Children with learning difficulties

Their self-concept, well-being, and perception of school

Guðrún Björg Ragnarsdóttir

Thesis for the degree of Philosophiae Doctor

November 2023

School of Education

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Supervisors

Dr. Anna-Lind Pétursdóttir
Dr. Zuilma Gabríela Sigurðardóttir

Doctoral committee

Dr. Annadís G. Rúdólfsdóttir

Dr. Kristján Ketill Stefánsson

November 2023

Faculty of Health, Promotion, Sport and Leisure Studies

School of Education

UNIVERSITY OF ICELAND

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Guðrún Björg Ragnarsdóttir

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Leiðbeinendur

Dr. Anna-Lind Pétursdóttir
Dr. Zuilma Gabríela Sigurðardóttir

Doktorsnefnd

Dr. Annadís G. Rúdólfsdóttir

Dr. Kristján Ketill Stefánsson

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Ágrip (Abstract in Icelandic)

Bakgrunnur Fyrri rannsóknir á högum barna hafa sýnt að námserfiðleikar hafa neikvæð áhrif á líðan og sjálfsmynd barna á grunnskólaaldri. Þetta er fyrsta íslenska langtímarannsóknin þar sem líðan og reynsla barna með námserfiðleika af skólagöngu sinni er könnuð.

Markmið Meginmarkmið þessarar langtímarannsóknar var að varpa ljósi á reynslu barna með námserfiðleika af skólagöngu sinni, sjálfsmynd þeirra og skólatengda líðan. Í þeim tilgangi voru foreldrar barna með og án námserfiðleika beðnir um að meta skólatengda líðan barna sinna. Börnin sjálf mátu sjálfsmynd sína endurtekið yfir fjögurra ára tímabil. Á sama tíma var rætt við börn með námserfiðleika um skólagöngu sína, áskoranir og bjargráð, til að fá dýpri innsýn og skilning á þeirra aðstæðum í skólanum frá 4. bekk upp í 7. bekk. Þrjár fræðigreinar hafa verið ritaðar sem beindust að því að svara rannsóknarspurningum sem snúa að a) mati foreldra á líðan grunnskólanemenda með og án námserfiðleika, b) samanburði á þróun sjálfsmyndar hjá grunnskólanemendum með og án námserfiðleika, og c) athugun á reynslu fimm grunnskólanemenda með námserfiðleika, hvað þau telja hafa áhrif á nám þeirra og líðan, og hvort viðhorf þeirra breytast á rannsóknartímanum.

Aðferðir Þátttakendur skiptust í þrjá meginhópa: a) foreldrar (N = 327) barna í þremur skólum, b) grunnskólanemendur í 4. – 8. bekk (N = 264) frá fjórum skólum á höfuðborgarsvæðinu, c) grunnskólanemendur (N = 5) frá einum skóla. Gögnum var safnað frá hausti 2014 til vors 2017 með megindlegum og eigindlegum aðferðum. Foreldrar svöruðu rafrænum spurningalista að hausti 2014 um líðan barna sinna þar sem stuðst var við foreldraútgáfur KIDSKREEN-52 og KINDL^R spurningalistana. Nemendur svöruðu spurningalistum um almenna sjálfsmynd, námslega sjálfsmynd, sjálfsmynd í lestri og stærðfræði, í sex skipti frá hausti 2014 til vors 2017. Stuðst var við spurningar úr The Self-Perception Profile for Learning. Disabled Students spurningalistanum. Hálfstöðluð viðtöl voru tekin við fimm nemendur í fjögur skipti frá hausti 2014 til vors 2017.

Niðurstöður Mat foreldra á líðan barna sinna reyndist töluvert til mikið verra (d = 0,45 – 0,88) hjá börnum með sérþarfir en hjá jafnöldrum án sérþarfa. Samkvæmt mati foreldra var líðan barna með sérþarfir sem fóru reglulega í sérkennslutíma þó mikið betri (d = 0,7) hvað snerti samskipti við fjölskyldu en barna með sérþarfir sem fengu ekki sérkennslu. Börn sem fengu sérkennslu í sérrými áttu í mun jákvæðari (d = 1,16) samskiptum við fjölskyldu sína. Þróun almennrar sjálfsmyndar hjá börnum með námserfiðleika reyndist jákvæð frá einu ári til annars (Δz = 0,2). Á rannsóknartímanum reyndist námsleg sjálfsmynd hjá nemendum með námserfiðleika að meðaltali mikið

lægri (Δz = -0,7) en hjá nemendum án námserfiðleika. Sjálfsmynd í lestri var að meðaltali mun lægri á rannsóknartímanum (Δz = -1,3) hjá nemendum með námserfiðleika samanborið við jafnaldra án námserfiðleika. Sjálfsmynd í stærðfræði var einnig að meðaltali mikið lægri hjá sama hópi (Δz = -0,8) samanborið við jafnaldra án námserfiðleika á umræddu tímabili. Viðtölin sem tekin voru við sömu nemendur með námserfiðleika yfir fjögurra ára tímabil leiddu í ljós að þeim leið almennt vel í skólanum, en líðan þeirra var mest háð félagstengslum og vináttuböndum við aðra nemendur. Þau töldu mikilvægt að ná góðum tengslum við kennara í sérkennslu. Viðmælendur mátu sérkennslutímana mikils, því þar væri hægt að fá meiri frið til að læra og meira næði væri til að einbeita sér og meðtaka námsefnið. Viðhorf gagnvart heimanámi versnaði með hækkandi aldri þátttakenda. Niðurstöður eru í samræmi við fyrri rannsóknir og sýna að íslenskir nemendur með námserfiðleika búa við áþekkar hindranir og nemendur erlendis. Mikilvægt er að styðja vel við námsframvindu barna með námserfiðleika og finna leiðir til að styrkja sjálfsmynd þeirra og líðan í skóla með stuðningi frá starfsmönnum skóla og skólayfirvalda.

Lykilorð:

Námserfiðleikar, sjálfsmynd, líðan, sérkennsla

Abstract

Background Previous research has shown that learning difficulties usually negatively impact the well-being and self-concept of children in primary school. This is the first Icelandic long-term study to examine the well-being of children with learning difficulties and the development of their self-concept and school perception as they progress from primary to middle school.

Aim The main objective of this long-term study was to gain deeper understanding of school-related well-being of children with learning difficulties in Iceland, and the development of their self-concept and school perception during the shift from primary to middle school. The school-related well-being of children with and without learning difficulties was assessed through parental reports. The self-concept of students was assessed repeatedly with questionnaires over a period of four years, from Grade 4 to Grade 8. Over the same period, a comparable group of five children with learning difficulties were interviewed about their schooling, challenges, and coping strategies to get a deeper insight and understanding of their school perception and learning experiences from Grade 4 to Grade 6.

Three academic articles have been written and some published focusing on answering research questions relating to: a) parents' assessment of the well-being of Icelandic primary school students with and without learning difficulties, b) a comparison of the development of self-concept of Icelandic primary school students with and without learning difficulties, and c) an examination of the perception of school of five Icelandic primary school students with learning difficulties, what they considered to affect their learning and well-being. The participants' responses were also examined in terms of whether their attitudes changed during the research period.

Method Research collaboration was established with four schools in the capital area of Iceland. Data were collected from autumn 2014 to spring 2017 using quantitative and qualitative methods. Participants were divided into three main groups: a) parents (N = 327) of children in Grade 4 to Grade 7 three schools, b) primary school students in grades 4–8 (N = 264) from four schools in the capital area of Iceland, c) primary school students with learning difficulties in Grade 4 at the beginning of the study (N = 5) from one school. Parents responded to an electronic questionnaire about their children's well-being using the parent versions of KIDSKREEN-52 and KINDL^R questionnaires. Students answered six times questionnaires on general self-concept, academic self-concept, and self-concept in reading and mathematics from autumn 2014 to spring 2017. Questions from The *Self-Perception Profile for Learning. Disabled*

Students were used. Semi-structured interviews were conducted with five students on four occasions from autumn 2014 to spring 2017.

Results The school-related well-being of children with learning difficulties turned out to be moderately to much worse (d = 0.45 – 0.88) than that of students without learning difficulties, according to parental assessment. The well-being of children with special needs, who regularly took special education classes, was better (d = 0.7) in terms of communicating with family than children with learning difficulties who did not receive special education, according to parental assessment. Children who received only special education in a separate classroom were much more (d = 1.16) comfortable interacting with their family. The study on self-concept revealed that the average annual development of general self-concept in children with learning difficulties was positive during the research period (Δz = 0.2). However, throughout the study period, academic self-concept was much lower on average among students with learning difficulties (Δz = -0.7) compared to students without learning difficulties. Especially, self-concept in reading was very much lower on average for children with learning difficulties (Δz = -1.3) compared to their peers. Self-concept in mathematics was also much lower on average (Δz = -0.8) for children with learning difficulties during the study period. The interviews conducted with the same students with learning difficulties over a four-year period revealed that they generally felt comfortable at school, and that their well-being seemed most dependent on social interactions and friendships with other students. Solid connections with teachers were also considered important and that teachers were kind, fair, and caring. Participants reported struggling with understanding instructions in general education classes and valued the special education classes, as they provided better instruction and quieter conditions to focus and learn. Attitudes towards homework worsened with the increasing age of the participants. Findings of the present study support and extend results from prior studies, showing that Icelandic students with learning difficulties face similar barriers as students in other western countries. The results underline the importance of finding effective ways to improve the academic progress of students with learning difficulties, as well as well-being and self-concept with the support of school staff and administrators.

Keywords:

Learning difficulties, self-concept, well-being, special education

Acknowledgements

This project was a part of a larger study, [Can the use of Direct Instruction and Precision Teaching enhance the skills of Icelandic students in reading and math?], a collaborative research project between the School of Health Sciences and School of Education at the University of Iceland. I thank funders, participants, and other partners for their good collaboration, without their contribution this study would not exist. The Icelandic Centre for Research (RANNIS grant #141905053) was a primary funder of the study. Additional support was provided by the University of Iceland Research Fund and the Icelandic Association of Local Authorities.

I would like to thank my main supervisor, Professor Anna-Lind Pétursdóttir, for her guidance and patience, lightning-fast responses to misguided questions from me, her dedication to the project, professionalism throughout the process and endless support. I am also sincerely thankful to my co-supervisor, Professor Zuilma Gabríela Sigurðardóttir, for her guidance, insights, steady support and for inviting me to be part of the large study. An opportunity I am very thankful for. My doctoral committee along with my supervisors, Annadís G. Rúdólfsdóttir and Kristján Ketill Stefánsson, have been tireless in reading and refining texts and showing patience while improving my academic skills and writing. I consider myself very fortunate to have met so many professionals who have patience and, at the same time, are always inspiring.

I would also like to thank Guðríður Adda Ragnarsdóttir for guiding me towards evidence-based teaching methods. An excellent teacher who took me under her wing and helped me when I was looking for methods that could improve my teaching.

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"Go back? No good at all! Go sideways? Impossible! Go forward? Only thing to do! On we go!" – J.R.R. Tolkien

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List of abbreviations

KINDL^{R}	Quality of Life Questionnaire for Children
LD	Learning difficulties
MLM	Multilevel model
OECD	Organization for Economic co-operation and Development
TA	Thematic analysis
SDQ	Self-Description Questionnaire
Sp.ed.	Special education
WHO	World Health Organization

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List of Original Papers

This thesis is based on the following original publications.

I. Ragnarsdottir, G.B., Petursdottir, A-L., Sigurdardottir, Z.G., Oskarsdottir, H., & Einarsdottir, E. (2018).Hvernig líður börnum með sérþarfir í skólanum? Mat foreldra á líðan barna með eða án sérþarfa (Parents' reports on the well-being of their children in Iceland: A comparison of elementary students with and without special needs]) Glæður [Icelandic Journal of Special Education), 27, 17-29.

II. Ragnarsdóttir, G.B., Petursdottir. A-L., Sigurdardottir, Z.G., Stefansson, K.K., & Oskarsdottir, H. (2023). The development of self-perception of ability in Icelandic children with and without specific learning difficulties. European Journal of Psychology of Education. https://doi.org/10.1007/s10212-023-00688-3

III. Ragnarsdottir, G.B., Petursdottir, A-L., Sigurdardottir, Z.G., Rudolfsdottir, A.G., & Oskarsdottir, H. (in review) Student voices: A Longitudinal Study of Students' Perception of their Schooling and Special Education Lessons in Iceland. Manuscript submitted for publication.

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Declaration of Contribution

The planning of the research and material preparation was done in collaboration with supervisors, Dr. Anna-Lind Pétursdóttir and Dr. Zuilma Gabríela Sigurdardottir, data collection was performed by the PhD student and trained master's students, data analysis was performed by the PhD student and Dr. Kristjan Ketill Stefansson. The first drafts of all papers were written by the PhD student and fellow authors reviewed and provided feedback on later versions of the manuscripts and approved the final papers. The PhD student submitted the papers to journals and acted as corresponding author.

1 Introduction

This doctoral project is a part of a larger research project [Can the use of Direct Instruction and Precision Teaching enhance the skills of Icelandic students in reading and math?] that was funded by the Icelandic Research Fund (Rannís, grant #141905053) and the University of Iceland Research Fund. The principal investigator of the larger research project was dr. Zuilma Gabríela Sigurðardóttir, professor at the department of Psychology, Faculty of Health Sciences, University of Iceland, who managed the project along with dr. Anna-Lind Pétursdóttir, professor at the School of Education, Harpa Óskarsdóttir, doctoral student and Guðrún Björg Ragnarsdóttir, doctoral student. In the large research project, the main research areas were the well-being of children and their progress in reading and math when receiving lessons with evidence-based teaching methods. This doctoral research project used both a qualitative interview study and a quantitative study with questionnaires. In the large research project, a group comparison was done to study the effects of reading instruction using evidence-based methods. Three groups of participants were included in the large study: children in 1st and 2nd grade, parents of children in Grade 4 to Grade 8 with and without learning difficulties, and children with and without learning difficulties in Grade 4 to Grade 8. Students in Grade 4 to Grade 7 participated in special education where they were taught three times a week in small groups in a separate classroom. Students in 1st and 2nd grade participated five times a week in a traditional classroom with their class. Comparisons were made between the experimental and comparison groups at the beginning and end of each school year during the research period, starting in the autumn of 2014 and ending in the spring of 2017. Performance in reading and math was evaluated with a variety of measures under the supervision of Harpa Óskarsdóttir. In my job as a special education teacher, working with struggling students in Grade 1 to Grade 8, I began to change my teaching methods. I saw the positive effects of Direct Instruction and Precision teaching on the well-being of children who were struggling with some kind of learning difficulties. However, I wanted to try to confirm my suspicion that the self-concept and well-being of this group was weaker than that of their peers without learning difficulties. As a special education teacher, I also wanted to explore how children with learning difficulties were experiencing special education and to hear from children what could be improved at their school.

I contacted Dr. Anna-Lind Pétursdóttir, who had guided me in my master's thesis and told her about my interest in researching the well-being of children with learning difficulties and the possible effects of teaching methods on the well-being of the children. It turned out that she was collaborating with Dr. Zuilma Gabríela

Sigurðardóttir, with an extensive research project in preparation that would be able to accommodate the research questions I had. Thus, I subsequently applied for a doctoral degree. In collaboration with them, I developed research questions focused on how children with learning difficulties perceive their schooling and special education, with regards to their well-being, perception of ability in reading and mathematics, and self-concept. I decided to compare children with and without learning difficulties. A period that spanned three school years, from the autumn of 2014 to the spring of 2017 followed in which I collected large amounts of data. The data proved to be sufficient for several doctoral projects, so I took the time to review them to decide what I wanted to use for my doctoral project. I chose three parts of the data collected. These are not a direct continuation of each other, however, they are related directly and are three aspects of the same theme, i.e., the well-being of children with and without learning difficulties, as seen by their parents; the self-concept of children with learning difficulties in comparison to the self-concept of children without learning difficulties over four years and as affected by variables in their learning environment. And lastly, the school-perception of five children with learning difficulties.

In the doctoral research project, the data gathering supervised by me was threefold:

1. A survey conducted in the autumn of 2014 to explore parents' evaluation of their children's well-being in school, and whether there were differences between students receiving special education and those not receiving special education. Parents of children in Grade 4 to Grade 7 in three schools participated.

2. Students' general self-concept, academic self-concept, reading self-concept, mathematics self-concept, self-efficacy, and student engagement were assessed using questionnaires. Participants were students with learning difficulties and students without learning difficulties and their data were compared. Data collection was done in six waves, starting in the autumn of 2014 and ending in the spring of 2017.

3. Extensive interviews were conducted with special education students to assess the students' experience of school, their well-being, and experience of special education classes before, during, and after intervention. Separate semi-structured parent interviews were conducted in the same month as the student interviews. Data collection was done in six waves, starting in the autumn of 2014 and ending in the spring of 2017 with a total of 159 interviews.

This is the first study in Iceland to compare the well-being and self-concept of students with learning difficulties with students without learning difficulties. Very few interview studies, both internationally and in Iceland, have been conducted with students with

learning difficulties. For the doctoral thesis, data from three sources were selected for analysis and presentation in three separate papers. Firstly, parent survey exploring the parents' evaluation of the well-being of their children. Secondly, from one questionnaire evaluating self-concept, academic self-concept, reading self-concept and mathematic self-concept in children with and without learning difficulties, and thirdly the repeated interviews with five students with learning difficulties were chosen.

1.1 Structure of the thesis

The thesis includes six chapters beginning with an introduction that presents the doctoral thesis and its origin, the aim, and the research questions. The second chapter is the theoretical framework of the study, it includes a description of the multidimensional-hierarchical model on self-concept and a discussion of the concepts related to the subject matter of the thesis. The third chapter presents the methodology of the study. Data collection and analysis are described in detail. Results are presented in the fourth chapter and the research questions are answered. In the fifth chapter, the findings are discussed along with the limitations of the study. Conclusions are discussed in the sixth chapter. Three academic papers are included in the thesis. They are summarized in Figure 1 and presented in their original form.

Table 1. Overview of the three papers

Summary of papers		
Paper I: Parents' reports on the well-being of their children in Iceland: A comparison of elementary students with and without special needs		
Objective	**Method**	**Conclusion**
To explore parent perception of the well-being of children with and without special needs and if age, gender, type of special needs and if receiving special education in separate classrooms affected the well-being of the children.	Quantitative. An online cross-sectional survey using questions from two questionnaires, KINDL^{R} and KIDSCREEN-52. Participants were parents of 327 children in grades 4 to 7 in three schools,	Children's general well-being, school well-being, and self-concept were better in children without learning difficulties. Children who received only special education in separate classrooms were reported to have better interaction with their family, social relationships, and general well-being compared to children receiving special education in both the general classroom and separate classroom.

Paper II: The development of self-perception of ability in Icelandic children with and without specific learning difficulties		
Objective	**Method**	**Conclusion**
To examine possible changes over time in the self-concept, academic self-concept, reading self-concept, and mathematics self-concept in children with and without learning difficulties.	Quantitative. A longitudinal multilevel model (MLM) with repeated measures design (mixed model) using questions from the questionnaire *Self-Perception Profile for Learning. Disabled Students*. Children with and without learning difficulties in Grades 4 through 8 in three public schools participated.	A yearly decrease for students with learning difficulties was observed for academic self-concept. A much poorer reading self-concept and mathematics self-concept was observed for children with LD during the research period. Students' self-assessment of general self-concept showed a yearly decrease consistently observed during the research period among students without learning difficulties. At the same time, a considerable yearly increase for students with LD was observed.
Paper III: Student voices: A Longitudinal Study of Students' Perception of their Schooling and Special Education Lessons in Iceland		
Objective	**Method**	**Conclusion**
To investigate how children with LD perceive their social status and schooling, focusing on their academic challenges, special support, and homework.	Qualitative. Semi-structured interviews with five children with LD, taken from the autumn of 2014 to the spring of 2017/ from Grade 4 to Grade 6	The participants were generally positive towards their school even though they did not always understand the instructions or were able to complete their assignments. The participants held a mixed view towards special education but considered a good teacher-student relationship important for their well-being.

2 Theoretical Perspectives and Concepts

2.1 Children with learning difficulties

The focus of this dissertation is on students with learning difficulties. Many different terms have been used to describe difficulties in learning academic subjects, most often reading, including Specific learning disorder (American Psychiatric Association, 2013; Moll et al., 2014), specific learning disability (Grigorenko et al., 2020; Scanlon, 2013), learning disabilities (Deno, 2001, Fletcher et al, 2007, 2014, Torgesen, 2002). The term learning difficulties is used here as a collective term to simplify. Specific learning disorder is a term that describes a neurodevelopmental condition affecting academic achievement (American Psychiatric Association, 2013; Scanlon, 2013). Key features of specific learning disorders (LD) are persistent difficulties when learning important academic skills and performance of academic skills are significantly below average for the individual's age (American Psychiatric Association, 2013). Learning difficulties often appear in the early school years and are considered specific because the difficulties are not attributable to intellectual disabilities, comprehensive developmental delay, hearing and/or vision disorders, or neurological or motor disorders (American Psychiatric Association, 2013). Specific learning disorders include difficulties with reading, writing or mathematics (e.g., reading comprehension, reading fluency, mathematics computation or problem solving, and written expression) (Fletcher et al., 2007; Moll et al., 2014). In school-aged children, the prevalence of specific learning disorder is 5-15% across the domains of reading, writing, and mathematics where reading difficulties is the most common (American Psychiatric Association, 2013; Björn et al., 2016; Grigorenko et al., 2020; Parekh, 2016).

Without effective intervention, students with learning difficulties lag behind in their studies and their complications increase over time (Deno et al., 2001; Morgan et al., 2008, Stanovich, 2009; Torgesen, 2002). It is important to teach children from an early age to read using explicit and systematic methods to prevent early reading failure (Snow & Juel, 2005; Snowling, 2013; Torgesen, 2004). Phonics instruction-based reading lessons can benefit young children (Coyne et al., 2004; Vadasy & Sanders, 2023). It is recommended that students are taught the sounds of single letters and multi-letter grapheme-phoneme correspondence along with differentiating work (Conrad & Levy, 2011; Jones & Reutzel, 2012). All students who have difficulty reading can be supported. However, many factors including age and general learning ability can impact students' response to early reading intervention. In some cases, these may be children who have additional learning difficulties or impairments further impacting their learning.

2.2 Reading

Reading is an important part of learning, and in the modern world people often must rely on written guidance in work and study. Reading is a process that includes acquiring meaning from printed text and applying knowledge about the written alphabet and the sounds of each letter to achieve understanding (Snow et al., 1998). The model called The *Simple View of Reading* (Gough & Tunmer, 1986) has been used to explain the science of reading. It states that good reading comprehension ability is a product of two equally important factors; listening comprehension ability (language comprehension) and word reading ability (decoding), see Figure 1 (Hoover & Gough, 1990). Decoding refers to translating symbols (e.g., alphabetic letters) into recognizable syllables and words based on knowledge of spelling sound correspondence (Høien & Lundberg, 2000; Snow et al., 1998). Achieving language comprehension is a natural process for most children. On the other hand, the decoding process needs to be deliberately taught (Gottlieb et al., 2022).

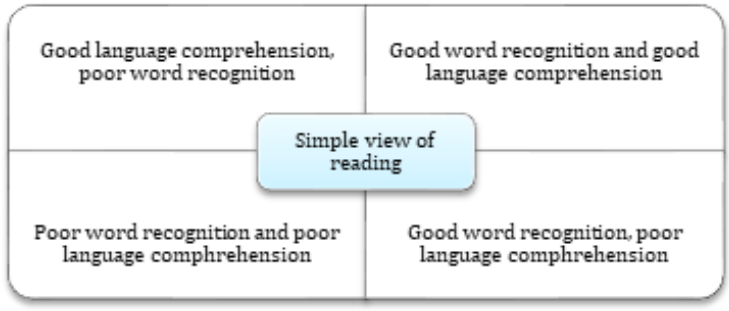

Figure 1. Factors of reading according to the *Simple View of Reading* (Hoover & Gough, 1990: 132)

Other models, like the *Active view of reading model* (Duke & Cartwright, 2021) or the Rope Model of Reading (Scarborough, 2001) have built up-on and expanded the Simple View of Reading model. In the *Active view of reading model*, motivation, engagement, and strategy use are considered as parts impacting reading, see Figure 2.

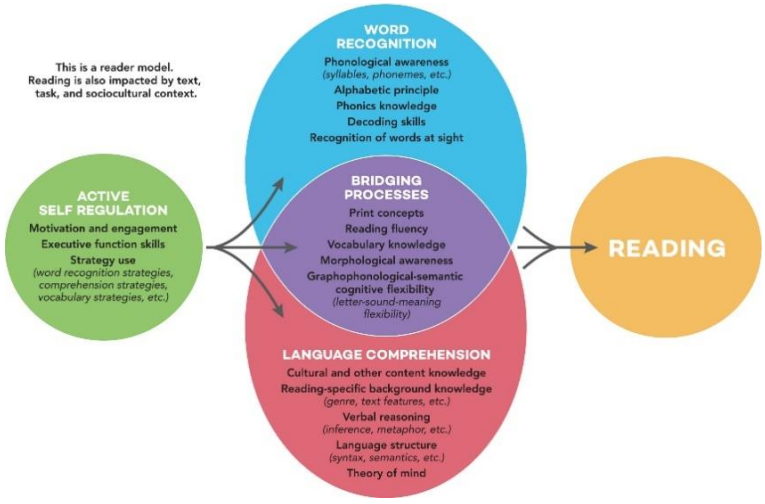

Figure 2. The *Active View of Reading Model* (Duke & Cartwright, 2021: S33)

Although the approaches of the above-mentioned models have expanded the *Simple View of Reading*, factors such as language comprehension and word recognition make up a large proportion of the models and recognize that these factors are crucial to the reading process. History shows a long conflict about the "correct" or most effective way to teach reading, but research has repeatedly shown that phonics methods, where individuals are trained to recognize letters and produce their corresponding sounds, is a crucial element (Ehri et al., 2001; Snow & Juel, 2005). A meta-analysis by Ehri et al. (2001) revealed that phonemic awareness programs connected to reading and writing can add significantly to achievement in both reading and spelling (Ehri, 2020). Phonemic awareness is a part of phonological awareness. It entails the ability to analyze and connect sounds and the understanding that words can be considered as a sequence of phonemes (Snow et al.,1998; Walpole & McKenna, 2007). Phonics methods can benefit dyslexic children, who demonstrate poor phonological awareness, and therefore affect their ability to sense that words are made of various sounds. Phonological awareness has been considered the first step to reading (Gillion, 2007; Snow et al., 1998; Torgesen, 2002).

Different views about reading instruction have centered around the issues of what units of the language should be focused on, should reading be taught through large, meaningful units or small, analytic units with less meaning (Snow & Juel, 2005). Different methods (e.g., phonics methods) have included emphasis on teaching students the connection between the letters in written language and individual sounds of spoken language, so the student can sound out words, and eventually learn to quickly read words and sentences. The lessons are gradually constructed with gradually longer and complex words and sentences until the child has mastered decoding or

reading (Snow & Juel, 2005). Children who have mastered decoding and have become fluent in reading can focus their attention on the meaning of the text and develop their reading comprehension (Ehri, 2020). In whole language approaches, reading development has been seen as similar to language development, a natural process where emphasis is on literature, composition, inquiry and process centered instruction (Dahl & Scharer, 2000; Snow & Juel, 2005). Learning to read is considered to proceed from the whole to the part rather than from the part to the whole and reading is taught through experiences with connected text.

2.3 Mathematics

The second most common challenge in academic learning relates to mathematics. Following reading skills, learning basic mathematics is often considered among the main goals of schooling (Ministry of Education, Science and Culture, 2014). Similarly to reading, mathematics involves the use of abstract symbols, that can be hard to acquire. In addition, mathematics requires memorizing facts and step-by-step procedures, just like reading. Not surprisingly, difficulties in reading and mathematics often go together (Emerson, 2015). A mathematics learning disability is a specific learning difficulty that involves impairments in mathematics (e.g., number sense, remembering arithmetic facts, calculation and/or math reasoning) (American Psychiatric Association, 2013; Gross-Tsur et al. 1996; Shalev & Gross-Tsur, 2001). Dyscalculia can co-occur with other learning difficulties (Landerl, 2015). The main deficit in mathematics difficulties concerns poor number sense that affects the mastery of basic computational skills of addition, subtraction, multiplication, and division, and the applications of these operations to solve word problems (Emerson, 2015; Geary, 2004). Children with mathematics difficulties frequently struggle with retrieving basic arithmetic facts (Geary, 2004), and often also find it challenging to learn abstract concepts of time and direction (Vaidya, 2004). The prevalence of math difficulties has been estimated to be from 5 to 6% of the general school population (Shalev & Gross-Tsur, 2001).

The origin of mathematics difficulties has been traced to environmental factors such as poor teaching as well as genetic factors (Shalev & Gross-Tsur, 2001). The likelihood of being diagnosed with mathematics difficulties is tenfold higher for family members (e.g., parent and/or sibling) of children with mathematics difficulties than people of the general population (Geary, 2004; Kadosh & Walsh, 2007). For example, in a study by Landerl and Moll (2010) on comorbidity of learning disorders, reading problems were four times more prevalent in participants already experiencing problems in one academic domain, than in the general population (6.1%; Landerl, 2015; Landerl & Moll, 2010).

