

JYU DISSERTATIONS 41

Mekonnen Mulat

**The Self-Concept and Socio-Emotional
Development of Deaf and Hard-of-Hearing
Students in Different Educational Settings
and their Hearing Peers in Ethiopia**



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF EDUCATION AND
PSYCHOLOGY

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ABSTRACT

Mulat, Mekonnen

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This thesis examined the socio-emotional problems and self-concept of deaf and hard of hearing (DHH) students in different educational settings (special class/unit, special school) compared to those of hearing students in Ethiopia. Furthermore, the study investigated the transition of DHH students from 4th grade (cycle 1) into 5th grade (cycle 2) in relation to the academic achievement, academic self-concept and their social wellbeing. In this transition DHH students from special class/ unit transitioned into mainstream education. A total of 103 students selected from seven towns in Ethiopia, representing three groups in different school settings participated in the first study when they were in Grade 4 (Time 1). The second measurement was made after a year on 72 participants who transitioned to Grade 5 (Time 2). The aims of the study were addressed in three sub studies. Data was collected using the self-report version of Strengths and Difficulties Questionnaire (Goodman, 1997) to measure the socio-emotional aspects and the Self-Description Questionnaire (SDQ-I, Marsh, 1990) to measure the multidimensional aspects of children's self-concept. The results showed that, compared to the hearing sample, the DHH students experienced more severe socio-emotional problems across all dimensions. In comparison to their hearing peers, DHH students (regardless of their educational setting) had a lower self-concept in the areas of general self, general school, reading, and parental relations. The DHH students in the special school showed a higher self-concept in regard to their physical appearance than the hearing and DHH students in the special class. There were no statistically significant differences between the groups in the self-concept dimensions of peer relations, mathematics, and physical abilities. The academic achievement and academic self-concept of DHH students decreased when they transferred to the mainstream setting, while the academic achievement and self-concept of the DHH students continuing in a special school remained stable. All three groups showed improvements in their social self-concept after the transition. The results show that DHH children expressed great concern about their socio-emotional difficulties, academic achievement and self-concept. Teachers and other professionals need to know more about the DHH children's socio-emotional development to help better these children overcome their challenges.

Keywords: deaf and hard of hearing students, socio-emotional problems, self-concept, inclusive education, mainstreaming, Ethiopia

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TIIVISTELMÄ

Mulat, Mekonnen

Kuurojen ja huonokuuloisten oppilaiden minäkäsitys ja sosioemotionaalinen kehitys eri koulumuodoissa ja heidän kuulevat vertaisensa Etiopiassa

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Tässä väitöskirjassa tutkittiin etiopialaisten kuurojen ja huonokuuloisten oppilaiden sosio-emotionaalisia ongelmia ja minäkäsitystä eri koulumuodoissa (erityiskouluissa ja erityisluokilla) ja vertailuryhmänä oli kuulevia oppilaita. Lisäksi tutkittiin kuurojen ja huonokuuloisten oppilaiden akateemisia saavutuksia, minäkuva ja sosiaalista hyvinvointia heidän siirtyessään neljänneltä luokalta viidennelle luokalle. Tässä siirtymävaiheessa erityisluokilla olleet kuurot ja huonokuuloiset siirtyivät yleisopetukseen. Tutkimukseen osallistui 103 oppilasta, jotka oli valittu seitsemästä etiopialaisesta kaupungista. Heidät oli valittu kuurojen kouluista, kuurojen erityisluokilta ja kuulevien kouluista. Ensimmäisessä mittauksessa (Time 1) oppilaat olivat neljännellä luokalla. Vuoden kuluttua, toisella mittauksella, mukana oli 72 viidennelle luokalle siirtynyttä oppilasta (Time 2). Tutkimus oli kolmeosainen. Oppilaat arvioivat sosio-emotionaalisia vahvuuksiaan ja vaikeuksiaan ”Strength and Difficulties Questionnaire” (Goodman, 1997) mittarilla. Oppilaiden minäkäsityksen mittaamiseen käytettiin Self-Description Questionnaire-I (Marsh, 1990) mittaria. Tulokset osoittivat, että kuuroilla ja huonokuuloisilla oli vakavampia sosio-emotionaalisia vaikeuksia kuin kuulevilla oppilailta. Verrattuna kuuleviin oppilaisiin kuuroilla ja huonokuuloisilla oppilailta (riippumatta kummassa koulumuodossa he opiskelivat) oli myös heikompi minäkäsitys ja heikompi menestys koulussa. He olivat heikompi erityisesti lukemisessa ja heillä oli huonompi suhde vanhempiinsa. Erityiskouluissa olevilla kuuroilla ja huonokuuloisilla oli parempi itsetunto fyysisestä ulkonäöstään kuin kuulevilla tai erityisluokilla olevilla kuuroilla ja huonokuuloisilla. Ystävyysuhteissa, matematiikassa ja fyysisissä kyvyissä ei ollut tilastollisesti merkitsevää eroa ryhmien kesken. Erityisluokilla olevien kuurojen ja huonokuuloisten koulumenestys ja akateeminen minäkuvaan ei tullut muutoksia heidän siirtyessään viidennelle luokalle. Sosiaalinen minäkäsitys kehittyi positiivisesti kaikilla kolmella ryhmällä siirtymän myötä. Tulokset osoittivat, että etiopialaisten kuurojen ja huonokuuloisten oppilaiden tilanne (sosio-emotionaaliset vaikeudet, koulumenestys ja minäkuva) on hyvin huolestuttava. Opettajien ja muiden alan ammattilaisten on tärkeää tietää kuurojen ja huonokuuloisten oppilaiden tilanne pystyäkseen paremmin auttamaan heitä ja vastaamaan esille tuleviin haasteisiin.

