that the learners feel a sense of accomplishment when they can work with texts independently. Another says that aids such as Lingdys and dictation in Word allows the learner to work independently with the producing of texts, while yet another says that being able to write in English independently gives the learner a sense of accomplishment, which again leads to more motivation. A participant said that the learners feel accomplished when they can be on the same 'schedule' as everyone else with the help of adapted teaching.

### 5.3.2 Spelling, word prediction and dictation

Help with spelling and word prediction was another important aspect of using aids. Many of the participants emphasized how valuable it was that the dyslexic learners were actively helped with their spelling while writing. Word prediction also helped the learners choose the right words. One participant states that they find it valuable that the learners could write without focusing too much on spelling words correctly. This made it easier for the learner to actually start writing and to not be held back by their spelling.

Another function which was valued by many of the participants was dictation. A valuable feature of dictation was also the fact that the learners did not have to worry about spelling. Dictation, according to the participants, allowed the learners the opportunity to solve or fulfill tasks orally.

### 5.3.3 Time

Time was another answer that came up frequently when the participants were asked to specify how aids helped their dyslexic learners. Through helping the learners with all of the aspects above: reading, phonological awareness, spelling, and independent work, the learners were able to save time. The learners could spend circa the same amount of time on tasks as non-

dyslexic learners. Two participants found it useful that the learners could record answers instead of spending time on writing them down.

#### 5.3.4 Lack of knowledge, training and experience

Some participants said that the aids do not always help. It was especially difficult when the learners were not properly trained in using the aids they were given or when they did not want to use them. One participant stated that they felt it was important that teachers did not assume that an aid is working just because the learner is in possession of it. They continue to explain that the learners need constant reminding and support to use the aids that they have access to. Another finds it important that teachers are trained properly through their workplace when digital aids are being used by their learners, while another says that it is extremely important that time is allocated for exploration and practice of the different aids. One of the participants claims that the biggest challenge is that learners are not using the aids they have access to. Some learners have said that they do not want to stand out and are scared that others will see that they need help. Another participant stated that they felt that having knowledge about dyslexia was often a responsibility given to the Norwegian teacher, when it should be a responsibility for all teachers.

#### 5.4 Further research

There are a number of gaps in our knowledge around dyslexic learners in the ESL classroom. It is simply not enough to explore what the individual teacher can do for their learners because of the systematic and structural challenges outside of teachers' control. It seems that teachers are not properly prepared through their education to teach learners with dyslexia and have to teach themselves how to do so. Further research should therefore be focused on the large structural issues which hinder teachers from adapting their teaching successfully, issues such as the apparent shortcomings in their education, lack of time to plan and learn, and class sizes detrimental to individual coaching.

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