2.4 General self-concept

General self-concept is a person's perception of him- or herself formed through the individuals' experience with the environment and significant others (Shavelson et al., 1976). The term has also been referred to as global self-worth (Renick & Harter, 1988/2012). The concept can be described as: structured, multifaceted, hierarchical, developmental, evaluative, and differentiable (Shavelson, et al., 1976). Self-concept has been considered a stable trait by some researchers, but others maintain that self-concept is fluid and can change (Hattie, 1992). The latter group considers that experience affects each person's perceptions of him- or herself. To simplify these experiences, each individual classifies them to categories, or simpler forms, based on their prior knowledge or circumstances. For example, a child can classify its experience to those relating to family, friends, or school (Shavelson et al., 1976). Self-concept can be considered to comprise self-esteem and self-confidence (Shunk, 1991). Self-confidence is a person's belief about his or her ability to finish tasks and achieve goals. Different terms have been used to describe how people perceive themselves, with general self-concept often used (Byrne & Shavelson, 1986, Marsh & Craven, 2006; Shavelson, 1976), global self-worth (Renick & Harter, 1988/2012) self-esteem (Coopersmith, 1967), self-image (Wei & Marder, 2012).

The most validated model about self-concept is the multidimensional-hierarchical model, first developed by Shavelson, et al. (1976), see Figure 3. According to the model, self-concept is hierarchical and can be divided into academic self-concept and non-academic factors of self-concept (March & Craven, 2006). Subareas of non-academic self-concept include social, emotional, and physical self-concept which can be divided even further, see Figure 3 (Shavelson et al., 1976). A person's self-concept can differ by sub-factors, but general self-concept can meanwhile maintain stable. Thus, an individual's academic self-concept in math can be low but high in English (Marsh & Craven, 2006; Shavelson et al., 1976). The multidimensional hierarchical model of self-concept has been supported by research (Byrne & Shavelson, 1986; Marsh & Craven, 2006). Researchers have been encouraged to focus on specific domains when exploring the relationship between self-concept and academic self-concept, academic achievement, and behavior (Marsh & Craven, 2006). Icelandic children spend 180 days a year at school (Directorate of Education, 2021). During this time, they carry out their studies and receive different degrees of assistance to complete their tasks. Naturally, their well-being and self-concept are influenced by various factors, but students with learning difficulties face various obstacles in their studies. Following the advice from Marsh & Craven (2006), specific domains of the multidimensional-hierarchical model were explored in this study.

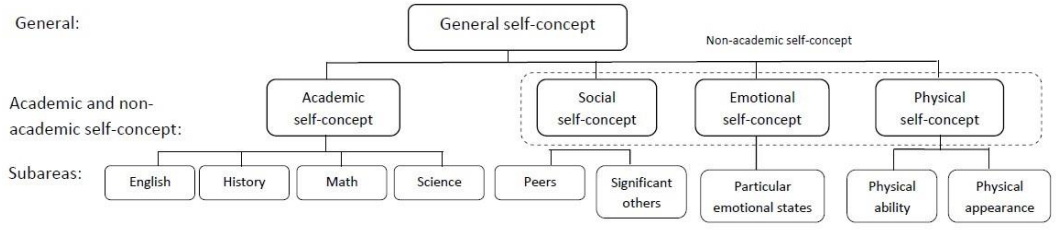

Figure 3. Hierarchic organization of self-concept (Shavelson et al., 1976: 413)

Various types of questionnaires have been used to examine self-concept in individuals. To name a few, the Self-Description Questionnaire (SDQ I, II, III) (Marsh, 1990), *Self-Perception Profile for Learning. Disabled Students* (Renick & Harter, 1988/2012), KIDSCREEN-52 (The KIDSCREEN Group, 2004) and KINDL^{R} (Ravens-Sieberer & Bullinger, 2000). All are designed to examine different domains of self-concept. General self-concept is a common category in the above-mentioned questionnaires, but they also include questions pertaining to physical self-concept, social self-concept as well as other domains.

2.5 Academic self-concept

Academic self-concept or self-perception of ability (Renick & Harter, 1988/2012) refers to a person's perception of his/her knowledge and skills in academic situations (Bong & Skaalvik, 2003; Marsh & Seaton, 2013; Rosen, 2010). It is thought to be formed through the student's experience and interpretation of the school environment and has often been found to be related to academic achievement (Guay et al., 2010; Marsh & Craven, 2006). Thus, students receiving special education due to persistent learning difficulties can be expected to have lower academic self-concept than their peers without learning difficulties. Academic self-concept has subareas for each subject, which can be further divided into certain behaviors that can be evaluated in specific situations (Marsh & Shavelson, 1985; Shavelson, Hubner, & Stanton, 1976). Academic self-concept is more closely linked to school success than general self-concept (Byrne & Shavelson, 1986; Chapman, 1988; Marsh & Craven, 1997; Marsh et al., 2005). The direction of causality between academic self-concept and achievement is unsettled in the literature (Rosen, 2010) but three models have been presented to describe the causal relationships between self-concept and academic achievement: the skill-development model, the self enhancement model, and the reciprocal effects model.

In the skill-development model, academic self-concept is the result of prior achievement whereas in the self enhancement model prior academic self-concept determines later achievement. In the reciprocal effect model, it is argued that prior self-concept predicts following self-concept and academic achievement, and prior academic achievement predicts subsequent self-concept (Marsh & Craven, 2006; Rosen, 2010). Findings regarding general self-concept, academic self-concept, and self-awareness in students with learning disabilities have been extremely variable, possibly because of the broad

range of definitions and measures used to assess these complex constructs (see meta-analyses and reviews by Bear, et al., 2002; Chapman, 1988; McPhail & Stone, 1995; Valentine et al., 2004).

2.6 Reading self-concept

Reading skills imply that a person possesses a certain vocabulary, understands a read text, can distinguish words into smaller units or phonics and is able to read with precision and speed. These skills form reading self-concept that has been described as a person's idea of his or her competence and ability in reading (Bong & Skaalvik, 2003; Walgermo et al., 2018). Reading self-concept has also been referred to as reading competence (Renick & Harter, 1988/2012). Students who are poor readers are likely to have a lower self-concept in reading and lower academic self-concept than their peers who are good readers (McArthur et al., 2020).

2.7 Mathematic self-concept

Self-concept or competence in mathematics (Renick & Harter, 1988/2012) is a subcategory of academic self-concept and is related to an individual's assessment of his or her own abilities in mathematics. Mathematical competence focuses on how an individual perceives his/her/their number sense that affects the individual's ability to master basic computational skills of addition, subtraction, multiplication, and division, and the application of these operations to solve word problems (Emerson, 2015; Geary, 2004). Together, all these factors, general and academic self-concept, as well as subcategories of academic self-concept in reading and mathematics, affect general well-being in and outside the school (Chapman, 1988; McArthur et al., 2020). Self-concept in mathematics seems to decline as students get older, however what causes this is unclear (Nagy et al., 2010).

2.8 Previous research on general self-concept

The broad range of definitions and measures used to evaluate the multiple factors of self-concept have resulted in variable results in research regarding general self-concept and academic self-concept (Meltzer, 1996). Coopersmith (1967) was among the first to study educational characteristics of students with different levels of self-esteem. Both students and their mothers answered questionnaires, and the mothers were also interviewed. Children with high self-esteem were more likely to resist peer pressure, regard themselves as smarter than their peers, be more expressive, assertive, independent, creative, and less anxious than their peers with lower self-esteem. They were also more likely to be participants rather than just listeners in group discussions. Over 60% of the mothers of children with high self-esteem believed their child to be above average in effectiveness and 57.6% rated their child above average in intelligence. Results also showed that children with low self-esteem believed they had

more difficulty in forming friendships. An individual's perception of his own social success rather than peers' evaluation of his ability and success was a dominant factor in determining how the children regarded themselves in connection with social success. Hay et al. (1998) compared academic achievement of students with significantly high or low self-concept using standardized tests in reading, spelling, and math. They also interviewed the teachers to determine students' academic and nonacademic characteristics. Their aim was to re-examine Coopersmith's claim that students with high self-esteem had more positive characteristics in areas such as cooperation, persistence, leadership, peer relations and low anxiety. The participants, 515 5th grade students, answered the Self-Description Questionnaire (SDQ I) (Marsh, 1990) in addition to taking standardized tests. Students with high self-concept outperformed their peers with low self-concept in reading, spelling and math. Teachers rated the students with high self-concept to be better behaved in class, more popular and supported by their families. Those students were also rated to be more persistent with schoolwork, cooperative in class, less anxious than their peers, academically orientated, more interested in school, talkative, bossy, and dominating with peers.

2.9 Previous research on academic self-concept

A meta-analysis by Valentine et al. (2004) showed that academic self-concept and achievement are correlative and independent from gender or age of participants. When studies using specific academic self-concept measures were reviewed, a significantly lower score for academic self-concept was revealed for children with learning disabilities compared to comparison groups, with 81% of the former group having lower academic self-concept than the average non-LD student. Chapman (1988) reviewed 20 studies on academic self-concept, finding that 81% of students with learning difficulties had lower academic self-concept than their average "nonhandicapped" peers.

Since the relationship between academic achievement and academic self-concept can be affected by other variables, some researchers have explored how students rate their effort, motivation, and even classroom adjustment. Students who participated in a study by Meltzer and colleagues (2001) viewed themselves as motivated, hard-working, academically skilled, and using correct strategies. Over 600 students in grades 4 through 9 participated: 308 students with learning disabilities, 355 without learning disabilities, and their 57 teachers. Students answered two questionnaires; The Student Self-Report System (Meltzer, 1996), used to assess students' perception of strategy use, and The Student Rating System (Meltzer, 1996), used to evaluate student's perception of their academic performance. Students with learning disabilities rated their effort in academic work lower than peers without learning difficulties but overall, they considered themselves as skilled students and effective. Teachers considered low achieving students with learning disabilities to be below average in academic performance, strategy use and organization, but students who had succeeded

academically were judged as hard-working, motivated, and academically competent, despite their learning disability (Meltzer et al., 2001), thus teachers' judgment of the students was mainly based on their academic success.

Some studies have not shown significant statistical difference in self-perception between students with or without learning difficulties but differences in other areas have been found. Nearly 150 students with and without learning disabilities in grades 3 through 6 participated in a study where the aim was to explore whether there were differences in self-perception, motivational orientations, and classroom adjustment between the groups (Grolnick & Ryan,1990). Participants answered three questionnaires: Perceived Competence Scale (Harter, 1982), used to assess self-perceptions of competence and worth, Academic Self-Regulation Questionnaire (Ryan & Connell, 1989), to measure how students regulated their school-related behavior, and Multidimensional Measure of Children's Perceptions of Control (Connell, 1985), to measure children's understanding of who and what controls achievement and failure outcomes. Students with learning disabilities were significantly less independent than children without learning disabilities. They also presumed success and failure to be controlled by powerful others. No difference was found between groups' general self-perception. Grolnick and Ryan (1990) suggested that a plausible explanation for this is that children with learning disabilities may develop their general self-perception from other areas than school.

The effects of school-based interventions aimed at enhancing self-concept or academic self-concept in students with learning disabilities can differ by grade levels. Elbaum and Vaughn (2001) reviewed 82 interventions in 64 studies assessing the effects of intervention on self-concept of students with learning disabilities. They found that, for elementary students with learning disabilities, academic interventions targeting academic skills had a greater effect on academic self-concept than on other factors of self-concept. The mean effect size of the 82 interventions was found to be $d = 0.19$. Interventions had the greatest effect on academic self-concept ($d = 0.28$) which was affected by academic interventions and counseling, social self-concept ($d = 0.18$) affected by mediated interventions, and general self-concept ($d = 0.15$) affected by counseling and mediated interventions. Duration of interventions, except for one intervention, ranged from 2 to 32 weeks and findings revealed academic interventions effective for elementary students when they lasted longer and were more intensive than equally effective counseling interventions. The greatest effect on elementary school students came from an intervention by Yager et al. (1985) where students participated in cooperative learning groups with students without learning difficulties (as cited in Elbaum and Vaughn, 2001). Low self-concept or negative views of oneself has been linked to poor school performance and a higher risk of school dropout but interventions seem to benefit those students more than students with average or high initial self-concept (Elbaum & Vaughn, 2003). Elbaum and Vaughn (2003) further analyzed 15 studies from their analysis in 2001 to explore whether pre-interventions

scores of self-concept were related to the effects of self-concept interventions for students with learning disabilities. Students with low initial self-concept were found to benefit significantly more from interventions, or up to three times more, than students with average or high initial self-concept.

2.10 Self-concept and students with learning difficulties

Research on student self-concept has focused, among other things, on students with learning difficulties where their self-concept has been compared to self-concept in students without learning difficulties. Prior performance and academic self-concept in students with learning difficulties have been found to be significant predictors for performance in literacy (Stranghöner et al., 2022). Chapman (1988) reviewed research on the self-concept of children with learning disabilities to explore the basis for statements about children with learning disabilities having lower self-concepts than their peers. In five studies, students with learning disabilities had general self-concept within the normal range but lower than students without learning disabilities. In Chapman's (1988) review, findings from 21 studies did not support the idea that learning disabled students have low general self-concept. Students participating in the studies tended to have lower general self-concept than peers without learning difficulties but results frequently failed to reach statistical significance. However, one study has found that students with learning difficulties have lower self-concept than their peers without learning difficulties (Girli, 2013). It is possible that students with learning difficulties are high-achieving in other areas like sports and their general self-concept therefore is not affected. General self-concept between students with and without learning difficulties was found to be similar in a meta-analysis by Elbaum and Vaughn (2003). Different findings regarding general self-concept and academic self-concept are in line with studies showing a stronger link between academic achievement and academic self-concept than general self-concept (Chen et al., 2012; Marsh & Martin, 2011; Wei & Marder, 2012). Chapman's (1988) and other researchers' results indicate the importance of measuring sub-domains associated with general self-concept because general self-concept can maintain stable while sub-domains can differ (Marsh & Craven, 2006; Shavelson et al., 1976). Wei and Marder (2012) examined two self-concept constructs in three domains (academic, social and self-image). Participants were 8 to 17 years old students representing 11 disability categories, 43% of the participants had learning difficulties. In their study, two components of self-concept were explored: a) self-confidence where an individual's appraisal to perform certain tasks is important, and b) importance beliefs where an individual evaluates his or her characteristics and ability to perform certain tasks. During elementary school both components of self-concept evaluated in the study declined with age in students with learning difficulties suggesting that long-lasting academic problems can be related to decrease of academic self-confidence and importance beliefs.

It is important to respond to these results and assist children with learning difficulties in increasing their self-concept. However, when conducting interventions for students with learning difficulties, it is important to distinguish between interventions focusing on increasing self-concept directly and interventions that indirectly enhance self-concept. Self-concept interventions seem to be most beneficial to students with prior negative self-perceptions (Elbaum & Vaughn, 2003).

2.11 Well-being in school

The term well-being has been related to how individuals perceive their position in life with the achievement of their goals and if their interests are fulfilled (Diener & Suh, 1997; Qayoom & Husain, 2016; WHO, 1997). Individuals' ideas about their own well-being are based on their experiences, among other factors, such as the philosophical perspective, are thought to influence individual choices (Diener & Suh, 1997). The concept, along with the term quality of life has been used to describe how well people feel (Exenberger & Juen, 2014). Quality of life has been referred to as a person's perception of life conditions, general well-being, and fulfillment with life (Borthwick-Duffy, 2000; Felce & Perry, 1995). Well-being has been examined and compared with various factors that affect well-being in different situations, for example school settings (Gutman & Feinstein, 2008) or by family affluence, the social support adolescents have, and ethnic diversity (Rúnarsdóttir & Vilhjálmsson, 2019). In some cases, children's well-being is examined by requesting parental assessment (Rotsika et al., 2011). In this study the concept of well-being is based on Allardt's model of well-being (Allardt, 1976). In Allardt's definition, well-being is connected to basic needs and the possibility to satisfy them. Allardt's model of well-being includes both material and non-material basic human needs. The needs are divided into three categories: having, which refers to material conditions and impersonal needs; loving, for personal needs to relate to other people and form social individualities; health, which refers to a person's health status, and lastly being, which signifies the need for personal growth (Allardt, 1976; Konu & Rimpelä, 2002). The concept of well-being has been developed to fit school settings and is based on Allardt's model of well-being (Konu & Rimpelä, 2002), see figure 4. Four categories form the basis of well-being in school: school conditions, social relationships, means for self-fulfillment, and health status (Konu & Rimpelä, 2002; Konu & Lintonen, 2006).

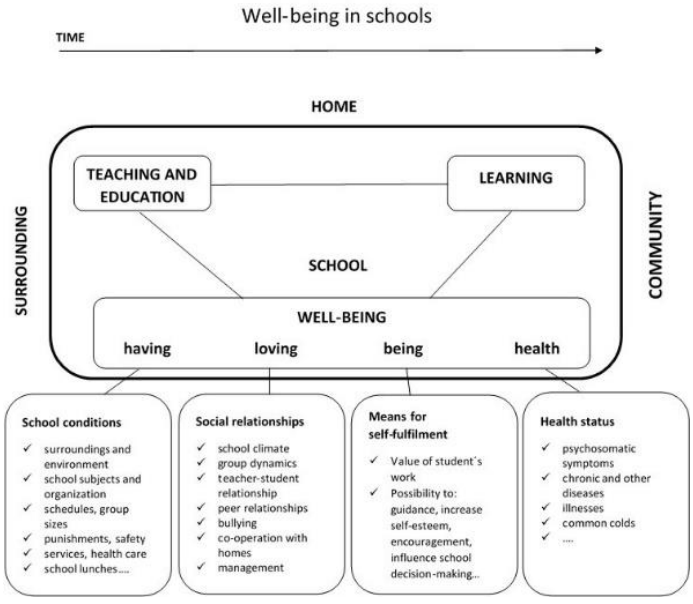

Figure 4. The School Well-being model from a student's viewpoint (as cited in Konu & Rimpelä, 2002: 83)

Gutman and Feinstein (2008) explored the effects of school- and student-related factors on the well-being of elementary students. On average boys tended to express lower well-being than girls, they also engaged more in anti-social behavior. Factors that affected students' well-being were bullying, friendships, their self-confidence and their environment (e.g., interaction with teachers and peers). Over 2,000 students participated, and dimensions of children's well-being measured were socio-democratic, mental health, pro-social behaviors, antisocial behaviors, and achievement. Children participated when they were eight years old and again at the age of ten. Low achieving boys were more likely than other groups to experience a decline in well-being but 35% of the students' experienced improvements in well-being.

Well-being is associated with academic success and positive school experience (Bird & Markle, 2012). When assessing student well-being, it is important to consider that well-being in school may vary during the school year. Students have reported higher well-being in school from October through December and lowest from March to May (Konu et al.,2014). This could also affect how parents rate their children's well-being in school.

Findings of studies on the well-being of children with and without special needs have suggested that the well-being of children with special needs is worse than in children without special needs (Biggs & Carter, 2016; Papadopoulou, et al., 2017; Sakiz, et al., 2015, Sacks & Kern, 2008). Rotsika et al. (2011) explored the agreement between child and parent reports of quality of life in children with and without learning difficulties. In Rotsika's et al. (2011) study, children from 8 to 14 years old and their parents were

assessed with the KINDL^R for parents of children and adolescent's questionnaire assessing six dimensions: physical well-being, emotional well-being, self-esteem, relationship with family, relationship with friends, and everyday functioning in school. Children with learning difficulties assessed their quality of life as being poorer than same aged children without learning difficulties, as reflected in lower scores regarding emotional well-being, self-esteem, and relationships with family and friends. Children with learning difficulties rated their everyday school functioning higher than their mothers did but emotional well-being lower than their mothers did. Greater agreement was found between children and both parents in the comparison group, but both parents rated their children's self-esteem higher than the children themselves. A follow up study exploring the effects of an intervention on health and well-being found comprehensive positive outcomes (Reynolds et al., 2007). The intervention emphasized basic skill practice in language arts and math through rather structured teaching. Parents were also expected to participate in the program and a low child-to-staff ratio was a major element of the intervention. The intervention was found to have enduring effects on students' general well-being into their adult years, higher educational attainment, a higher rate of full-time employment and lower levels of violent crime.

2.12 Views on learning difficulties and related school factors

A child's learning difficulties present both persistent and complex problems for the child and the family, involving the child's experience with the difficulties, effects on the family and the external environment (Falik, 1995; Heiman, 2002). It is necessary to help the child and reduce its problems and the pressures placed on their family at the same time. But for that to be possible, the problem needs to be looked at more broadly. Those involved in the child's education should keep in mind international agreements such as the Salamanca Declaration (UNESCO, 1994), the Rights of Persons with Disabilities (the United Nations Convention, 2007), and the Incheon Declaration (UNICEF, 2015). In all these agreements, the way to remove obstacles is inclusion. Rights are very important and to the ability to make full use of them. It is also desirable to listen to children and examine their experiences of schooling.

2.13 Perception of school

All children should get sufficient support in their education and understanding the children's perspective is part of that process. Norwich & Kelly (2004) examined the perception of children with learning difficulties on inclusion. Semi-structured interviews were used to explore children's perceptions and evaluations of their experience of school, teaching and learning in mainstream and special schools. Most of the participants expressed positive feelings towards school and their teachers. In an interview study by Myhill and Jones (2006), the students mentioned teachers treating boys and girls differently, with more being expected of girls in terms of their achievement and behavior. Forty teachers and 144 students were interviewed in the

study where boys' underachievement was explored with the intention of effecting change when the study ended. Participants in Norwich & Kelly (2004) said they found English/literacy and mathematics/numeracy to be the hardest subjects to learn. Boys with learning difficulties in mainstream schools reported receiving less help from their teachers and waiting longer for help than boys in special schools. Children who found a resource room to be their preferred learning support reported better quality support, less noise, appropriate and better work, more fun, less distraction, more attention, less bullying, and being with friends as main reasons for this. A large majority or 83% of the participants experienced some form of bullying with no significant difference between mainstream and special schools (Norwich & Kelly, 2004). Students in special schools experienced more bullying from students in mainstream schools than from peers in special school settings, which is in accordance with findings showing negative attitudes towards peers with learning difficulties (Nowicki, 2012). In Nowicki's study (2012), children (n=192) from grades 1 to 8 were asked about their attitudes and their peers' attitudes towards children with and without learning difficulties. Attitude, group judgment and group identification were more positive towards children without learning difficulties. Students in general identified more with children without learning difficulties than children with learning difficulties. Although children can perceive support as a positive factor in their life (Norwich & Kelly, 2004), they can perceive support as a negative part in their education (Broer et al., 2005; Mortier et al., 2011). Mortier and colleagues (2011) studied children's experience of support in inclusive settings through interviews. The participants (n=6) all needed support in some form; visual, learning, social, cognitive, or motor. The children mainly identified positive effects of support like being able to follow instructions better, having access to materials, and receiving extra instruction. Their classmates without identified disabilities (n=19) who were interviewed at the same time also considered support to be positive for their classmates. However, participants getting support all reported receiving too much support. They emphasized the importance of being helped with things they could not do but not with things they could do (Mortier et al., 2011). Children often appreciate support from their parents when they have homework assignments. A study in Iceland revealed that 69.3% of students in Grade 7 to 10 welcomed parental help with homework (Sigurgeirsson & Björnsdóttir, 2016). However, parents' educational background, lack of knowledge on homework assignments and lack of time can hinder the parents in helping their children with their homework (Jafarov, 2015). Parents from lower socio-economic environments have been found to have less resources to assist with homework or more likely to skip supervising and checking their child's homework assignments (Ndebele, 2015). In the previously mentioned Icelandic study, parents of children with learning difficulties described homework as challenging and too demanding (Sigurgeirsson & Björnsdóttir, 2016).

2.14 Children with learning difficulties: Icelandic context

All schools in Iceland are obliged to adhere to Icelandic laws and international statements (such as the Salamanca statement; UNESCO, 1949) to meet the diverse needs of students. Schools are expected to support all students in their education (no.91/2008, article 17; Ministry of Education, Science and Culture, 2011) and the concept inclusive education is accepted as the idea that all students have the right to be a fully participating member of the school community (Ólafsdóttir et al., 2014). Inclusion in education was declared in Icelandic law on compulsory schools (no. 91/2008, article 17) where the expectation that all students should receive their education in their neighborhood inclusive schools was stated. A national curriculum published in 2011 further strengthened inclusion in schools (Ministry of Education, Science and Culture, 2011). The main goal of the above-mentioned law and curriculum is to support all students, with and without learning difficulties, through various plans or methods.

Statistics of the support students receive in schools have been recorded and the results show that in 2019 – 2020 over 31% of elementary and secondary students received special education or support of some kind which was an increase from 22.7% in 2004 (Statistics Iceland, 2023). In Iceland, pull-out programs are used about 35% of the time, directed by a special education teacher (Statistics Iceland, 2023). The percentage of students who have been formally diagnosed with learning problems is much lower but around 14 to 17% of students have been formally diagnosed with disabilities or disorders (Statistics Iceland, 2023),

Over the last decades, studies have shown many students have underachieved in reading (Björgvinsson & Bentsdóttir, 2017; Directorate of Education, 2019; Halldórsson et al., 2012; Hansen, 2020; Logadóttir et al. 2008; OECD, 2019). Repeatedly, roughly a third of students have failed to meet set standards at the end of 2nd grade, reflecting a lack of reading comprehension required for academic learning (Björgvinsson & Bentsdóttir, 2017). Also, the performance in reading of 10th graders in Iceland on the Program for International Student Assessment (PISA), where students' ability in reading, mathematics, and science is tested, has declined since 2009 (OECD, 2019). There has been a negative development in students' literacy and reading comprehension in Iceland (Björgvinsson & Bentsdóttir, 2017; Directorate of Education, 2019; Hansen, 2020; Hrund Logadóttir et al. 2008). In 2013, 37% of students in 2nd grade lacked skills in reading comprehension compared to 29% in 2011 (Björgvinsson et al., 2013). Reading difficulties affect about one of every ten students in grades 1 to 10. In grades 1 to 4 a majority, or 71 to 100%, of special education lessons are used for improving reading skills (Svavarsdóttir et al., 2011). Overall, a large proportion of students in Iceland seem to have difficulties with learning.

Recent international studies have shown that 26% of Icelandic students in 10th grade do not reach Level 2 proficiency in reading where they should be able to identify main

ideas in texts, find information and reflect on a purpose and form of texts (OECD, 2019). Results from earlier studies showed that Icelandic students are thirteen points below the OECD average in reading comprehension after a decline of about two points every year over the last twelve years (Halldórsson et al., 2012). Results from the PISA research for the past twenty years has shown the trend in both reading and mathematics for Icelandic students being a negative one or a downward slope (OECD, 2019).

2.15 Purpose of the research

The main purpose of the studies that underpin this PhD thesis was to investigate the school-related well-being of Icelandic children with learning difficulties. Three perspectives were chosen to examine the well-being of students shifting from primary to middle school. Parents were asked about their children's well-being, children answered questionnaires about their self-concepts, and repeated semi-structured interviews were conducted with children about their perception of school and special education.

The main research question was: How is the school-related well-being of children with learning difficulties compared to children without learning problems? The term school-related well-being is used to describe how parents describe the well-being of their children, how children with and without learning difficulties evaluate their self-concepts, and how children experience their schooling. To answer the main question three academic papers were written for publication in double peer-reviewed journals. In each article, research questions related to the main question were answered. The articles, together, give multi-faceted insight into the school-related well-being of Icelandic children with learning difficulties. The research questions in each paper are listed below.

Paper I: Hvernig líður börnum með sérþarfir í skólanum? Mat foreldra á líðan barna með eða án sérþarfa [Parents' reports on the well-being of their children in Iceland: A comparison of elementary students with and without special needs].

Is there a difference in the parent-reported well-being of elementary students in Iceland based on whether they had special needs, what their specific special needs were, their gender, age, or parental level of education, and whether special needs were addressed in special education classes or in the general education environment?

Paper II: The development of self-perception of ability in Icelandic children with and without specific learning difficulties.

Do students with and without specific learning difficulties differ in the self-perception of their general intellectual ability, reading competence, math competence, and global self-worth during Grade 4 through Grade 8?

Do self-concept of general intellectual ability, reading competence, math competence and global self-worth develop differently in students with or without learning difficulties over time, from primary to middle school?

PAPER III: Student voices: A Longitudinal Study of Students' Perception of their Schooling and Special Education Lessons in Iceland

How do students with learning difficulties perceive their schooling and social status, with regards to academic challenges, special support, and homework as they progress from primary to middle school?

The aim of the journal articles was to give an insight into the school-related well-being of children with learning difficulties and how their self-concept and school perceptions developed as they shifted from primary to middle school.

3 Methodology

This dissertation is based on two quantitative data sets and one qualitative set, one for each of the three papers written. In this chapter, the method of each sub-study, described in each of the three articles that are part of the dissertation, will be outlined in detail. First, the design of each study will be described, followed by a discussion on data analysis, the participants, the materials used to gather data and the procedures applied in each study. It should be noted that in some cases two terms are used interchangeably in this thesis for the same concepts when self-concept is discussed. This stems from different terms being used in the literature for theoretical purposes and in the measurement instruments used for data collection. Therefore, general self-concept is used when discussing the concept of global self-worth and vice versa, academic self-concept when self-perception of ability occurs, reading self-concept in discussion of reading competence, and when discussing mathematic self-concept or math competence.