Asiasanat: kuurot ja huonokuuloiset oppilaat, sosio-emotionaaliset ongelmat, minäkäsitys, inklusiivinen opetus, valtavirtaistaminen, Etiopia

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Jyväskylä 7.11.2018
Mekonnen Mulat

ORIGINAL PAPERS

This thesis is composed of three publications listed under, referred to as sub-studies I, II, and III in this compilation dissertation. I am the primary and corresponding author of all the three research articles. I was responsible for the research questions, research design, data collection and preliminary analysis of results. I reviewed the literature and prepared the articles first draft for all the individual articles. The co-authors had advisory roles in the statistical analysis, interpreting the results and revising the manuscripts.

Article I Mekonnen, M., Savolainen, H., Lehtomaki, E., & Kuorelahti, M. (2015). Socio-emotional Problems Experienced by Deaf and Hard of Hearing Students in Ethiopia. *Deafness and Education International*, Volume 17, Issue 3, pp. 155 - 162. doi:10.1179/1557069X15Y.0000000002

Article II Mekonnen, M., Savolainen, H., Lehtomaki, E., & Kuorelahti, M. (2016). The self-concept of Deaf/Hard-of-Hearing and Hearing Students. *Journal of Deaf studies and Deaf Education*. Volume 21, no. 4, pp. 345 - 351. doi:10.1093/deafed/enw041

Article III Mekonnen, M., Lehtomaki, E., & Savolainen, H. (2018). Academic Achievement and Self-Concept of Deaf and Hard-of-Hearing and Hearing Students Transitioning from the First to Second Cycle of Primary School in Ethiopia. *International Journal of Inclusive Education*. <https://doi.org/10.1080/13603116.2018.1441913>

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The author of this thesis is the first author of the all three articles. He had major role in data collection, analysis and reporting in every article.

ABBREVIATIONS

ESDP	Education Sector Development Program
FDRE	Federal Democratic Republic of Ethiopia
UN	United Nations
CWDs	Children with Disabilities
EFA	Education for all
PWDs	Persons with Disabilities
DHH	Deaf/Hard-of-Hearing
WHO	World Health Organization
SDQ-I	Self-Description Questionnaire-I
SDQ	Strength and Difficulties Questionnaire
UNESCO	United Nations Educational, Scientific and Cultural Organization
ASL	American Sign Language
EthSL	Ethiopian Sign Language
EECMY	Ethiopian Evangelical Church of Mekane Yesus
FELM	Finnish Evangelical Lutheran Mission
CBM	Christian Blind Mission
SEP	Social and Educational Program
UNHS	Universal Newborn Hearing Screening
dB	Decibel
SD	Standard Deviation
ANOVA	Analysis of variance

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ORIGINAL PAPERS

1 INTRODUCTION

Ethiopia is the second most populous country in Africa after Nigeria with estimated population of 102 million (UN, 2016). The country's total land area is approximately 1.1 million square kilometers having a multilingual nation with more than 80 ethnolinguistic groups. Its capital Addis Ababa is also the headquarter of African Union. Ethiopia is one of the poorest and least urbanized countries in the world, with only an estimated 19% of its population living in urban areas. Four in five of the population lives in the highland, temperate parts of the country. The remaining one in five of the population, mostly pastoral and agro-pastoral groups, live in the lowland that covers 60% of the country's land area (FDRE Ministry of Education, 2015). The fact that 44% of the total population is aged under 14 years and a large majority of the Ethiopian population lives in rural areas in fairly dispersed communities poses challenges for the education sector in providing quality and equitable access to education (Ibid).

After overthrowing the communist military regime in May 1991, the present government of Ethiopia, Federal Democratic Republic of Ethiopia (FDRE), launched a new education and training policy in April 1994 paying more attention to the special educational needs of persons with disabilities as well (FDRE, 1994). The country made a commitment to the goal of Education for All (EFA) by striving to meet the basic learning needs of its population through the provision of primary education for all school-aged children. In 1994 nearly four-fifths of primary school-age children were out of school. To expand schooling quickly and efficiently the country developed a series of five years of Education Sector Development Programs, ESDPs (FDRE 1994; FDRE Ministry of Education, 2002).

While access has increased in general, it continues to be a challenge for school-aged children with disabilities (CWDs). In 2006, less than 1% CWDs were enrolled as schools and teachers often refused to admit them (FDRE Ministry of Education, 2006). To address this issue, Ethiopia with support from the government of Finland, designed the first special needs education program strategy in 2006 (Ayana & Lehtomäki, 2006). The strategy focused on the promotion of inclusive education to meet EFA goals as a main objective on increasing access to schooling for children with disabilities (the strategy is discussed

more under the next chapter). However, during the 2016/2017 academic school year, the gross school enrolment rate for CWDs was still only 7.8% compared to a national rate of 100% (FDRE Ministry of Education, 2017). In 2012, the strategy was revised and re-released in April 2013 along with implementation guidelines (FDRE Ministry of Education, 2012).

