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Kunskap och säkerhet vid identifiering av dyslexi bland lärare och lärarstudenter

Knowledge and confidence in identifying dyslexia among in-service teachers and pre-service teachers

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Preface

The project has been co-authored. Both of the authors have contributed to all sections during the first drafts. For the revisions, Andreas started with the results and method while Petra revised the Introduction and literature review sections. We then went through the other’s sections while discussing and making changes. The questionnaire has been co-authored using Google Forms. All discussion and conclusion work has been done cooperatively.
Abstract
This study aims to investigate and compare in-service and pre-service teachers confidence and knowledge regarding dyslexia. In order to investigate this, two research questions are formulated: 1) We seek to identify differences in the way that in-service and pre-service teachers perceive their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom. 2) We seek to identify differences in the knowledge that in-service and pre-service teachers have in the areas touched upon in the first research question. In addition to these two research questions two hypotheses are made regarding the expected results. (a) That in-service teachers will have greatly larger knowledge regarding dyslexia while, (b) teacher educations does not provide pre-service teachers with enough information and tools to aid dyslexic students. To find an answer to these research questions, a questionnaire is created and sent to in-service teachers working in southern Skåne and pre-service teachers currently enrolled in Malmö University’s teachers’ education. The results show that pre-service teachers do not feel confident in their ability to detect students with dyslexia. In comparison, in-service teachers feel more confident in this area. However, several of the participants from the in-service teacher demographic present that they, in alignment with the pre-service teacher demographic did not feel confident in their ability to detect dyslexic students in their class. From both demographics the results show that participants feel highly unconfident regarding teaching EFL to dyslexic students.

Abbreviations:
EFL (English as a foreign language)
ESL (English as a second language)
ELL (English language learners)
IDA (International dyslexia association)
FL (Foreign Language)
NICHD (The National Institute of Child Health and Human Development)
L1 (First Language)

Key Words:
In-service teacher, pre-service teacher, confidence, knowledge, dyslexia, EFL, learning difficulty
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Introduction

The International Dyslexia Association (IDA) defines dyslexia as a lowered phonological processing skill, where someone has difficulties with single word decoding (International Dyslexia Association's, 2002). The IDA board of Directors assembled a new description of dyslexia in November 2002. This description of dyslexia is characterized by difficulties with accuracy and/or fluency of word recognition and poor spelling and decoding abilities. IDA connects this to a deficit in the phonological component of language. They also find secondary consequences to this phonological deficit, such as problems with reading comprehension and reduced reading experience. In the long run, this could impede growth of vocabulary and background knowledge. The National Institute of Child Health and Human Development (NICHD) also use the International Dyslexia Association’s definition of dyslexia. The Diagnostic and Statistical Manual IV TR (American Psychiatric Association, 2000) state that a person suffering from dyslexia often has problems with reading accuracy, reading speed, and comprehension. These definitions are quite similar, and they also include difficulties with comprehension as an important consequence of dyslexia. Numerous researchers have adopted similar definitions (e.g., Christo, 2009; Lyon, Shaywitz, and Shaywitz, 2003; Erkan, Kizilaslan, and Dogru, 2012; Reid, 2009; Shetty & Rai 2014).

Reid (2009) further note that dyslexia is marked by the following characteristics:

1. Can affect memory, time management, coordination, speed of processing, and directional aspect of cognition.
2. Can cause both phonological and visual difficulties.
3. Will cause performance discrepancies, compared to people not suffering from dyslexia.

Since different researchers present dyslexia differently (Christo, 2009; Hartas 2006; Reid, 2009; Shetty and Rai, 2014) this thesis will take on the International Dyslexia Association (IDA) and the Diagnostic and Statistical Manual IV TR (American Psychiatric Association, 2000) description of dyslexia.
A problem regarding dyslexia found by Shetty and Rai (2014) is that speech therapists cannot identify and screen millions of students for dyslexia; their study even provides evidence that it may be impossible. Shetty and Rai claim that an awareness and knowledge of dyslexia among teachers is crucial for filling this gap, and for helping to identify students suffering from the disorder. They also argue that it is important to be able to identify and manage these students early on. Further, that systematic instruction of phonological awareness, as well as letter sound correspondence is crucial for helping dyslexic students to develop early reading and spelling skills (Shetty and Rai). And yet, they argue that most teachers are not prepared nor have the skills for this crucial task.

Similar claims have been made by Baker (2007) who, on the basis of experimental evidence, argue that the ability to identify characteristics of the diagnosis is highly important knowledge for teachers to have. This would ensure that fewer students would be given inaccurate assistance due to teachers’ lack of knowledge (Baker, 2007). She further argues that making sure teachers possess the knowledge required to identify dyslexia when they graduate, could be considered an inexpensive way of providing fewer fallacious diagnoses of dyslexic students. Baker also proposes that teachers’ identification of dyslexia in early school years could lead to an increase in dyslexic students reading proficiency in higher grades. Furthermore, she suggest that teacher knowledge and use of resources available to assist dyslexic students could lead to higher student confidence and could potentially help negate issues of low self-esteem that a diagnosis might bring.

Further complicating the difficulty of this task, there could be other causes of reading difficulties, apart from dyslexia. Socioeconomic background, social relationships, ability, phonological knowledge and general language knowledge could all be causes for reading difficulties, making dyslexia even harder to identify (Hartas, 2006; Wolff, 2011). In addition to this, Shetty and Rai (2014) identify teacher confidence as another challenge, as they found that experienced teachers indicate a poor knowledge and low confidence of their ability to teach dyslexic students.

Another problem has to do with the age of diagnosis. The School Inspection Agency in Sweden (Skolinspektionen, 2011) found that some Swedish schools wait until students are in the third to fifth grade before undertaking an official investigation into possible diagnoses. This is considered worrying due to research highlighting the importance of diagnosing students early (Skolinspektionen, 2011; Lundström, 2004). Limbos and Geva (2001) also find
early identification preferable; however they argue that this might be difficult due to the complexity of identifying dyslexia. Meanwhile, Ingesson (2007) note that to receive an investigation and be identified with dyslexia, it is often required that students fail or fall behind in class to call attention to their condition.