3.1 Study design

Both quantitative and qualitative methods were used in the study. Qualitative research can support quantitative research and vice versa, combined they can present a more precise picture of the issue being studied (Flick, 2006). A historical argument for using both qualitative and quantitative methods has been that it provides strengths that can make up for the weaknesses if one method is used exclusively (Creswell, 2012). In the current study, the purpose for using a collection of quantitative and qualitative methods was to try to give a more thorough description of the school-related well-being, self-concept, and school perception of children with learning difficulties.

Quantitative methods were used in the first two sub-studies. First, to compare, through parental assessment, the school-related well-being of children with and without learning difficulties. Second, to explore the development of self-assessments of children with and without learning difficulties with regards to their general self-concept/global self-worth, academic self-concept/general intellectual ability, reading self-concept/reading competence and mathematic self-concept/math competence. The first study was a cross-sectional survey design and focused on parents of children with or without special needs in grades 4-7 in two schools in the capital area of Iceland. The second study was a cohort-sequential study comparing the development of self-perception of ability in Icelandic school children with or without learning difficulties (LD). Lastly, the third study was a longitudinal interview study using thematic analysis to examine how children with learning difficulties perceived their schooling, special education classes, social status, homework, and other challenges as they progressed from primary to middle school.

3.2 Data collection and analysis

Data collection was twofold, through measurements with questionnaires and interviews. For paper I, data were collected in one wave of measurement through an online questionnaire at the beginning of the research project. For paper II, data were collected in six waves of measurement over a period of three school years. For paper III, semi-structured interviews were conducted four times over a period of three school years.

3.2.1 Paper I: A cross-sectional survey

The study entailed a cross-sectional survey design and focused on parents of children with or without special needs in grades 4 to 7 in two schools in the capital area. The aim of the study presented in paper I was to explore parents' evaluation of their children's school-related well-being, and whether there were differences between students receiving special education and those not receiving special education. The research hypothesis was tested by calculating descriptive statistics, reliability, and two independent sample T-tests were used to estimate differences in means between the study and control groups using the SPSS 24 software (Heck et al., 2013). The internal reliability of questions was examined using Cronbach's alpha for the questionnaire as a whole, and individual components. Statistical significance was set at 0.05.

3.2.2 Paper II: A longitudinal multilevel model (MLM)

A longitudinal multilevel model (MLM) was used to examine changes in self-perception for the participants in study 2. The aim of the study was to explore general self-concept, academic self-concept along with reading self-concept, and mathematic self-concept in children with or without learning difficulties. The research hypotheses were tested using a multilevel model. MLM is a quantitative approach used to deal with non-independence between data points (Hox et al., 2017). The approach is ideal to analyze change over time for independent or clustered subjects and to deal with missing data points (Brauer & Curtin, 2017).

In this study, the individual scores from the children at different times (level 1) were nested within individuals (level 2). The intercept was used as a random effect and by doing so variability among participants was allowed (Hox et al., 2017). Descriptive background statistics (frequencies, means, and standard deviations) were explored for student groups (with or without learning difficulties). The GAMLj module (Gallucci, 2019) in jamovi (The jamovi project, 2022) was used to run a multilevel model (MLM) with a repeated measures design (mixed model). These analyses allowed us to examine changes in self-perception of ability from Grade 4 to Grade 8. The intention was to examine whether the particular effect, in this case learning difficulties, played a role in shaping self-concept and try to predict participants' assessment of self-concepts.

3.2.3 Paper III: Thematic analysis of interviews

The third study entailed repeated interviews and applied thematic analysis (TA) for data analyses to develop themes in answers from students over the research period. The study's aim was to explore the school perception of students with learning difficulties as they progressed from primary school to middle school. TA is a "method for developing, analyzing and interpreting patterns across a qualitative dataset" (Braun & Clarke, 2022, pp. 4). More specifically, reflexive TA was chosen to analyze the data. Reflexive TA has a six-phase process starting with the researcher familiarizing himself with the dataset, then coding the dataset and generating initial themes by identifying shared pattern meaning in the data. Later, the themes are both developed and reviewed and then refined, defined, and named. The last step in the process is writing up by weaving together the data and the researchers' analytic narrative (Braun & Clarke, 2022).

During data analysis, essential elements of reflexive TA were considered and adhered to. Thus, the researcher was constantly aware of her subjectivity, as a basic tool of the researcher. Also, it was kept in mind that the data analysis and the interpretation of the data is either weak or strong, not right or wrong. The data can be analyzed in collaboration with others or alone, the researcher needs to immerse and engage with the data while also allowing for a certain distance from the process, often done by taking a break when analyzing the data. A common idea, meaning or concept creates themes that are analytic outbursts. Themes do not emerge, but they are the result of active work by a researcher. Theoretical assumptions underlie the analysis of data, and at the same time, the researcher needs to remember that reflexivity is a key factor in the analysis (Braun & Clarke, 2022). Although the above basic features are known within the method, flexibility is one of the main advantages of the method. Thus, there is not a single way of interpreting data, but the researcher's approach and the objectives of the study affect data analysis.

The first interviews were conducted by me. After the first interviews in the autumn of 2014 and until the spring of 2016, I observed about two of every three special education classes that the children attended. During the special education classes, I was able to observe the children's interactions with their peers and their teachers, and how they approached their assignments and their work. I tried to only observe but concerned that my presence would influence the students' attitudes and responses during interviews, two master's students were trained to conduct the interviews with the children in the spring of 2015 (interview 2) and the spring of 2016 (interview 3). When it came to the last interview session, it had been a year since I had observed any special education classes, thus I determined I could take the last interviews myself. Once the interviews were recorded verbatim, I read them over repeatedly. During each reading, I wrote down what impressions the interviews had on me. I coded the interviews, according to best practice, based on the participants' direct responses and

what I felt was behind their responses. I repeated this process several times and compared my previous listings with the most recent ones each time. After this, I compared my listings with the research questions and developed themes. The theme names were at first temporary and related to the direct responses of the participants, but gradually themes began to form that I felt were related to the overall thinking from more than one participant. Throughout the whole process, I began to understand the evolution that was taking place in the children over the course of the study period and how their thoughts changed over time. In this way, their words gradually became stories that gave a wealth of information about the children's well-being at school and what they thought about their studies, their challenges, and supports.

3.3 Participants

3.3.1 Paper I: Parents of children with and without learning difficulties

The participants in the first study, where the aim was to examine if there was a difference in the well-being of children with and without learning difficulties, were parents of 421 children in Grade 4 to 7 in three public schools. Parents of 327 children or 77.7% participated by answering an online questionnaire. Of those, 194 or 59.3% were parents of children without special needs and 133 or 40.7% were parents of children with special needs.

3.3.2 Paper II: Students with and without learning difficulties

For the second study, both children (N = 198) with learning difficulties (LD; n = 33) and children without learning difficulties (n = 165) in Grades 4 through 8 in four public schools answered a questionnaire assessing general self-concept, academic self-concept, reading self-concept and mathematics self-concept. In the study 54.5% of the participants identified as boys and 46.5% as girls. Intake criteria for the children with learning difficulties were that they had been diagnosed with learning difficulties by independent service providers and/or had been experiencing academic difficulties in reading for at least three years, prior to intake, according to both teacher and parent reports.

Table 2. Background of the participating students

Background variable	Total (*N*)	Total (%)
Gender		
Boys	106	54.5
Girls	92	46.5
Learning difficulties		
With learning difficulties	33	16.7
Without learning difficulties	165	83.3
School		
School 1	165	83.3
School 2*	8	4.0
School 3*	3	1.5
School 4*	22	11.1

* Only students with learning difficulties

The study took place in the capital region of Iceland and all children who participated attended public schools. All the schools were public neighborhood schools and had been operating for over 25 years. In all participating schools, a similar daily schedule was in place where the school started at 8:10 and ended at 13:40. Study sessions usually lasted 40 to 80 minutes followed by a 20-minute recess. After the recess, the children had a short snack break followed by an 80-minute study session. Then lunch break and the last 80-minute study session. During the research period students in all participating schools worked on similar projects and the use of technology (e.g., use of computers) was similar.

All participating schools had a similar student-teacher ratio of 9:1. Class sizes were also similar, varying from 17 to 25 children in each class. Special education classes were generally taught in small groups, depending on each student's difficulties and behavior. Usually, the group size in special education classes did not exceed six students in any of the schools. In the special education classes, the students either completed tasks assigned by the general education teacher or tasks prepared by the special education teacher. Tests in the participating schools were usually administered in December/January and at the end of May, all composed and administered by the general education teachers except for nation-wide administered standardized tests at the beginning of Grade 4 and Grade 7.

3.3.3 Paper III: Students with learning difficulties

Five children, two girls and three boys, who had experienced learning difficulties for at least three years at the beginning of the large research project, participated in study 3. All participants attended the same public school, or school 1 as presented in Table 1, and attended Grade 4 at the beginning of the study. Purposeful sampling was used to select the participants. All participants had received special education lessons with pull-out programs in reading and math since Grade 1. They attended special education classes three to five times a week with each lesson lasting about 40 minutes. All followed regular classroom programs. In the case of four of the five participants, their parents reported that concerns about learning abilities had been expressed as early as in preschool, by their children's teachers. Also, it was reported that family members of three of the participants had learning difficulties.

3.4 Procedure

The research was conducted in four schools in the greater capital area of Iceland in the autumn of 2014 and ended in the spring of 2017. Schools were selected in collaboration with administrative staff at the superintendent of schools' office, who contacted school principals to invite them to participate in the study. Four schools agreed to participate after an introduction about the project and consulting with their staff. Comparison school 3 was added when comparison schools 1 and 2 lacked a sufficient number of students to meet the criteria for participation in this study.

3.4.1 Paper I: Survey

Piloting of the parent questionnaire was conducted by a master's student with a small group of parents not participating in the research project. Taking into consideration feedback from those pre-experimental parent participants, a final version of the parent questionnaire was constructed. With the approval of the school administrators, an information email was sent to all parents of children in Grades 4 to 7 in three schools. Parents answered the online pre-survey via the website Kannanir.is in November and December 2014. An email was sent to the parents with information on the study and a request to participate. A few days later a URL for the survey was sent through email. Three reminders to answer the survey were sent over a time span of three weeks. Iterative emails were sent twice to parents, in December, with a request to respond to the survey. Participants were also invited to participate in a lottery after participation, and three participants were awarded a prize for participation.

3.4.2 Paper II: Questionnaire

Six cohorts (9, 10, 11, and 12 years of age at each initial assessment) were assessed six times during the beginning and end of three consecutive school years covering in total an age span of 5 grade levels (see Table 1).

Table 3. An illustration of the cohort-sequential design

	Schoolyear*		
Cohort	2014-15	2015-16	2016-17
2002	Grade 7	Grade 8	-
2003	Grade 6	Grade 7	-
2004	Grade 5	Grade 6	Grade 7
2005	Grade 4	Grade 5	Grade 6
2006	-	Grade 4	Grade 5
2007	-	-	Grade 4

The arrows represent the grade information retrieved from each subsequent cohort

*Two waves of measurement were conducted within each school year

When the initial version of the student questionnaire had been constructed in November 2014, it was piloted in a public school which did not participate in the project. Both students with and without learning disabilities in grades 4 to 7 participated in the piloting, including 28 students with learning difficulties. The student questionnaire was piloted to ensure that participants would understand the questions and the instructions, and to assess how long it would take to complete the questionnaire (Creswell, 2012; Karlsson, 2003).

Initially, all questions were read aloud for students during piloting, and everyone prompted to answer each question by themselves at the same time. However, students in grades 6 and 7 reported being distracted by having somebody else read the questions aloud and did not want to wait for everybody else to answer each question. Thus, it was decided to only read questions aloud for students in Grade 4 and 5. Piloting participants were instructed to inform the researcher if they had trouble understanding certain words in the questions or answer options. Completion time was measured to ensure it would not take students too long to answer the questionnaire. Cronbach's alpha was assessed for each factor of the questionnaire and turned out to be acceptable. Upon taking into consideration student feedback, Cronbach's alpha, and distribution of answers to each question, the final version of the student

questionnaire for this study was constructed. Student responses from the pilot were not included in the data analysis of the project.

Students in both experimental and comparison schools participated in the survey from November 2014 to February 2015. After the project started it turned out that the initial two comparison schools lacked students who met the criteria set for participants in this study. The third comparison school was therefore added in January 2015. The same group of students participated in the surveys again in May 2015. New student participants (in Grade 4) were asked to participate in a survey in September 2015. All student participants were asked to participate in a survey in May 2016. The same process was repeated, where new student participants were asked to participate in September 2016 and all students again in May 2017.

Students answered the questionnaire in groups of no more than 14 at a time and fewer in most instances, from November 2014 to May 2017. Before the students answered the questionnaire, they were given instructions and information about the project, e.g., "this is not a test and you will not be graded". Instructions were based on the original questionnaire (*Self-Perception Profile for Learning Disabled Students*; Renick & Harter, 1988/2012). All questions were read aloud one at a time for students in Grades 4 and 5, and students were given a few seconds to respond until the next question was read out loud. Students in grades 6 and 7 read the questions silently by themselves. All students were given instructions to raise their hand and ask for help if they needed. Questions were read aloud for one student in Grade 7 after a request from him. During most of the testing in November 2014 through May 2017 two researchers, the PhD student, and a trained master student, were present to ensure instructions would be followed and to assist students if needed. The children were reminded each time they participated they could withdraw from the research or refuse to answer specific questions. They were also assured, each time they participated, of confidentiality and anonymity.

3.4.3 Paper III: Interviews

Each participant was interviewed four times over a period of three school years, with the first interview taking place at the beginning of 4th Grade and the last at the end of 6th Grade, for a total of 20 interviews. The first round of student interviews took place in October and November 2014 when the children were in Grade 4 after parents had given consent for their children's participation and after parents had been interviewed. The second round of interviews took place in May 2015 when the children were finishing Grade 4, the third round in May 2016 at the end of Grade 5 and the fourth and last round of interviews in May 2017 when the children were finishing Grade 6. The participants were interviewed in their school building during school hours but not during their favorite classes (e.g., physical education) or classes deemed of particular importance (e.g., special education). This arrangement was to support the children's

positive attitude toward being interviewed. Interviews were conducted in a quiet resource room close by their main classroom. The PhD student interviewed the children in November 2014 and May 2017 and trained master students interviewed them in May 2015 and May 2016. At the beginning of the interview, students were told or reminded briefly about the project, their approval for participation and an approval for recording were obtained, and they were reminded that they could opt to not answer any question.

3.5 Measures

3.5.1 Paper I: Questions from the KINDL^R and KIDSCREEN-52 questionnaires

To measure well-being, parents of children with and without learning difficulties answered an electronic questionnaire consisting of selected and translated questions from two established child well-being and quality of life questionnaires: the KINDL^R and the KIDSCREEN-52.

KINDL^R. 19 questions were selected from the parent version of the KINDL^R (KINDL^R, Quality of Life Questionnaire for Children) developed for parents of children aged 7 to 17 (Ravens-Sieberer & Bullinger, 2000). Questions were skipped if wording overlapped between questionnaires used. Aa single question was used regarding physical well-being, in other categories values from grouped questions were calculated. The questions came from all six categories of the list designed to measure well-being related to physical and psychological factors, self-confidence, social connections, relationships with family, and well-being at school. In this study, the internal reliability, measured with Cronbach's alpha, of the 19 questions from KINDL^R was found to be α = 0.87, a little higher than what had been reported in previous research, or α = 0.70 (Bullinger et al, 2008).

KIDSCREEN-52. 21 questions were selected from the parent version of the KIDSCREEN-52 questionnaire (The KIDSCREEN Group, 2004) to measure well-being related to physical and psychological factors, leisure time, self-esteem, and school. An Icelandic translation of the questions from Egilson and her colleagues (2013) was used with permission from the authors and translators. The internal reliability (Cronbach's alpha) for the parental version of the list has been found to be moderate to high, ranging from α = 0.59 to 0.92 for the subcategories (Longo et al., 2017). In this study, Cronbach's alpha for the total list was high, α = 0.92, Cronbach's alpha for general well-being was high, α = 0.93, which was comparable to that observed for the original measuring instrument, α = 0.90, self-esteem α = 0.67 which was higher than that observed for the original measuring instrument α = 0.59, and school well-being α = 0.92 which was higher than that observed for the original measuring instrument α = 0.85.

3.5.2 Paper II: Questions from the Self-Perception Profile for Learning Disabled Students

To assess students' general and academic self-concept 17 questions from *Self-Perception Profile for Learning Disabled Students* (Renick & Harter, 1988/2012) were selected. The questionnaire is based on the Self-Perception Profile for Children (Harter, 1982,1985; Renick & Harter, 1988/2012) and adapted for 8 to 15-year-old students with learning disabilities but considered to suit all students (see Appendix C). The questionnaire has ten factors assessing self-perception regarding: general intellectual ability, reading competence, writing competence, spelling competence, math competence, athletic competence, social competence, behavioral competence, physical appearance, and global self-worth. The questionnaire has four to five items in each factor or 46 items in total. Each item consists of two statements and the respondent chooses which statement applies the best to him/her. Then they select if the statement is "really true for them" or "sort of true for them". Cronbach's alpha in Renick's and Harter's research (1988/2012), ranged from $\alpha = 0.78$ to 0.89.

In this project, questions from four factors in the questionnaire *Self-Perception Profile for Learning. Disabled Students* (Renick & Harter, 1988/2012) were selected based on the larger project's aim and its intervention focus: general intellectual ability, general self-worth, reading competence, and math competence. The same process was used for translating items from the *Self-Perception Profile for Learning. Disabled Students* as for the SDQ I questionnaire. Results from piloting the questions with Icelandic students showed acceptable levels of reliability or $\alpha = 0.91$. In the final version, Cronbach's alpha turned out to be $\alpha = 0.87$ for all items, general intellectual ability $\alpha = 0.73$, reading competence $\alpha = 0.88$, math competence $\alpha = 0.82$, and general self-worth $\alpha = 0.69$.

3.5.3 Paper III: Semi-structured interview frame

For the student interviews, 35 questions with additional follow-up questions were used. The questions were constructed by the researcher based on guidelines from Lewis & Porter (2004) and Nind (2008). Students were asked about their perception of school in general, special education, teachers, homework, social relations, and what expectations they had regarding their studies and the future. Background questions were excluded in later interviews and questions added about students' perception of the changes made in the special education lessons, 25 questions in total with appropriate follow up questions, see Appendix D).

3.6 Ethics

Ethics principles set out by science ethics and the Science Ethics Committee of the University of Iceland and Rannís – The Icelandic Centre for Research were followed.

The study was reported to the Icelandic Data Protection Authority and approved by the agency. The participants were informed about the study's aim and asked to sign a voluntary informed consent form. Full confidentiality was ensured, and participants informed that they could withdraw at any stage and given information on data storage and usage. As children are considered a vulnerable group, they were reminded each time they participated, in an age-appropriate way, that they could decide to withdraw from the research or refuse to answer specific questions without any consequences.

4 Results

In this dissertation, the aim was to examine the well-being, self-concept, and school perceptions of children with learning difficulties in comparison with their peers. Three research papers have been written for three journals. Paper I focused on parental assessments of the well-being of children with learning difficulties in comparison to parental assessment of children without such difficulties. In paper II, the aim was to examine the development of self-perception of ability in Icelandic children with or without specific learning difficulties. In paper III, the purpose was to explore the school perception of students with learning difficulties, their well-being, social status, challenges and supports as they progressed from primary school to middle school. An overview of the main results from each study is presented in this chapter. More detailed results are presented and discussed in each article.

4.1 Paper I: Parents' reports on the well-being of their children

In the first article, Parents' reports on the well-being of their children in Iceland: A comparison of elementary students with and without special needs, well-being, and self-concept were compared across educational needs, gender, the age of the children and special education placement.

Results regarding questions from the KINDL^{R} questionnaire about well-being of children with and without learning difficulties showed that parents rated well-being of children without LD higher than parents of children with LD. Moderate to large differences (d = 0.45 – 0.88) on all variables were seen except physical well-being when comparing children with and without LD, see Table 3. Parents of children with and without LD responded to statements, e.g. *My child had fun and laughed a lot, my child had lots of good ideas and my child was liked by other kids* in a more positive way than parents of children with LD.

Table 4. Parent Evaluation of Child Well-being using KINLD[R] Questionnaire, Children with and without Learning Difficulties (LD)

KINDL[R] categories	**With LD**		**Without LD**		***df***	***F***	***p***	**Cohen's *d***
	M	*SD*	*M*	*SD*				
Physical well-being	71.75	20.15	75.46	17.86	1	2.47	0.117	0.19
Emotional well-being	78.63	14.39	87.22	9.51	1	36.49	< 0.001	0.67
Self-esteem	64.32	15.11	76.00	13.95	1	42.80	< 0.001	0.79
Relationships with family	80.77	12.14	85.77	9.11	1	15.47	< 0.001	0.45
Social connections	73.33	18.85	84.29	12.88	1	33.94	< 0.001	0.65
School well-being	72.16	16.24	85.32	12.18	1	59.94	< 0.001	0.88

When exploring whether there was a difference in the well-being of children with learning difficulties based on whether they received special education or not, a significant difference was revealed. According to parents, children with LD who received special education were more comfortable interacting with family members (*d* = 0.7) compared to children with learning difficulties who did not receive special education, see Table 5.

Parents of children with learning difficulties who attended special education answered statements such as *My child got on well with us as parents and my child felt fine at home* more positively.

Table 5. Parent Report on Child Well-being using KINDL^R, Children with LD receiving Special Eduation or not receiving Special Education

KINDL^R categories	**With LD and received sp. ed**		**With LD who did not receive sp.ed.**		***df***	***F***	***p***	**Cohen's *d***
	M	*SD*	*M*	*SD*				
Physical well-being	71.11	18.90	72.11	23.03	3	0.136	0.938	0.05
Emotional well-being	76.06	15.00	76.76	13.80	3	0.930	0.430	0.16
Self-esteem	63.80	14.17	63.95	16.89	3	0.812	0.490	0.01
Relationships with family	83.88	11.51	76.18	12.27	3	3.297	0.024	0.66
Social connections	74.44	18.57	71.58	20.19	3	0.373	0.773	0.15
School well-being	71.97	15.34	72.10	18.19	3	0.641	0.590	0.01

Next, the aim was to explore whether there was a difference in the well-being of children with LD based on where they received special education support. Some students received special support in the general education classroom and a separate special education classroom. Others received special support only in a separate classroom. Findings revealed that children who received only special education in a separate classroom or studio were much more (d = 1.16) comfortable with regard to the child's interaction with the family $F(1.50) = 14.95$, $p < 0.001$ social relationships (d = 1.0) $F(1.50) = 12.8\ 2$, $p = 0.001$ and emotional well-being (d = 0.77) $F(1.49) = 6.55$, p = 0.014 compared to children receiving special education in both class and separate classroom, see Table 6.

Table 6. Parent Report on Child Well-being using KINDL[R], Children with LD receiving Special Eduation only in a Separate Classroom or receiving Special Education in a Separate Classroom and in the Regular Classroom

KINDL[R] categories	**With LD and received sp. ed. in a separate classroom**		**With LD who did receive sp. ed. in class and in a separate classroom**		***df***	***F***	***p***	**Cohen's *d***
	M	*SD*	*M*	*SD*				
Physical well-being	69.71	17.73	75.29	21.82	1	0.972	0.329	0.29
Emotional well-being	82.79	12.86	71.76	17.40	1	6.555	0.014	0.77
Self-esteem	65.42	15.59	59.70	10.82	1	1.847	0.180	0.41
Relationships with family	87.14	8.51	75.59	12.85	1	14.952	< 0.001	1.16
Social connections	80.57	15.95	62.75	18.56	1	12.829	0.001	1.06
School well-being	72.38	14.91	71.37	17.44	1	0.047	0.830	0.06

No significant difference was found when comparing children with and without LD and if they received special education or no special education using the KIDSCREEN-52 questionnaire. Furthermore, no significant difference was found when comparing where the special education lessons took place using the KIDSCREEN-52 questionnaire.

4.2 Paper II: The development of self-perception of ability

In the second article, the development of self-perception of ability in Icelandic children with and without specific learning difficulties was explored with regards to the students' educational needs and age.

First, the self-perception of students in Grade 4 was explored to see whether there was explored to see whether there was a difference between students´ perceived general intellectual ability, reading competence, math competence and global self-worth, depending on whether they had learning difficulties or not. A t-test for the main study variables with a comparison of the Grade 4 students with and without LD revealed large differences (d = 0.58 – 1.55), especially for the self-perception of reading competence (see Table 6).

Table 7. *T*-Test for the Main study Variables by Learning Difficulties at the Beginning of Grade 4 as measured by the Self-Perception Profile for Learning Disabled Sudents

Main Study Variables	With learning difficulties		Without learning difficulties					
	M	*SD*	*M*	*SD*	*df*	*t*	*p*	*d*
General Intellectual Ability	14.6	3.3	16.8	2.5	51	-2.8	0.007	0.77
Reading Competence	10.2	3.3	14.2	2.0	50	-5.6	< 0.001	1.55
Math Competence	11.4	3.4	13.2	2.7	47	-2.05	0.045	0.60
Global Self-Worth	12.1	2.6	13.2	2.3	51	-2.06	0.046	0.58

Results regarding questions from the *Self-Perception Profile for Learning Disabled Students* questionnaire about the self-perception of general intellectual ability of children with and without learning difficulties showed a cross-level interaction between learning difficulties and age, a marginal significant (p = 0.09) yearly decrease for students with learning difficulties was found. A comparison between the self-perceived reading competence of participants with and without learning difficulties revealed a much poorer (Δz = -1.3) self-perception of reading on average among students with learning difficulties. The inclusion of learning difficulties in the mixed model analysis explained a large part (27.4%) of the variation in the self-perception of reading competence. The self-perception of math competence among students with learning difficulties was, on average, much poorer (Δz = -0.7) compared to the self-perception of math competence in students without learning difficulties. A marginally significant (p = 0.05) yearly decrease was measured in the self-perception of math competence for all participants, with and without learning difficulties.

Results regarding global self-worth in children with and without learning difficulties showed a significant (p = 0.03) slight (Δz = -0.09) yearly decrease for students without learning difficulties and a significant (p = 0.03) and considerable (Δz = 0.17) yearly increase in global self-worth for students with LD.

4.3 Paper III: A Study of Students' Perception of their Schooling and Special Education Lessons

In the third article, Student voices: A Longitudinal Study of Students' Perception of their Schooling and Special Education Lessons in Iceland the school perception and experience of five students with learning difficulties was explored. In general, positive

peer relations seemed crucial to well-being in school as participants talked about friends and peers when discussing their well-being. They linked friendships with well-being and cited teasing as the main cause of discomfort at school as noted in one participant's answer *"Sometimes it's a bit difficult at school. Then I feel a little bad. But sometimes I just feel really good... sometimes difficult because some in my class are naughty and the boys tease me a little often it's a bit difficult"*. Throughout the study the participants were generally positive towards their school even though they did not always understand the instructions or were able to complete their assignments. There were different attitudes between the boys and girls regarding their own abilities, where the girls were more positive and persistent, while the boys expressed less self-confidence in their studies and indicated that they wanted and needed more assistance.

The participants held a mixed view towards special education. They liked the quiet time in smaller groups, receiving more concise instruction from teachers and more time with the teacher who was able to provide greater assistance than possible in the general education classroom. Participants' well-being in special needs classes seemed to be somewhat related to whether they considered their special needs teacher to be "a good teacher" or not. All participants mentioned that "good" teachers helped them, were kind, treated them with respect and acted as if student well-being mattered to them.

The main emphasis on homework assignments in the children's school was reading five days a week with short math or writing assignments on a weekly basis. All participants needed assistance from their parents with homework assignments throughout the study period. Attitudes towards homework were positive among all participants when the first interview took place at the beginning of 4th Grade. Comments like "*just enjoy studying with my mother"* were made. During the research period, their attitude towards homework became more negative as the homework became more difficult and some mentioned their parents having more difficulties helping them "*I feel like I can't do it, because I find it difficult to do it when I do not have any help, because the teachers know it, because some things my mother and my father do not know...the teachers still know, so I'm always in trouble*".

5 Discussion

This is the first longitudinal study where students' self-concept is examined as well as their experience of schooling. The overall aim of the thesis is to shed light on the perception of school and well-being of children with learning difficulties, and the development of their self-concept and school perception. It was observed that the well-being of children with learning difficulties, when rated by parents, was rated worse than peers without learning difficulties. However, interviews indicated students with learning difficulties related well-being mainly to good social relationships, and having friends being equal to feeling better. According to parents of children with learning difficulties, there were better family interactions if the children received special education in a separate space. Self-assessments of self-perception of ability of children with learning difficulties revealed that they perceived their reading competence and mathematics competence lower than did their peers without learning difficulties throughout the study period. The global self-worth of children with learning difficulties was lowest when the children were 8 to 9 years old but improved as the children got older. When children with learning difficulties were interviewed, they mentioned various advantages of receiving special education in separate classrooms, but believed a good teacher was important. The overall aim of the thesis was achieved by the studies described in Paper I, II and III. The research is important because its results can be used to improve the well-being and self-concept of children with learning difficulties. However, since children themselves mention the importance of friends in relation to well-being, it would be desirable to use that knowledge to teach children with learning difficulties social skills so that they can improve their social relationships even better.