Despite the efforts made at the policy level, Ethiopia still has tremendous gaps in the implementation of provision of education for PWDs in general and for DHH in particular. Several factors have been mentioned as a reason for the lower enrolment of these children including the negative attitude of the society towards disability, limited capacity, insufficient materials and assistive devices, rigid curriculum, poor teaching methods, inconvenient learning environment, absence of screening and assessment tools (FDRE Ministry of Education, 2012).

There is no reliable data indicating the total number of DHH people or the number of school-aged DHH children in the country. According to the survey data reported by the World Health Organization (WHO, 2018), 466 million people worldwide have disabling hearing loss, and the majority of them live in low- and middle-income countries. In sub-Saharan Africa, these limitations, combined with lack of information and traditional beliefs and practices, causes preventable hearing losses (Olusanya, 2008). Moreover, because of higher rates of malnutrition, chronic otitis media, meningitis, malaria, and other diseases that may affect hearing, along with limited access to medical treatment and hearing aids, the incidence of deafness is higher in the region than in the United States and Europe.

In Ethiopia, as in many other sub-Saharan African and low-income countries, society still holds negative attitudes and cultural beliefs characterizing disabilities, and affecting child's development and social participation (Derseh, 1995; Eide et al., 2011; Njelesani, et al., 2011; Parnes et al., 2009; Tirusew, 2005). Deafness often is understood as demonic possession or as a punishment from God for the parent's sins and must be cured by witchcraft or purifying waters. For this reason, parents often hide their deaf children from the public, especially in rural areas. A common view in society is to show pity to DHH children and to consider them as a burden because they are dependent and cannot be educated. Erroneous terms like "denkoro" and "duda" for hearing impairment in Amharic have a negative meaning. The terms imply that they are "idiots" who do not understand at all or can't be educated; such attitudes may directly or indirectly contribute to the DHH children's development of psychosocial problems.

In Ethiopia, early diagnosis, screening tests, and appropriate early intervention are not available; consequently, DHH children are subjected to painful traditional practices to cure their deafness in their precious early childhood, which usually could damage the residual hearing and might cause additional health problems. By the time they come to school, which is usually at 9-15 years of age, they are beyond the age at which they could have learned the fundamental basic skills more quickly and easily. Moreover, schools/classes for the DHH children in the rural areas are typically far from the homes of DHH students which may postpone school entry as it may be difficult for the younger ones to walk long distances, e.g. 2 - 3 hours one way. While the existing schools

are located in urban areas, about 80% of the DHH is living in rural areas where proper facilities for health care, education, training and employment are scarce. Poverty is the main cause of their continuing suffering and backwardness. Yet another difficulty is the lack of awareness about the legal provisions they are entitled to. Deprived of facilities of education, the absence or limitation of support means the Ethiopian DHH people are at a disadvantage.

Despite the various challenges, there are encouraging progresses in recent years. The government has considered special needs education as a cross-cutting issue to be prioritized in the ESDP V and invites all non-governmental organizations and other stakeholders' collaboration. As a result, in recent years schooling for DHH students in Ethiopia has increased at a fairly state as part of the EFA and inclusive education movement. For example, in 2012 the number of DHH students registered in schools was 10379 (FDRE Ministry of Ethiopia, 2012); in 2016 the number has grown to 34358 (FDRE Ministry of Ethiopia, 2017). Since year 2008 Ethiopian Sign Language is being studied in Addis Ababa University at a degree level which could play an important role in the development of the language in the future and will enable to get more skilled professionals in the field. Ethiopia's Ministry of Education has called for inclusive education to become a part of Ethiopia's teacher training curriculum in teacher's colleges and regional education bureaus have begun establishing special needs education degree programs (FDRE Ministry of Ethiopia, 2012). Even though access to any form of education is the major challenge for DHH children in Ethiopia, they also seemed to face difficulties learning in the inclusive settings as many of them continue to drop out of schools when transferred to the "inclusive classrooms". I have several years of experience working among DHH people in Ethiopia as a teacher, social worker, and in-service training provider for their teachers. During my work among DHH people in the country, I have observed their continuous difficulties attending at the "inclusive classrooms". Previous to this study, there has not been a research carried out to investigate why large numbers of DHH students in Ethiopia continue to drop out of schools when transferred from the special classes to the mainstream settings. I was therefore initiated to do this research and provide evidence for concerned decision making bodies and other stakeholders to design appropriate ways to improve the inclusion of these children.

The purpose of this thesis was to investigate:

1. The academic and social functioning of DHH students in different learning environments.
2. The impact of emotional and behavioral problems on the life of DHH students in different learning environments compared to their hearing peers.
3. The multidimensional self-concept of DHH students attending different educational settings and hearing students.
4. Influence of the transition from first to second cycle primary education on the outcomes of academic achievement, academic self-concept and social self-concept of DHH and hearing students.