In regard to this, the School Inspection Agency (Skolinspektionen, 2011) state that one of the most important assignments held by schools, is making sure that all students should be allowed to receive as much reading, writing, and content development as possible. This requires a competence of subjects being taught, as well as the ability to adapt the teaching to meet any students need (Skolinspektionen, 2011). In order to facilitate this for dyslexic students, researchers (Foreman-Sinclair, 2012; Lemperou Chostelidou and Griva, 2011; Aladwani and Shaye, 2012) find that smaller groups are beneficial for dyslexic students learning and that it is important that these students feel included in the teaching and should preferably stay in the classroom.

In regards to competency of subjects being taught, Lemperou, Chostelidou and Griva (2011) show that EFL teachers are not well informed about dyslexia, and state that this might impede dyslexic students’ mastery of the English language. Due to this, Lemperou et al., suggest that EFL teachers have to be adequately trained in their ability to teach dyslexic students learning EFL in a mainstream classroom. In alignment with Lemperou et al. claims, Kryżak (2006) argue that teachers having knowledge of dyslexia plays an essential role in students success and that dyslexia can be successfully dealt with and the problems caused by the diagnosis could be diminished through the right assistance.

This indicate that teachers in both early and later grades needs to be able to meet the needs of students with dyslexia and to create and adapt suitable learning environments, especially in the English classroom. The School Inspection Agency (Skolinspektionen, 2011) claim that professional development of teachers can be used to reach required competency levels. The School Inspection Agency argues that professional development does not automatically lead to functional and suitable adaptations of teaching. However, Aladwani and Shaye (2012) show that the years of experience as a teacher can play a significant role in the ability to identify dyslexia.
As shown, research indicates in-service and pre-service teachers do not have enough knowledge of dyslexia. The School Inspection Agency (Skolinspektionen, 2011) further find that several teachers feel that they need professional development about dyslexia and how to use dyslectic resources. In the Swedish educational context, teachers must play a significant role in creating successful learning opportunities. In this study, an investigation and comparison of in-service and pre-service teachers’ confidence and knowledge regarding dyslexia will be conducted.

Aims and research questions

The aim of this study is to investigate and compare in-service and pre-service teachers’ confidence and knowledge regarding dyslexia. To research this, two research questions have been formulated:

1) We seek to identify differences in the way that in-service and pre-service teachers perceive their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom.

This question have then been divided into three sub-questions
1A: How confident do teachers feel regarding identifying dyslexia?
1B: How confident do teachers feel regarding resources available when they have students with dyslexia?
1C: How confident do teachers feel in their ability to teach English as a foreign language (EFL) to students with dyslexia?

2) We seek to identify differences in the knowledge that in-service and pre-service teachers have in the areas touched upon in the first research question.

Similarly, this second question has been divided into three sub-questions
2A: What characteristics does teachers have knowledge of regarding identifying dyslexia?
2B: What available resources do teachers have knowledge of?
2C: What knowledge does teachers have regarding teaching EFL to students with dyslexia?
Two hypotheses have been made regarding the expected results. The first is that in-service teachers would have greatly larger knowledge regarding dyslexia, the second is that teacher educations does not provide pre-service teachers with enough information and tools to aid dyslexic students.

**Literature Review**

In this section, a review of earlier research in identifying dyslexia, teacher’s knowledge of dyslexia and dyslexia and EFL will be made.

**Identifying Dyslexia**

Limbos and Geva (2001) conducted a study to examine the degree of consistency between teacher rating scales and objective testing results in identifying reading disabilities. 369 Grade 1 children were tested on the battery of cognitive, linguistic, and reading tasks. Associated to this, teacher interviews were conducted. 51 teachers completed the interviews and rating scales. Limbos and Geva found that the process off early identification is highly complex because students in early ages have only had a small chance of starting to develop reading and language skills.

Similar findings were found in a study by Aladwani and Shaye (2012). In this study 700 Kuwaiti primary school teachers’ knowledge and awareness of early signs of dyslexia is investigated. Data was collected randomly from six educational Kuwait districts using questionnaires. Aladwani and Shaye, similar to Limbos and Geva (2001) found that identifying students at risk for dyslexia is a complex process, primarily on account of confusion and misunderstandings regarding the term “dyslexia”. Aladwani and Shaye argue that one of the defining characteristic of a dyslexic learner is the student’s tendency to reverse letters. Another finding in this study was the connection between teachers being overloaded with duties that keep them from adapting to new methods or attend workshop/conferences to keep up to date in order to identify dyslexia.

As a part of early identification, aspects of genetics could be helpful. Svensson (2011) claim that dyslexia might be hereditary. He argues that dyslexia, in a high degree can be identified
using genetic factors. High amounts of dyslexic children investigated by Svensson have family members that also suffer from difficulties with reading and writing. Svensson conclude that if families where either a child’s parents or other relatives suffer from dyslexia, the child have a significantly higher risk to develop the same symptoms as their family members.

**Teacher knowledge and confidence regarding Dyslexia**

Foreman-Sinclair (2012) investigates the possibility of teachers’ knowledge and beliefs through a mixed research. The study’s aim is to investigate early assessment and identification of dyslexia in kindergarten through second grade. Data was collected using a questionnaire and three focus groups. Results suggest that teachers are attempting to assist dyslexic children without correct knowledge of how this is best done. Foreman-Sinclair propose that this problem exists because teachers lack guidance and professional development. Furthermore, she suggests that this lack of knowledge lead to misconceptions regarding dyslexia and how to sufficiently aid dyslexic students.