5.1 Paper I: Well-being of children as perceived by their parents

The concept of well-being relates to how individuals experience position in life and if their interests are fulfilled (Diener & Suh, 1997; Qayoom & Husain, 2016, WHO, 1997). In study I, this concept was examined with school conditions and learning difficulties for children of primary school age, more specifically in grades 4 to 7. The parents of the children were asked to assess their children's well-being. The results showed that three out of ten parents of children with special needs feel that their child's well-being is not good. Parents of children with special needs believed that the children's self-concept was worse than that of children without special needs. These findings are consistent with a study by Sakiz et.al (2015) that found a more negative self-concept in children with special needs. Children's self-concept can be strengthened by introducing the concept of identity to them, enhancing their awareness of their own

behavior and how interactions with peers and external factors such as social media affect their identity (Daglas-Pelish, 2006; Park & Park, 2015), and what they can manage. In Study I, parents of 40.7% of children considered their child to have learning difficulties. This proportion is roughly one third higher than the proportion of students receiving special education or support according to official records (around 30% in 2022). It is unclear why this difference was observed, as they include children in mainstream primary schools in Iceland and not children in special schools. The only demographic information requested of parents was about their child (age, gender, difficulties or not), who filled out the questionnaire (e.g. mother, father, stepmother) and their education. A correlation between t was observed between the educational background of parents and the child's well-being at school, as reflected in parents' responses on the KINDL^R questionnaire, indicating that children's well-being in school was rated worse if the parent had completed vocational education compared to parents with other education, such as having finished elementary school, earned a junior college diploma, or university degree. Data were not analyzed further in terms of characteristics of the difficulties the children were facing.

As noted in Allardt's model (as cited in Konu & Rimpelä, 2002) regarding well-being in school, school conditions and school staff are mentioned as important factors in promoting better well-being among students. It could be assumed that the well-being of children with learning difficulties could be improved by considering the environment, organization, and group sizes. There, special education in a separate space is a good option in addition to the support the children receive in their class. After all, students with learning difficulties have mentioned that support in a separate classroom has various advantages, such as greater peace to work and better help from teachers because s/he can provide more time (Guðjónsdóttir, 2015). Here, the results show that special education in a special space had a very positive effect on how children with learning difficulties interacted with their families. A smaller group in a separate space that receives appropriate instruction and help therefore seems to have a positive effect on students with learning difficulties.

In contrast with findings from the KINDL^R questionnaire, no significant differences were observed when questions from the KIDSCREEN-52 list were used when comparing children with and without LD and if they received special education. In both KINDL^R and KIDSCREEN-52, parents are asked to think about last week when rating their child's well-being before responding. However, wording of questions is different in the rating scales. The KIDSCREEN list includes questions such as "Has your child been happy at home?" while KINDL^R contains statements like "My child felt fine at home." This different form of questions may have impacted how parents responded, but response options were in both cases five-point Likert scale from *not at all* to *extremely*.

5.2 Paper II: Perception of self-concept

In study II, specific domains of the hierarchic organization of self-concept as presented by Shavelson et al. (1976) were explored. The development of general self-concept, academic self-concept, reading self-concept and mathematic self-concept was examined in children with and without learning difficulties over three school years. The children answered questions from the Self—Perception Profile for Learning. Disabled Students (SPPLD) (Renick & Harter, 1988/2012) assessing these concepts. The results showed a significant cross-level yearly decrease in general self-concept for students without learning difficulties and a considerable yearly increase for students with learning difficulties. In this study the general self-concept of children without learning difficulties declined during the study period but increased in children with learning difficulties, the result of this study supports findings from previous research that self-concept is fluid and can change (Hattie, 1992). According to Shavelson et al. (1976), each individual's experience shapes the perception of him- or herself. When the general self-concept of students with learning difficulties increases, their resilience, cooperative skills, leadership, and well-being can increase at the same time, as revealed in a study by Hay et al. (1998). At the same time, the resilience and collaborative skills of students with a lowered self-concept can be expected to decrease. General self-concept/global self-worth of students with learning difficulties seems fluid in this study and supports the findings of Chapman's (1988) review, in which the findings of 21 studies were that students with learning difficulties did not have a poorer general self-concept than students without learning difficulties.

Academic self-concept is a subcategory of general self-concept, and questions that measure this identity are focused on educational situations. In this study, academic self-concept (perception of general intellectual ability) seems less fluid than general self-concept. A yearly decrease in academic self-concept was found for students with learning difficulties. However, no significant changes were found over time in academic self-concept for students without learning difficulties. The results of this study are consistent with those of previous studies (Bear et al., 2002; Chapman, 1988; Polychroni et al., 2006; Valentine et al., 2004; Zeleke, 2004) showing that academic self-concept in students with learning difficulties is inferior to that of students without learning difficulties.

5.3 Paper III: Perception of schooling and special education classes

In study III, the school perception and well-being as perceived by five students with learning difficulties was explored. The children were interviewed individually four times from autumn 2014 to spring 2017. They had all experienced learning difficulties from the beginning of their schooling and had received support in their studies in special

education. The children generally felt comfortable at school, but their well-being depended on social connections and friendships with other students.

A study by Grolnick and Ryan (1990) found that students with learning disabilities believed that their success was controlled by others. Participants in this interview study did not mention success, but some believed that external factors would help their studies. For example, they reported that a good connection with their special education teachers was important. The gender difference found regarding the participants perception about their abilities in school and what could help them can be related to the expectations they meet from their teachers as observed in the study by Myhill and Jones (2006).Positive relationships with teachers mattered to participants and they believed that good teachers showed them respect and expressed not liking special education classes if they didn't like the teacher. This affected their well-being in school.

Well-being in school can be related to factors like group size, social needs, the connection between teacher and student, bullying, social connections with peers, motivation, and the possibility of guidance (Konu & Rimpelä, 2002). The participants noted that they liked being in special education classes as they received more help, and they could concentrate better as they were in smaller groups. Similar results were presented in a study by Norwich & Kelly (2004) where their participants reported better quality support, less noise, appropriate and better work, more fun, less distraction, more attention, less bullying in resource rooms. Their social needs were met in special education classes, they participated in projects with their peers there and mentioned children from those classes as their friends but also children who were in their regular classes. During the research period, the participants' attitude towards homework became more negative. Although the children appreciated the help they got from their parents or siblings, some parents stopped helping them as they got older. Perhaps the parents´ lack of education was an obstacle preventing them from being able to help as Jafarov (2015) found to be the case in some studies.

5.4 Strengths and limitations

The main strengths of the current study lie in the diverse data collected from autumn 2014 to spring 2017, with cross-sectional, longitudinal comparison using multilevel model with repeated measures design, as well as semi-structured interviews. There were no time constraints during data collection made by the administrators of the schools that participated in the large research project. Therefore, I had ample possibilities to collect data, in good collaboration with the children, their teachers, and their parents. Another benefit of being part of a larger study was the opportunity to observe special education lessons that gave a certain advantage for the interviews as I had gained an insight into the students' school projects and social connections. For example, I was able to show Master students who interviewed the children in spring 2015 and spring 2016 examples of projects the children had worked on in special

education classes. This was especially useful if the children reported not remembering any assignments. Also, the classroom observations enabled me to get well acquainted with teachers and thus able to inquire about certain statements made by students during interviews, about their teachers or assignments in class.

When interpreting the results, the limitations of this study should be considered. Despite the acceptable response rate in the parental survey and student surveys in study 2, the generalization value of the results is unknown, as the participants were few and only associated with grades 4 through 8 in four schools in the capital area in Iceland. A geographical limitation is present as only parents and students from the capital region in Iceland participated and thus findings may not represent those of parents and children from rural areas in Iceland. A certain homogeneity is present as all children participants had a similar background, they all attended public neighborhood schools with children from the age of 6 to 16, with similar daily schedules, class sizes, and special education classes. One limiting aspect of the research relates to a lack of prior research about children's experiences in their schooling through interviews, it seems to be uncommon to interview children who meet some kind of challenges in their education. The discussion of children's experiences at school in this doctoral project was based on interview research by Broer et al. (2005), Norwich & Kelly (2004), Mortier et al. (2011), and Raufelder et al. 2016).

6 Conclusions

In this doctoral research project, the well-being, self-concept, and school perception of children with learning difficulties (LD) was examined. A variety of data collection procedures was applied, including questionnaires for children with learning difficulties and their peers and parents, as well as repeated interviews with children with learning difficulties. The main results of the three studies support and extend prior findings in this field of research.

The main results of the present study support and extend prior findings regarding the well-being of children with LD being worse than the well-being of children without LD. When parents of children with learning difficulties assessed the well-being of their children compared to children without learning problems, differences were observed between groups, where the well-being of children with learning difficulties was poorer. Children without learning difficulties were perceived by their parents to have better relationships with their family and friends, greater school well-being, and better self-concept, than children with learning difficulties were perceived by their parents. The well-being of children with learning difficulties who received special education in separate classrooms was better than the well-being of children who received special education both in a separate classroom and in the general classroom.

Interviews with five students with learning difficulties confirmed results from the student surveys and provided deeper insight into the well-being of children with learning difficulties. The interview study revealed that students did not always understand instructions they had received from teachers or in textbooks. This could have affected their academic self-concept. The students mentioned being able to concentrate better when receiving education in a separate classroom. They also stated that the instructions they received in special education were more specific and helpful. Also, findings from study 1, indicating that placement in special education was related to better well-being and interaction with their family, were further supported in study 3, where interviews with students revealed that they felt comfortable in special education when it took place in separate classrooms, where they were given more help and peace to learn.

Many questions remain unanswered in this field of study. It is important to explore further how different teaching approaches, both in general education and special education affect students' well-being. Since there were differences in children's well-being depending on where the special education took place, it is important to explore further what factors are at play. Is there anything in the special education classroom that has a positive impact on children's wellbeing? Or could other aspects related to separate special education classrooms be at work? For example, different teaching

methods, fewer students per teacher, less distractions, adapted assignments or socializing with students with similar difficulties could affect students' well-being.

It is well established in the literature that the self-concept of children with learning difficulties is inferior to children's self-concept without learning difficulties. In study 2, when the children answered a questionnaire regarding academic self-concept, self-concept in reading and mathematics and general self-concept, the results regarding self-concept in students with LD was in agreement with previous studies (Bear et al., 2002; Chapman, 1988; Hattie, 1992; Polychroni et al., 2006; Valentine et al., 2004; Zeleke, 2004).

The assessment of children with LD showed that Icelandic students with LD have lower self-perception of academic self-concept/general intellectual ability, reading self-concept/reading competence, and mathematic self-concept/math competence than their peers without LD. According to the Shavelson model, certain parts of self-concept can change while others are stable (Shavelson et al., 1976). Reading self-concept in children with learning difficulties remained mostly constant but was much poorer in all measurements than in children without learning difficulties. The stability of the academic self-concept in children with learning difficulties was reflected in being lower than in children without learning difficulties throughout the study. However, the changes observed were that academic self-concept steadily declined in children with LD throughout the study period. Self-concept in mathematics decreased between measurements for all participants, being lower in children with learning difficulties throughout the study. One of the surprising findings in this study was a significant slight yearly decrease indicated in general self-concept for students without learning difficulties and a significant and considerable yearly increase in general self-concept for students with learning difficulties. It is unclear why this change occurred in the children and calls for further studies on factors affecting general self-concept among children with and without learning difficulties.

In interviews with students with learning difficulties, the children mentioned that they generally liked school, all said they had friends at school, but they had also experienced teasing or bullying during their schooling. Positive relationships with teachers mattered to them and they reported that these affected their well-being. They also claimed that relationships with special education teachers influenced their attitudes towards special education, they mentioned positive aspects of special education such as more peace and more help, but at the same time they felt that teachers' behavior was important in making them feel comfortable while they were receiving support. It is important that school administrators, teachers and others who work with children listen to children's opinions regarding their own learning and learning conditions. That way, adults can better provide children with the best conditions to support their learning. Well-being can be considered as an important foundation for students' learning, language development, and social development. Students only want to attend with a

positive mindset ready to test themselves and strengthen their resilience if they feel well at school. Overall, the three studies shed light on important factors affecting the well-being, self-concept and school perception of children as they shift from primary to middle school. For the most part, well-being and self-concept of children with learning difficulties was poorer than that of their peers without learning difficulties. This concerning finding needs to be addressed, as poorer well-being and self-concept, in addition to learning difficulties, can further negatively impact students' outcomes and future prospects.

Interviews revealed that academically struggling students' perception of school was positively influenced by suitable learning conditions, effective instruction, and strong relationships with encouraging teachers. Given the importance and emphasis of inclusion in current school laws and legislation, it is essential to explore how the academic and social needs of students with learning difficulties can be adequately met in general education classrooms. Hopefully the findings of this doctoral project can be utilized in that endeavor.

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Paper I

Hvernig líður börnum með sérþarfir í skólanum?

Mat foreldra á líðan barna með eða án sérþarfa

Guðrún Björg Ragnarsdóttir
Anna-Lind Pétursdóttir
Zuilma Gabriela Sigurðardóttir
Harpa Óskarsdóttir
Eydís Einarsdóttir

Um höfunda:
Guðrún Björg Ragnarsdóttir (gbr5@hi.is). Grunnskólakennari í Hlíðaskóla og doktorsnemi við Menntavísindasvið Háskóla Íslands. Doktorsrannsókn hennar fjallar um nemendur með námserfiðleika, sjálfsmynd þeirra, trú á eigin getu og skólatengda líðan að mati nemenda og foreldra.

Anna-Lind Pétursdóttir (annalind@hi.is). Dósent í sálfræði, sérkennslu og atferlisgreiningu við Menntavísindasvið Háskóla Íslands. Rannsóknir hennar hafa einkum beinst að úrræðum vegna frávika í þroska, námi eða hegðun barna og þjálfun starfsfólks á beitingu þeirra úrræða.

Zuilma Gabríela Sigurðardóttir (zuilma@hi.is). Dósent í sálfræði á sviði atferlisgreiningar við Heilbrigðisvísindasvið Háskóla Íslands. Rannsóknir hennar hafa beinst að námi (learning), alhæfingu náms og breytur sem stuðla að námi og alhæfingu náms á nýjar aðstæður.

Harpa Óskarsdóttir (hao2@hi.is). MS í sálfræði og doktorsnemi við Heilbrigðisvísindasvið Háskóla Íslands. Doktorsannsóknir hennar fjalla um áhrif gagnreyndra kennsluaðferða á færni nemenda í fyrstu bekkjum grunnskóla og í sérkennslu.

Eydís Einarsdóttir (eydiseinars@simnet.is). Kennari í Giljaskóla á Akureyri, sérkennsla á unglingastigi. MA í uppeldis- og menntunarfræði; sálfræði í uppeldis- og menntunarfræði, með áherslu á áhættuhegðun, forvarnir og lífssýn. MA rannsóknin fjallaði um skólatengda líðan barna, að mati foreldra þeirra, eftir því hvort þau voru með sérþarfir eða ekki.

Útdráttur

Rannsóknir á líðan barna hafa aukist á síðustu árum. Hér verður fjallað um rannsókn á líðan íslenskra barna með eða án sérþarfa í skólanum. Líðan barna var metin með völdum spurningum úr foreldraútgáfum *KIDSCREEN-52* og *KINDL*^{R}. Rafrænn spurningalisti var sendur til foreldra 421 barns í 4.-7.bekk í tveimur skólum á höfuðborgarsvæðinu. Svör bárust frá 327 foreldrum, 29,7% sögðu barn sitt vera með sérþarfir (59 drengir, 38 stúlkur, meðalaldur barna 10,7 ár), 59,3% sögðu barn sitt ekki vera með sérþarfir (95 drengir, 99 stúlkur, meðalaldur barna 10,9 ár) en 11% foreldra svöruðu ekki spurningu um sérþarfir. Niðurstöður sýndu að foreldrar mátu líðan barna með sérþarfir marktækt verri hvað snerti almenna líðan, heilsu, sjálfsmynd, samskipti við fjölskyldu, félagstengsl og skólalíðan. Samkvæmt mati foreldra var líðan barna með sérþarfir sem fóru reglulega í sérkennslutíma betri hvað snerti samskipti við fjölskyldu en barna með sérþarfir sem fengu ekki sérkennslu. Niðurstöður sýna verri líðan barna með sérþarfir, sem brýnt er að bregðast við með markvissum hætti til að öllum börnum geti liðið vel í skólanum.

Efnisorð (3-5): Líðan, sérþarfir, grunnskóli án aðgreiningar, mat foreldra, sérkennsla

Hvernig líður börnum með sérþarfir í skólanum?

Mat foreldra á líðan barna með eða án sérþarfa

Líðan

Eigin líðan er flestum ofarlega í huga. Til að stuðla að góðri líðan huga margir að hreyfingu, mataræði og rækta tengsl við fjölskyldu sína og vini. Hugtakið vellíðan (e. well-being) hefur, ásamt hugtakinu lífsgæði (e. quality of life), verið notað til að lýsa hversu vel fólki líður og um leið tákna „allt sem er gott“ (Exenberger og Juen, 2014). Bæði hugtökin vísa til upplifunar einstaklings á stöðu sinni í samhengi við menningu og lífsgildi hans í tengslum við eigin markmið, væntingar, viðmið og hugðarefni en hugtakið vellíðan hefur frekar verið tengt hamingju (Diener og Suh, 1997; WHO, 1997; Qayoom og Husain, 2016). Undanfarin ár hefur verið aukin áhersla á að meta lífsgæði barna og unglinga og hafa fjölbreyttar leiðir verið þróaðar til þess. Matslistar fyrir vellíðan barna hafa til dæmis beinst að gæðum menntunar, heilsu, efnislegum gæðum og hegðun. Líkt og í flestum þróuðum og ríkum löndum (Unicef, 2013) hefur vellíðan íslenskra barna endurtekið mælst góð (Berntsson og Köhler, 2001; OECD, 2009; Unicef, 2013).

Ein leið við mat á vellíðan barna byggir á svörum foreldra sem getur hentað sérstaklega vel þegar börnin eiga erfitt með sjálfsmat (Solans,Pane, Estrada, Serra-Sutton, Berra, Herdman, o.fl., 2008). Oft er samhljómur í mati foreldra og barna á vellíðan barnanna, enda eru foreldrar oft sagðir sérfræðingar í sínum börnum. Þannig reyndist samhljómur milli foreldra og barna með ADHD varðandi félagstengsl, líkamleg og almenna líðan í rannsókn Marques, Olivera, Goulardins, Nascimento, Lima og Casella (2013). Sambærilegar niðurstöður komu fram í rannsókn Sakiz, Sars, Börkan, Korkmaz, og Babür (2015) þar sem samhljómur var í mati barna með sérþarfir og foreldra þeirra á lífsgæðum barnanna hvað varðaði líkamlega heilsu og almenna líðan. Mat foreldra getur því gefið góða innsýn í líðan barna en hafa verður í huga að mat foreldra getur verið ólíkt mati barna. Í rannsókn Sakiz o.fl. (2015) kom til dæmis fram munur á hvernig samskiptin innan fjölskyldunnar voru metin en þar töldu foreldrar samskiptin betri en börnin gerðu.

Erlendar rannsóknir hafa borið saman skólatengda líðan barna að mati foreldra eftir því hvort barnið er með sérþarfir eða ekki. Niðurstöður hafa bent til að líðan barna með sérþarfir sé verri en hjá börnum án sérþarfa (Biggs og Carter, 2016; Papadopoulou, Malliou, Kofotolis, Vlachopoulos og Kellis, 2017; Sakiz o.fl., 2015; Sacks og Kern, 2008). Rannsóknir á sjálfsmati

barna á líðan hafa einnig sýnt verri líðan hjá börnum með sérþarfir samanborið við skólafélaga án sérþarfa (Ginieri-Coccossis, Rotsika, Skevington, Papaevangelou, Malliori, Tomaras og Kokkevi, 2012; Rotsika, Coccossis, Vlassopoulos, Papaeleftheriou, Sakellariou, Anagnostopoulos o.fl., 2011) en hækkandi aldur hefur haft jákvæð áhrif á sjálfsmynd (Gosling, Bleidorn, Arslan, Denissen, Rentfrow, Gebauer og Potter, 2016). Kyn barna getur haft áhrif á líðan þeirri og hafa stúlkur mælst með mælst með verri líkamlega heilsu og félagslega stöðu (Karande og Venkatarman, 2013).

Líðan nemenda með sérþarfir

Sérþarfir (e. special needs) nemenda geta stafað af ýmsum erfiðleikum og vísa í þörf fyrir sérhæfða eða aukna aðstoð vegna sértækra námsörðugleika, tilfinningalegra eða félagslegra erfiðleika og/eða fötlunar (Reglugerð um nemendur með sérþarfir í grunnskóla nr. 585/2010) .

Hérlendis hafa erfiðleikar í lestri eða stærðfræði verið algengasta ástæðan fyrir sérkennslu eða stuðningi í námi (Hagstofan, 2018; Hildur B. Svavarsdóttir, Sara Björg Ólafsdóttir og Hrund Logadóttir, 2011). Á heildina litið hafa um 28% nemenda fengið sérkennslu eða stuðning í námi hérlendis undanfarin ár og af þeim hefur rúmlega helmingur verið með formlega greiningu (Hagstofan, 2018).

Líðan barna með sérþarfir að mati foreldra hefur lítt verið rannsökuð hér á landi. Þær kannanir sem hafa verið gerðar á líðan nemenda, s.s. Skólapúlsinn, hafa yfirleitt ekki falið sér samanburð á líðan nemenda með eða án sérþarfa. Niðurstöður erlendra rannsókna þar sem foreldrar hafa verið spurðir benda til að nemendum með sérþarfir líði almennt verr en jafnöldrum (Ginieri-Coccossis o.fl., 2012; Rotsika o.fl., 2011; Sakiz o.fl., 2015). Slakari almenn líðan, lægra sjálfsmat og óánægja með tengsl við fjölskyldu og vini hefur komið fram í mati barna með sérþarfir á eigin líðan samanborið við jafnaldra án sérþarfa. Sama mynstur hefur einnig komið fram í rannsóknum sem fela í sér mat foreldra á líðan barnanna. Í rannsókn Papadopoulou, Malliou, Kofotolis, Vlachopoulos og Kellis (2017) reyndist mat foreldra á líkamlegri heilsu, almennri líðan og líðan barnanna í skólanum betri hjá þeim börnum sem ekki höfðu sérþarfir samanborið við börn sem voru í sérkennslu eða sérskólum. Ekki fannst munur á líðan barna sem fengu sérkennslu í almennum skólum og þeirra sem voru í sérskólum, að mati foreldra. Yfirleitt fer líðan í skóla versnandi með hækkandi aldri barna (Liu, Mei, Tian og Huebner, 2015).

Líðan íslenskra barna

Lífsgæði norrænna barna hafa almennt verið talin góð og er staðan hérlendis svipuð. Lífsgæði íslenskra barna hafa farið batnandi. Sjálfsmynd íslenskra barna hefur styrkst milli ára og ánægja þeirra með skólann hefur einnig aukist (Berntsson og Köhler, 2001). Jafnframt hefur lífsánægja íslenskra barna nýlega mælst hæst innan OECD ríkjanna (OECD, 2015) og hafa um 90% barna tjáð ánægju með skólann sinn (OECD, 2015; Skólapúlsinn, 2015). Mikill meirihluti foreldra eða rúmlega níu af hverjum tíu, hafa talið að börnum sínum líði mjög eða frekar vel í skólanum (Skólapúlsinn, 2016). Í könnunum á vegum Umboðsmanns barna (2010) hefur skólatengd líðan íslenskra barna verið metin reglulega og hafa niðurstöður bent til að líðan barna fari batnandi. Þrátt fyrir að börnunum virðist almennt líða vel í skólunum þykir ekki jafn mörgum gaman í skólanum. Í alþjóðlegri rannsókn á heilsu og lífskjörum skólanema (Health Behaviours in School-Aged Children, HGBC) kom fram að helmingi (49,5%) íslenskra 11 ára nemenda þætti gaman í skólanum. Þetta hlutfall var ögn lægra hjá eldri nemendum, 42% 13 ára barna og 44,5% 15 ára fannst gaman í skólanum (Inchley, Currie, Young, Samdal, Torsheim, Augustson o.fl., 2016). Áþekku hlutfalli nemenda leiddist oft eða stundum í kennslustundum og 22% nefndu að þeir hefðu áhyggjur af framtíð sinni (Umboðsmaður barna, 2010). Ekki kom fram í niðurstöðum þessara rannsókna hvort um var að ræða nemendur með sérþarfir, í hvaða kennslustundum nemendum leiddist eða hvað það var sem börnunum þótti skemmtilegt í skólanum.

Markmið rannsóknar

Markmið þessarar rannsóknar var að skoða mat foreldra á líðan barna með sérþarfir, samanborið við mat foreldra barna án sérþarfa. Spurt var: 1) Er munur á líðan barna, með eða án sérþarfa, að mati foreldra? 2) Er munur á líðan barna með sérþarfir eftir því hvort þau eru í sérkennslutímum eða fá alfarið kennslu í almenna skólaumhverfinu?

Aðferð

Þátttakendur

Beiðni um þátttöku var send til foreldra 421 barns og svöruðu foreldrar 327 barna (253 mæður, 70 feður, 1 stjúpmóðir og 3 með önnur tengsl við barn). Þetta voru foreldrar barna í 4. til

7.bekk í tveimur rótgrónum skólum á höfuðborgarsvæðinu sem hvor um sig hefur yfir 400 nemendur í 1. til 10.bekk. Þátttakendum var skipt í tvo hópa eftir því hvort börn þeirra voru með sérþarfir í skólanum eður ei. Tæpur fjórðungur foreldra (N = 97; 75 mæður og 21 faðir) sögðu barn sitt með sérþarfir (59 strákar, 38 stelpur, meðalaldur 10,7 ár). Algengustu sérþarfir barna voru vegna ADHD og lestrarerfiðleika, sjá nánar í töflu 1. Rúmur helmingur (N = 54, 55,7%) barnanna með sérþarfir fékk sérkennslu í sínum skóla en fjögur af hverjum tíu börnum með sérþarfir (N = 38, 39,2%) fengu ekki sérkennslu. Foreldrar tveggja barna með sérþarfir höfðu ekki upplýsingar um hvort barn þeirra fengi sérkennslu. Sex af hverjum tíu foreldrum (N = 194; 151 móðir, 41 feður, 1 stjúpmóðir, 1 önnur tengsl við barn) sögðu barn sitt án sérþarfa (95 strákar, 99 stelpur, meðalaldur 10,93 ár). Rúmur tíundi hluti foreldra svaraði ekki spurningu um sérþarfir (N = 36; 27 mæður, 8 feður). Flest barnanna sem voru í sérkennslu fengu einn til fimm tíma á viku (N = 37) og 10 foreldrar vissu ekki hversu oft í viku barnið fékk sérkennslu.

TAFLA 1 HÉR.

Börnin voru á aldrinum 8 til 14 ára og meðalaldur barnanna áþekkur hjá hópi barna með sérþarfir (10,7 ára) og hópi barna án sérþarfa (10,9 ára). Í hópi foreldra barna með sérþarfir höfðu 61,3% mæðra og 61,9% feðra lokið stúdentsprófi eða meiri menntun. Í hópi foreldra barna án sérþarfa hafði 72,2% mæðra og 75,6% feðra lokið stúdentsprófi eða meiri menntun.

Mælitæki

Þátttakendur svöruðu rafrænum spurningalista sem samanstóð af spurningum um bakgrunnsupplýsingar þátttakenda, umfangi og fyrirkomulagi sérkennslu barnsins ásamt völdum spurningum úr tveimur spurningalistum; KINDL^{R} og KIDSCREEN-52.

KINDL^{R}. Valdar voru 19 spurningar úr foreldraútgáfu KINDL^{R} spurningalistans (KINDL^{R}, Quality of Life Questionnaire for Children) sem ætlaður er foreldrum barna á aldrinum 7 til 17 ára (Ravens-Sieberer og Bullinger, 2000). Spurningarnar komu úr öllum sex flokkum listans sem ætlað er að mæla líðan tengda líkamlegum og sálfræðilegum þáttum, sjálfstraust, félagstengsl, tengsl við fjölskyldu og líðan í skóla. Hverri spurningu var svarað á fimm punkta jafnbilakvarða með svarmöguleikum 1 til 5 sem stóðu fyrir *alls ekki/aldrei, svolítið/sjaldan, miðlungs/nokkuð oft, mjög/mjög oft eða ákaflega/alltaf* og áttu svör foreldra að endurspegla síðastliðna viku í lífi barnsins. Þær voru þýddar af tveimur tvítyngdum einstaklingum (íslensku-

og enskumælandi). Þriðji tvítyngdi einstaklingurinn yfirfór að lokum orðalag og lagfærði eftir þörfum. Í samræmi við leiðbeiningar höfunda listans var gildum svara snúið á kvarðann 20 til 100 við úrvinnslu gagna. Innri áreiðanleiki fyrir foreldraútgáfu listans í heild (Cronbach´s alpha) hefur reynst $\alpha = 0.84$ en frá $\alpha = 0,63$ til 0,81 fyrir undirflokkana (Ravens-Sieberer og Bullinger, 2000). Í þessari rannsókn reyndist innri áreiðanleiki (Cronbach´s alpha) spurninganna19 úr KINDL^R vera $\alpha = 0,87$.