The aims of the study were addressed in the three sub studies. Data was collected using the self-report version of Strengths and Difficulties Questionnaire (Goodman, 1997) and the Self-Description Questionnaire (SDQ- I) developed by Herbert W. Marsh (1990). The Finnish Advisory Board on Research Integrity guideline for ethical issues in research was followed throughout the study process. The nature of the research was explained to students, teachers and directors of the schools. Privacy and confidentiality of respondents was protected.

1.1 Overview of the Education of Deaf and Hard-of-Hearing in Ethiopia

An organized system of non-formal education was started in Ethiopia with the introduction of Christianity in 330 A.D when King Ezana adopted the faith and declared as the state religion (Zewde, 2002). The Ethiopian Orthodox Church was the leading institution for education until the foundation of modern education in the country. Modern education was started with introduction of expatriates from countries like Britain, France, Italy, the USA and Egypt (Tekeste, 1990) and the first government school in Ethiopia, called Menelik II School, was established in Addis Ababa in 1908 by Emperor Menelik II, who was the ruler of Ethiopia at that time. Emperor Menelik II issued the first proclamation on education in 1906 which states that all school-age children were required to go to school to get free education (Tekeste, 1990).

The history of DHH education in Ethiopia like many other African countries is tied with missionaries. Christian missionaries, often from Western Countries, initiated and provided almost all formal education within African communities during the colonial period. The development of special education services in this region is closely associated with their work. Trends in the development of special education facilities within individual countries generally followed a consistent pattern: Services were provided first for those with visual impairments, and then for those with auditory, physical, and mental disabilities (Reynolds & Fletcher-Janzen, 2007). This trend probably reflected the mission organization's beliefs as to the resources (like teaching expertise and materials) needed to serve each of these groups, as well as the family's willingness to admit one or more members have a disability. Because of their normal hearing ability, persons with visual impairments may have been thought to respond more favorably to the use of conventional instructional methods (Reynolds & Fletcher-Janzen, 2007).

In Ethiopia, Finnish missionaries were involved in developing Ethiopia's special education programs, and they opened a school for the deaf at Keren (Eritrea Region) in 1957. Eritrea was part of Ethiopia at that time and later got its independence in 1993. The first school for the deaf in the present Ethiopia was established in 1963 by the Church of Christ Missionaries came from USA. They

used the American Sign Language (ASL) and Signed English as the media of instruction which was gradually modified to suit Ethiopian culture. In 1979 a manual alphabet of the Ethiopian Sign Language (EthSL) was developed for the “fidel” (Ethiopian script), which comprises thirty-four handshapes representing the consonants; there are seven forms of vowels, each of which is distinguished by moving the consonants differently. Almost all DHH students learn both Ethiopian manual alphabet and ASL fingerspelling at school. In 1967 the Baptist Mission opened the Alpha School for the Deaf in Addis Ababa. The Ethiopian Evangelical Church of Mekane Yesus (EECMY) in cooperation with the Finnish Evangelical Lutheran Mission (FELM), Church of Sweden, Christian Blind Mission (CBM) and Cross Links of England established the Hossana School for the Deaf in 1981 and later by 1998 in Nekemte. In 2003 the EECMY in cooperation with FELM designed a project called Social and Educational Program for the Deaf (SEP Deaf) as an out-reach work of the school for the deaf in Hossana which has created wider access and improvements in the provision of education for DHH children in Ethiopia (Bekele, 2017). SEP Deaf provided skill training for teachers, produced sign language books and videos for schools enabling better access to learning for DHH children in the rural parts of the country. SEP Deaf in cooperation with the government of Ethiopia was able to create school enrolment access for approximately 7000 DHH children in 400 special classes in different parts of the country (Bekele, 2017).

According to the existing structure of education system in Ethiopia (FDRE, 1994) primary school education lasts 8 years and is split into two cycles from grades 1 to 4 (lower primary/ first cycle) and grades 5 to 8 (upper primary/ second cycle). The first cycle (grades 1-4) is self-contained and students are taught by a single teacher using their own first language. In the second cycle (grades 5-8) students are taught by subject teachers using a second language, often Amharic or English in some parts of the country. Secondary education is also divided into two cycles each with their own specific goals. Grades 9 to 10 (lower secondary) provides two years of general secondary education and upon completion students are streamed either into Grades 11 to 12 (upper secondary) as preparation for university, or into technical and vocational education and training, or teacher education colleges based on performance in the secondary education completion examination. Students sit for national certificate examinations at the end of grades 8, 10, and 12. Officially students enter school at age 7, however, in the rural parts of the country, where facilities are often thinly spread they may enter late, and it is common to see hearing children age 12 - 14 and even older DHH children in first grade. Some of the major factors driving for late enrolment of DHH children in Ethiopia include time loss in attempting to cure deafness using harmful traditional practices (e.g. attempts by spiritual and traditional healers), lack of awareness about the ultimate benefit of education, wrong attitude towards children with disabilities, children’s involvement in domestic or agricultural work, and long distance between schools and pupils’ homes (Ministry of Education & UNICEF – Ethiopia, 2012).