In regard to confidence, Rontou (2012) investigate the means of differentiation for students with dyslexia while learning EFL at secondary school. She examine if teachers differentiate their EFL teaching in regard of: (a) if they differentiate their teaching for dyslexic students, (b) if they use any resources in their teaching, and (c) if dyslexic students are given extra time. The study was conducted through semi-structured and unstructured interviews with teachers, students and parents. Rontou’s results show that school teachers do not have the right training to teach students with dyslexia. A claim connected to teachers’ lack of confidence. However, her findings present that if there is no exact information of a student’s difficulties the teacher will not be able to assist these students correctly even if the teacher feel confident of how to teach dyslexic students. In addition to this, she found that even though teachers have highly beneficial resources available, they do not use these due to lack of knowledge of how to use them. Rontou therefore reach the conclusion that courses regarding special educational needs are beneficial for teachers. She suggests that teachers of all levels and subjects need to be trained specifically for their subject. Through these training courses, differentiated teaching
could be reached. Such resources could be multi-sensory methods, differentiated materials, ICT or even extra time.

As a part of finding relations between teacher knowledge and confidence of dyslexia, Shetty and Rai (2014) conducted an experimental study on 314 elementary school teachers from 32 schools in India. The results were gathered using questionnaires. The knowledge was assessed based on teacher responses about twelve signs and symptoms of dyslexia. Shetty and Rai show that it is impossible for speech therapist to identify and screen millions of students who might suffer from dyslexia. They did, however, find that an awareness and knowledge about dyslexia as well as the ability to identify the diagnosis early is crucial for teachers working with dyslexic students. According to Shetty and Rai, experience, prior training and exposure to dyslexia indicate a higher knowledge of the diagnosis. Most teachers in the study were not found to be confident and knowledgeable enough to identify and work with dyslexic students.

Further arguing of the importance of teacher knowledge is Baker (2007). She tested 87 struggling readers knowledge at the end of first grade and compared this to what they were expected to know according to steering documents. The participants hailed from twelve low-income schools in four school districts. Baker argues that by training pre-service teachers in how to deal with reading difficulties, a future awareness will be created. Baker (2007) further claim that it is the responsibility of education professors to provide pre-service teachers with necessary knowledge of how to instruct special need students in order to prevent future problems regarding the identification of reading difficulties. Something she claim could lead to a possible increase in student success in later grades. Baker further argue for the need of making teachers aware of possible pitfalls in the English language. Becoming aware of said pitfalls might increase teaching effectivity while working with new learners (Baker).

However, Myrberg (2007) argue that it is not solely the knowledge of dyslexia among teachers that is of importance. Through a systematic review, he makes suggestions to employ at least one literacy teaching specialist at every school (i.e. both primary and secondary schools). Having teachers with adequate knowledge of dyslexia creates a good way of
identifying students who might be dyslexic. After identification, a specialist should be more qualified to conduct further investigations (2007).

**Dyslexia in the English as a foreign language classroom**

Dyslexia is a complex disability affecting students’ language learning. Lemperou, et al., (2011) performed a descriptive study where they researched 94 EFL teachers. The study look at teacher training needs in order to accommodate dyslexic students in the EFL classroom and how EFL teachers identify their own knowledge. Data was gathered using questionnaires. Lemperou et al., argue that learning a foreign language is the most challenging task for dyslexic students. This argument is based on the discrepancy of dyslexic students’ ability to cope with a demanding task while attempting to learn the target language. Such skills could be sequencing, short and long term memory, phonological skills and the ability to effectively segment words into phonemic sounds and then reproduce them. Lemperou, et al., identifies dyslexia as a problem exiting at all educational levels. In addition, a significant percentage of the student population is faced with the diagnosis. Lemperou et al., found that EFL teachers are not always well informed about dyslexia or how to sufficiently teach dyslexic students. Furthermore, EFL teachers was found to need adequate training in order to understand the complex nature of dyslexia and how to teach English to dyslexic students (Lemperou et al.). Additionally, in regards to EFL teachers’ identification of their own knowledge of dyslexia, most teachers considered themselves in lack of further training.

Further on the subject of aiding dyslexic students EFL learning, Rontou (2012) present findings on how to differentiate EFL lessons. She states that differentiating the EFL material is important, especially for students with special needs because it allows for multiple opportunities to demonstrate knowledge. Rontou claim that differentiation can be made through providing students with different tasks, in consideration of length of sentences and complexity of texts and allowing various kinds of responses. She exemplifies differentiation through allowing some students to write their answer while others give their response orally. However, difficulties are found in regards to differentiation of EFL for dyslexic students.
Rontou find connections between teachers’ lack of knowledge regarding dyslexia and lack of information on student requirements.

In alignment with these findings, Kryżak (2006) suggest that teachers ought to collect as much information about a dyslexic student as possible. Such information could be about family, friends and surrounding environment (Kryżak). Further, she presents that being positive and knowledgeable of dyslexia might provide dyslexic students with required aid to help overcoming natural fears of being dyslexic (Kryżak). In addition to this Kryżak argue that dyslexic students should be taught the same lexical items and grammatical structures as other students. However, she suggests that teaching strategies needs to be adapted in order to do this. Kryżak further claim that more time should be spent on revising material that dyslexic students are already familiar with rather than constantly introducing new material.

On the field of researching differences of teaching first language (L1) and teaching EFL, Jacobsson (2011) interviewed and observed EFL students in order to compare difficulties in EFL compared to first language learning. The study show that English is the subject that almost all students with reading- and writing- difficulties or dyslexia consider hardest to learn (Jacobsson). Jacobsson sees this as a crucial aspect of learning since the English language is very dominant in Sweden. Furthermore, it is considered important to not make assumptions regarding dyslexic students’ ability to learn English. Jacobsson argue that this can lead to increased difficulties when learning English. He argue that some dyslexic students claim to have an easier time reading an English text rather than a Swedish text. This can occur if dyslexic students have speech decoding strategies better suited for English orthography. If this is the case, teachers need to be aware of this and make sure that students have the opportunity to read texts on a suitable level even though they have been diagnosed with dyslexia in their mother tongue (Jacobsson).