KIDSCREEN-52. Valin var 21 spurning úr foreldraútgáfu KIDSCREEN-52 spurningalistans (The KIDSCREEN Group, 2004) til að mæla líðan tengda líkamlegum- og sálfræðilegum þáttum, frítíma, sjálfsmynd og skóla. Hverri spurningu var svarað á fimm punkta jafnbilakvarða með svarmöguleikum 1 til 5 sem stóðu fyrir *alls ekki/aldrei, svolítið/sjaldan, miðlungs/nokkuð oft, mjög/mjög oft eða ákaflega/alltaf* og áttu svör foreldra að endurspegla síðastliðna viku í lífi barnsins. Gildum svara á stakri spurningu um heilsu var snúið við til að geta sameinað öðrum spurningum í sama flokki. Notuð var íslensk þýðing spurninganna frá Snæfríði Þóru Egilsson og félögum (2013) að fengnu góðfúslegu leyfi Snæfríðar og Ravens-Sieberer, höfundar spurningalistans. Innri áreiðanleiki (Cronbach´s alpha) fyrir listann hefur reynst frá $\alpha = 0,77$ til 0,90 fyrir undirflokkana (The KIDSCREEN Group Europe, 2006). Í þessari rannsókn reyndist innri áreiðanleiki (Cronbach´s alpha) spurninga úr listanum einnig hár, eða $\alpha = 0,92$.

Rannsóknarsnið

Rannsóknin var þversniðsrannsókn (e. cross-sectional survey design) og beindist að foreldrum barna með eða án sérþarfa í 4.-7. bekk í tveimur skólum á höfuðborgarsvæðinu.

Framkvæmd

Rannsóknin var skráð hjá Persónuvernd og leyfi fyrir framkvæmd hennar fengið hjá Vísindasiðanefnd Háskóla Íslands ásamt stjórnendum skólanna. Spurningalistinn var forprófaður með hópi foreldra og aðlagaður í samræmi við endurgjöf þeirra. Upplýsingabréf var sent í tölvupósti til foreldra barna í 4.- 7.bekk þátttökuskólanna með beiðni um þátttöku og krækju á spurningalistann. Til viðbótar voru sendir tveir tölvupóstar með tveggja vikna millibili með endurtekinni beiðni um þátttöku. Gagnaöflun fór fram í nóvember og desember 2014. Tölfræðiforritið SPSS (24.útgáfa) var notað við úrvinnslu gagna. Lýsandi tölfræði var notuð til

að svara rannsóknarspurningum. Innri áreiðanleiki spurninga var skoðaður með Chronbach´s alpha fyrir spurningalistann í heild og einstaka þætti. Tölfræðileg marktekt var sett við 0,05.

Niðurstöður

Hér verður fjallað um niðurstöður með hliðsjón af rannsóknarspurningum og skoðað hvort munur var á líðan barna með eða án sérþarfa að mati foreldra þeirra. Einnig verður rýnt í hvort munur var á líðan barna með sérþarfir eftir því hvort þeir voru í sérkennslutímum eða fengu alfarið kennslu í almenna skólaumhverfinu.

Mat foreldra á líðan barna með eða án sérþarfa

Þegar litið er til KINDL^{R} spurningalistans, reyndist mat foreldra á líðan barna án sérþarfa marktækt betra hvað snerti almenna líðan, sjálfstraust, tengsl við fjölskyldu, félagstengsl og líðan barnanna í skóla heldur en mat foreldra barna með sérþarfir, sjá töflu 2.

TAFLA 2.

Þegar rýnt var í niðurstöður úr KIDSCREEN-52 spurningum reyndist mat foreldra barna án sérþarfa marktækt betri varðandi líðan í skóla, líkamlega heilsu, almenna líðan og sjálfsmynd, sjá töflu 3.

TAFLA 3.

Munur á líðan eftir erfiðleikum. Þegar rýnt var í svör á KINDL^{R} um hvort munur væri á líðan eftir því hvers konar erfiðleika barn átti við að etja kom í ljós að foreldrar barna með ADHD mátu almenna líðan barna sinna verri (M = 71,96, F(1,93) = 12,11, p = 0,001) og félagsleg tengsl slakari (M = 61,01, F(1,95) = 27,19, p = 0,000) miðað við foreldra barna með aðra erfiðleika. Hjá börnum með námserfiðleika án formlegrar greiningar kom fram verri líðan í skóla (M = 62,00) F(1,95) = 10,88, p = 0,001) og minna sjálfstraust (M = 53,50) F(1,95) = 14,73, p = 0,000) að mati foreldra samanborið við mat foreldra barna með aðra erfiðleika. Foreldrar barna með hegðunarröskun mátu tengsl barnanna við fjölskylduna verri (M = 69,16) F(1,95) = 6,15, p = 0,015) en foreldrar barna með aðra erfiðleika gerðu og sama átti við um foreldra barna með tilfinningaröskun (M = 72,77) F(1,95) = 4,45, p = 0,037).

Hjá tveimur hópum kom fram betri líðan í svörum foreldra þeirra við KINDL^{R} spurningum. Foreldrar barna með lestrarerfiðleika mátu tengsl barnanna við fjölskyldu sína betri (M = 87,33) F(1,95) = 14,43, p = 0,000) og almenna líðan betri (M = 84,16) F(1,93) = 6,89, p = 0,000) en foreldrar barna með aðra erfiðleika. Mat foreldra á líðan barna sinna með einhverfu í skólanum var jákvæðara en mat foreldra barna með aðra erfiðleika (M = 86,66) F(1,95) = 5,32, p = 0,023). Ekki kom fram munur á líðan hjá börnum með stærðfræðierfiðleika eða þroskahömlun þegar svör foreldra þeirra við KINDL^{R} spurningum voru borin saman við svör foreldra barna með aðra erfiðleika.

Rýnt var nánar í svör tengdum KIDSCREEN-52 spurningum og skoðað hvort munur væri á mati foreldra á líðan eftir því hvers konar erfiðleika barn átti við að etja. Börn með ADHD voru metin með verri líðan (M = 3,39) F(1,91) = 4,30, p = 0,041), verri líkamlega heilsu (M = 3,43) F(1,93) = 5,18, p = 0,025) og minni frítíma (M = 3,65) F(1,94) = 4,17, p = 0,044) samanborið við mat foreldra barna með aðra erfiðleika. Mat foreldra barna með námserfiðleika án formlegrar greiningar bendir til að þau séu við verri líkamlega heilsu (M = 3,39) F(1,93) = 6,13, p = 0,015) og hafi verri almenna líðan (M 3,74) F)1,91) = 5,42, p = 0,022) en börn með aðra erfiðleika. Að mati foreldra barna með tilfinningaröskun var sjálfsmynd þeirra verri (M = 2,25) F(1,88) = 6,41, p = 0,013) en barna með aðra erfiðleika.
Í svörum foreldra við KIDSCREEN spurningum kom fram betri almenn líðan hjá börnum með lestrarerfiðleika (M = 3,99) F(1,91) = 8,52, p = 0,004) og betri sjálfsmynd (M = 1,49) F(1,88) = 5,73, p = 0,019) en hjá börnum með aðra erfiðleika. Ekki kom fram munur á líðan hjá börnum með stærðfræðierfiðleika, þroskahömlun, einhverfu eða hegðunarröskun þegar svör foreldra þeirra við KIDSCREEN spurningum voru borin saman við svör foreldra barna með aðra erfiðleika.

Munur á líðan eftir kyni, aldri og menntunarstigi foreldra. KINDL^{R} gögnin voru einnig greind með tilliti til hvort munur væri á líðan eftir kyni eða aldri barnanna og menntunarstigi foreldra. Þá kom fram kynjamunur F(2,321) = 3,40, p = 0,034 þar sem foreldrar stúlkna mátu sjálfstraust þeirra meira (M = 73,81) en foreldrar drengja (M = 70,63). Einnig reyndist munur á skólatengdri líðan eftir aldri barns F(6,315) = 3,33, p = 0,003, þar sem foreldrar 10 ára barna mátu líðanina versta (M = 80,92) en foreldrar 13 ára barna mátu líðan þeirra besta (M = 91,67). Þegar kannað var hvort munur væri á líðan barnanna eftir

menntunarstigi foreldranna kom í ljós að líðan í skóla var verri F(7,319) = 2,20, *p* = 0,034 hjá þeim börnum sem áttu foreldra með próf í iðngreinum (N = 53, M = 75,22) samanborið við foreldra með annað menntunarstig (grunnskólapróf M = 80,0, stúdentspróf M = 84,5, háskólapróf M = 81,6).

KIDSCREEN gögnin voru einnig greind með tilliti til hvort munur væri á líðan eftir kyni og aldri barnanna og menntunarstigi foreldra. Þá kom fram kynjamunur F(2,322) = 8,99, *p* = 0,000 þar sem foreldrar stúlkna mátu líkamlega heilsu stúlkna betri (M = 3,73) en foreldrar drengja (M = 3,13). Einnig reyndist munur á sjálfsmynd eftir aldri barns F(6,294) = 2,53, *p* = 0,0021, þar sem foreldrar 8 ára nemenda mátu sjálfsmynd þeirra versta (M = 81,56) en foreldrar 13 ára barna mátu sjálfsmynd þeirra besta (M = 3,19). Þegar kannað var hvort munur væri á líðan barnanna eftir menntunarstigi foreldranna miðað við spurningar úr KIDSCREEN spurningalistanum reyndist ekki marktækur munur.

Nemendur með sérþarfir og sérkennsla. Þegar svör foreldra við KINDL^{R} spurningum um líðan barna þeirra voru skoðuð eftir því hvort börn með sérþarfir fengju sérkennslu eða ekki kom fram að líðan barna sem fengu sérkennslu var metin betri hvað varðaði samskipti við fjölskyldu, sjá töflu 4. Rýnt var nánar í gögnin til að kanna hvort fjöldi sérkennslutíma skipti máli, en svo reyndist ekki vera. Ekki kom fram munur á líðan hjá börnunum eftir umfangi sérkennslu. Hins vegar virtist skipta máli hvar sérkennslan fór fram.

TAFLA 4.

Munur á líðan eftir staðsetningu sérkennslu og fjölda sérkennslustunda. Við frekari skoðun á KINDL^{R} spurningum kom fram að þau börn sem fengu eingöngu sérkennslu í sérrými eða námsveri leið betur að mati foreldra hvað varðaði samskipti barnsins við fjölskylduna F(1,50) = 14,95, p = 0,000, félagstengsl F(1,50) = 12,82, p = 0,001 og almenna líðan F(1,49) = 6,55, p = 0,014 samanborið við börn sem fengu sérkennslu bæði í bekk og sérrými, sjá töflu 5.

TAFLA 5.

Svör foreldra við KIDSCREEN-52 spurningum voru einnig skoðuð með tilliti til líðan barna með sérþarfir sem ýmist fengu sérkennslu eða alfarið almenna kennslu. Þar reyndist ekki

vera munur í mati foreldra á líðan hópanna, sjá töflu 6. Rýnt var nánar í gögnin og sást að börn sem fengu einn til fimm sérkennslutíma í hverri viku voru talin við betri líkamlega heilsu $F(3,49) = 4,27$, $p = 0,009$ og með betri sjálfsmynd $F(3,47) = 4,30$, $p = 0,009$ en börn sem fengu fleiri sérkennslustundir á viku.

TAFLA 6.

Hins vegar reyndist ekki munur á líðan hópanna eftir því hvort sérkennslan fór fram í sérrými eða í almennu kennslurými, sjá töflu 7.

TAFLA 7.

Í heildina sýndu niðurstöður að foreldrar sem tóku þátt í þessari rannsókn mátu almenna líðan barna án sérþarfa betri en foreldrar barna með sérþarfir. Einnig voru börn án sérþarfa talin standa betur hvað snerti sjálfsmynd, félagstengsl, líkamlega heilsu, samskipti við fjölskyldu og líðan í skólanum að mati foreldra samanborið við börn með sérþarfir. Samskipti við fjölskyldu voru metin betri hjá börnum með sérþarfir sem fengu sérkennslu samanborið við nemendur með sérþarfir sem fengu alfarið kennslu í almenna kennslurýminu. Einnig reyndist líðan þeirra barna sem fengu sérkennslu í sérrými vera betri hvað varðaði samskipti við fjölskyldu, félagstengsl og almenna líðan heldur en hjá börnum með sérþarfir sem fengu sérkennslu bæði í sérrými og almennu kennslurými. Auk þess mældist betri líðan hjá þeim börnum með sérþarfir sem fengu einn til fimm sérkennslutíma hvað snerti sjálfsmynd og líkamlega heilsu að mati foreldra heldur en þeirra barna með sérþarfir sem fengu fleiri sérkennslutíma.

Umræða

Markmið þessarar rannsóknar var að skoða mat foreldra á líðan barna með eða án sérþarfa, og skoða hvort sérkennsla hefði eitthvað með líðan að gera. Niðurstöður sýndu að foreldrar barna með sérþarfir mátu almenna líðan og líkamlega heilsu barnanna verri, töldu þau með minna sjálfstraust, verri tengsl við fjölskyldu sína og vini ásamt verri líðan í skóla heldur en foreldrar barna með sérþarfir. Líðan barna sem fengu sérkennslu í sérrými var betri hvað varðaði samskipti við fjölskyldu, félagstengsl og almenna líðan heldur en hjá börnum með sérþarfir sem fengu sérkennslu bæði í sérrými og almennu kennslurými. Betri líðan mældist hjá börnum með

sérþarfir sem fengu einn til fimm sérkennslutíma hvað snerti sjálfsmynd og líkamlega heilsu að mati foreldra heldur en þeirra barna með sérþarfir sem fengu fleiri sérkennslutíma.

Mat foreldra á líðan barna með eða án sérþarfa

Samhljómur er á milli niðurstaðna hér varðandi líðan barna með eða án sérþarfa við erlendar rannsóknir, til dæmis rannsókn Sakiz og félaga (2015) þar sem mat foreldra barna með sérþarfir var að börnin væru með minna sjálfstraust, almenn líðan ásamt líðan í skóla var einnig sögð verri, félagstengsl lakari sem og líkamleg heilsa samanborið við mat foreldra barna án sérþarfa. Hér kom fram nokkur munur milli foreldra barna með eða án sérþarfa hvað varðaði notkun á kvörðum spurninga. Foreldrar barna án sérþarfa merktu oftast við efri kvarða spurninga úr KINDL^{R} spurningalistanum varðandi almenna líðan barnanna. Í KIDSCREEN-52 spurningum munaði minnstu milli foreldra barna með og án sérþarfa á spurningum sem sneru að frítíma barnanna. Óljóst er hvort uppeldisaðferðir íslenskra foreldra skipta hér máli en öll börnin virðast hafa nægan frítíma og ráða sínum frítíma að miklu leyti sjálf. Mesti munur milli foreldra barna með og án sérþarfa kom fram í spurningum um líðan í skóla og átti þetta bæði við spurningar úr KINDL^{R} og KIDSCREEN-52. Að mati mæðra 8 til 14 ára barna með sértæka námserfiðleika, sem tóku þátt í rannsókn Rotsika og félaga (2011), kom einnig fram verri líðan hjá þessum hópi barna. Líðan í skóla er líklega sá þáttur sem flestir foreldrar grunnskólanemenda leiða hugann að alla jafna. Margir spyrja börn sín hvernig skóladagurinn hafi gengið og telja sig því hafa góða innsýn varðandi skólalíðan barnanna. Mögulega ýtir það undir að foreldrar eru óhræddir við að nýta alla kvarða spurninganna en leita frekar í hlutlausari svör varðandi spurningar úr öðrum flokkum.

Mat foreldra 11 ára barna í þessari rannsókn var að rúmum helmingi þætti mjög eða ákaflega gaman í skólanum en þrír af hverjum tíu í hópi foreldra barna með sérþarfir töldu að barninu sínu þætti gaman í skólanum. Þetta bendir til að meirihluti foreldra barna með sérþarfir telur að börnum sínum þyki ekki gaman í skólanum. Í rannsókn Inchley og félaga (2016) þar sem íslensk börn alls staðar af landinu voru spurð um líðan sína í skóla, sagði tæpur helmingur 11 ára íslenskra barna að þeim þætti gaman í skólanum. Áþekkar niðurstöður komu fram í rannsókn Umboðsmanns barna (2010) þar sem rúmur helmingur barna sagði að þeim leiddist sjaldan eða aldrei í kennslustundum. Hér kemur fram munur sem nemur um 10% þar sem foreldrar virðast telja að börnum þyki skemmtilegra í skólanum en raunin er. Hafa verður í huga

að hér er um tvo ólíka hópa að ræða og hóparnir svara á ólíkum tímum. Samskipti foreldra og barna eru mögulega að gefa litla innsýn í líðan barnanna. Einn af hverjum tuttugu foreldrum í þessari rannsókn taldi að barnið sitt hefði áhyggjur af framtíð sinni en tæplega einn af hverjum tíu í hópi foreldra barna með sérþarfir taldi barn sitt hafa áhyggjur af framtíðinni. Tæpur fjórðungur barna sem tók þátt í rannsókn Umboðsmanns barna (2010) sagðist hafa áhyggjur af framtíð sinni en ekki var gerður greinarmunur á börnum með og án sérþarfa í rannsóknninni. Hafa ber í huga ólíkar tímasetningar rannsóknanna en Umboðsmaður barna (2010) lagði sínar spurningar fyrir börnin tveimur árum eftir mikla niðursveiflu í þjóðfélaginu. Almenn samfélagsumræða og innan heimila á þessum tíma gæti hafa haft áhrif á væntingar barna til framtíðarinnar. Orðalag spurninga hefur að öllum líkindum einhver áhrif en þegar Umboðsmaður barna (2010) spurði hvort hræðsla væri við framtíðina á heimili barnanna sagði rúmlega eitt af hverjum tuttugu börnum svo vera sem er í samræmi við niðurstöður hér.

Munur á líðan eftir erfiðleikum

Í þessari rannsókn reyndist sjálfsmynd barna með sérþarfir einnig metin neikvæðari af hálfu foreldra heldur en sjálfsmynd barna án sérþarfa. Það átti við um sjálfsmynd barna með lestrarerfiðleika, stærðfræðierfiðleika, einhverfu, ADHD eða námserfiðleika án formlegrar greiningar, allir þessir hópar voru taldir með verri sjálfsmynd en börn án sérþarfa að mati foreldra þeirra. Í rannsókn Sakiz og félaga (2015) kom mestur munur milli hópa fram í spurningum um sjálfsmynd þar sem sjálfsmynd barna með sérþarfir var neikvæðari. Mikilvægt er að rýna vel í þann mun sem fram kom í þessari rannsókn því kennarar og foreldrar geta hjálpað börnum og styrkt sjálfsmynd þeirra með ýmsum leiðum (Elbaum og Vaughn, 2001;2003). Meðal þess sem hægt er að gera til að styrkja sjálfsmynd barna er að kynna fyrir þeim hugtakið sjálfsmynd, efla vitund og skilning á eigin hegðun, vekja athygli barnanna og fá þau til að velta fyrir sér hvaða áhrif jafningjar þeirra, fjölmiðlar og samfélagsmiðlar hafa á þau (Daglas-Pelish, 2006; Park og Park, 2015). Hafa verður í huga að mismunandi leiðir geta hentað hverju sinni. Aldur barnanna hefur áhrif en meginmarkmiðið þarf að vera að styrkja sjálfsmynd þeirra (O´Mara, Marsh og Cravens, 2006). Einnig skiptir máli hvaða þætti sjálfsmyndar er verið að vinna með en sterk áhrif hafa komið fram á sjálfsmynd yngri barna þar sem unnið hefur verið með námslega þætti í tengslum við sjálfsmynd (Elbaum og Vaughn, 2001).

Munur á líðan eftir kyni, aldri og menntunarstigi foreldra

Rýnt var í gögn út frá kyni og aldri barnanna og kom fram að foreldrar mátu sjálfstraust og líkamlega heilsu stúlkna betri en drengja. Í rannsókn Ginieri-Coccossis og félaga (2012) kom ekki fram munur milli kynja en í rannsókn Karende og Venkataraman (2013) kom fram munur þar sem líkamleg heilsa og félagsleg staða indverskra stúlkna var talin verri en drengja. Þær niðurstöður var talið að mætti rekja til samfélagsgerðar Indverja. Sjálfstraust íslenskra stúlkna hefur verið til umræðu síðustu ár. Opinberir aðilar á borð við Reykjavíkurborg (Auður Magndís Auðardóttir, 2014) hafa gefið út skýrslur með það að markmiði að styrkja stúlkur og samdar hafa verið bækur með sama markmiði (Kristín Tómasdóttir, 2015). Samfélagsgerðin hér á landi og áðurnefnd umræða hefur vafalítið áhrif á uppeldi stúlkna og í kjölfarið haft þau áhrif að sjálfsmynd þeirra mælist að mati foreldra betri en drengjanna. Aldur skipti máli hvað varðaði skólatengda líðan og sjálfsmynd en skólatengd líðan 10 ára barna var metin verri en skólatengd líðan 13 ára barna og sjálfsmynd 8 ára barna var metin verri en 13 ára barna. Þessar niðurstöður eru í mótsögn við erlendar rannsóknir sem hafa sýnt skólalíðan fara versnandi með hækkandi aldri barna (Liu, Mei, Tian og Huebner, 2015) og sjálfsmynd batna með hækkandi aldri (Gosling og fleiri, 2016).

Nemendur með sérþarfir og sérkennsla

Í þessari rannsókn voru börn með sérþarfir sem fengu sérkennslu í betri samskiptum við fjölskyldu sína. Kennslustaður skipti máli hvað varðaði betri líðan barnanna en börnin sem fengu kennslu bæði inn í sérrými eða í námsveri voru jákvæðari í samskiptum við fjölskyldu, með betri félagstengsl og leið almennt betur. Mögulega skipta hér vinnubrögð sérkennara máli en þeir sjá oft um að aðlaga námsefni að getu barnanna. Álag vegna náms minnkar þá en í rannsókn Inchley og félaga (2016) kom fram að rúmlega helmingur 13 ára nemenda upplifði álag vegna skólaverkefna. Minna álag leiðir að öllum líkindum til betri samskipta við fjölskyldu og vini. Aðlöguð verkefni í sérrými geta einnig dregið úr hegðunarerfiðleikum en börn með sérþarfir geta sýnt óæskilega hegðun þegar verkefni eru þeim ofviða (Kern og Clemens, 2007; Todd, 2012). Séu verkefnin aðlöguð nær barnið mögulega betur að sinna því og eiga um leið í jákvæðum samskiptum við önnur börn sem leiðir til betri félagslegra tengsla.

Æskilegt er að börn með sérþarfir fái sérkennslu við hæfi en líðan barna hefur verið tengd námsárangri og jákvæðri skólaupplifun (Bird og Markle, 2012). Fjöldi kennslustunda virtist

skipta máli því þau börn sem fengu einn til fimm tíma á viku voru að mati foreldra þeirra við betri líkamlega heilsu og með betri sjálfsmynd en börn með sérþarfir sem fengu fleiri sérkennslustundir á viku. Börn sem fá fleiri sérkennslutíma á viku eru kannski með fleiri erfiðleika sem hafa neikvæð áhrif á sjálfsmynd þeirra. Ekki var lagt mat á gæði sérkennslunnar en í báðum skólum sáu sérkennarar að mestu um sérkennsluna. Athygli vakti að kennslurýmið virtist skipta máli varðandi almenna líðan, félagstengsl og samskipti við fjölskyldu en þau börn sem fengu sérkennslu eingöngu í sérrými leið betur en börnum sem fengu sérkennslu bæði inn í bekk og í sérrými. Að öllum líkindum hefur eðli erfiðleika barnanna hér áhrif og sérkennararnir fá mögulega meira næði til að mæta námsþörfum barnanna heldur en í almennu kennslustofunum. Í rannsókn Emelíu Guðjónsdóttur (2015) kom fram í viðtölum við nemendur með námserfiðleika að þeim leið flestum vel í sérkennslutímum sem fram fóru í litlum hópum utan bekkjar og nefndu viðmælendur þá einkum næði, meiri einstaklingsbundna aðstoð og að þeim gengi almennt betur að læra við þessar aðstæður. Einnig er mögulegt að börn sem fá sérkennslu bæði í bekk og sérrými séu með erfiðleika sem við fyrstu sýn virðist hægt að vinna með inni í bekk en vandamál komi upp og þau þurfi að skipta um rými sem veldur þeim vanlíðan. Þegar barn byrjar í sérkennslu væri betri kostur að kennslan færi í upphafi fram í sérrými, það gefur sérkennara og barni tækifæri til að mynda mikilvæg tengsl og þegar reynsla væri komin á kennsluna gæti kennarinn fylgt og kennt barninu í bekkjarstofunni. Þannig væri ef til vill hægt að draga úr líkum á vanlíðan hjá barninu í tengslum við kennslurýmið. Mikilvægt er að stuðningur við börn með sérþarfir feli í sér vandaða kennslu. Reynold og félagar (2007) sýndu fram á að hægt var að hafa varanleg og jákvæð áhrif á líðan barna sem stóðu höllum fæti í samfélaginu langt fram á fullorðinsár með íhlutun sem fól í sér kerfisbundna kennslu í stærðfræði og tungumálum. Áhersla var á að efla grunnfærni nemenda í tungumálun og stærðfræði með skipulagðri og fjölbreyttri kennslu sem hófst í leikskóla. Kennslan var kennarastýrð og ýmist kennt í bekkjum, litlum hópum eða einstaklingslega. Áhrifin komu meðal annars fram 19 árum síðar í skólaskýrslum, könnunum sem lagðar höfðu verið fyrir nemendurna og foreldra þeirra og opinberum gögnum. Þar kom fram að þátttakendur höfðu hærra menntunarstig, höfðu síður leiðst út í glæpi og voru líklegri til að vera í föstu starfi en þeir sem ekki höfðu fengið sambærilega kennslu.

Takmarkanir rannsóknar. Við túlkun niðurstaðna ber að hafa í huga takmarkanir þessarar rannsóknar. Hér var sjónum eingöngu beint að mati foreldra en sjónarhorn barnanna sjálfa, annarra ættingja þeirra, kennara eða annarra starfsmanna skólanna kemur ekki fram. Full þörf er á því að kanna hvert mat þessara einstaklinga er á líðan barna með eða án sérþarfa og skoða hvort samhljómur er á milli þessara hópa. Þrátt fyrir viðunandi svarhlutfall er alhæfingargildi niðurstaðnanna óþekkt þar sem þátttakendahópur var ekki mjög stór og aðeins tengdur nemendum 4. til 7. bekkja í tveimur skólum á höfuðborgarsvæðinu. Ekki er vitað hversu vel þeir spegla hóp foreldra grunnskólabarna almennt. Framtíðarrannsóknum mætti beina að foreldrum barna á landsbyggðinni til að meta hvort áþekkur munur kæmi fram á líðan barna með eða án sérþarfa í skólum á ólíkum landssvæðum. Þar sem munur reyndist á líðan barna eftir því hvar sérkennslan fór fram er mikilvægt að skoða hvað það er sem veldur. Er það eitthvað í sérkennslurýminu sem hefur jákvæð áhrif á líðan barna? Eða gætu aðrir þættir sem tengjast sérkennslu í sérrými verið að verki? Til að mynda gætu mismunandi kennsluaðferðir, fjöldi nemenda á hvern kennara, vinnufriður, aðlöguð verkefni eða félagsskapur við nemendur sem glíma við svipaða erfiðleika haft áhrif á líðan nemenda. Mikilvægt er að rannsaka nánar hvaða þættir stuðla að betri líðan nemenda með sérþarfir og leitast við að skapa almennt námsumhverfi þar sem öllum nemendum getur liðið vel.

Þrátt fyrir takmarkanir benda niðurstöður þessarar rannsóknar til þess að börnum með sérþarfir líði verr í skóla en börnum án sérþarfa að mati foreldra. Mikilvægt er að bregðast við, huga að ástæðum sem liggja að baki og leita leiða til að styðja betur við börn með sérþarfir en nú er gert. Brýnt er að bæta líðan þeirra, efla þau í námi og gera það sem þarf til að styrkja sjálfsmynd þeirra þannig að þau geti notið jafngildra tækifæra og nýtt hæfileika sína til fulls.

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Parents' reports on well-being of their children: A comparison of children with and without special needs.

The aim of this study was to assess the well-being in Icelandic children with or without special needs. Children´s well-being was assessed by parents answering selected questions about their children from two questionnaires; the parent versions of KIDSCREEN-52 and the KINDL^{R}. An online questionnaire was sent to parents of 421 children in two schools in the Reykjavik area. Parents of 327 children answered, 29.7% reported their child had special needs (59 boys, 38 girls, median age 10.7 years), 59.3% said their child did not have special needs (95 boys, 99 girls, median age 10.9 years), 11% did not answer questions about special needs. Significant differences were found between children with special needs and control group scores in dimensions regarding well-being, health, self-esteem, family, social contacts and school environment, indicating a higher level of well-being for the control group of children without special needs. Children with special needs attending special education classes reported higher levels of well-being with regards to family relations. Implications of results for planning and policy making are discussed.

Well-being, special needs, inclusion, parents assessment, special education.

Authors:
Guðrún Björg Ragnarsdóttir (gbr5@hi.is). A teacher at Hlíðaskóli School in Reykjavík and a Ph.D. student at the School of Education, University of Iceland. Field of research: Students with special needs, their self-concept, self-efficacy and well-being.

Anna-Lind Pétursdóttir (annalind@hi.is). Associate professor at the School of Education, University of Iceland. Associate professor in psychology in the field of special education and behavior analysis, School of Education, University of Iceland. Her research interests include effective behavioral and instructional interventions for students with special needs.

Zuilma Gabríela Sigurðardóttir (zuilma@hi.is). Associate professor in psychology in the field of behavior analysis, School of Health Sciences, University of Iceland. Her research has focused on learning and behavior, generalization and on variables that generate transfer of learning to new situations.