In Ethiopia, individuals with disabilities have limited access to educational and vocational training opportunities (Malle et al., 2015). The situation is especially serious in the rural areas of the country where poverty is widespread, and services are limited. The national average gross enrolment rate at the primary level for all types of children with disabilities was approximately 7.8% (FDRE MoE, 2017), implying that 92.2% of children with disabilities remain unserved by the education system, often remaining out of school.

For the minority of DHH children in Ethiopia who have accessed education, placement options can be categorized into three broad types: (a) schools exclusively for DHH students, which includes day/residential schools; (b) special classes/units within the regular public schools, allowing DHH and hearing students social interaction during their free time and extracurricular activities; and (c) regular public schools, typically with small number of DHH peers integrated with hearing students (often referred by the local educational authorities as *inclusive*). The special classes provide education for DHH children up to grade four before integrating them with regular hearing students beginning in grade five, where instruction is oral language (Amharic, English, Afaan Oromo or Tigrigna) with no access to sign language in most parts of the country. Outside Addis Ababa, there were no sign language interpreters or skilled teachers to communicate with DHH students in regular classrooms (Mekonnen et al., 2016). Traditionally, DHH students have been placed primarily in schools exclusively for DHH students. However, in recent years strategies for special needs/inclusive/ education have been developed by the Ministry of Education, especially with support from the government of Finland. These strategies are based on the Salamanca statement and framework for action on special needs education (UNESCO 1994) with the principle of normalization aimed to provide learners with special educational needs and/or disabilities equal opportunities in regular schools. The special needs/inclusive/ strategy contemplates ways of raising awareness and increasing knowledge so that children with disabilities would be allowed to start school. One of the major strategic directions indicated in the strategy was to broaden the scope of special educational support by training all regular class teachers in special and inclusive education issues. The other strategic direction was to build a new infrastructure of support by using the existing cluster school structure and recruiting itinerant teachers informed by special education and inclusive education approaches to these schools. According to the strategy, the role of the special needs education was stated to give focus: “to identify, assess and provide support for all children in special classes as well as in regular classes, according to their needs, difficulties and potentials; to support parents and regular teachers so that they support learners with special educational needs; to improve the learning and teaching process for all children in the school; to improve the whole classroom and school system so that all children learn best and their right is respected; and to contribute to the achievement of education for all and enhancement of quality education” (FDRE Ministry of Ethiopia, 2012).

The government also has referred to international conventions, declarations and statements related to inclusive education after ratifying the UN Convention on the Rights of the Child in 1991 and the UN Convention on the Rights of Persons with Disabilities in 2010. The Ethiopian Constitution (Article 9) affirms that all international agreements ratified by Ethiopia are an integral part of the law (FDRE; 1995). Within this legal framework, the government, along with other stakeholders, is trying to address the educational needs of DHH children.

In Ethiopia the challenge is getting all DHH children into education as currently the majority are still out of school. Although the attempts by the government to increase access to schooling have been quite successful, the right to education is about quality as well as access (Miles et al., 2011). Ethiopia has still tremendous challenges in providing education for DHH from both of these perspectives, access and quality. According to Franck and Joshi (2017) teachers and school administrators in Ethiopia are generally in favor of mainstreaming children with disabilities into regular schools, but insufficient training of teachers and itinerant teachers along with shortages of teaching materials and resources present major challenges to addressing special education needs. There have been recent encouraging developments with increasing teacher education programs on special needs education in different universities and colleges as well as giving a course in special needs education across all mainstream teacher education and training institutes in the country. Teacher education is undertaken only in government institutions and the minimum teacher qualification is diploma program for two years or a bachelor's degree program offered by universities which takes three years. However, existing special needs education courses in teacher education colleges and universities are overly theoretical and too reliant on the medical model (Haye, 2010). Hence, graduates lack practical pedagogical skills useful in an inclusive setting, including skills in sign language and braille, to be effective at school level. Skill training is important because a lack of skills can cause teachers to doubt the possibility of educating students in mainstream classes and can even produce negative attitudes towards inclusive education itself (Miles et al., 2011).

1.2 Language and Early Interaction

The ability to communicate, to make our wants and needs known, and to interact with the world around us is an essential part of life. This interaction is primarily facilitated by a language (spoken or signed). Language development among children is a complex process that is foundational to their communication skills, future academic success, cognitive development, and regulating behaviour and emotions in later life (Knoors & Marschark, 2014). Parents are the primary people engaging and interacting with infants on a consistent basis; consequently, parents are seen as the child's first teacher. Positive quality of parent-child interactions and increased communicative competence are essen-

tial in shaping a child's literacy environment and language development. The first five years of age are considered to be the most critical period, as this is when the brain rapidly develops and is able to learn new information. If this critical period passes without adequate interaction and opportunity for language development, it will become more challenging to accomplish the milestones as the child develops (Humphries et al., 2012).

Sign language, being a visual language, is the best accessible language for DHH children. Early exposure to sign language is therefore essential for these children to ensure their all-round development. Sign languages are not universal languages, nor are they invented ones for the same reason as there are no natural universal spoken languages. They are like spoken languages, natural languages, grown and transmitted in communities of language users. In the case of sign languages, the cores of these communities are DHH people and their DHH or hearing relatives (for a review see Knoors & Marschark, 2014).