Research testing this fact has been made by, Erkan, Kizilaslan and Dogru (2012) who examined difficulties a Turkish dyslexic learner face while learning EFL. This examination explore whether or not there are any effects of positive teacher support and using motivational strategies on the student. Data was collected using observations, interviews and analysis of the students work, assignment sheets and exam papers. The period of time for this analysis was six weeks. Erkan et al., claim that if students have not yet reached a fair level of competency in their mother tongue, learning a second language might be more problematic. Further, Erkan
et al., states that the common characteristics of dyslexia (e.g. phonological difficulties, instructional difficulties, word decoding, word recognition and visual difficulties) could become even more serious in situations where dyslexic students are supposed to learn a foreign language at a primary school level. This could potentially lead to making learning the foreign language more problematic. Consequentially, Erkan et al. shows that positive teacher behavior might aid students with dyslexia in learning a foreign language.

These findings align with findings from Nijakowska, Kormos, Hanusova, Jaroszewicz, Kalmos, Sarkadi, Smith, Szymanska-Czaplak and Vojtkova (2011). They conducted a project, designed to increase teacher knowledge when teaching EFL to dyslexic students. This project consisted of a training course, self-study materials and an online course for pre-service and in-service EFL teachers. The motivation of their project was to create an awareness of how to teach dyslexic students among in-service and pre-service teachers. Nijakowska et al. claims that dyslexia not only has an effect on the students’ first language literacy skills, but that it most often also affects dyslexic students in their foreign language learning. Nijakowska et al. found that foreign language teachers more often than not lacks a sufficient understanding of dyslexia and which difficulties it causes, specifically while learning a foreign language.

**Methodology**

In order to investigate and compare in-service and pre-service teachers’ knowledge and confidence regarding dyslexia we examined inservice teachers working in southern Skåne and pre-service teachers enrolled in Malmö University’s teachers’ education. To gather and manage the information needed to answer our research questions it was decided to use an online questionnaire.

This project’s research has an educational focus, where we are interested to find out teachers perception of their knowledge (Merriam, 2014). It creates a possibility to inform higher administrators of the position of pre-service teachers at Malmö University. The research focus
was on the participants of the questionnaire and their perceptions. Therefore the study fall under the category of action research (Merriam, 2014)

Initially a request to send out questionnaires was made by sending e-mails to headmasters at schools in the municipalities of Malmö, Lund, Ystad, Sjöbo, Tomelilla, Skurup, Hjärup and Eslöv. 26 schools showed an interest in forwarding the questionnaire to their inservice teachers. From these 26 schools, 37 inservice teachers filled out the questionnaire.

A similar request was sent to pre-service teachers from the teachers’ education on Malmö University through organized groups on social networks where a majority of students from the teachers’ education are members. In addition to this, the students were asked to share the questionnaire among their peers. Because it was an online questionnaire this was decided to be the most efficient way to reach out to a larger amount of students from Malmö University’s teachers’ education. Getting responses from both of these demographics allow for comparisons between them.

**Participants**

The participants of this thesis were 59 teachers (37 in-service and 22 pre-service teachers). The group of in-service teachers was divided between the different school stages. Out of 37 in-service teachers, 15 were class teachers in grades K-3 and 9 in grades 4-6. 7 were class teacher in grades 6-9 and 1 reported to be a subject teacher in grades 7-9. In addition to this, 3 special educators, 1 teacher from a special school, and 1 teacher resource in a second grade class is among the in-service teacher respondents. From the 22 pre-service teachers, 8 were 4-6 teachers and the remaining 14 were K-3 teachers. All of the pre-service teachers had started their education in 2011 and are from a mix of all the available 5 orientations: Swedish and learning, English and learning, science and learning, social studies and learning and mathematics and learning.
Dörnyei (2010) state that people might not be very thorough in a research sense and that they normally do not enjoy filling out a questionnaire they themselves gain no enjoyment or benefit from. In choosing schools where a partnership is already in place we attempt to alleviate the problem of potential unreliable and unmotivated respondents while also getting as many respondents as possible. Similarly, by using pre-service teachers enrolled in Malmö University where this study is being conducted we once again attempt to alleviate this problem.

**Materials**

The questionnaire was constructed with the use of Google Forms, an online application allowing one to build and distribute online questionnaires. This application allowed the questionnaire to be structured basic and clean, which should help alleviate distractions from the participants. This also allowed us to co-create the questionnaire. The use of a questionnaire provides “efficiency in terms of (a) researcher time, (b) researcher effort, and (c) financial resources. By administering a questionnaire to a group of people one can collect a huge amount of information in less than an hour…” (Dörnyei, (2010, p. 6). Furthermore questionnaires are one of the more common ways to collect data in second language research (Dörnyei, 2010).

The questionnaire (Appendix 1.1) was divided into sections where active and pre-service teacher were grouped into their demographics. Each demographic then responded to questions relating to their demographic in one page each. Pre-service teachers were asked to state their enrollment year, teaching orientation and specialization subject. In addition to this, they were asked to state if they experienced that the education on Malmö University has provided them with enough knowledge regarding dyslexia. Meanwhile, in-service teachers were asked which year they started working as teachers, which curriculums they have worked with and the grade(s) they are currently teaching. Furthermore, they were to state their current position of employment.
Next section of the questionnaire was a general section where both demographics answered questions about different aspects of dyslexia with a focus on teacher confidence and knowledge.

Dörnyei (2010) suggest that questions in a questionnaire prompting long responses using open questions can lead to refusals to answer the questionnaire. Due to this we decided to use mostly closed questions in our questionnaire and only include four open-ended questions. For the scaled questions in our questionnaire we have employed a Likert scale with seven steps. We chose to use an odd number because we wish to allow respondents to choose a neutral response. The questionnaire also employed some multiple choice questions and checklists.

**Procedure**

The questionnaire was sent to schools in southern Skåne, this decision stemmed from us conducting our study from Malmö University. This university has partnerships with many of the surrounding schools, making responses more likely. Some schools where we ourselves have connections to are also included. The following municipalities have received e-mails with an inquiry to participate in the questionnaire: Malmö, Lund, Ystad, Sjöbo, Tomelilla, Skurup, Hjärup and Eslöv.

Compiling the result of this thesis were through producing result lists in Excel where each question of the survey were compiled. This gave us a chance to research each aspect of the questionnaire. These questions were then merged into tables showing results of two higher level questions that is presented in the result section.

