ABSTRACT:
The present study aimed to investigate how teachers are teaching students with Attention Deficit Hyperactivity Disorder- ADHD in regular elementary school classes in the municipality of Oslo, and in neighboring cities in Norway. Teachers interviewed were chosen with criteria that they have been teaching ADHD students in their classes in the last years. This study concerns to reflect how teacher's practices interfere in the learning process, the cognitive and social development of students with ADHD. As basic theoretical framework for this study, it was used learning theories as cognitive theory and social learning theory. As qualitative phenomenological study seemed to be the most suitable approach to this study, and it was used for investigate the teachers’ lived experiences. And for data collection it was used semi-structured interviews, and thematic analysis was used as main tool to data analyze. This study aim to investigate how teachers experiences teaching
students with ADHD, how teachers experiences their knowledge teaching ADHD students, how teachers meet the learning needs, how they teach ADHD students and as well how teachers facilitate social inclusion for ADHD students. The results of the study have shown that teachers’ ADHD knowledge is based on their teaching experiences with ADHD students over the years. Despite the long experience, there is still a great need for more improvement regarding to the adequacy of teaching strategies to the individual needs of ADHD students. They had a lack of formal education in the field and needed more knowledge and skills. This study also showed that despite the difficulties faced by students with ADHD, they can learn satisfactorily, and their levels of learning do not differ from others students in their classrooms. Social interaction can still be considered a challenge for some students with ADHD, but through a collaborative work between ADHD students, peers and teachers, their social development has occurred without major problems. Additionally this study provides suggestions for further research on the topic, and possible ways of implementing the findings.

**Palavras-chave:** Práticas educacionais. Aprendizagem. Transtorno do Déficit de Atenção com Hiperatividade – TDAH.

**RESUMO:**

O presente estudo teve como objetivo investigar como os professores estão ensinando os alunos com Transtorno de Déficit de Atenção com Hiperatividade - TDAH em classes regulares do ensino fundamental do município de Oslo, e em cidades vizinhas, na Noruega. Além de refletir sobre como as práticas educacionais interferem no processo de aprendizagem, no desenvolvimento cognitivo e social desses alunos. Tal estudo foi baseado em conhecimentos teóricos prévios além das entrevistas realizadas no ano de 2017, no âmbito do Curso de Mestrado em Educação Especial (Master in Special Needs Education) na Universidade de Oslo (Universitetet i Oslo- UIO), na Noruega. Os professores participantes das entrevistas relataram suas experiências pessoais e perspectivas em relação às práticas educacionais voltadas para alunos com TDAH em classes regulares. Como referencial teórico, utilizou-se, principalmente, as teorias de aprendizagem cognitiva e teoria de aprendizagem social. Foi utilizado o método quantitativo fenomenológico, por atender aos objetivos do estudo voltados à investigação das experiências vivenciadas pelos professores entrevistados. A coleta de dados se deu através de entrevista semiestruturada com a análise dos dados obtidos. Os resultados do estudo mostraram que o conhecimento dos professores sobre TDAH se baseia em suas experiências de ensino com alunos de TDAH ao longo dos anos. Apesar da longa experiência relatada, ainda há uma grande necessidade de melhorias quanto à adequação das estratégias de ensino às necessidades individuais dos alunos com TDAH. Os professores entrevistados apresentavam déficits relacionados à educação formal no campo, além de apresentarem necessidades de ampliação de conhecimentos específicos e habilidades. Este estudo também mostrou que, apesar das dificuldades enfrentadas pelos alunos com TDAH, eles podem aprender satisfatoriamente e seus níveis de aprendizado, não se diferenciando dos demais alunos nas salas de aula. A interação social ainda pode ser considerada um desafio para alguns alunos com TDAH, mas, através de um trabalho colaborativo entre estudantes, colegas e professores, seu desenvolvimento social ocorreu sem grandes problemas. Além disso, este estudo fornece
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sugestões para pesquisas adicionais sobre o tema e possíveis maneiras de implementar os resultados.