The process of sign language acquisition is similar to spoken language acquisition, as long as children receive rich and appropriate language input from an early age (Mayberry, 2010). This condition, however, is not easily met in most cases, because the vast majority of deaf children (90-95%) have hearing parents who are not proficient in the language (Mitchell & Karchmer, 2004). This situation is even worse in the sub-Saharan African countries, including Ethiopia, where early intervention services are not available and awareness about DHH children is limited. If parents decide to raise their child with sign language, they will have to learn it. Because this takes time, some parents need to bring DHH native signers or other sign language models into the home and to the education of their DHH child. Even then, the linguistic sign language environment rarely matches that of DHH children with signing DHH parents, because proficient acquisition of sign language depends on both the age of sign language input and the subsequent quality of sign language input. Native sign language acquisition happens only when DHH or hearing children grow up in signing families with DHH family members (Maberry & Eichen, 1991; Knoors & Marschark, 2014; Mitchell & Karchmer, 2004). These are relatively scarce.

The emotional and academic life of young deaf children are enhanced by parents who are aware of their needs and pursue intervention and education programs for themselves and their children, including communication instruction (Calderon & Greenberg, 2011). There is also strong support for a relation between early parent-child communications, attachment related behaviors, and later social ability. Those children with stable and secure attachments early in life tend to be more socially competent during the school years than are children with less secure attachments (Van Get et al, 2012). Studies also showed that DHH children who have better language skills are more likely than children with poorer language skills to play with hearing children, to play with more than one child at a time, to interact with teachers, and to use language during play (Wauters & Knoors, 2008, Knoors & Marschark, 2014). The social situation for learning will become more complex as children grow older.

Differences in sign language acquisition become evident in deaf education, both in the mainstream and separate settings for deaf students, where we find two groups of signing students. One group, which is a small minority, appears to enter school with relatively age-appropriate sign language proficiency, native signers with deaf parents. The majority of signing deaf children will enter school with varying delays in sign language skills, comparable to the delays in their spoken language. These children need intensive sign language programming early in their academic lives (Knoors & Marschark, 2014).

Additionally, failure to acquire language in the early years results in delay or disruption in the development of cognitive skills that interweave with linguistic ability. Such children have trouble with verbal memory organization, mastery of numeracy and literacy, and higher-order cognitive processing such as executive function and theory of mind (Knoors & Marschark, 2014, Humphries et al., 2012). It is therefore important to intervene early to increase significantly the ability of DHH children to integrate in future social environments, including school, community, and ultimately employment.

1.3 Socio-Emotional Development in Deaf and Hard-of-Hearing Children

Socio-emotional development consists of the skills children develop to interact with others. Socio-emotional development is an increase in child's ability to understand the feelings of others, control their own feelings and behaviors, develop empathy for others, and establish and maintain relationships (Kauffman & Landrum, 2013; Erikson, 1964). Gaining feelings of trust, confidence, pride, friendship, affection and humor are all a part of a child's socio-emotional development. Healthy socio-emotional development is crucial to academic success and future mental health. Parent-child communication plays a central role in social growth, as it does in other domains of development, but DHH children have many challenges to reach this goal. Over 90 % of DHH children, however, have hearing parents who frequently do not have a fully effective means of communicating with them which may be especially relevant in the early years (Marschark & Knoors, 2012). These hearing parents may have no experience of what hearing loss means. Therefore, they may be confused by some of the behaviors of their DHH child (e.g., no reaction to auditory events) and their instinctive parenting including parental responsiveness mentioned above may be affected (Meadow et al., 2004).

There are studies globally, but hardly any in the African or low-income countries, showing factors influencing the communication development in children with hearing loss. These factors include the degree of hearing loss, the age of onset, the age of identification, the presence of other disabilities and time of intervention (e.g. Sininger et al., 2010). Previous research has indicated that children with hearing loss may face unique difficulties with mastering socio-

emotional development (Meadow & Dyssegaard, 1983). Studies suggest that difficulty with socio-emotional development may range from 8% (Hintermair, 2007) to 41.3% (Van Eldik et al., 2004). The underlying causes of such socio-emotional development may be linked to communication challenges and potential language delays which often occur in children with hearing loss (Eisenberg, 2007). Specifically, hearing loss can negatively affect a person's ability to communicate with others thereby impacting the quality of social interactions. Therefore, it is not surprising that socio-emotional development challenges can occur in children with hearing loss given that language is a social tool that individuals use to communicate with others. Furthermore, if the listening environment is poor or if children are unable to adequately recognize an auditory signal then minimal interaction between students with hearing loss and normal hearing peers is likely (Antia & Kreimeyer, 1996). Additionally, even if students do hear the auditory message, they still may not understand the linguistic nature of the signal thus further limiting the opportunity for appropriate interactions to occur. According to DeLuzio and Girolametto (2011) preschoolers with hearing loss have greater difficulty maintaining attention and thus are unable to sustain interactions long enough for a social exchange to even take place. Regardless of the precise underlying cause of reduced interactions, children with hearing loss would appear to be at risk for socio-emotional development issues.