Harpa Óskarsdóttir (hao2@hi.is). Ph.D. student at the School of Health Sciences, University of Iceland. Field of research: The use of evidence based teaching methods in the first years of school and in special education.

Eydís Einarsdóttir (eydiseinars@simnet.is). A teacher at Giljaskóli School in Akureyri, teaching children with special needs, in grades 8–10. MA in education studies with an emphasis on risk, resiliency and prevention. MA research: Parents' reports on well-being of their children at school: A comparison of children with and without special needs.

Tafla 1

Yfirlit yfir erfiðleika þeirra barna sem foreldrar greindu frá að væru með sérþarfir í skólanum

Erfiðleikar barns að mati foreldra	Fjöldi barna með tiltekna erfiðleika	Hlutfall barna með tiltekna erfiðleika af heildarhópi (N = 327)	Hlutfall innan hóps barna með sérþarfir (N = 97)
ADHD	33	10,1%	34%
Lestrarerfiðleikar	30	9,2%	30,9%
Námserfiðleikar án formlegrar greiningar	20	6,1%	20,6%
Stærðfræðierfiðleikar	10	3,1%	10,3%
Tilfinningaröskun	9	2,8%	9,3%
Einhverfa	6	1,8%	6,2%
Hegðunarröskun	6	1,8%	6,2%
Þroskahömlun	1	0,3%	1%
Engar sérþarfir	194	59,3%	
Engin svör við spurningu um sérþarfir	36	11%	

Tafla 2

Mat foreldra á líðan barna með eða án sérþarfa samkvæmt KINDL^R listanum

KINDL^R flokkar	Börn með sérþarfir N= 97 M (sf)	Börn án sérþarfa N= 194 M (sf)	df	F	*P*
Líkamleg heilsa[1]	71,75 (20,15)	75,46 (17,86)	1	2,47	0,117
Almenn líðan	78,63 (14.39)	87,22 (9,51)	1	36,49	0,000
Sjálfstraust	64,32 (15.11)	76,00 (13,95)	1	42,80	0,000
Tengsl við fjölskyldu	80,77 (12,14)	85,77 (9,11)	1	15,47	0,000
Félagstengsl	73,33 (18,85)	84,29 (12,88)	1	33,94	0,000

Líðan í skóla	72,16 (16,24)	85,32 (12,18)	1	59,94	0,000

Skýring: M = meðalskor , sf = staðalfrávik, F = F gildi ANOVA.
[1] Stök spurning. Í öðrum flokkum er búið að reikna saman gildi úr nokkrum spurningum.
Í flokkunum líkamleg heilsa, sjálfstraust og félagstengsl stóðu gildin fyrir *alls ekki, svolítið, miðlungs, mjög* eða *ákaflega*. Í flokkunum almenn líðan, tengsl við fjölskyldu og líðan í skóla stóðu gildin fyrir *aldrei, sjaldan, nokkuð oft, mjög oft* eða *alltaf*.

Tafla 3
Mat foreldra á líðan barna með eða án sérþarfa samkvæmt KIDSCREEN-52 spurningum

KIDSCREEN-52 flokkar	Börn með sérþarfir N = 97 M (sf)	Börn án sérþarfa N = 194 M (sf)	df	F	*P*
Líkamleg heilsa	3,71 (0,868)	4,13 (0,660)	1	20,701	.000
Almenn líðan	3,65 (0,847)	4,18 (0,566)	1	39,290	.000
Sjálfsmynd	1,71 (0,639)	1,42 (0,479)	1	18,161	.000
Frítími	3,85 (0,696)	3,95 (0,613)	1	1,652	.200
Líðan í skóla	3,09 (0,808)	3,90 (0,657)	1	79,676	.000

Skýring: M = meðalskor; sf = staðalfrávik; F = F-gildi ANOVA.
Í flokkunum líkamleg heilsa, frítími og almenn líðan stóðu gildi *alls ekki, svolítið, miðlungs, mjög eða ákaflega.* Í flokknum líðan í skóla og sjálfsmynd stóðu gildin fyrir *aldrei, sjaldan, nokkuð oft, mjög oft* eða *alltaf*.

Tafla 4
Mat foreldra með KINDL[R] spurningum á líðan barna með sérþarfir, eftir því hvort börnin fengu sérkennslu eða alfarið almenna kennslu.

KINDL[R] flokkar	Börn með sérþarfir sem fengu sérkennslu N= 54 M (sf)	Börn með sérþarfir sem fengu alfarið almenna kennslu N= 38 M (sf)	df	F	*P*
Líkamleg heilsa [1]	71,11 (18,90)	72,11 (23,03)	3	0,136	0,938
Almenn líðan	79,06 (15,00)	76,76 (13,80)	3	0,930	0,430

Sjálfstraust	63,80 (14,17)	63,95 (16,89)	3	0,812	0,490
Samskipti við fjölskyldu	83,88(11,51)	76,18 (12,27)	3	3,297	0,024*
Félagstengsl	74,44 (18,57)	71,58 (20,19)	3	0,373	0,773
Líðan í skóla	71,97 (15,34)	72,10 (18,19)	3	0,641	0,590

Skýring: M = meðalskor , sf = staðalfrávik, F = F gildi ANOVA.
Í flokkunum líkamleg heilsa, sjálfstraust og félagstengsl stóðu gildin fyrir *alls ekki*, *svolítið*, *miðlungs*, *mjög* eða *ákaflega*. Í flokkunum almenn líðan, tengsl við fjölskyldu og líðan í skóla stóðu gildin fyrir *aldrei*, *sjaldan*, *nokkuð oft*, *mjög oft* eða *alltaf*.
[1] Stök spurning. Í öðrum flokkum er búið að reikna saman gildi úr nokkrum spurningum.

Tafla 5
Mat foreldra með KINDL[R] spurningum á líðan barna með sérþarfir, eftir því hvort börnin fengu sérkennslu í sérrými eða námsveri.

KINDL[R] flokkar	Börn með sérþarfir sem fengu sérkennslu í sérrými eða námsveri N= 35 M (sf)	Börn með sérþarfir sem fengu sérkennslu í bekk og sérrými N= 17 M (sf)	df	F	*P*
Líkamleg heilsa [1]	69,71 (17,73)	75,29 (21,82)	1	0,972	0,329
Almenn líðan	82,79 (12,86)	71,76 (17,40)	1	6,555	0,014*
Sjálfstraust	65,42 (15,59)	59,70 (10,82)	1	1,847	0,180
Samskipti við fjölskyldu	87,14 (8,51)	75,59 (12,85)	1	14,952	0,000*
Félagstengsl	80,57 (15,95)	62,75 (18,56)	1	12,829	0,001*
Líðan í skóla	72,38 (14,91)	71,37 (17,44)	1	0,047	0,830

Skýring: M = meðalskor , sf = staðalfrávik, F = F gildi ANOVA.
Í flokkunum líkamleg heilsa, sjálfstraust og félagstengsl stóðu gildin fyrir *alls ekki*, *svolítið*, *miðlungs*, *mjög* eða *ákaflega*. Í flokkunum almenn líðan, tengsl við fjölskyldu og líðan í skóla stóðu gildin fyrir *aldrei*, *sjaldan*, *nokkuð oft*, *mjög oft* eða *alltaf*.
[1] Stök spurning. Í öðrum flokkum er búið að reikna saman gildi úr nokkrum spurningum.

Tafla 6
Mat foreldra metin með KIDSCREEN-52 spurningum á líðan barna með sérþarfir, eftir því hvort börnin fá sérkennslu eða alfarið almenna kennslu

KIDSCREEN-52 flokkar	Börn með sérþarfir sem fá sérkennslu N = 54 M (sf)	Börn með sérþarfir sem fá alfarið almenna kennslu N = 37 M (sf)	df	F	*P*
Líkamleg heilsa	3,77 (0,823)	3,55 (0,948)	3	1,276	0,287
Almenn líðan	3,77 (0,813)	3,44 (0,826)	3	1,483	0,224
Sjálfsmynd	1,69 (0,668)	1,81 (0,619)	3	0,847	0,472
Frítími	3.94 (0,630)	3.76 (0,805)	3	0,986	0,403
Líðan í skóla	3,17(0,799)	3,04 (0,914)	3	0,469	0,705

Skýring: M = meðalskor; sf = staðalfrávik; F = F-gildi ANOVA.
Í flokkunum líkamleg heilsa, frítími og almenn líðan stóðu gildi *alls ekki, svolítið, miðlungs, mjög eða ákaflega.* Í flokknum líðan í skóla og sjálfsmynd stóðu gildin fyrir *aldrei, sjaldan, nokkuð oft, mjög oft* eða *alltaf*.

Tafla 7
Mat foreldra metin með KIDSCREEN-52 spurningum á líðan barna með sérþarfir, eftir því hvort börnin fengu sérkennslu í sérrými eða námsveri.

KIDSCREEN-52 flokkar	Börn með sérþarfir sem fengu sérkennslu í sérrými eða námsveri N = 35 M (sf)	Börn með sérþarfir sem fá kennslu í bekk og sérrými N = 17 M (sf)	df	F	*P*
Líkamleg heilsa	3,911 (0,701)	3,500 (1,030)	1	2,833	0,099
Almenn líðan	3,86 (0,806)	3,48 (0,835)	1	2,279	0,138
Sjálfsmynd	1,61 (0,545)	1,80 (0,867)	1	0,818	0,370
Frítími	4,00 (0,642)	3,76 (0,615)	1	1,579	0,215
Líðan í skóla	3,26 (0,827)	2,93 (0,753)	1	1,828	0,183

Skýring: M = meðalskor; sf = staðalfrávik; F = F-gildi ANOVA.
Í flokkunum líkamleg heilsa, frítími og almenn líðan stóðu gildi *alls ekki, svolítið, miðlungs, mjög eða ákaflega.* Í flokknum líðan í skóla og sjálfsmynd stóðu gildin fyrir *aldrei, sjaldan, nokkuð oft, mjög oft* eða *alltaf*.

Paper II

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The development of self-perception of ability in Icelandic children with and without specific learning difficulties

Gudrun Bjorg Ragnarsdottir[1] · Anna-Lind Petursdottir[1] · Zuilma Gabriela Sigurdardottir[2] · Kristjan Ketill Stefansson[1] · Harpa Oskarsdottir[2]

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Abstract
This cohort-sequential study compared the development of self-perception of ability in Icelandic school children with and without learning difficulties (LD). Participants ($N=198$) were students with LD ($n=33$) in Grade 4 through 8 and their classmates without LD ($n=165$). Self-report measures were taken six times to assess students' perception of their general intellectual ability, reading competence, math competence, and global self-worth from *The Self-perception Profile for Learning Disabled Students.* Measures were taken during the beginning and end of three consecutive school years covering five grade levels in total. Findings indicate that measures of global self-worth showed a considerable annual positive development ($\Delta z=0.17$) for children with LD from Grade 4 through 8. Students with LD had much lower ability self-perception ($d=0.7$–1.3) compared to students without LD across Grade 4 through 8. These results indicate that students with LD meet complex academic challenges from an early age that need immediate attention from school staff and policymakers.

Keywords Self-perception of ability · General intellectual ability · Reading competence · Math competence · Global self-worth · Longitudinal research

✉ Gudrun Bjorg Ragnarsdottir
gbr5@hi.is

Anna-Lind Petursdottir
annalind@hi.is

Zuilma Gabriela Sigurdardottir
zuilma@hi.is

Kristjan Ketill Stefansson
kristjan@hi.is

Harpa Oskarsdottir
hao2@hi.is

[1] School of Education, University of Iceland, Stakkahlíð, 105 Reykjavik, Iceland

[2] Department of Psychology, University of Iceland, Sæmundargata 12, 102 Reykjavik, Iceland

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Learning difficulties can occur in both children with intellectual disability and specific learning difficulties. As defined by the World Health Organization, (2010), individuals with an intellectual disability or general learning disability have a diminished ability to learn and apply new skills. Intellectual disability is characterized by intelligence significantly below average, impaired adaptive behavior or functioning, and the onset of these difficulties within 18 years of age (Gillberg & Soderstrom, 2003). Intellectual disability affects about 1% of the population (Maulik et al., 2011). Specific learning difficulties or disabilities (LD) have been defined as a neurodevelopmental condition affecting academic achievement despite average or above-average intelligence (American Psychiatric Association, 2013; Scanlon, 2013). Early signs of LD often appear in the preschool years and include persistent difficulties with academic tasks, with performance significantly below average for their age (American Psychiatric Association, 2013; Fletcher et al., 2007; Moll et al., 2014). In school-aged children, the prevalence of LD is 5 to 15% through the domains of reading, writing, and mathematics, with reading difficulties being the most common (American Psychiatric Association, 2013; Frolov & Schaepper, 2021). In Iceland, between 15 and 17% of students have been formally diagnosed with disabilities or disorders and around 30% of students across grades receive special education or support, either in the general classrooms or special resource rooms (Statistics Iceland, 2022). The effects of this special support have not been formally explored, but parents of children with disabilities have expressed concerns that their children´s needs are not being adequately met at school (Jonsdottir et al., 2017). Also, nearly 19% of students with the lowest grades have reported that their teachers treat them unfairly (Arnarsson et al., 2019). Despite these alarming findings, over 90% of students in Iceland report that they like being in school (Arnarsson et al., 2019) and around 90% are pleased with their reading performance, rate school positively, and consider themselves happy in general (Municipalities in the Reykjavik area, 2014; Organization for Economic co-operation and Development [OECD], 2019).

Self-concept

Students with LD have reported poorer self-concept than their peers without learning difficulties (Girli, 2013; Zeleke, 2004). Self-concept can be described as the sum of an individual's perception of him- or herself shaped through the individual's experience with the environment, family, and friends (Rosenberg, 1989; Shavelson et al., 1976). It is a set of ideas that a person has about himself: qualities, limits, values, and connections with friends and family, all affected by the person's experience (Rady et al., 2016; Shavelson et al., 1976). The concept is a complex, multidimensional construct and can be divided into academic domains as mathematics and language for example and non-academic domains of self-concept (Marsh & Craven, 2006; Marsh & Martin, 2011).

Academic self-concept

Academic self-concept is related to academic situations and is based on an individual's judgment of his or her knowledge and skills in school settings (Bong & Skaalvik, 2003; Marsh & Seaton, 2013; Rosen, 2010). It is thought to be shaped by the individual's experience and understanding of the school environment and has been found to be linked to academic achievement (Doss & Nathan, 2015; Guay et al., 2010; Marsh & Martin, 2011;

Rady et al., 2016). Thus, students receiving special education due to persistent LD can be expected to have lower academic self-concept than their peers without LD.

Research on academic self-concept has shown students with LD to have lower academic self-concept than their peers without LD (Bear et al., 2002; Chapman, 1988; Polychroni et al., 2006; Valentine et al., 2004; Zeleke, 2004). Chapman's (1988) review found that the majority, or 81%, of students with LD had lower academic self-concept compared to their average "nonhandicapped" peers ($ES = -0.88$; $SE = 0.16$). Similar results were reported in Zeleke's (2004) review, which showed children with LD to have consistently lower scores in academic self-concept than their peers.

Findings as regards the bond between general and academic self-concept have been inconsistent, perhaps because these constructs have been defined and measured too broadly (see meta-analyses and reviews by Bear et al., 2002; Chapman, 1988; Maïano et al., 2018; Valentine et al., 2004; Zeleke, 2004). Throughout schooling, children's academic self-concept typically is lower than their general self-concept at each grade level (Onetti et al., 2019; Szenczi et al., 2018). Children with LD have demonstrated that they prefer less challenging work and they show less curiosity and interest in school assignments than children without LD (Zisimopoulos & Galanki, 2009). A plausible explanation for children reporting a positive general self-concept despite negative academic self-concept is that children with LD may develop their general self-concept from experiences within other areas than school. Children with LD who experience academic disappointment more often than their classmates without LD are at risk of developing lower levels of achievement motivation that can lead to lower levels of academic self-concept (Grolnick & Ryan, 1990; Kocaj et al., 2018). If a child in middle school fails to achieve a sufficient skill level in core subjects such as reading and mathematics, the low grades can lead to the child experiencing academic disinterest and later dropping out of school (Balfanz et al., 2007). Failure to complete studies and losing interest in academic tasks as trying to engage in things beyond one's skill level are defeating and can lead to increased likelihood of substance misuse, health problems, and lower lifetime earnings (Gonzales et al., 2016; Lee-St. John et al., 2018). It is therefore important to support children with learning difficulties in their studies because the consequences of not doing so can have serious consequences on their lives.

Although negative results from tests can impact children's learning experience, there are other things that influence motivation in academic settings. Social comparison can also be a possible explanation for lower motivation in children with LD as individuals compare their abilities with their peer reference group (Dijkstra et al., 2008), with self-concept being more positive when students compare themselves to peers with similar backgrounds (Festinger, 1954; Renick & Harter,1989). Thus, school settings can affect how children rate their general and academic self-concept as they compare their ability to that of their classmates. For children with LD, school setting is especially important, as comparison to peers without LD in a high-achievement environment can lead to lower self-concept than comparison to equally able or lower-achieving peers as is reflected in the *Big fish little pond effect* (Bong & Skaalvik, 2003; Marsh, 1987). In that effect, Marsh & Parker, (1984) proposed that students surrounded by high-achieving peers would consider themselves less capable, while equally able students in lower-achieving settings would consider themselves more capable, as is reflected in higher self-concept. Social comparison also applies to students with LD as they tend to evaluate their own achievement negatively compared to their peers without difficulties (Kocaj et al., 2018). In contrast, students with LD in a school environment with less able peers, such as special education classrooms, could see themselves as more capable in comparison, resulting in higher self-concepts. Correspondingly, students with LD that do not receive special

education could have a more negative self-concept because they do not get to experience being in a group with similar or less able peers (Bakker & Bosman, 2003). A meta-analysis by Elbaum, (2002) on 38 studies with a total of 65 different placement comparisons did find students in special schools to have higher self-concept than their peers with LD in regular schools, but no other systematic association between self-concept and educational location of students with LD was found.

Reading self-concept

Reading is a fundamental factor in students' learning and success in life. Students with reading difficulties can struggle with decoding and/or reading comprehension. Some are diagnosed with dyslexia which is characterized by problems with accuracy and/or fluency in reading and weak spelling abilities, associated with difficulties using the phonological part of the language (Dickman et al., 2002; Nation, 2005). Dyslexia has been estimated to affect between 5 and 10% of the global population (Siegel, 2006).

Students who regard themselves as good readers frequently engage in reading, while their peers with lower reading self-concept have poorer reading skills and engage less frequently in reading (Spear-Swerling & Sternberg, 1994). Reading self-concept has been described as a person's idea of his or her competence and ability in reading (Bong & Skaalvik, 2003; Walgermo et al., 2018). Children begin at an early age to define their skills in reading and students with difficulties in reading have reported lower reading self-concept than their higher-performing peers right from entry into primary school (Walgermo et al., 2018).

Mathematic self-concept

Dyslexia can co-occur with a Mathematics Learning disability as dyslexic students can have weaknesses in memorizing facts and step-by-step procedures (Emerson, 2015). The main deficit in mathematics difficulties concerns poor number sense that affects the individual's ability to master basic computational skills of addition, subtraction, multiplication, and division, and the application of these operations to solve word problems (Emerson, 2015; Geary, 2004). The frequency of dyslexia has been estimated to be from 5 to 6% (Shalev & Gross-Tsur, 2001). Achievement in mathematics has been found to correlate with self-perceived math competence in students with LD (Möller et al., 2009). Results regarding the development of self-concept in mathematics have varied from self-concept in mathematics declining with student age (Erdogan and Sengul, 2014; Wilkins, 2004) to increasing slightly with student age (Watson et al., 2019).

Students with poor reading ability and a negative reading self-concept tend also to have low academic self-concept (Chapman et al., 2000); McArthur et al., 2016). Both academic and reading self-concepts have been shown to fluctuate over time and tend to gradually worsen with higher age (Onetti et al., 2019). At a young age, children lack the ability to self-evaluate their skills and tend to overestimate their abilities. With increasing age, the ability to evaluate themselves progresses as children add external criteria, such as test scores, to their self-evaluation (Dweck, 2002). Also, the relationship between students and teachers changes over time, and academic requirements grow, with academic self-concept decreasing if students struggle to meet academic demands (Grygiel et al., 2017; Incley et al., 2020; Onetti et al., 2019; Renick & Harter, 1988/2012).

The present study

This study aimed to explore the development of students' perception of general intellectual ability, reading competence, math competence, and global self-worth in upper elementary and middle school students, with and without LD. The study took place in Iceland where the vast majority of students attend general public schools that are obliged to meet students' diverse needs regardless of disabilities or learning difficulties. The majority of schools in Iceland are run by municipalities, with over 96% of students attending those schools, while just under 4% of students attend private schools run with support from municipalities (Statistics Iceland, 2022). Icelandic students attend their school 180 days a year and all schools follow the national curriculum which sets out a similar division between subjects and the same number of lessons. The basic elements of education in Iceland focus on literacy, sustainability, creation, health and well-being, democracy and human rights, and lastly equality (Ministry of Education & Children, 2022). The well-being of Icelandic children has been examined in various studies (Arnarsson et al., 2019; Pálsdóttir et al., 2021), but differences between Icelandic children with and without learning difficulties have not been examined over time. Since 2007, the proportion of Icelandic students in need of academic support has steadily increased; during the research period, this proportion for the first time exceeded 30%, while for the school year 2019 to 2020, it reached 31.2% (Statistics Iceland, 2022). It is unclear what is causing this increased need, but it is necessary to take a closer look at this group of students to see where they need the most support. It remains to be explored how Icelandic students rate their general intellectual ability, reading competence, math competence, and global self-worth in light of their academic challenges, widely provided special support, and general happiness reported by students.

The goal of this study was to explore students' perception of their general intellectual ability, reading competence, math competence, and global self-worth. Participants were students with and without LD. Differences were also explored across age and how self-concept of this vulnerable group and their peers develops over time during the formative years of middle school. The following research questions were addressed:

1. Do students with and without LD differ in the self-perception of their general intellectual ability, reading competence, math competence, and global self-worth during Grade 4 through Grade 8?
2. Do self-concept of general intellectual ability, reading competence, math competence, and global self-worth develop differently in students with and without LD over time in middle school?

Method

Participants

The sample was a convenience sample consisting of students in the control group of a larger study conducted by the first three authors. Participants ($N=198$) were students with learning difficulties (LD; $n=33$) and students without LD ($n=165$) born in the years of 2002 to 2007 in four public schools in the capital region of Iceland during the school years of 2014/2015, 2015/2016, and 2016/2017. The students with LD who were invited to

Table 1 An illustration of the cohort-sequential design

	Schoolyear*		
Cohort	2014-15	2015-16	2016-17
2002	Grade 7	Grade 8	-
2003	Grade 6	Grade 7	-
2004	Grade 5	Grade 6	Grade 7
2005	Grade 4	Grade 5	Grade 6
2006	-	Grade 4	Grade 5
2007	-	-	Grade 4

The arrows represent the grade information retrieved from each subsequent cohort

*Two waves of measurement were conducted within each school year

Table 2 Background of the participating students

Background variable	Total (%)
Gender	
Boys	106 (54.5%)
Girls	92 (46.5%)
Learning difficulties	
With learning difficulties	33 (16.7%)
Without learning difficulties	165 (83.3%)
School	
School 1	165 (83.3%)
School 2*	8 (4.0%)
School 3*	3 (1.5%)
School 4*	22 (11.1%)

$N = 198$

*Only students with learning difficulties

participate came from three separate schools whereas the students without LD who were invited to participate came from the fourth school (see Tables 1 and 2). A cohort-sequential design was used to measure changes in self-perception of ability. Six cohorts (9, 10, 11, and 12 years of age at each initial assessment) were assessed six times during the beginning and end of three consecutive schoolyears covering in total an age span of 5 grade levels (see Table 1).

Convenience sampling was used based on geographical proximity and availability during the research period. Each school had around 400 to 600 students in Grades 1 to 10 and the student–teacher ratio was 9:1 in each school. Class sizes varied from 17 to 25 children, with fewer students in younger classes. All students with LD followed regular classroom programs and received support in reading through two to five group lessons per week in special education classrooms. Group size in the special education classes did not exceed 6 students. Intake criteria for the LD group were that students had been diagnosed

with learning difficulties by independent service providers and/or had been experiencing academic difficulties in reading for at least three years, prior to intake, according to both teacher and parent reports. Two children with broader intellectual disabilities attending the same classes were excluded from participation. A comparison group was formed with students of the same age without LD attending a comparable school in a matched neighborhood as the students with LD (see Table 2).

Measures

Perception of general intellectual ability, reading competence, math competence, and global self-worth were assessed with 17 selected items from the *Self-perception profile for learning disabled students* (SPP-LD, Renick & Harter, 1988/2012), an adapted version of the *Self-Perception Profile for Children* (Harter, 1982, 1985/2012; Renick & Harter, 1988/2012), for 8- to 15-year-old students with LD but is considered to suit all students. The SPP-LD has ten subscales assessing self-perception four to five items in each subscale in the questionnaire, with 46 items in total. Each item consists of two statements and the respondent chooses the one that best applies to him/her and marks if the statement is *really true* or *sort of true* for him/her. The *Self-perception Profile for Children* has shown good internal consistency, as reflected in Cronbach's alpha of $\alpha = 0.78$ to 0.90 for children with and without LD (Renick & Harter, 1988/2012). Items from the SPP-LD were translated from English to Icelandic by two bilingual individuals (both Icelandic- and English-speaking). A third bilingual individual then reviewed the wording of the statements to decide on final translations. When the Icelandic version of the questionnaire had been constructed, it was piloted with students in a public school not participating in the study. Students with and without LD in Grade 4 to 7 participated in the pilot study. During piloting, students' understanding of the questionnaire's instruction and items was assessed, along with the time needed to complete it.

In this study, items from four subscales in the SPP-LD (Renick & Harter, 1988/2012), *Global self-worth*, *General intellectual ability*, *Reading competence*, and *Math competence*, were selected to assess general self-concept, academic self-concept, reading self-concept, and mathematic self-concept.

Global self-worth Four items were selected to assess global self-worth, for example, "Some kids are happy with themselves as a person BUT Other kids are often not happy with themselves." Cronbach's alpha was $\alpha = 0.69$ for items assessing *Global self-worth.*

General intellectual ability Five items were selected to assess self-perception of general intellectual ability, for example "Some kids are sure that they are pretty smart in school BUT Other kids are not so sure they are all that smart in school." Cronbach's alpha was $\alpha = 0.73$ for items assessing *General intellectual ability.*

Reading competence Four items were selected to assess self-perception of reading competence, for example "Some kids can read most stories and books pretty easily BUT Other kids have a hard time reading stories and books." Cronbach's alpha was $\alpha = 0.88$ for items assessing *Reading competence.*

Mathematic competence Four items were selected to assess self-perception of mathematic competence, for example "Some kids are good at math BUT Other kids have a hard time with math." Cronbach's alpha was $\alpha = 0.82$ for items assessing *Math competence*.

Procedure

The data collection was conducted in six waves of measurement over the period of three school years with the control group of a larger study. In the larger study, new students with LD in Grade 4 were added to the control group every autumn (see Table 3). As multilevel linear modeling (MLM) does not require complete data across time points (Heck et al., 2013), the 2002 cohort was, due to convenience, invited to participate in Grade 8 to increase the statistical power of the study. As instructed by Renick & Harter, (1988/2012), all statements were read aloud to the younger participants (in 4th and 5th Grade) and the first two items were read to the older participants (in 6th and 7th Grade). All older participants with reading difficulties were offered to have statements read aloud to them, but only a few students accepted the offer.

This study adhered ethical guidelines on respect, indemnity, justice, and goodwill were adhered to (Bournot-Trites & Belanger, 2005). Ethics principles set out by the Science Ethics Committee of the University of Iceland and The Icelandic Centre for Research were followed. All participants and their parents were informed of the study's aim and were assured of full confidentiality and anonymity. The study was registered at the Data Protection Agency and parents had to give written permission for their children's participation. As children are considered a vulnerable group, they were reminded each time they participated that they could decide to withdraw from the research or refuse to answer specific questions. Participants were also assured of confidentiality and anonymity each time they participated. Questionnaires were submitted to small groups in a separate room, giving participants privacy to answer without worrying about teachers or classmates seeing their responses.

Table 3 Overview of participating students by cohort, school year, and grade

		School year 2014/2015		School year 2015/2016		School year 2016/2017	
Cohort	*N*	Autumn W1	Spring W2	Autumn W3	Spring W4	Autumn W5	Spring W6
2002	42	7th ($N=38$)	7th ($N=38$)	-	8th ($N=20$)	-	-
2003	9	6th ($N=7$)	6th ($N=6$)	-	7th ($N=6$)	-	-
2004	28	5th ($N=12$)	5th ($N=10$)	-	6th ($N=5$)	-	7th ($N=20$)
2005	43	4th ($N=36$)	4th ($N=33$)	-	5th ($N=32$)	-	6th ($N=32$)
2006	37	-	-	4th ($N=11$)	4th ($N=33$)	-	5th ($N=31$)
2007	39	-	-	-	-	4th ($N=6$)	4th ($N=37$)
Total	198	94	88	11	96	6	120
% Completed		77%	72%	100%	89%	100%	82%

Data analysis

Quantitative data obtained were analyzed using the 2.2 version of the jamovi computer software (The jamovi project, 2021). Descriptive background statistics (frequencies, means, and standard deviations) were explored for student groups (with and without LD). We used the GAMLj module (Gallucci, 2019) in jamovi to run a multilevel model (MLM) with a repeated measures design (mixed model). These analyses allowed us to examine changes in self-perception of ability from Grade 4 to Grade 8. In a mixed model, individual scores at different times of assessment (level 1) are nested within individuals (level 2). For all the models, the intercept was used as a random effect. Model 0 had no predictors and was an unconditional model, and served the purpose of a baseline model. For Model 1, we included the age of the participants at each time of measurement centered on the average age of Grade 4. For Model 2, we added learning difficulty (the individual level 2 predictor). Finally, Model 3 was created to analyze cross-level interactions (i.e., learning difficulty by age). All models were fit using maximum likelihood estimation. The Akaike information criterion (AIC) and the Bayesian information criterion (BIC) were used to evaluate model fit, where a model difference: greater than 10 very strongly favored; 6–10 strongly favored; 2–6 favored; and 0–2 weakly favored the more complex model (Raftery, 1995). Likelihood ratio tests (LRT) were also used to compare nested models.