**Palavras-chave:** Práticas educacionais. Aprendizagem. Transtorno do Déficit de Atenção com Hiperatividade – TDAH.

**RESUMEN**

El presente estudio tuvo como objetivo investigar la metodología de los maestros en la enseñanza de los estudiantes con trastorno por déficit de atención con hiperactividad (TDAH), en clases regulares de escuela primaria en el municipio de Oslo y ciudades vecinas de Noruega que además de reflexionar sobre las prácticas en la educación incide en el proceso de aprendizaje y el desarrollo cognitivo y social de esos alumnos. Como referencia de este estudio, se aplicó el aprendizaje de teorías tales como cognitiva y del aprendizaje social, utilizando el método fenomenológico cualitativo para atender los objetivos de este estudio, tomando las experiencias vividas por los maestros. Para la recopilación de datos se utilizaron entrevistas semiestructuradas, y el análisis temático se utilizó como herramienta principal para el análisis de datos. Los resultados del estudio mostraron que el conocimiento de los maestros sobre el TDAH se basa en sus experiencias de enseñanza con los estudiantes con TDAH a lo largo de los años. A pesar de la larga experiencia reportada, todavía existe una gran necesidad de mejoras en la adaptación de las estrategias de enseñanza a las necesidades individuales de los estudiantes con TDAH. Los maestros entrevistados tenían déficits relacionados con la educación formal en el campo, así como la necesidad de ampliar el conocimiento y las habilidades específicas. Este estudio también mostró que, a pesar de las dificultades que enfrentan los estudiantes con TDAH, pueden aprender satisfactoriamente y sus niveles de aprendizaje, sin diferir de otros estudiantes en el aula. La interacción social todavía puede considerarse un desafío para algunos estudiantes con TDAH, pero a través del trabajo colaborativo entre estudiantes, compañeros y maestros, su desarrollo social se ha llevado a cabo sin mayores problemas. Además, este estudio proporciona sugerencias para futuras investigaciones sobre el tema y posibles formas de implementar los resultados.

**Palabras clave:** Prácticas educativas. Aprendizaje Trastorno por déficit de atención e hiperactividad – TDAH.

**INTRODUCTION**

This study emerged from the desire for further study on Attention Deficit Hyperactive Disorder related to the practical teachers’ experiences and challenges faced by teachers when teaching students with ADHD in their classrooms. By using an interview based study of four teachers from a regular school in east in Norway, it was possible to get
information about their practical experiences by using a qualitative study, with phonological design and interview as tool for data collection.

The objective of this study is to reflect on how teachers are teaching students with Attention Deficit Hyperactive Disorder (ADHD) in their classrooms, as well to identify which teaching strategies have been used to develop learning and social interaction. This study aims also to find out how teachers meet the learning needs of students with ADHD in their classrooms, reflecting about how teachers’ experiences and knowledge can influence their practices when teaching ADHD students in their classrooms. As well, how they teach these students in a way to facilitate the social inclusion, and how teachers adapt their teaching methods to the students’ individual needs. Thus, this study begins with a theoretical knowledge about ADHD, its main characteristics, how the diagnoses are made based on the DSM-V and ICD-10, how ADHD influence the student life, and how the schools are meeting these students needs.

For teachers it is important to know which teaching strategies could be more effective when working with ADHD students in regular classes, what kind of adaptations need to be done, both related to the class environment and class management.

As students with ADHD has a considerable difficulty to follow rules, to concentrate and to stay focused, to carry out the activities, and also may have some lack of organization, it can become difficult to students and teachers if not getting the necessary support.

According to Goldstein (2006) ADHD is often presented wrongly as a specific type of learning problem based in bad behaviors from ADHD students during the classes. Instead of thinking how difficult can be for them to do well in school because of the impact of the symptoms in the daily activities, hindering their good performance at school. Problems associated with ADHD appear in different ways at different ages, as the individual matures and as the environmental requirements for sustained self-control increase (TAYLOR & SONUGA-BARKE, 2008).