On the other hand, if sign language is offered for DHH children at their early age problems could be minimized. Deaf children of deaf parents have the benefit of full access to language from birth through a natural visual language, and studies indicated that those children pass various milestones of language development in the same order and at the same rate as hearing children, at least up to 2 years of age (Knoors & Marschark, 2014). It was also found that deaf children of deaf parents had a better psychosocial adjustment than deaf children of hearing parents (Polat, 2003). Early socio-emotional skill development provides a critical foundation for life success. There are significant research findings that show socio-emotional competence is a critical determiner of success in school and in life which is equally true for DHH individuals (Anita & Kreimeyer, 2015). Several qualities and characteristics are thought to make up socio-emotional development. Good communication skills top the list, and this is a particular concern for DHH children. Other qualities include having good self-direction and self-control and being able to think independently, show empathy, and understand one's own feelings as well as those of others. Age-appropriate socio-emotional behavior supports self-esteem, self-confidence, healthy relationships, flexibility, and ability to attain socially approved goals. Researchers are learning that socio-emotional development is an important key to learning and language development in DHH children (Knoors & Marschark, 2014). Equally important is that increased parental stress has been reported by parents of children who are DHH who present with socio-emotional problems (Hintermair, 2007). For example, in a study of mothers of toddlers with congenital hearing loss, increased maternal stress was predicted by the total number of behavior problems exhibited by their child, after controlling for hearing loss,

length of stay in the Neonatal Intensive Care Unit (Topol et al., 2011). This may occur because parents experience increased daily challenges related to child behavior issues (Pipp-Siegel, Sedey, & Yoshinaga-Itano, 2002). The increased stress could negatively affect the quality of life of families with a child who is DHH.

Socio-emotional development provides the foundation for how people feel about themselves and how they experience others. The laying of this foundation begins the day a child is born and continues throughout the lifespan. The development of socio-emotional competences occurs in a process of co-regulation between parent and child (Morris et al., 2007). Guralnick (2011) has offered a developmental systems approach to describe the role of early parent-child relationships for developmental progress in general and to understand why early intervention works. According to Guralnick (2011), developmental support takes place in the everyday activities of normal family life. In interacting with a child with developmental problems, the success of parental encouragement depends on the ability of the parents to accommodate to the unique constellation of their child's developmental and behavioral characteristics. It is the parents' responsivity to the child's special needs that plays a particularly important role here. Features of parental responsivity are showing affection, responding to the child's interests, establishing joint attention, and matching language to the child's receptive language level (Warren & Brady, 2007).

Studies showed that DHH children face specific challenges in their development (Knors & Marschark, 2014). Empirical findings regarding various domains of development reveal that reduced auditory perception and its correlates have an impact on a great many processes that are important for effective and interactive understanding of the world, and that special attention must be made for this when raising and educating DHH children (for a review, see Hintermair, 2014; Knors & Marschark, 2014). Nevertheless, DHH children's developmental prospects, in general, have improved in recent decades. One of the reasons is that the early detection of children with a potential hearing loss is improved through the Universal Newborn Hearing Screening (UNHS) program (Hintermair et al., 2017). In western countries of the world implementation of the UNHS has contributed to a considerable improvement of the opportunities for DHH children to develop language at a roughly appropriate age and has also brought parallel improvements in cognitive and socio-emotional developmental processes dependent on language. Studies show that DHH children diagnosed early have significant advantages in language development and subsequent academic and socio-emotional well-being (Kennedy et al., 2006; Yoshinaga-Itano, 2003, 2006). However, although the overall trend is positive, there is still high variability in the developmental trajectories of DHH children (Marschark & Hauser, 2012) and, moreover, there are still obvious differences between the language development of groups of DHH children and hearing children even when children with cochlear implants are included (Fagan, 2016; McGowan et al., 2008).

Finally, given the trend in education of children who are DHH being placed in mainstream settings, greater understanding of the role of socio-emotional development in addition to speech and language abilities is an important area of investigation. Therefore, socio-emotional development is likely a very important domain to consider at some point when providing services for families of DHH children, especially considering that children transition from one setting to another. During such transitions, many changes usually occur such as the teacher, peers, routines, environments and material being taught which could negatively impact the ability of DHH children to continue developing social emotional skills.

1.4 Self-concept and Deafness

Self-concept is defined as the perception that individuals have of themselves regarding the different aspects of their personalities and who they are (Huang, 2011; Harter, 1999). According to Purkey (1988) self-concept is the cognitive thinking aspect of the self (related to one's self-image), and it generally refers to the totality of a complex, organized, and dynamic system of learned beliefs, attitudes, and opinions that each person holds to be true about his or her personal existence and where he or she belongs in the world. Self-concept is often viewed as interchangeable with the terms self-esteem, self-regard, and self-perception. Self-esteem is often used to refer to the affective or emotional aspect of the self, generally refers to how one feels about or values him- or herself and refers to particular measures about the components of self-concept (Huitt, 2004).

Self-concept influences children's school performance and social relations. Many psychologists believe that it serves as a critical index of mental health as well (Van Gent et al., 2012, Huang, 2011). The development of self-concept is closely tied to the feedback children receive from parents, peers, teachers, and other significant persons. Such feedback may occur as verbal responses, actions, or changes in contingencies. This feedback helps children formulate perceptions about their successes and failures. Over time, these perceptions become internalized and are the foundation for the child's image of self (Marsh & Martin, 2011).