Results

Descriptive data for self-perception of general intellectual ability, reading competence, math competence, and global self-worth are displayed in Table 4.

The cohort-sequential design assumes no severe cohort differences in the main study variables. To test this assumption, we made a series of ANOVA tests. No significant cohort differences ($p < 0.05$) were found for three of the four outcome variables being studied. However, a significant difference ($p = 0.02$) was found for the measure of general intellectual ability where the oldest cohort (2005) with LD at the beginning of Grade 4 seemed to perceive their overall general intellectual ability much higher ($\eta^2 = 0.14$) than the two younger cohorts with LD (2006 and 2007) at the beginning of Grade 4. Therefore, some bias due to cohort effects might exist in the analyses that use the measure of general intellectual ability of students with LD at the beginning of Grade 4. A comparison of the Grade 4 students with and without LD on the main study variables revealed large differences ($d = 0.58$–1.55), especially for the self-perception of reading competence (see Table 5).

In the following sections, results are reported for the four domains of ability.

Table 4 Descriptive statistics of the main study variables at the beginning of Grade 4

Variable	*M*	*SD*	*N*	Range	Actual range	Skewness	Kurtosis
General intellectual ability	15.9	2.9	52	7–20	5–20	−0.73	0.98
Reading competence	12.8	3.2	51	4–16	4–16	−0.93	0.05
Math competence	12.6	3.1	48	4–16	4–16	−0.87	0.34
Global self-worth	13.0	2.5	52	5–16	4–16	−0.72	0.50

Table 5 *T*-tests for the main study variables by learning difficulties at the beginning of Grade 4

Variable	With learning difficulties		Without learning difficulties					
	M	*SD*	*M*	*SD*	*df*	*t*	*p*	*d*
General intellectual ability	14.6	3.3	16.8	2.5	51	−2.8	0.007	0.77
Reading competence	10.2	3.3	14.2	2.0	50	−5.6	<0.001	1.55
Math competence	11.4	3.4	13.2	2.7	47	−2.05	0.045	0.60
Global self-worth	12.1	2.6	13.2	2.3	51	−2.06	0.046	0.58

General intellectual ability

The results of the mixed model analysis for the self-perception of general intellectual ability are displayed in Table 6. The final model showed a marginally significant ($p=0.09$) cross-level interaction between LD and age. A test of simple effects indicated that the cross-level interaction was significant due to a moderate ($\Delta z=-0.14$), and only marginally significant ($p=0.09$), yearly decrease in the self-perception of general intellectual ability for students with LD (see Fig. 1). No significant changes ($p=0.70$) however were found over time in the self-perception of general intellectual ability for students without LD. The model explained a moderate part (8.5%) of the variation in self-perception of general intellectual ability.

Table 6 Mixed model analysis for the self-perception of general intellectual ability

Parameters	Model 0 Null	Model 1 level 1: Within subjects	Model 2 level 2: Individual level	Final model: Cross-level interaction	Final model: Dependent (*z*)
Estimates of fixed effects					
Intercept	16.0 (0.20)***	15.95 (0.20)***	15.28 (0.24)***	15.2 (0.25)***	−0.26 (0.08)
Age		0.004 (0.10)	−0.03 (0.10)	−0.18 (0.13)	−0.06 (0.04)
LD − no LD			−2.12 (0.49)***	−2.26 (0.50)	−0.75 (0.17)
LD × age				−0.45 (0.26)	−0.15 (0.09)
Estimates of covariance parameters					
Pseudo R^2	0.000	<0.001	0.082	0.085	
ICC	0.636	0.636	0.604	0.620	
AIC	1962.727	1964.725	1948.722	1947.906	
BIC	1974.812	1980.838	1968.863	1972.076	
Log *L*	−978.364	−978.363	−969.361	−967.953	
Δ − 2LL		0.002	18.004***	2.816	

*$p<0.05$; **$p<0.01$; ***$p<0.001$

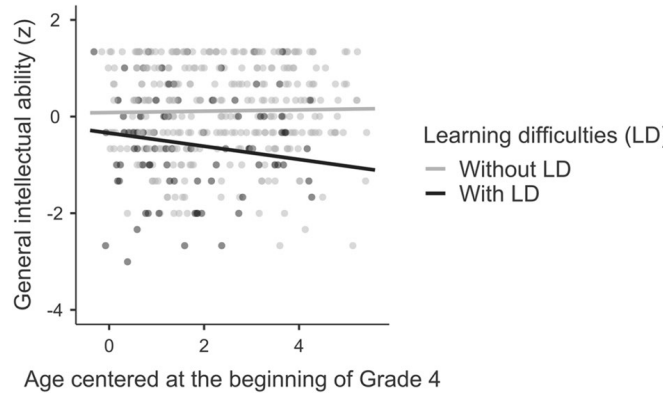

Fig. 1 Growth trajectories of general intellectual ability for students with and without learning difficulties from Grade 4 to Grade 8

Reading competence

The results for the mixed model analysis for self-perception of reading competence ability are displayed in Table 6. A comparison between the self-perceived reading competence of participants with LD to that of their peers without LD revealed that students with LD had, on average, much poorer ($\Delta z = -1.4$) self-perceptions of reading competence during Grade 4 through 8 (see Table 6). No cross-level interaction was found between age and LD ($p = 0.57$). The inclusion of LD in the model explained a large part (27.4%) of the variation in the self-perception of reading competence or more than three times as much as in the model of general intellectual ability (see Table 7). Self-perception of reading competence showed the largest and most prevalent mean difference between students with and without learning difficulties during the study (see Fig. 2).

Table 7 Mixed model analysis for the self-perception of reading competence

Parameters	Model 0 Null	Model 1 level 1: Within subjects	Model 2 level 2: Individual level	Final model: Cross-level interaction	Final model: Dependent (z)
Estimates of fixed effects					
Intercept	13.2 (0.20)***	13.08 (0.29)***	12.01 (0.28)***	11.94 (0.31)***	−0.42 (0.11)***
Age		0.04 (0.09)	−0.01 (0.09)	0.03 (0.12)	0.01 (0.04)
LD − no LD			−3.8 (0.42)***	−4.08 (0.61)***	−1.4 (0.21)***
LD × age				−0.15 (0.23)	0.05 (0.08)
Estimates of covariance parameters					
Pseudo R^2	0.000	< 0.001	0.276	0.277	
ICC	0.701	0.700	0.587	0.590	
AIC	1896.051	1897.834	1833.736	1835.346	
BIC	1908.121	1913.928	1853.854	1859.486	
Log L	−945.025	−944.917	−911.868	−911.673	
Δ − 2LL		0.216	66.098***	0.39	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

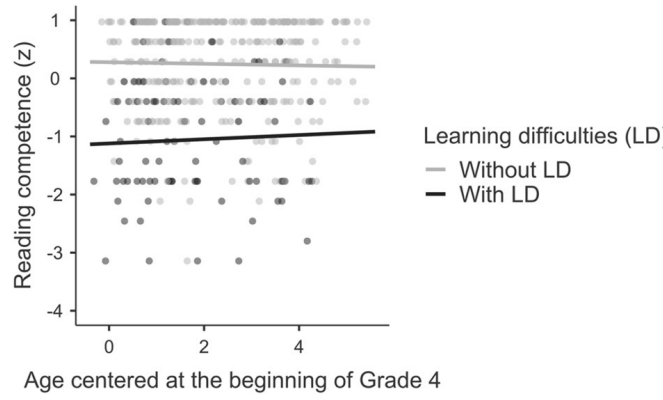

Fig. 2 Growth trajectories of reading competence for students with and without learning difficulties from Grade 4 to Grade 8

Math competence

The results for the mixed model analysis for self-perception of math competence are displayed in Table 8. A comparison between the self-perceived math competence of participants with LD to that of their peers without LD revealed that students with LD had, on average, much poorer ($\Delta z = -0.7$) self-perceptions of math competence during Grade 4 through 8 (see Table 8). No cross-level interaction was found between age and LD ($p = 0.50$). However, Model 2 indicated a small ($\Delta z = -0.07$) and marginally significant ($p = 0.05$) yearly decrease in the self-perception of math competence from Grade 4 through Grade 8 for both groups (see Fig. 3). The best fitting model (Model 2) explained a moderate part (10.3%) of the variation in the self-perception of math competence.

Table 8 Mixed model analysis for the self-perception of math competence

Parameters	Model 0 Null	Model 1 level 1: Within subjects	Model 2 level 2: Individual level	Final model: Cross-level interaction	Final model: Dependent (z)
Estimates of fixed effects					
Intercept	12.6 (0.21)***	12.95 (0.31)***	12.26 (0.33)***	12.37 (0.37)***	−0.09 (0.12)
Age		−0.16 (0.11)	−0.21 (0.10)*	−0.27 (0.14)	−0.09 (0.04)
LD − no LD			−2.49 (0.51)***	−2.11 (0.73)**	−0.69 (0.24)**
LD × age				−0.19 (0.27)	−0.06 (0.09)
Estimates of covariance parameters					
Pseudo R^2	0.000	0.005	0.103	0.103	
ICC	0.659	0.661	0.623	0.623	
AIC	1947.475	1947.135	1926.509	1928.004	
BIC	1959.501	1963.170	1946.553	1952.057	
Log L	−970.737	−969.567	−958.254	−958.002	
Δ − 2LL		2.34	22.63***	0.50	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

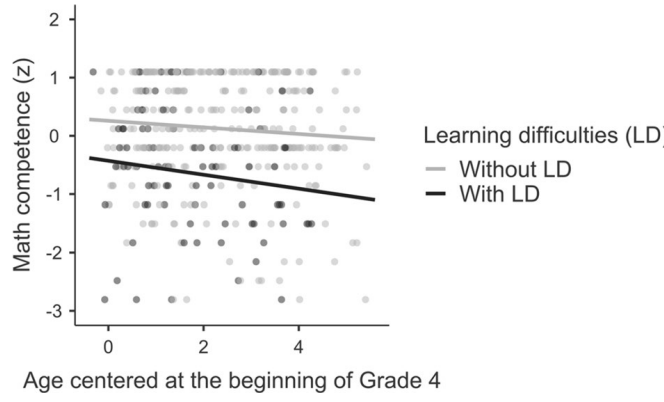

Fig. 3 Growth trajectories of math competence for students with and without learning difficulties from Grade 4 to Grade 8

Global self-worth

The results of the mixed model analysis for the self-perception of global self-worth are displayed in Table 9. The final model showed a significant cross-level interaction between LD and age ($p=0.004$). A test of simple effects indicated a significant ($p=0.03$) slight ($\Delta z=-0.09$) yearly decrease in global self-worth for students without LD and a significant ($p=0.03$) and considerable ($\Delta z=0.17$) yearly increase in global self-worth for students with LD (see Fig. 4). However, the final model explained only 2.6% of the variation in self-perception of global self-worth indicating that the inclusion of other variables is needed to better explain the variance observed in global self-worth.

Table 9 Mixed model analysis for the self-perception of global self-worth

Parameters	Model 0 Null	Model 1 level 1: Within subjects	Model 2 level 2: Individual level	Final model: Cross-level interaction	Final model: Dependent (z)
Estimates of fixed effects					
Intercept	13.5 (0.15)***	13.69 (0.24)***	13.62 (0.25)***	13.28 (0.28)***	−0.11 (0.12)
Age		−0.08 (0.09)	−0.09 (0.09)	0.12 (0.11)	0.05 (0.05)
LD − no LD			−0.25 (0.37)	−1.48 (0.56)**	−0.64 (0.24)**
LD × age				0.65 (0.22)**	0.28 (0.10)**
Estimates of covariance parameters					
Pseudo R^2	0.000	0.003	0.004	0.026	
ICC	0.469	0.468	0.467	0.472	
AIC	1799.283	1800.307	1801.838	1795.328	
BIC	1811.346	1816.391	1821.943	1819.454	
Log L	−896.642	−896.153	−895.919	−891.664	
Δ − 2LL		0.98	0.47	8.51**	

*$p<0.05$; **$p<0.01$; ***$p<0.001$

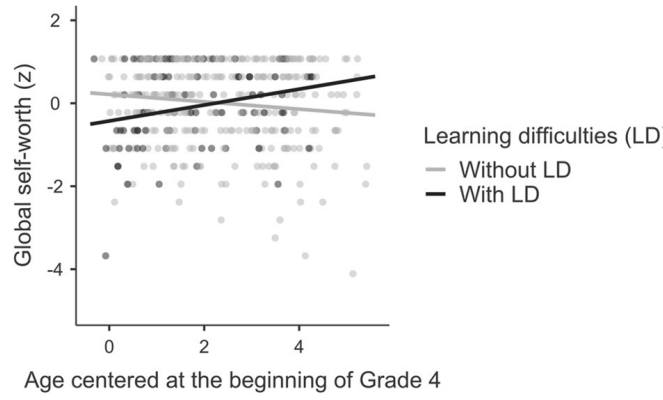

Fig. 4 Growth trajectories of global self-worth for students with and without learning difficulties from Grade 4 to Grade 8

Discussion

This study aimed to examine Icelandic children's self-perception of general intellectual ability, reading competence, math competence, and global self-worth, with a focus on a possible difference between children with learning difficulties (LD) and their peers without LD. In this study, self-concept was considered a multifaceted, hierarchical construct (Marsh & Craven, 2006; Marsh & Martin, 2011), and two academic domains were explored separately. A significant difference was assumed between students with and without LD in the academic domains being analyzed and further examined in terms of grade level.

Consistent with prior studies in other countries, self-perception of general intellectual ability was found to be significantly poorer among Icelandic students with LD than among their classmates without LD from Grade 4 through Grade 8. The results extend prior findings from empirical and meta-analytical studies by Bear et al., (2002), Chapman, (1988), Polychroni et al., (2006), Valentine et al., (2004), and Zeleke, (2004) where children with LD have been found to have lower self-perceived general intellectual ability than their peers without LD. In this study, students with LD consistently perceived themselves as less competent in academic settings than their peers throughout the data gathering, from Grade 4 through Grade 8. All participants attended regular classes in public schools in the capital area of Iceland, where students with LD probably compared their academic ability to that of peers without LD, maybe resulting in them feeling like "small fishes in the big pond" (Bong & Skaalvik, 2003; Marsh, 1987). Students often compare their performance in school with peers of the same age and gender, who perform better than they do (Dijkstra et al., 2008), perhaps hoping for improvement during their studies. However, if they repeatedly experience others to do better academically, the effect on their self-perceived general intellectual ability can be negative.

Self-perception of reading competence and math competence was found to differ between students with and without LD. Although no cross-level interaction was found between age and LD in reading competence and math competence, students with LD reported poorer self-perception, both in reading and math competence than their classmates without LD over the research period. With the intake criteria for this study in mind, with participants who had been experiencing academic difficulties for at least 3 years and/or been formally diagnosed with LD, and the assimilation of general intellectual ability, reading competence, and math competence, these findings are in agreement with previous studies indicating that students who experience academic problems are at high risk for

negative self-perception of competence in reading and math (Chapman et al., 2000; McArthur et al., 2016; Möller et al., 2009).

In this study, children with LD from Grade 4 through Grade 8 repeatedly evaluated their general intellectual ability, reading competence, and math competence as poorer than their peers, indicating that pupils compare themselves with peers in academic settings. This was the case, even though the children were receiving special education lessons. Although children tend to overestimate their abilities at a young age (Dweck, 2002) and typically experience lower academic demands, a difference was reported on their perception of general intellectual ability, reading competence, and math competence from Grade 4, students with LD reported lower self-concepts. Furthermore, a decline in their perception of general intellectual ability and math competence was reported by participants with LD. The findings regarding students with LD are in agreement with results by Onetti et al., (2019), where elementary students in Spain had higher academic self-concept than middle-school students. Also, there is an agreement regarding the decline in academic self-concept of students with LD observed in Hungary (Szenczi et al., 2018).

A significant cross-level interaction between LD and age was found in the final model for global self-worth. In students with LD, an increase in global self-worth was observed, whereas reports of peers without LD indicated a decrease in global self-worth. Could it be that receiving continuing, individualized support in special education classes led to an improved sense of self-worth in students? In Iceland, around 30% of children in each grade level receive individualized support or special education (Statistics Iceland, 2022), with relatively little stigma associated with receiving that kind of support. There are indications that Icelandic students have positive views towards special education lessons in separate classrooms, describing how they prefer them over general classes due to manageable assignments, individualized assistance, and quieter learning environments making it easier for them to concentrate and finish assignments (Author). Possibly, longer exposure to special education classes provided older students with LD with a favorable comparison to other students there, giving them a chance to perceive themselves as "big fish in a small pond"? Also, during special education classes teachers can provide more individualized assistance and encouragement, supporting positive and meaningful relationships with students, that can boost perceived self-worth. Another possible influential factor is that students in Iceland are typically assigned to new class teachers in 5th Grade, giving them a clean slate to build on. When taking on a new class, teachers often focus on getting to know each student, discovering interests and strengths. Perhaps students with learning difficulties started receiving more positive attention and favorable feedback from their new teachers than before, which could have improved their sense of global self-worth (Burnett et al., 1999). Lastly, it should be noted that many factors, other than academic achievement, can affect the perceived global self-worth in children. For example, after-school leisure activities, in which about 83% of Icelandic children are enrolled (Unicef, 2021), can have positive effects. Organized leisure activities have been linked to better physical and mental health (Badura et al., 2015) and can provide children with varied opportunities to be successful, feel included, and build friendships, all factors likely to boost their sense of global self-worth. Perhaps families of children with LD are more likely to emphasize participation in after-school leisure activities to counterbalance difficulties at school, leading to increases in global self-worth not seen in children without LD? Children with special needs attending special education classes have been found to report higher levels of well-being with regard to family relations, than students with special needs not attending special classes (Ragnarsdottir et al., 2018). Further research is needed to explore and determine what factors lead to an improved sense of global self-worth in students, despite academic

difficulties, as those could be key to fostering resilience and well-being of children faced with challenges.

Limitations and future research

The main results of the present study support and extend prior findings to show that Icelandic students with LD have lower self-perception of general intellectual ability, reading competence, and math competence than their peers without LD. However, the methodology employed in this study did not enable us to determine at what age children start socially comparing themselves with peers in school settings. Also, questions were limited to two academic subjects, reading and math, and thus excluded other subjects. Possibly, students with LD have a stronger self-perception of competence in other areas. A geographical limitation is also present as only students from the capital region in Iceland participated. Although there is a certain degree of homogeneity between schools in the capital area of Iceland, it should be noted that participants without LD came from one school and participants with LD from three other schools. It would have been desirable to compare students with and without LD from the same schools, but that was not possible as students with LD in the "control school" received intervention as part of another larger study, and thus were not representative of the general population of students with LD in Iceland. Also, randomly selecting participants from more schools would better represent the population and strengthen the external validity of the study. Future research could include students from rural areas as students from those areas in Iceland have been measured with poorer academic skills than students from the capital area (Directorate of Education in Iceland, 2019). Also, it would be interesting to compare self-perception of general intellectual ability, reading competence, math competence, and global self-worth in students with LD across countries in a systematic fashion. Despite these limitations, the present research adds findings regarding self-perception of general intellectual ability, reading competence, math competence, and global self-worth of Icelandic children with and without LD. The results reflect that students with LD are not only struggling with academic achievement but also have more negative perception of their general intellectual ability, at least regarding competence in reading and math, than their peers. This is important for school staff and policymakers to keep in mind, so they can find ways to prevent learning difficulties, intervene early, and implement support and teaching methods that will maximize students´ academic success and well-being. Professionals already available in the school system, e.g., guidance counsellors, psychologists, and social educators, can provide assistance by teaching the child how to address challenges in their studies and how they can seek appropriate assistance. The child would benefit from being connected to the right support and a coordinator for each child would be beneficial. The coordinator would regularly review the child's performance at school and at the same time look at the child's strengths and weaknesses, comparable to what is done in the City Connects (Lee-St. John et al., 2018) evidence–based intervention system. Information sharing between all parties involved in the child's learning is also important, and regular team meetings can be helpful to promote the right support for the child. All of this leads to improving the child's well-being and at the same time their self-perception as a person and student.

Author contribution All authors contributed to the study conception and design. Materal preparation was performed by Gudrun Bjorg Ragnarsdottir, Anna-Lind Petursdottir, and Zuilma Gabriela Sigurdardottir, data collection was performed by Gudrun Bjorg Ragnarsdottir, analysis was performed by Kristjan Ketill Stefansson and Gudrun Bjorg Ragnarsdottir. The first draft of the manuscript was written by Gudrun Bjorg Ragnarsdottir and all authors commented on later versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interest The authors declare no competing interests.

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Gudrun Bjorg Ragnarsdottir is a PhD student at the School of Education, University of Iceland and a

teacher consultant with the service center in Reykjavik, Iceland. Her research interest relate to children with learning difficulties and their well-being, self-worth, perception of ability and perception of their schooling, and special education classes.

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Anna-Lind Pétursdóttir is a professor of psychology, special education, and applied behavior analysis at the School of Education, University of Iceland. Her research interests relate to promoting teachers' use of data-based decision-making and evidence-based practices for students with special needs, including functional behavioral assessment, positive behavior interventions and support, and peer-assisted learning strategies.

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Zuilma Gabriela Sigurðardóttir, PhD, is a professor at the faculty of psychology at the University of Iceland. Most of her research has been in behavior analysis. Her interests are diverse but include applications of behavior analysis in school settings. Many of her research projects have focused on teaching school personnel and parents efficient ways of managing behavior and accelerating learning. She is also particularly interested in measuring the effects of interventions on the behavior of school personnel, parents, and students as well as on the maintenance and generalization of newly acquired skills.

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Dr. Kristján Ketill Stefánsson is an assistant professor at the School of Education, University of Iceland.

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Harpa Óskarsdóttir is a doctoral student in psychology at the University of Iceland. Current research is in behavior analysis, emphasizing applications of evidence based methods in school settings.

Ragnarsdóttir, G. B., Pétursdóttir, A. L., Sigurðardóttir, Z. G., Óskarsdóttir, H., and Einarsdóttir, E. (2018). Hvernig líður börnum með sérþarfir í skólanum? Mat foreldra á líðan barna með eða án sérþarfa **(How do children with special needs feel at school? Parents ' appraisal of how children with and without special needs feel)**. *Glæður* **(Icelandic Special Education Journal)**, *28*, 17-29.

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Paper III

Student voices:

a Longitudinal Study of Students' Perception of their Schooling and Special Education Lessons in Iceland

*Gudrun Bjorg Ragnarsdottir, Orcid: 0000-0002-1376-4128

University of Iceland – School of Education, Stakkahlíð, 105 Reykjavík, Iceland, email: gbr5@hi.is

Anna-Lind Petursdottir, Orcid: 0000-0002-3812-8881
University of Iceland – School of Education, annalind@hi.is
Zuilma Gabriela Sigurdardottir, Orcid: 0000-0003-0799-6835
University of Iceland – Faculty of psychology, zuilma@hi.is
Annadis G. Rudolfsdottir, Orcid: 0000-0003-0473-2762
University of Iceland – School of Education, annadis@hi.is
Harpa Oskarsdottir, Orcid: 0000-0002-9505-935X
University of Iceland – Faculty of psychology, hao2@hi.is

*Corresponding author

Abstract

This qualitative study explored the school perception of five Icelandic students with learning difficulties, factors affecting their academic progress and well-being, and how their views developed over time. The purpose of this study was to gain knowledge to assess to the school experience of children with learning difficulties in Iceland. Semi-structured individual interviews were conducted repeatedly over a period of three school years. Interviews revealed that participants' general well-being in school seemed linked to peer acceptance and friendships. Participants generally expressed positive attitudes towards school although participants developed a negative attitude towards homework as they got older. The students´ perception of their schooling underlined the importance of listening to students´ wishes regarding their studies and what can support their well-being.

Keywords: Special education, learning difficulties, interview, student perception, well-being

Student voices:

a longitudinal study of students´ perception of their schooling and special education lessons in Iceland

In the past decades, inclusion has been recognized worldwide as the idea that all students have the right to be fully participating members of the school community. To guarantee children´s rights numerous countries have confirmed international statements such as the Salamanca Statement (UNESCO, 1994), the Rights of Persons with Disabilities from the United Nations Convention (2007), and the Incheon Declaration (UNICEF, 2015). Inclusion in education has been in place in Iceland since 2008 when it was declared in Icelandic law on compulsory schools (no. 91/2008, article 17) that all students should receive their education in their neighborhood inclusive schools. A national curriculum published in 2011 further strengthened inclusion in schools (Ministry of Education, Science and Culture, 2011). In Iceland, the main criticism on inclusion focuses, among other things, on the allocation for students with disabilities being inconsistent for their need for service and support (Hrund Logadottir et al., 2012) and the legal environment and the procedures and organization of schools not being compatible (Ministry of Education and Children, 2015,2017). It is clear, that it is essential that legislation and policies of authorities' better support staff within the educational system so they can better support students.

One way of supporting students in their learning is through special education where lessons are designed to meet individual educational needs (UNESCO, 2017). Although special education is sometimes provided through individualized lessons in a separate resource room, the lessons do not have to be separate from other teaching and can be planned within the student´s mainstream class by providing extra resources or by applying alternative teaching strategies (European agency for special needs and inclusive education, 2020). The aim is for all students to be given appropriate teaching, and a formal examination of the child's

difficulties is sometimes requested. Formal diagnoses of specific learning disorders are based on persistent learning difficulties in one or more areas (e.g. reading, writing, and/or math) for six months despite deliberate teaching, observed academic skills significantly below peers, with onset in school or preschool, and not due to other conditions (e.g. vision or hearing problems; American Psychiatric Association, 2013; Frolov & Schaepper, 2021).

In Iceland, around 14 to 17% of students have been formally diagnosed with disabilities or disorders, (Statistics Iceland, 2022). In recent years, around 30% of students in Iceland, across grades 1 to 10 have received special education or support (Statistics Iceland, 2022). One of the reasons for this high proportion could be a relatively open process for applying for special education or support for students, as teachers, parents, and/or students can apply for it, without requiring a formal diagnosis. Most schools use a blended approach to meet the academic needs of those students by using pull-out programs (Statistics Iceland, 2022). Students are offered lessons in small groups either in the same subject as students without learning difficulties or adapted study material. In Iceland, pull-out programs are used about 35% of the time, directed by a special education teacher (Statistics Iceland, 2022). Despite supporting the learning needs of a large group of students roughly a third of students have failed to meet set standards at the end of 2nd grade, reflecting a lack of reading comprehension required for academic learning (Bjorgvinsson & Bentsdottir, 2017).

In school it is important to listen to the voices of everyone involved, and student voices can for instance be helpful in making schools and classrooms more inclusive (Ainscow, et al., 1999) and demonstrate discrepancies that can occur between groups such as teachers and students (Ianes, et al., 2016). A mismatch between needed and provided support, and the feeling of not being listened to, can hinder learning and progress of this vulnerable group (De Boer & Kujiper, 2021). Information from students can be helpful to improve and change teaching for the benefit of the students. Advocacy, a sense of identity, transparency,

and shared experiences are among the key elements of inclusion in education (McMaster, 2014) and emphasize the importance of listening to student voices. Researchers have explored the views of students with learning difficulties, aiming to shed light on their perception of school, challenges, and support received in different settings, and how these factors have affected their learning and social status (De Boer & Kuijper, 2021; Gudjonsdottir, 2015; Hjaltadottir, 2018; Mortier et al., 2011; Norwich & Kelly, 2004). Dutch and Icelandic students have expressed a positive view of the special educational support they receive (De Boer & Kuijper, 2021, Gudjonsdottir 2015; Hjaltadottir, 2018). Norwich & Kelly (2004) examined the perception of children with learning difficulties on inclusion in mainstream and special schools. Most of the participants expressed positive feelings towards school and their teachers. Students have also reported better quality support in pull-out programs where they could concentrate better, get attention from teachers, develop better learning strategies, get appropriate and better work, less distraction, and less bullying (De Boer & Kuijper, 2021; Klingner et al., 1998; Norwich & Kelly, 2004; Mortier et al, 2011). Although students have reported a mismatch in given support and support needed they have also reported the support they received resulted in better learning outcomes.

Students with learning difficulties have considered their social status excellent in school and assessed their general well-being as good (Hjaltadottir, 2018). Icelandic students with learning difficulties who have received academic support in special education classes through pull-out programs often have to attend special education classes separate from the rest of the class, causing them to miss out on experiences the rest of the group shares (Author). These missed experiences can negatively affect social status, relationships, and friendships of students with learning difficulties (Riitaoja et al., 2019). For example, reports of Dutch students (De Boer & Kujiper, 2021) have supported this notion, indicating that receiving support in special education classes had negatively impacted their interactions with peers due

to decreased opportunities for peer interaction. Thus, it is important to have the opportunity to form relationships with classmates so they can easily seek support both socially and academically.