**Results**
The results of the thesis, is based on the responses of the 59 participants from the questionnaire. The results will be grouped by sub questions and will be based on the responses received from the questions in the questionnaire.

**Research question 1**

The first research question where we seek to identify differences in the way that in-service and pre-service teachers perceive their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom was divided into three sub questions:

1. **1A**: How confident do teachers feel regarding identifying dyslexia?
2. **1B**: How confident do teachers feel regarding resources available when they have students with dyslexia?
3. **1C**: How confident do teachers feel in their ability to teach English as a foreign language (EFL) to students with dyslexia?

In order to find the answer to sub-question 1A, three questions in the questionnaire were used. These questions targeted the respondent’s opinion of their confidence when identifying the diagnosis, when administering tests in order to identify dyslexia and when creating tests for dyslexic students. To find an answer to 1B, another three questions from the questionnaire were used. These questions targeted the respondent’s opinion of their confidence in their training received to use resources, their ability to use resources and their knowledge of external assistance. To answer sub question 1C, a question regarding respondent’s perception of their own confidence in their ability to teach English as a foreign language to students with dyslexia was used. A plot of mean responses to the questions related to each sub question was compiled. Figure 1 displays the mean responses to the questions related to each sub question, and was compiled to show the results:
Figure 1 Comparison of pre-service teacher and in-service teacher mean values to sub questions 1A, 1B and 1C

How confident do teachers feel regarding identifying dyslexia?

As Figure 1 shows, within responses to sub question 1A, both demographics show a lack of confidence in identifying dyslexia. Pre-service teachers especially show that they are not confident in identifying the diagnosis. The in-service teachers’ results differ from this. Responses show that in-service teachers comparatively feel more confident in their ability to identify dyslexia. This was followed by an open question asking respondents how they would proceed if they suspected a student might be dyslexic. Answers to these questions from both demographics signaled that respondents still felt mostly unconfident in what to do. Some respondents stated that they do not feel that they have enough tools to accomplish a process of identifying dyslexia. The respondents that feel mostly confident in their ability to identify dyslexia give examples of making an in-depth pedagogical inquiry and then sending the investigation to a special educator whom might contact a speech therapist and/or psychologist.
How confident do teachers feel regarding resources available when they have students with dyslexia?

For sub question 1B, the two demographics differ substantially. As shown in Figure 1, pre-service teachers’ responses indicate that they do not feel confident regarding their knowledge of resources available when they have students with dyslexia. In-service teachers however are found to feel largely confident in regards to this.

How confident do teachers feel in their ability to teach English as a foreign language (EFL) to students with dyslexia?

In regards to sub question 1C, the responses in Figure 1 show that most pre-service teachers have a lower than neutral confidence in their teaching of English to dyslexic students. The responses from in-service teachers indicate that this demographic are above neutral towards their confidence in teaching English to dyslexic students. Overall it can be seen that both demographics perceive themselves as less confident in their ability to teach EFL to dyslexic students than they perceive their confidence regarding resources available when they have students with dyslexia. The lowest perceived confidence is found in identifying dyslexic students.

Research question 2

The second research question where we seek to identify differences in the knowledge that in-service and pre-service teachers have in the areas touched upon in the first research question was divided into three sub questions:

2A: What characteristics do teachers have knowledge of regarding identifying dyslexia?
2B: What available resources do teachers have knowledge of?
2C: What knowledge does teachers have regarding teaching EFL to students with dyslexia?

In order to find the answer to sub-question 2A, five questions were used. These questions looked at teachers’ perception of if dyslexia is inheritable genetically, when one should
perform formal investigations of dyslexic students, what characteristics teachers perceive affect students with dyslexia, which aspect teachers think are the most common and if dyslexic students show the same characteristics.

To answer sub question 2B, seven questions were used. These questions touched upon what dyslexia resources respondents has working knowledge of, which of these is found most beneficial, teachers opinions on online dyslexia resources, what kind of classroom organization is considered beneficial for dyslexic students, what kind of external assistance a teacher would prefer to receive to help with dyslexic students and whether they feel that students with dyslexia improve more in their language learning when they leave the classroom and visit a speech therapist.

To find an answer to sub question 2C, five questions were used. These questions asked respondents whether students with dyslexia will encounter the same dyslexic difficulties when learning English as they do in their first language, if a dyslexic student has the same difficulties as his/her fellow non dyslexic students when learning English, if they feel it is easier to detect students suffering from dyslexia in a first language classroom than in a foreign language classroom and if they consider dyslexic students to be more enthusiastic about learning English compared to learning Swedish. For the questions that were not multiple choice or similar, a table has been created to show the results for the sub questions relating to the second research question. Figure 2 present the mean responses to the questions related to each sub question which then was compiled to show the results:
What characteristics do teachers have knowledge of regarding identifying dyslexia?

Figure 2 show that within responses to sub question 2A, the measures of genetic inheritance and characteristics were used to find the answer. For the question regarding genetic inheritance, both demographics agreed that the diagnosis is indeed hereditary. In regard to whether dyslexic students show the same characteristics, pre-service- and in-service teachers showed responses at or slightly below neutral.

In regard to when one should conduct formal investigations into students who potentially has dyslexia, pre-service teachers and in-service teachers are generally in agreement that this should preferably be done in the third grade, with the second and first as the other, slightly less frequent options.