Attention Deficit Hyperactivity Disorder has been extensively studied over the years, and many investigations were based in its nature, types and subtypes, theoretical exploration of cognitive, neurobiological, and genetic aspects (COOPER & BILTON, 1999). According to Cooper & Bilton, a significant amount of researchers have been based in isolating the causes of the condition, as well as in investigating the medical aspects of ADHD. Despite the advances in high-quality research related to the field, many aspects may still be
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Controversial, and so resulting in a need for more studies about it. For Cooper & Bilton (1999), ADHD can be described as a complex phenomenon that can be studied by focusing in different aspects, and therefore it is important that it is thoroughly studied.

Researchers have considered attention deficit as a very important element to be studied (BARKLEY, 1998, p. 12), rather than a phenomenon only related to the disorder, and then started to use the denomination Attention Deficit Disorder. Later, many other characteristics were identified as impulsive responses, problems in the regulation of impulses, cognitive disorders, including memory and social relationships (BARKLEY, 1998). Cognitive research has increased over the years (COOPER & BILTON, 1999), with the focus on impulsiveness as the central feature of ADHD. This suggested that a dysfunctional response inhibition system in the neuropsychological mechanism located in the brain front lobes might underlie the disorder. In this way, ADHD students were characterized by experimenting significantly greater problems than most in inhibiting or delaying a behavioural response (COOPER, 1999, p.4). Barkley (1997) proposed a model based in executive functions and self-regulation. For him the observable difficulties characteristic of ADHD were attributable to underlying deficits in higher order, cognitive functions (BARKLEY, 1997; PENNINGTON & OZONOFF, 1996).

ADHD is often defined as a neurobiological behavioral disorder and has been considered one of the most common psychiatric diagnoses in school-age children. It is also considered one of the most prevalent disorders that teachers will encounter in their classrooms (APA, 2013). Unfortunately ADHD students are at two to three times in greater risk of school failure than their peers without ADHD (SMITH et al., 2000). However they can develop as well as other students if their individual needs are met. This make pertinent for research to focus on interventions that occur in educational settings, as many students are still struggling to learn within environments that are not always matched to their individual needs, with a lack of attention and concentration, these students may not feel motivated and may develop learning problems. As the biological and psychosocial aspects influence ADHD students learning and development, may be important that teachers understand that hyperactivity, concentration difficulties and impulsiveness are not only a result of social and behavioral factors, often such behaviors can also be derived from biological factors.

Results and discussions: The purpose of this chapter is to present findings that provide answers to the research question: How does teachers experience their knowledge and skills to teach students with ADHD? And the three sub-questions derived from the main
questions: What kind of knowledge and skills do the teachers have to teach students with ADHD? How do the teachers identify the needs of students with ADHD and evaluate their learning? And how do teachers organize and facilitate the learning situation to students with ADHD?

**CONCLUSIONS OF STUDY**

From this small scale study it is possible to conclude that when teaching ADHD students many factors may influence the learning process, as teachers experiences and knowledge about the individual needs of ADHD students, class organization, peers collaboration, class plan based in the students needs, as well how instructions are individualized and delivered. Teachers attitudes related to ADHD students may influence student’s social and cognitive development. Teacher perceptions and teacher experiences are critical to developing inclusive learning environments.

Most of students with ADHD are in general education classrooms, and this suggests that teachers when working with them in their classes need to understand this condition and know how to deal with it in different class situations. Recognizing and knowing how to accommodate ADHD students may mean challenges that confront some teachers (DOWDY et al., 1997). According to Dowdy, the behaviors that might be associated with ADHD students manifests in schools settings and they can be grouped into the categories: attention and concentration, reasoning and information processing, memory, executive functions that may be related to planning and organizing actions, social and emotional areas, communication, and so academic performance (DOWDY et al., 1997, p. 24).