Good relationships between teachers and students are important. Students need to feel comfortable in class to make it easier for them to ask for teachers' help. Strong teacher and student relationships can also be beneficial for teachers. For example, teachers who strive to form meaningful relationships with their students have been found to have greater self-efficacy in engaging their students in learning activities (Chang et al., 2022). Students have said good teachers show empathy, use humor, are fair, be determined but at the same time flexible with students (Raufelder et al., 20016). Thus students have emphasized personal factors rather than academic abilities in their teacher.

Parental involvement and support are important for children with special educational needs but variables like student grade level and educational needs have to be considered. One way for parent to get involved in their child´s learning is to help with homework. When considering grade level early intervention is important as greater effects of homework have been found for students in grade four and five than older students (Paschal et al., 1984), who tend not to complete their homework if they do not perceive it as meaningful or beneficial (Maharaj-Sharma & Sharma, 2016). Teaching students appropriate learning strategies for assignments, increases the likelihood of them completing their assignments quickly and accurately (Baş, Şentürk, Ciğerci, 2017; Maharaj-Sharma & Sharma, 2016).

In general, individuals try to form groups with similar individuals and maintain positive social identity through the group (Tajfel & Turner, 1979). Therefore, it can be challenging for students with learning difficulties who are identified as such and grouped together to receive special support, to form positive connections with their classmates without learning difficulties. Attitude, group judgment and group identification has been measured

more positive towards children without learning difficulties (Nowicki, 2012). Students with learning difficulties have reported significantly more bullying experiences than peers without learning difficulties (Kokkinos & Antoniadou, 2013; Lung et al., 2019; Saylor & Leach, 2009). Bullying has been described as a deliberate act of aggression involving repeated exposure of the victim to a variety of aggression ranging from teasing to causing deliberate physical harm (Denault, 2018). Bullying is often directed towards individuals who are perceived to be different or belonging to another group. There are also indications that students with learning difficulties are more likely to show behavioral characteristics of the bully (Kokkinos & Antoniadou, 2013) perhaps due to their previous experience as victims, social skill deficits, insecurities related to academic challenges, or lack of peer acceptance or support from friends, negatively affecting their well-being.

In this study, the main aim was to examine the attitudes of students with learning difficulties towards their primary schooling, the special education they have received and their well-being. We do not know of any research where students have been followed over time and interviewed repeatedly to see if there is a change in their attitude.

Method

This longitudinal study employed a qualitative approach to understand how students with learning difficulties perceived their schooling, academic challenges, special support, homework and social status over time. A qualitative, reflexive thematic analysis (Braun & Clarke, 2022) was used to develop themes from students´ answers over time. Thematic analysis is a "method for developing, analyzing and interpreting patterns across a qualitative dataset" (Braun & Clarke, 2022, pp. 4) with reflexivity involving a practice to reflect on the research practice and development (Braun & Clarke, 2022).

Research question

The current study was guided by the following research question: How do students with learning difficulties perceive their schooling, focusing specifically on academic challenges, special support, and homework?

Participants

All participants were part of a larger study conducted by the first three authors, conducted in a public school in the capital region of Iceland. In the large study, the effect of teaching methods on reading learning for students in grades 1 and 2 war examined, as well as the impact on reading and mathematics in students with learning difficulties in grades 4 to 8. The effect on self-concept, academic self-concept, reading self-concept and mathematic self-concept of students with learning difficulties was also examined. The parents of all children with learning difficulties were interviewed separately. Participants in this study were children with learning difficulties who were in Grade 4 when the large study began and were enrolled throughout the study. Purposive sampling was used to select five participants. They were chosen for this study because they were the only participants interviewed on four occasions whereas other participants were interview on one, two or three occasions. Around 400 students in grades 1 to 10 attended the school and the student-teacher ratio was 9:1. Class sizes varied from 21 to 23 students during the three school years this study was conducted. Participants were nominated by teachers and permission for participation granted by parents and participants. Intake criteria were that students had been diagnosed with learning difficulties by independent service providers and/or had been experiencing academic difficulties in reading for at least three years according to both teacher and parent reports. All participants had received special education lessons (pull-out) in reading and math since first Grade. All followed regular classroom programs and received support in reading and math through three to five group lessons per week in special education classrooms, with each pull-out lesson lasting 40 minutes. Group sizes in the special education classrooms did not exceed

6 students. Consent was obtained from the parents of all participants, describing each part of the study separately. Parents gave consent to interviews after being provided information about the research and information about where and when the interviews would take place, as well as information about who would conduct the interviews. The interviews were always conducted without the presence of the children's parents, also the school staff were not present at the interviews. The parents of the children also participated in separate interviews that took place within the same month and the interviews with the children. Before each interview, the child was reminded that he or she could refuse to participate, refuse to answer certain questions, and stop participating at any time. To ensure the privacy of all participants they were given the following pseudonyms: *Aron, Mikael, Emil, Sara* and *Anna*.

Procedure

Data Collection and Analysis

The data were collected through one-to-one semi-structured interviews (see Appendix A), each lasting between 20 and 30 minutes. In this longitudinal study, each student was interviewed four times where the interview questions were asked repeatedly at the four waves. The first interview took place two months after participants started 4th Grade, interview two at the end of 4th Grade, interview three at the end of 5th Grade and interview 4 at the end of 6th Grade. Interviews were chosen because the objective was to enable participants to express how they perceived their learning difficulties, special education classes and school in general, homework and social relations. The participants were asked if they experienced any difficulties in school, how they perceived school and special education classes, how they managed their schoolwork and homework, and how they perceived the available support. All interviews took place in a separate room without teachers or other staff at the school. The interview always began by informing the child of the purpose of the interview and requesting his or her consent to the interview. A prior consent had been obtained by a parent of the child.

The child was always reminded that participation could be refused without consequences. Once consent was given, an informal chat took place to try to achieve a relaxed atmosphere and make the child feel comfortable. At the end of the interview, the child was thanked for his or her participation (Lichtman, 2006).

The first and last interviews of the study were conducted by the first author. From fall 2014 to fall 2016 the first author observed special education lessons attended by participants. To reduce the likelihood of effects on participants, the second (spring 2015) and third interviews (spring 2016) were conducted by trained master students. The collected audio-recorded data was transcribed verbatim. The study used reflexive thematic analysis (Braun & Clarke, 2022; Terry & Hayfield, 2021) as it was considered a good method for "developing, analyzing and interpreting patterns across a qualitative dataset" (Braun & Clarke, 2002, p. 4). A systematic and transparent approach was used to ensure the quality of the analysis and the six-phase process of reflexive thematic analysis was used. Analysis was performed by the first author and started by the first author familiarizing herself with the dataset and checking the transcripts prior to coding. Initial code generations were made by repeatedly reading the data in an active way and extracting codes from the data that summed up what was being described (e.g. "*I think there should be like less bullying*"). Codes were reviewed and shifted from descriptive to analytical codes when appropriate. Groups of initial codes were brought together. Codes were given interpretative meaning (such as "*Bullied because of speech impairment*"). Themes were developed, using significant quotes, codes were organized into likely themes, and checked if the themes fit the data set. In the last step, the data was written up and weaved together with the analytic narrative (Braun & Clarke, 2022).

Ethics

Ethics principles set out by science ethics and the Science Ethics Committee of the University of Iceland and Rannís – The Icelandic Centre for Research were followed. The study was reported to the Data Protection Agency (Icel. Persónuvernd). Ethical guidelines on respect, indemnity, justice, and goodwill were considered (Bournot-Trites & Belanger, 2005, Flick, 2006). The participants and their parents were informed about the study´s aim and asked to sign a voluntary informed consent form, with information about participant anonymity, withdrawal right at any stage, confidentiality from the researchers and information on data storage and usage.

Results

Four key themes were developed regarding well-being in school, views towards learning, views towards special education classes and homework.

Positive peer relations crucial to well-being in school

In general, the participants linked friendships with well-being and cited teasing as the main cause of discomfort at school.

At the beginning of fourth grade, all participants but one expressed mixed feelings towards school. They liked school and all of them said they had some friends. Anna had just started in the school but felt the new school was immediately better than the old one because of less noise and no bullying. Sara´s comments about the school were characteristic of everyone's answers: *"Sometimes it's a bit difficult at school. Then I feel a little bad. But sometimes I just feel really good… sometimes difficult because some in my class are naughty and the boys tease me a little often it's a bit difficult".* Bullying and teasing affected the children. They had all been subjected to some form of violence, either mental or physical, even by kids they considered their friends. For example, Mikael said "*When my friends are*

mean" and when asked what he meant by "*mean*" his answer was "*They sometimes beat me*". In some cases, they managed to shake it off and carelessly mentioned that a friend was sometimes teasing. When asked if they told someone about the teasing, the participants said they usually didn´t tell their parents or teachers about incidents of bullying simply because they said it wouldn´t help, but the experience of bullying affected them for a long time. An example of this was Anna, who said at the beginning of 4th grade that a friend in the old school had turned against her in 3rd Grade after being her friend in 1st Grade and 2nd Grade. She mentioned this friend again unasked at the end of 5th Grade and that experience clearly still affected her. She also wondered what she had done wrong when trying to make friend, describing how she had smiled and tried to be friendly at school "*I was kind of hated there, yet I don't understand why I smiled every morning and never refused to go to school, I wasn't learning well and I always smiled but I didn't have any friends*". She had even taken action at the end of 4th Grade, negotiating with a boy at school so he would leave her alone "*I made a deal with one boy… so he would stop teasing me*".

The students´ own past behavior also affected their well-being at school. Emil, for example, wanted to acquire a time machine so that he could go back in time to improve his own behavior and remove a registration of negative behavior. He said "…*because I sometime get a note and I really want to go back in time and yes….I have to put it [the note] in my bag and show mom and dad…I feel sad*".

During the study period, it was found that well-being at school was related to whether participants felt they had friends or not. This was well demonstrated in interviews with Mikael, Anna, Aron and Emil who felt better at school when they thought they had good friends, even though they were experiencing bullying from classmates at times.

Despite challenges school is a good place

Throughout the study the participants were generally positive towards their school even though they did not always understand the instructions or were able to complete their assignments. There were different attitudes between the boys and girls regarding their own abilities, where the girls were more positive and persistent, while the boys wanted more help and expressed less self-confidence in their studies.

The participants mentioned that teachers were helpful if they raised their hand and asked for help. However, sometimes they experienced a mismatch between help they asked for and the help they received. Changes in assignments or class placement were usually not explained to them and they were never asked about their opinion about those changes. By the time Aron had just started 4th Grade he had noticed that his class teacher was sometimes trying to help him by shortening tasks, "*she told me to do less than the other kids*", which he found to be strange since his classmates had to finish their assignments. Throughout the study the children were asked about what they liked most in school, four out of five repeatedly mentioned woodwork, home economics, and mathematics were their favorite subjects. Emil´s answer at the end of 5th Grade was typical for the participants, he said "*Home economics and then woodwork and then arts I just like it all*".

During the research period, a certain change of mindset seemed to take place among the girls and they discussed the importance of diligence and resilience as factors that could help them in their studies and overcome obstacles. For example, Anna said: "…*you will not know what to do when facing difficulties if you always take the easy route*" and then added "*Sometimes I like doing hard things*" as if she liked the challenge of hard work. The boys, on the other hand, seemed to think that external factors such as listening to music in class, using spinners, wearing earmuffs, taking medication or getting a new teacher would help them in their studies. Two of the participants mentioned at the end of 4th grade that they felt difficult

starting school after summer break. Aron said he would "*probably forget everything*" he learned while on summer break. Mikael said "*When I´ve been away for a long time I just feel like the school has changed into another school…I don´t like taking a summer break…just never close the school I want to live here*" which indicates that though he had difficulties in his studies and sometimes had trouble regarding friends he viewed the school as a safe place.

Students want classes tailored to their needs

Throughout the study the participants followed regular classroom programs and received support in reading and math through three to five pull-out lessons per week in special education classrooms. In general, the participants held a mixed view towards special need education. They liked the quiet time in smaller groups, receiving a more concise instruction from teachers and more time with the teacher who was able to help them more. Anna, who held a positive view towards special education classes throughout the study said "*It´s really what I like most in school*" when she was asked about the classes at the end of 5th Grade. Mikael however disliked the special education classes when he was in 4th Grade. He said it was some kind of punishment if he couldn´t finish his tasks "*They sometimes make me go over there because I take my time finishing, then they me make go down there.*"

Participants´ well-being in special needs classes seemed to be somewhat related to whether they considered their special needs teacher to be "a good teacher" or not. All participants mentioned that "good" teachers helped them, were kind, treated them with respect and acted as if their well-being mattered to the teachers. In 5th Grade, for example, Mikael changed special needs teachers, and this had a positive effect on his well-being in the special education class. He described there was more peace in class and the tasks suited him. However, he claimed all repetition was boring. This was the only year that Mikael mentioned positive changes in his reading ability, but he said "*I read much faster and understand the words very well*". Aron expressed similar perceptions, after he got a new special needs

teacher, he said the tasks and classes were fun as well as him being "*quicker to read and read more clearly*". During the study the participants repeatedly mentioned a specific special education teacher that they regarded as a good teacher. When asked about that teacher and what made him a good teacher, Sara´s comment at the end of 6th Grade was typical for their responses but she said the teacher "*acts a little more like we're becoming teenagers not just that we're little kids*", she furthermore mentioned that the teacher who rewarded the students when they achieved their goals was a better teacher than the other teachers. The same teacher rewarded his students when they achieved their goals. This way, the teacher managed to monitor student progress while informing the students that he was noticing their effort. The rewards seemed to matter to the participants although the extent of the rewards mattered little, for example, some participants were rewarded when they achieved their 6th Grade reading goals by getting candy (one sugar-free mint). Most of the participants said it was easier to get short and specific assignments where the goal was clear but more difficult to get longer texts to read and "*to imagine the text and it's so hard to remember what happened in the text and I have to answer questions"* (Anna). They claimed short reading comprehension tasks, such as texts about animals or kids their age, appealed to them but said tasks based on old test texts were boring. Aron´s comments at the end of 5th Grade on the old test texts were "*easy but did not make sense*" and he managed to summarize well that the participants did not seem to connect with the text as it was too fictional and possibly not connected with their reality.

Mikael´s wishes regarding a new special needs teachers were not met, but he said in an interview in 6th grade that he had repeatedly asked to be allowed to change teachers in special needs education. Being denied a new special needs teacher seemed to have a negative effect on his well-being, he found all tasks difficult, the teacher boring and did not notice any progress in reading or math. Aron had made the same wishes and got assistance from his mother, and his wish was met. As a result, he changed teachers in the middle of the year in the

5th Grade. This change had, according to him, a positive effect on his well-being, which continued to improve while he was in 6th Grade.

Homework appreciated given parental support

During the research period, the main emphasis was on students reading at home five times a week on average. They also had to do short math assignments on a weekly basis as well as short writing assignments. All participants needed the assistance of parents or other relatives with their homework throughout the study period. The assistance was necessary for them to be able to carry out their tasks and the assistance they received influenced their views on homework. Their parents did not always have the skills needed to help them and this had a negative effect on the participants' learning.

Attitudes towards homework were positive among all participants when 2 months had passed from the beginning of 4th Grade. During the research period their attitude towards homework became more negative as the homework became more difficult. All of them received help at home from their parents and felt that the homework generally went well if they received help. During the study period, all participants named their mother as the person who provided the most help with homework. At the end of 4th Grade, there were slightly more negative feelings towards homework. Mikael "*just enjoy(ed) studying with my mother*" but said his mother sometimes did the work for him in part to make it easier for him. Other participants mentioned that parents would say no when asked to finish the homework assignments for them. Two participants said that the part of homework was overtime for them, they preferred to finish their work during school hours as the teachers knew better how to solve the tasks. Anna said "*I feel like I can´t do it, because I find it difficult to do it when I do not have any help, because the teachers know it, because some things my mother and my father do not know…the teachers still know, so I'm always in trouble*". Sometimes they simply told their teachers that they had forgotten to do their homework when in fact they

weren´t able to work on the assignment because they didn´t know how to. One participant (Mikael) said that his teacher would be irritated if he did not hand in homework (which he had not been able to work on at home because his parents did not know how to help with the task).

Discussion

The main purpose of this study was to listen to students´ voices about their perceived well-being in school, schooling experience, special education lessons and homework. Results showed that when asked about their well-being in school the participants linked their well-being in school with friends and having someone to play with during recess and after school, they cited teasing as the main cause of discomfort. Attitude towards school and learning was generally positive although participants did not always understand instructions given in books or by teachers. Craft and art such as woodwork and home economics were repeatedly mentioned as students' favorite subjects. All schools in Iceland implicit inclusive school policies and focus on a wide range of subjects in everyday activities. Most schools in Iceland offer students studies in craft and art such as woodwork, painting, sewing, acting, and home economics for a limited time each school year throughout their schooling. Attitudes towards special education were mixed with well-being in special education partly being related to feelings towards the teacher. Teachers' behavior towards students seemed to have the greatest impact on whether students thought the teacher was suitable for them. Participants in the current study seemed to have similar assessments of what characterized a good teacher as participants in a research by Raufeld et al (2016) who mentioned personal traits when asked about what characterized good teachers. Two developments among the participants were noticed during the research period. Firstly, a change in the attitude among the girls as they started to focus more on the importance of diligence and resilience while the boys focused more on external factors for educational success. These different attitudes are shaped by various factors in the participants´ lives. Perhaps the girls have the autonomy and connections

that help them in their studies while it hinders the boys and decreases their student engagement. Secondly, attitude towards homework became more negative as students got older and homework assignments seemed to get more difficult for them leading to them needing help from their parents who sometimes could help and sometimes not.

Statistics regarding students with special needs have been stable in recent years with about 30% of Icelandic students requiring support in their studies (Statistics Iceland, 2022). The needs of this group should be met, both academically and socially. If this group is in social difficulties, as some of the participants in this study reported, support needs to be increased by teaching them positive communication and supporting social communication in various ways. In addition, a school environment that supports children who have social difficulties needs to be created. Both teachers and parents can help the children, for example teachers in lessons with discussions and exercises in communication and parents with discussions and by inviting their children's schoolmates to visit or some other activities that they can manage. Evidence based materials such as the *Program for the Education and Enrichment of Relational Skills* (PEERS®) can be used in parallel. In previous research students have reported their social relationships to be disrupted during school hours if their classmates/friends did not also attend special education classes (De Boer & Kujiper, 2021; Riitaoja et al., 2019). Participants in this study did not mention missing out on social connections, they all knew each other and even mentioned each other as friends even though there was no or little communication between them outside of school. The participants were in the same year group, with two classes and ample opportunities for communication between teachers and students in terms of collaboration in various tasks. Participants in this study mentioned cases that could be considered as being victims of bullying. However, they rarely told their parents because they did not think that would change anything. Previous research

has indicated a difference in the responses of students and their parents regarding bullying as parents seemed less aware of the bullying that their children experienced (Lung et al., 2019).

In recent years, about 30% of students in Icelandic primary schools have received some support in their studies (Statistics Iceland, 2022). One of the reasons for this high proportion could be a relatively open process for applying for special education or support for students, as teachers, parents, and/or students can apply for it, without requiring a formal diagnosis. The support is, among other things, intended to help students understand their assignments, but reading comprehension among a third of Icelandic students has been repeatedly measured below the reference level at the end of 2nd grade (Bjorgvinson & Bentsdottir, 2017; OECD, 2019). It is therefore clear that despite the diverse teaching methods and qualified staff in Icelandic primary schools, there is a need to examine more closely how students who struggle with reading difficulties can be better supported.

Both positive and negative feelings were expressed by the participants towards special education. Participants reported they could concentrate better, get more attention from the teacher and less distraction in special education classes as reported by De Boer & Kuijper (2021), Klingner et al (1998), Norwich & Kelly (2004) and Mortier et al (2011). The well-being in special needs education seemed to be somewhat related to whether participants liked their special needs teacher or not. It is important for teachers to try to engage with students and especially students with learning difficulties to further their learning activities. Teachers in Chang´s et al study (2022) who reported stronger goals of forming important relationships with their students also described more self-esteem in involving students in learning activities. If a student and teacher do not match, it should be easy for the student to be transferred to another teacher to increase success rate.

Attitudes towards homework were positive among participants when 2 months had passed from the beginning of 4th grade. During the research period their attitude towards

homework became more negative as the homework became more difficult. Elementary schooling in Iceland is divided into three ways: the first level when the children are 6 to 9 years old, the second level when the children are 10 to 12 years old and the third level when they are 13 to 15 years old. Learning materials are generally considered to be more difficult as children move on to the next level. At the same time, homework becomes more difficult and students with learning difficulties must spend more time on homework than their peers without learning difficulties (Sigurgeirsson & Bjornsdottir, 2016). Paschal et al. (1984) found that greater effects of homework on academic success could be found for students in grades four and five than on older students. Here, attitude could play a part as students need to find homework assignments meaningful and beneficial. Mikael´s attitude got more negative as he got older, he stopped trying to work on his homework as he found it too difficult, and his parents could no longer help. He mentioned a teacher getting annoyed with him for not completing his assignments at home. A better approach would be to customize the project so the student would be able to work independently on the project at home. As feedback from teachers is an important part of encouraging students to do their homework (Maharaj-Sharma & Sharma, 2016) a negative one like being annoyed does little to encourage students. Homework is in most cases intended to be more focused on students' fewer specific skills. It is therefore necessary for students to have the skills the teacher intend for them to work with when they return home. If parents are to be encouraged to support their children's education, parents also need to be taught the methods that their children are expected to master.

Limitations and conclusion

In this longitudinal study, 5 students were interviewed four times over a period of three school years or from the time the children were 9 years old until they were 12 years old. The time given in the study's data collection is among its strengths. A longitudinal study such as this can reveal whether there is a specific pattern in students' opinions that develops during

their schooling. This study has limitations that are worth mentioning. First, the selection of the sample should be mentioned as only students who had experienced learning difficulties for three years or more were selected. With only five participants there is a lack of representatives of important groups such as bilingual students, queer students, immigrants, and students with physical disabilities. Also, a certain homogeneity is present as all participants attended the same school in the capital area of Iceland and had the same teachers. Future research related to the attitudes of students with learning difficulties could therefore relate to a more diverse group of participants compared to the attitudes of the participants in the current study and the sample could be larger.

The main results of this study are that the participants associate well-being at school with friends and acquaintances at school. Participants generally feel comfortable at school, despite having difficulty understanding instructions and not being able to complete their assignments sometimes. They like to go to special education classes in smaller groups as they get help quickly from teachers, but a good relationship with special teachers is important so that students feel good in class and experience progress in their own studies. Participants in the study could not work independently in their homework assignments, always needed help from parents or relatives and if that help was not available, homework was not completed. The participants developed a more negative attitude towards homework as they got older. The homework got more difficult and seemed to be too difficult for the participants. These results emphasize the importance of paying attention to how homework is presented both to students and their parents, who are primarily responsible for providing educational support at home for their children. Furthermore, the findings of this study indicate that students are not asked about their opinions about many things related to their schooling, for instance their projects and educational placement.

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Appendix A.

The following questions were presented to participants:

1. What do like to do?
2. What do you want to become when you grow up?
3. What do you like to do in school?
4. Do you have any difficulties in school? When did it start?
5. Have your difficulties been diagnosed? Do you know why? Has anything changed since you were diagnosed?
6. What do you find most difficult in school? Can you explain?
7. What do you think this school year will be like?
8. Can you finish your tasks in school? What kind of tasks do you finish? What kind of tasks do you not finish?
9. Do you understand instructions? In books? Given by teachers? What is difficult to understand?
10. Does another teacher sometimes come to your class? Does the teacher help just you or everybody?
11. Does a teacher sometimes come and invite you to another room? How do you like that? Do you know why the teachers comes? Does it help? What do you do in these classes?
12. How do you like school? How do you like language lessons? How do you like math?
13. If you could change anything in the school. What would you change?
14. Do you look forward to school after the summer break?

15. Do you look forward to school when you wake up?
16. How do you think learning to read is going?
17. What´s homework like? Who helps you?
18. If you had one wish, what would you change regarding school?

Appendix A: Overview of questions used from the parent versions of KIDSCREEN-52 (The KIDSCREEN Group, 2004) for paper I.

Factor within questionnaire evaluating parents′ perception of their children′s well-being in school	Question used to assess parents′ perception of their children′s well-being in school
KIDSCREEN-52[a]	Question used to assess parents′ perception of their children′s well-being in school
Physical activities and health	1. In general, how would your child rate her/ his health (excellent, very good, good, fair, poor) 2. Has your child felt fit and well? (not at all, slightly, moderately, very, extremely) 3. Has your child felt full of energy? (never, almost never, sometimes, almost always, always)
Feelings	Thinking about last week: 1. Has your child felt that life was enjoyable? 2. Has your child felt pleased that he/she is alive? 3. Has your child felt satisfied with his/her life? 4. Has your child been in a good mood? 5. Has your child felt cheerful? 6. Has your child had fun?
General mood	Thinking about last week: 1. Has your child felt that he/she does everything badly? 2. Has your child felt sad? 3. Has your child felt so bad that he/she didn′t want to do anything?

	4. Has your child felt that everything in his/her life goes wrong? 5. Has your child felt fed up? 6. Has your child felt lonely? 7. Has your child felt under pressure?
Free time	Thinking about last week: 1. Has your child had enough time for him/herself? 2. Has your child been able to choose what to do in his/her free time?
Family and home life	Thinking about last week: 1. Has your child been happy at home?
Friends	Thinking about last week: 1. Has your child had fun with his/her friends?
School and learning	Thinking about last week: 1. Has your child been happy at school? 2. Has your child got on well at school? 3. Has your child been satisfied with his/her teachers? 4. Has your child enjoyed going to school? 5. Has your child been able to pay attention? 6. Has your child gotten along well with his/her teachers?

Appendix B: Overview of questions used from the parent versions of KINDL^{R} (Ravens-Sieberer & Bullinger, 2000) for paper I.

KINDL^{R}	During the past week:
Emotional well-being	1. My child felt alone 2. My child felt scared or unsure of him-/herself
Self-esteem	1. My child was proud of him-/herself 2. My child had lots of good ideas 3. My child felt pleased with him-/herself
Family	1. My child got on well with us as parents 2. My child felt fine at home 3. We quarreled at home 4. My child felt that I was bossing him/her around
Social contacts	1. My child was liked by other kids 2. My child felt different from other children
School	1. My child easily coped with schoolwork 2. My child worried about his/her future 3. My child was afraid of bad marks or grades

Appendix C: Overview of questions used from Self-Perception Profile for Learning Disabled Students (Renick & Harter, 1988/2012) for paper II.

Factors of self-concept	Questions
General self-concept/global self-worth	1. Some kids are unhappy with themselves BUT other kids are pretty pleased with themselves 2. Some kids are happy with themselves as a person BUT other kids are often not happy with themselves 3. Some kids are happy being the way they are BUT other kids wish they were different 4. Some kids are not happy with the way they do a lot of things BUT other kids think the way they do things is fine
Academic self-concept/general intellectual ability	1. Some kids are sure that they are pretty smart in school BUT other kids are not so sure they are all that smart in school 2. Some kids feel that they are just as smart as others their age BUT other kids aren′t so sure and wonder if they are as smart 3. Some kids feel that they are very good at their schoolwork BUT other kids worry about whether they can do the schoolwork assigned to them 4. Some kids feel kind of dumb when it comes to doing their schoolwork BUT other kids feel that they are pretty bright when it comes to doing their schoolwork 5. Some kids are not very good learners in school BUT other kids are good learners in school

Self-concept in reading/Reading competence	1. Some kids can read most stories and books pretty easily BUT other kids have a hard time reading stories and books 2. Some kids are really good readers BUT other kids have a hard time with their reading 3. Some kids have trouble with their reading BUT other kids do well in reading 4. Some kids read pretty fast BUT other kids are pretty slow readers
Self-concept in math/Math competence	1. Some kids can do their math pretty easily BUT other kids find it hard to spell most words 2. Some kids are good at math BUT other kids have a hard time with math 3. Some kids have trouble doing math problems BUT other kids do well at their math problems 4. Some kids find it hard to understand math BUT other kids can understand math pretty easily

Appendix D: Questions presented to participants in interviews.

1. What do like to do?
2. What do you want to become when you grow up?
3. What do you like to do in school?
4. Do you have any difficulties in school? When did it start?
5. Have your difficulties been diagnosed? Do you know why? Has anything changed since you were diagnosed?
6. What do you find most difficult in school? Can you explain?
7. What do you think this school year will be like?
8. Can you finish your tasks in school? What kind of tasks do you finish? What kind of tasks do you not finish?
9. Do you understand instructions? In books? Given by teachers? What is difficult to understand?
10. Does another teacher sometimes come to your class? Does the teacher help just you or everybody?
11. Does a teacher sometimes come and invite you to another room? How do you like that? Do you know why the teachers comes? Does it help? What do you do in these classes?
12. How do you like school? How do you like language lessons? How do you like math?
13. If you could change anything in the school. What would you change?

14. Do you look forward to school after the summer break?
15. Do you look forward to school when you wake up?
16. How do you think learning to read is going?
17. What′s homework like? Who helps you?
18. If you had one wish, what would you change regarding school?