The respondents were also asked whether Reading accuracy, Reading fluency, Reading comprehension, Attention/concentration, Spelling accuracy, Oral language comprehension and Memory and sequencing affect students with dyslexia. Table 1 demonstrate the mean
results of in-service and pre-service view of characteristics affecting dyslexic students which has been compiled to show the results:

Table 1

<table>
<thead>
<tr>
<th>Cognitive aspect</th>
<th>Pre-service teachers</th>
<th>In-service teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading accuracy:</td>
<td>5.00</td>
<td>5.76</td>
</tr>
<tr>
<td>Reading fluency:</td>
<td>5.91</td>
<td>5.08</td>
</tr>
<tr>
<td>Reading comprehension:</td>
<td>4.68</td>
<td>5.49</td>
</tr>
<tr>
<td>Attention/concentration:</td>
<td>4.36</td>
<td>4.76</td>
</tr>
<tr>
<td>Spelling accuracy:</td>
<td>6.00</td>
<td>5.81</td>
</tr>
<tr>
<td>Oral language comprehension:</td>
<td>2.91</td>
<td>3.38</td>
</tr>
<tr>
<td>Memory and sequencing:</td>
<td>4.64</td>
<td>4.76</td>
</tr>
</tbody>
</table>

Table 1 shows that, respondents agree that most of these aspects affect students with dyslexia. The notable deviation is that oral language comprehension is not considered to be affected in dyslexic students. Respondents also found reading and writing difficulties to be the most common characteristics.

An open question regarding the characteristics searched for while identifying dyslexia was connected to this question. Pre-service teacher demographic participants indicated that the following could be characteristics for dyslexia: omits or excludes letters, mixing letters (e.g. writing d instead of b), seize up while reading, difficulties with learning in general. Guessing while reading, lack of interest for reading and writing, trouble with finding a flow while
reading, reading rate, reading comprehension. Decoding text, showing concentration difficulties and troubled when asked to read aloud. Meanwhile, in-service teacher indicated that they searched for the following characteristics when assuming that a student suffers from dyslexia: omits or excludes sounds/letters, vocabulary, orthography, reading rate, reading comprehension, text decoding. Reverses letters, falters in reading, having trouble understanding instructions, and forgets suffixes. Some in-service teachers indicated that they chose to listen to the students while reading and asking them to use their finger and follow the text while reading. Obvious mistakes in their writing, working memory, ability to rhyme, willingness to read, motor difficulties. Willingness to make notes and troubles finding themes in texts. In-service teachers also indicated that they might search for help amongst their co-workers.

What available resources do teachers have knowledge of?

Within responses to sub-question 2B regarding dyslexic resources, both demographics responded to largely having previous working knowledge of spelling programs and speech synthesis. When asked which of the resources was considered most beneficial, speech synthesis largely outscored all other options. As a follow up to the above, the participants were asked to name the most frequent measure to assist dyslexic students. Among the in-service teacher the most common response were Information and Communication Technology (ICT), Ipads and computers. For pre-service teachers, the most common answer was the use of special educators to assist dyslexic students. Some however mentioned ICT, Ipads and computers. Another question was posed regarding online resources. Respondents from both demographics found that this could be considered beneficial.

The respondents were asked whether organizing the teaching in one to one, pairs, small groups, half class, whole class, teaching assistant with pre-service in classroom and teaching assistant with pre-service in another room was beneficial for dyslexic students. Table 2 display the mean responses of the classroom organization which then has been compiled to show the results:

| Table 2 |
Table 2: Mean values of responses to if a classroom organization is beneficial for a dyslexic student.

<table>
<thead>
<tr>
<th>Classroom organization:</th>
<th>Pre-service teachers</th>
<th>In-service teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>One on one:</td>
<td>3.91</td>
<td>4.76</td>
</tr>
<tr>
<td>Pairs:</td>
<td>5.73</td>
<td>5.16</td>
</tr>
<tr>
<td>Small groups:</td>
<td>5.64</td>
<td>5.19</td>
</tr>
<tr>
<td>Half-class:</td>
<td>4.77</td>
<td>4.81</td>
</tr>
<tr>
<td>Whole-class:</td>
<td>3.27</td>
<td>3.70</td>
</tr>
<tr>
<td>Teaching assistant in classroom:</td>
<td>5.50</td>
<td>4.57</td>
</tr>
<tr>
<td>Teaching assistant in another room:</td>
<td>3.82</td>
<td>3.97</td>
</tr>
</tbody>
</table>

As can be seen in table 2, most of the available classroom organizations are considered beneficial by both demographics. The exceptions are that whole class and teaching assistant with the student in another room is considered to be less beneficial than the other organizations.

Pre-service teachers respond similarly in regards to leaving the classroom and visiting a speech therapist. Pre-service teachers considered the benefits to be slightly above neutral while in-service teachers were largely positive towards the idea. It was however found that both pre-service teachers and in-service teachers considered the most beneficial external assistance to receive to be a special educator.

What knowledge does teachers have regarding teaching EFL to students with dyslexia?

In regard to the last sub question from the second research question, figure 2 show that both demographics indicate that they are at or slightly below neutral to the statements of: Whether students with dyslexia will encounter the same dyslexic difficulties when learning English as they do in their first language, if a dyslexic student has the same difficulties as his/her fellow
non dyslexic students when learning English, if they feel it is easier to detect students suffering from dyslexia in a first language classroom than in a foreign language classroom and if they consider dyslexic students to be more enthusiastic about learning English compared to learning Swedish.

An open question was also responded to where both demographics were to provide the factor they perceive to be most important when teaching English to dyslexic students. From this question it was found that the most important factors could be grouped into oral communication, the adaption of teaching methods and the use of simple instructions when teaching dyslexic students. Also considered by in-service teachers were group size, media and visual aids, making the teaching enjoyable and showing an understanding of the students. From the pre-service teacher demographic, a lower focus on orthography, giving students more time and motivating their students, more were considered important.

Discussion and analysis

From our results we can derive answers to the research questions declared in the aims and research question section. For the first research question we seek to identify differences in the way that in-service and pre-service teachers perceive their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom. With the second question we seek to identify differences in the knowledge that teachers and pre-service teachers have in the areas touched upon in the first research question.