The challenges experienced by ADHD students at school may vary based in ADHD subtypes related to the main diagnose. For some of them with short attention may be difficult to complete tasks, engage in class discussions, work independent in the classroom and follow teachers’ instructions (BARKLEY, 2012; MURRAY, 2010). Students with impulsivity symptoms, may blurt out answers during the class without teachers’ permission to speak, they may often disrupt the class by having disruptive behaviors. Symptoms of hyperactivity may cause ADHD students to fiddle with objects that are unrelated to the class activity, they can also repeatedly drum their hands, rock in their chairs, and struggle to remain in their seats during the class activities (DUPAUL & STONER, 2003).
Teachers' educational background, experiences and knowledge about teaching ADHD students

Based in this study, was possible to find out that teachers don’t feel as having enough knowledge related to ADHD students, especially regards to adaptations of their teaching methodology to the students individual needs. Knowledge gained through experience was directly related to those working with ADHD students, not simply the years working as a teacher. The areas of increased knowledge center on the characteristics of the disorder, however, the areas of etiology and treatments remained lower, as well as related to teaching adaptations (ANDERSON et al., 2012). Although teachers recognize the need of more knowledge about ADHD and students needs, the informants reported not having participated in any specific courses, only one of them have done it, and he still argued not having acquired much knowledge related to teaching practice. According to Graeper (2010) teachers’ lack of knowledge can make some misconceptions possible that will affect the teachers’ perception of their ability to work with a student diagnosed with ADHD, as well, teachers’ perception of students’ ability to perform academically and behaviorally may be influenced when the lack of knowledge is present. Graeper also argued that very little training about ADHD is part of teachers’ pre-service curriculum (Graeper, 2010, p. 69). It may be difficult to some teachers to meet the individual needs of ADHD students if they don’t have enough knowledge about it. Often teachers feel discouraged, perhaps accommodated, in the search for new knowledge, especially when it comes to special education. The lack of necessary knowledge influences the ADHD student's learning, as the adaptations needed are based in the teachers perceptions of the disorder related to class adaptations. So it is necessary that teachers be updated about the new concepts and information regarding to the teaching of these students. The search for improvement must be constant since this can facilitate both the teacher and the student that has their individual educational needs met. It is also the school’s role to motivate teachers in the search for new knowledge. As it has been reported, through the schools, teachers can receive the stimulus necessary to improve their knowledge by participating of courses or sharing their experiences to find out the best way to teach ADHD students in their classrooms.

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How teachers meet the learning needs of students with ADHD

To meet ADHD students individual needs, teachers emphasized that is important to know the students, as knowing them may be easier for teachers to find out their learning preferences and their needs. By positive interactions between teachers and students, it would be possible to develop a good relation both inside and outside the classrooms. Students become more motivated to participate when there is a positive interaction between them and the teacher. In order for this relationship to exist, it is necessary that the teacher show
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empathy to students, show that they care, worry and understand them. Teachers should be a support for students with special needs, especially those with ADHD. By listening to their opinions and using positive dialogs, the positive relation between teachers and students may improve students’ performance in the classroom. To meet the individual needs, is also necessary that teachers recognize the individual differences between students, and give them the assistance needed, as for example, individualized instructions and support.

Teachers may also motivate students by praising them, giving positive feedback based in their mastery. Self-esteem development should be taking in consideration both in short and specially long-term self-esteem.

How teachers teach students with ADHD

Teachers has described the teaching process based in their experiences, and they pointed out that when teaching with ADHD students it is necessary to use different strategies, and use a new one when the one used not work anymore. Teachers argued that class activities may be based in positive interactions and in the students strengths as this may avoid distractions and disruptive behaviors during the classes. The learning resources materials may also contribute to the student learning development. It was suggested the use of computers and tablets, videos, films, games and competitions, as well the use of textbook. A good class plan may include activities that increase students' attention and motivate them in the learning process.