In order to answer the first research question, sub questions 1A, 1B and 1C were created. These sub questions was used to find out (1A) how confident do teachers feel regarding identifying dyslexia, (1B) How confident does teachers feel regarding resources available when they have students with dyslexia and (1C) how confident do teachers feel in their ability to teach English as a foreign language (EFL) to students with dyslexia.
The results in regard to these sub questions can be found in figure 1. This figure show that both demographics lack confidence in identifying dyslexia. The results also show that pre-service teachers’ responses indicate that they do not feel confident regarding their knowledge of resources available when they have students with dyslexia. Similarly, figure 1 show that most pre-service teachers have a lower than neutral confidence in their teaching of English to dyslexic students while in-service teacher responses indicate that they are around neutral towards their confidence in teaching English to dyslexic students. Summarily, responses to sub questions 1A, 1B and 1C indicate that in-service teachers feel much more confident in regards to their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom compared to pre-service teachers. These results align with the findings by Aladwani and Shaye’s (2012), Foreman-Sinclair’s (2012), and, School Inspection Agency’s (2011). The results also indicate that a teacher education alone is not enough to give teachers sufficient confidence in how to deal with and accommodate the needs of students with dyslexia, which also corresponds with the findings by Myrberg (2007). The reason for in-service teachers ranking their confidence higher than preservice teachers could possibly stem from inservice teachers experience of teaching dyslexic students in their active service.

The findings in regards to when teachers feel a formal investigation of dyslexia should be conducted slightly contradict the School Inspection Agency (2011). A majority of the respondents selected the third grade when responding to a question regarding this subject. This could be due to a desire to allow students to develop in their first language before conducting an investigation. An early investigation is considered preferable as it could aid students learning and may prepare teachers and parents with professional development courses of how to assist dyslexic students. (Baker, 2007; Erkan et al., 2012; Limbos and Geva, 2001; Shetty and Rai, 2014 etc.)

To answer the second research question, sub questions 2A, 2B and 2C were created. These sub questions was used to find out (2A) What characteristics teachers have knowledge of regarding identifying dyslexia, (2B) What available resources teachers have knowledge of and (2C) What knowledge teachers have regarding teaching EFL to students with dyslexia. The results in regards to these sub questions can be found in figure 2, table 1 and table 2. For sub question 2A, as postulated by Svensson (2012), both pre-service and in-service teachers agreed that the diagnosis
is hereditary. Both groups answered that they believe the best grade to conduct formal investigations into students who potentially has dyslexia is at the first to third grade. This somewhat contradicts what the School Inspection Agency in Sweden (Skolinspektionen, 2011) found about waiting for students to be in the third to fifth grade before investigating a diagnosis. Table 1, showing respondents attitudes towards which cognitive aspects are affected in students with dyslexia mostly align with research in the area (International Dyslexia Association's, 2002; Christo, 2009; Lyon, Shaywitz, and Shaywitz, 2003; Erkan, Kizilaslan, and Dogru, 2012; Reid, 2009; Shetty & Rai 2014) for both demographics. These responses indicate that both groups are relatively closely tied in regards to the average knowledge possessed in order to identify the diagnosis. The results of sub question 2A contradict the pre-service teacher’s perceptions of their confidence in identifying the diagnosis found in relation to sub question 1A. While in-service teachers feel more confident in their ability to diagnose the learning difficulty, the questions from 2A indicate that the two groups are closer together in knowledge than they perceive themselves to be.

In regards to sub question 2B, both demographics responded to largely having previous working knowledge of spelling programs and speech synthesis. Speech synthesis largely outscored all other options in regards to the most beneficial resource. In regards to beneficial classroom practices, one to one, pairs, small groups, half class and teaching assistant with student in the classroom was consider to be beneficial. Whole class and teaching assistant with student in another room was not considered to be as beneficial as the other options. These responses that are in alignment with Foreman-Sinclair (2012), Lemperou et al. (2011) and Aladwani and Shayes (2012) findings that smaller groups are beneficial for dyslexic students learning and that it is important that these students feel included in the teaching. Teaching assistance in another room being ranked quite low might be due to sociocultural theories, which are the currently favored theories in Sweden, consider inclusion and learning in groups to be highly beneficial for all kinds of learning. The selection of wanting one-to-one teaching could originate from dyslexic students requiring more time to think about responses. A one-to-one situation could sometimes be ideal in allowing dyslexic students to not feel stressed, giving a chance to assimilate tasks (Lemperou et al., 2011; Rontou 2012).

Figure 2, further show that both demographics indicate that they are at or slightly below neutral to the statements of: whether students with dyslexia will encounter the same dyslexic
difficulties when learning English as they do in their first language, if a dyslexic student has the same difficulties as his/her fellow non dyslexic students when learning English, if they feel it is easier to detect students suffering from dyslexia in a first language classroom than in a foreign language classroom and if they consider dyslexic students to be more enthusiastic about learning English compared to learning Swedish. These results are somewhat in alignment with Jacobsson’s (2011) findings. Being neutral to these statements could stem from a belief that some dyslexic students might perceive learning EFL as easier than L1 learning. It was also found that the most important factors could be grouped into oral communication, the adaption of teaching methods and the use of simple instructions when teaching dyslexic students. Also considered by in-service teachers were group size, media and visual aids, making the teaching enjoyable and showing an understanding of the students. From the pre-service teacher demographic, a lower focus on orthography, giving students more time and motivating their students, more were considered important. The result presented on possible adaptations for dyslexic students are in alignment with result presented by several researchers (e.g. Kryżak, 2006; Rontou, 2012). By adapting the teaching material dyslexic students may feel included. Furthermore they have the opportunity to use the same material as non-dyslexic students.

The hypothesis that in-service teachers would have greatly larger knowledge regarding dyslexia was found to be incorrect. Overall, the knowledge differences between the two groups were not as great as hypothesized. In-service teachers had slightly higher knowledge within the areas investigated in the sub questions. This result could be related to inservice teachers having received further training regarding dyslexia. The results also indicate that most participants felt that they received knowledge regarding dyslexia from other sources than teacher education. This is in alignment with our hypothesis that teacher education does not provide pre-service teachers with enough information and tools to aid dyslexic students. The same results has been shown by several researchers (Aladwani and Shaye, 2012; Baker, 2007; Hartas, 2006; Shetty and Rai, 2014; Skolinspektionen, 2011). However, Myrberg (2007) and Rontou (2012) indicate that there are other important factors when dealing with dyslexic students besides creating courses about learning difficulties in teacher education programs.
Conclusion

This paper was written in a timespan of ten weeks, limiting means of available ways to investigate and gather information. Follow up interviews done after respondents had replied to the questionnaire could provide more viewpoints and help validate findings further. One factor that was noticed after the questionnaire went live was that participants who replied with a neutral response were not asked to explain why they chose this response. This could be considered to impede interpretations of certain questions in the questionnaire. As is inherent with using questionnaires, participants are unable to elaborate on their answers (Dörnyei, 2010). Through asking follow-up questions in an interview, a deeper understanding of their answers could be made and other conclusions could be drawn.

With a longer timeframe, it would be possible to conduct such interviews in addition to the questionnaire. This was something that had to be scaled down due to time constraints. Compiling of the questionnaire results provided an opportunity to see connections between participants’ answers for different questions. Such connections could be further discussed in an in-depth interview. Furthermore, these interviews could discuss participants’ view of statements they claimed to be neutral in.

The participants in the thesis were selected from southern Skåne. This and the number of respondents (59) could make it difficult to be able to generalize results for an entire population. As not all of the schools we contacted were interested in participating, we are unable to say that the participants are randomized. It might be that only schools where an interest in dyslexia chose to participate.

However, the aim was to investigate and compare in-service and pre-service teacher confidence and knowledge regarding dyslexia. Through the results in this study, answers to the research questions were found.
Two research questions were developed to answer the research questions. One of them focusing on in-service and pre-service teachers’ confidence in: Identifying dyslexia, using available resources for dyslexic students and ability to teach EFL to students with dyslexia. The second research question observed in-service and pre-service teachers knowledge of which characteristics they have knowledge of in order to identify dyslexia, which available resources they have working knowledge of and, what type of knowledge they have regarding teaching EFL to students with dyslexia. Both of these research questions were designed to allow for comparisons between the two demographics. A compiled conclusion of each research question will be stated below. This conclusion originates from the sub-question and shows an answer for each question.

Student teachers felt largely unconfident in the way they perceive their own competency in dealing with and accommodating the needs of students with dyslexia in the English classroom. In-service teachers however were more confident in their ability. However in regards to knowledge possessed, differences were not as large as we had hypothesized. In-service teachers comparatively showed more knowledge in the areas explored. Pre-service teachers knowledge was not as low in comparison has had been expected.

The results showed no significant connections between higher knowledge and confidence of dyslexia and in-service teacher participant’s years worked, nor that working with several curriculums. Neither did we find any connection to the municipality in-service teachers were employed in and their knowledge of the diagnosis.

In conclusion, the results show that neither in-service and pre-service teachers do neither have enough nor sufficient knowledge of how to best assist dyslexic students, especially in the EFL classroom. Both demographic would benefit from professional development in regards of how to teach EFL to all students. Furthermore, pre-service teachers would benefit from courses regarding dyslexia and other learning difficulties during their teacher education programs. This could improve confidence levels and knowledge in order to accommodate all students.
The next step would be to research in-service and pre-service teachers confidence and knowledge of dyslexia on a larger scale. This would allow results from future research to be applied to a national level.
References


Foreman-Sinclair, K. (2012). *Kindergarten Through Second-Grade Teacher’s Knowledge and Beliefs About Dyslexia Assessment and Retention*. Sam Houston State University, USA.


Appendix 1.1

06. I feel confident in my knowledge of how to administer tests to diagnose students that I believe suffer from dyslexia *

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

06. I feel confident in my knowledge of how to create tests to students suffering from dyslexia *
English tests or similar

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

17. Please check the two resources you find most beneficial for dyslexic students *
- Translation pens
- Speech synthesis
- Dictionaries
- Spelling programs
- Prediction programs
- Dictation software
- Övrigt: __________

18. Students with dyslexia improve most in their language learning when they leave the classroom and visit a speech therapist in one-on-one or small group sessions *

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

19. I feel confident in my ability to teach English to students suffering from dyslexia *

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>
20. What would you consider to be the most important factor to consider when teaching English to dyslexic students?

21. The following classroom organization is beneficial when teaching students with dyslexia:
1 Strongly Disagree - 6 Strongly Agree

<table>
<thead>
<tr>
<th>Teaching assistant in classroom</th>
<th>1 Strongly Disagree</th>
<th>2 Mostly Disagree</th>
<th>3 Slightly Disagree</th>
<th>4 Neutral</th>
<th>5 Moderately Agree</th>
<th>6 Mostly Agree</th>
<th>7 Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>One to one</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching assistant in another room</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
22. Students with dyslexia will encounter the same dyslexic difficulties when learning English as they do in their first language.

1 2 3 4 5 6 7

Strongly Disagree 0 0 0 0 0 0 0 Strongly Agree

23. I feel it is easier to detect students suffering from dyslexia in a first language classroom than in a foreign language classroom.

1 2 3 4 5 6 7

Strongly Disagree 0 0 0 0 0 0 0 Strongly Agree

24. I consider dyslexic students to be more enthusiastic about learning English compared to learning Swedish.

1 2 3 4 5 6 7

Strongly Disagree 0 0 0 0 0 0 0 Strongly Agree

25. A dyslexic student has the same difficulties as his/her fellow non-dyslexic students when learning English.

1 2 3 4 5 6 7

Strongly Disagree 0 0 0 0 0 0 0 Strongly Agree

26. What kind of external assistance would you prefer to receive for assisting dyslexic students?

- Teaching assistant
- Speech therapist
- A second teacher
- Special educator
- Recreation instructor
- Books and literature
- Headmaster
- Övrigt: [ ]

27. I have received the majority of my knowledge in identifying dyslexic students from:

Please select no more than two answers

- Personal diagnosis
- Possess no greater knowledge of the area
- Teacher education
- Working experience
- Family member with dyslexia
- Own studies
- Övrigt: [ ]
28. I have received the majority of my knowledge about working with dyslexic students in the classroom from *
Please select no more than two answers

- Own studies
- Possess no greater knowledge of the area
- Personal diagnosis
- Family member with dyslexia
- Teacher education
- Working experience
- Ovrigt: [ ]