According to the findings in this study, effectiveness of teaching strategies may depend of positive interactions and based in practical classes, where students can feel more motivated to learn. Teachers have emphasized the importance of practical teaching, and that ADHD students may need a “run out time” to help them to concentrate. However in a study carried out by Greb (in DUNN & GRIGGS, 2003) showed that ADHD students did not indicate a preference for mobility or kinesthetic learning, as it is often related to them. ADHD students may need more time to concentrate after “an out time” from the classroom, and this may influence in their learning.

When teaching ADHD students, teachers need to find strategies to make the students active during the class activities. To develop students’ active participation, teachers need to give them clear instructions and have real expectations. ADHD students need to know what they are expected to do, and by using a motivated communication teachers may help them to
have focus on the steps they need to follow during the classes. Group works and peers may collaborate to the development of social skills of ADHD students. However, it can be difficult for students with ADHD to work in groups, and they can experience rejection from their classmates. Group works have to be based in rules and steps to be follow, both to ADHD students and to the whole class. In this way, they may feel more included and have a more active participation during the group activities.

The findings in this study have also showed that ADHD students need individualized instructions that can be oral or written. The written form may be the best for ADHD students, as they may forget easy the information received from teachers. Instructions need to be divided in small steps, by using few notes, and when exposed in a visible place in the classroom, as at students’ desk or on the board, will help ADHD students to find the instructions easier. Teachers need also to repeat the instructions and check if ADHD students have understood it by asking them to repeat the information received.

Many students with ADHD may also need a frequent feedback, but it may be done based in what they have done compared with teachers previous expectations. Feedbacks have to be realistic, by telling the ADHD students they accuracy progress.

It is known that ADHD students need more guidance than the other students in the class, but the findings have showed that they have learned in the same way as the other students in the class. Nevertheless the assignments need to be based in mastery and progression to make them able to get a great progress at school.

Regarding to ADHD students learning style, it was a lack of information reported by the informants about it, which leads us to believe that teachers may not have enough knowledge related to individual learning preferences of ADHD students. This may make difficult for them to adapt their teaching strategies to students’ individual needs.

How teachers facilitate social inclusion for ADHD students

Peers collaboration may be the main factor for teachers to facilitate social inclusion. By a collaborative learning, students can share what they have learned with each other. In this way, students learn from each other and develop social interactions, which may be important for ADHD students. Peers collaboration can be done by sitting in pairs or by using group works. Friends groups would help in the social interaction, as they can get the opportunity to do things together out from school setting, as related by the informants.

Class rules and a fixed routine may facilitate peers interaction, as ADHD students may not be so disruptive. It is important for ADHD students to know what they can or not
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do in the class, what they are expected to do, and how they can avoid disruptive behaviors. ADHD students may be easy distracted and it can be a challenge for teachers to get their attention during the lectures. Teachers need to be aware about how class environment need to be organized to help students to concentrate. For some ADHD students may better to sit in the front, but for others it may not work so well. Teachers have to find what kind of need students have to plan and organize the classes based in those needs.

Classroom environmental management need to be based on psychosocial factors based on the student, teachers, peers, and family; physical by classroom arrangement, seating, assistive technology; instructional related to scheduling, transitions, grouping, lesson planning, homework; procedural that is related to classroom rules and procedures, as well as behavioral by creating and increasing desirable behaviors, decreasing undesirable behaviors, generalizing and maintaining behaviors (DOWDY et al., 1997).

Limitations and implication of study

Some limitations of the present study need to be acknowledged. The current study involved four teachers from two elementary schools in the south of Norway. This sample size was smaller than desired, and because of this the results can not be generalized. The sample size can be attributed to the difficulty to find teachers teaching ADHD students interested in participate in this study. More than thirty schools were contacted but only four teachers were interested in participate in this study. Time may also be considered a limitation, as qualitative research based in interviews requires time during the whole process.

Further research could be done by including ADHD students’ views related to the effectiveness of teaching strategies in their learning process. Since the participant size of this study was small, the same research could be repeated with a larger and more spread sample to be possible to make generalizations based in the data collected.

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