Self-concept is a domain-specific construct according to the multidimensional, hierarchical models of self-concept (e.g. Marsh 1990; Shavelson, Hubner & Stanton 1976). In the model of Marsh (1990), global self-concept is at the apex of the hierarchy and is divided into academic and non-academic components. The academic component is divided into self-concepts specific to school subjects, including reading and mathematics, whereas the non-academic component is divided into physical, social and emotional components. Self-concept is considered an important construct within education because of its links to students' motivation, achievement, confidence and psychological well-being (Hay 2005). It is suggested that specific components of self-concept should have more

predictive power on outcomes in specific domains than a single, global component of self-concept (Marsh & Hau 2003).

Studies comparing the self-concept of DHH persons with that of hearing persons have suggested that the former group has a lower self-concept (Stinson, 1984). Among the factors that may lead to the development of a poor self-concept in the DHH child are problems in early language development and/or socialization, and inadequate early educational services. In countries like Ethiopia, most hearing parents learn sign language after their deaf child does. Therefore, DHH children usually teach their parents their own language if the parents learn sign at all (Knoors & Marschark, 2014, Warren & Hasenstab, 1986). In Ethiopia DHH children learn sign language at school and usually start schooling later than their assumed school entrance age due to lack of access to education. The development of a sense of self is strongly tied to social interaction (Marsh & Martin, 2011). Normal social interaction presupposes the existence of communication which, in turn, largely emanates from a developing language base. For many congenitally DHH children, language development is significantly delayed, particularly for DHH youngsters with hearing parents. Thus, theoretically, one may reason that the development of self in the DHH child occurs without the full benefit of the social interaction available to her/his hearing counterpart.

The factors that affect a DHH individual's self-concept have been identified as poor parental communication skills, inadequate maternal bonding, feelings of mistrust due to a sense of inequality and negative attitudes toward DHH people, poor acquisition of sign language skills, lack of appropriate role models, social isolation, negative body image, lack of a strong cultural identity, and rejection from family members and society in general (Bat-Chava, 1993, Hintermair, 2008; Schlesinger, 2000). Obrzut et al (1999) suggests that parental hearing status, educational placement and severity of hearing loss are related to the DHH individual's self-concept. DHH individuals of deaf parents exhibit better self-concepts than do those of hearing parents. This may be either a result of deaf parents' earlier acceptance of DHH children or it may be due to communication/language difficulties associated with socio-emotional issues that the DHH child has with hearing parents.

The development of self-concept is a continuous process with the ongoing assimilation of new ideas and the rejection of old ones, although self-concept is likely to become more stable during adulthood. Given that the development of self-concept is based on the accumulation of experiences and the individual's interpretation of them from infancy onward, we might predict that language plays a central role in its formation (Edwards & Crocker, 2008). It is well established that DHH children lag behind their peers in their understanding and use of vocabulary related to emotions (Knoors & Marschark, 2014), and this is likely to have an impact on the development of a multifaceted self-concept. In general, awareness of other people's thoughts, feelings, and experiences makes it easier for children to understand their own experiences and emotions. In DHH children, the language defects and communication difficulties that are typically experi-

enced, particularly in early childhood, will affect their awareness of what other people experience and, hence, their understanding of their own internal worlds (Edwards & Crocker, 2008). In the Ethiopian (and African) contexts, there is hardly any research in this issue and there is the need for knowledge and this research contributes in reflecting the African perspective for the wider audience.

1.5 DHH Children and Challenges of Inclusive Education

This study focuses in examining what inclusive education promises and what are its challenges to put it into practice with regard to DHH students. More specifically, socio-emotional strengths and difficulties and multidimensional domains of self-concept are used as indicators on how young students experience their education. The effect of hearing impairment in the Ethiopian context is studied by making comparisons between two groups of DHH children that are educated in special classes within the mainstream schools and in special schools and comparing them with hearing children from same mainstream schools where the special classes are located. The effects of educational context on students' experiences are further studied by analyzing the effects of transition from a special class to the mainstream setting, i.e. going from grade 4 to grade 5, which marks the shift from Ethiopian school system's first cycle to second cycle of primary education.

Inclusive education officially emerged as a concept and social practice in the 1990s based on the child's right to participate and the school's responsibility to accept all children. The global movement towards inclusive education has been one of the most important paradigm shifts to occur in education since the first World Conference on Education for All (EFA) held in Jomtien, Thailand in 1990 (UNESCO, 2014). Many countries, including Ethiopia, at the World Conference on Special Needs Education, Salamanca, Spain (UNESCO, 1994), signed the statement, which outlined that inclusive education was for all children, including learners with special educational needs and/or disabilities in regular schools. In both the Salamanca statement and the UN Convention (2006) on the Rights of persons with disabilities, educational provision in sign language for DHH is ensured to facilitate their full inclusion. Now the Sustainable Development Goals bind together the Millennium Development Goals and the goals of EFA, and the objective of this global movement is to ensure inclusive and equitable quality education for all children, with a particular focus on those who have traditionally been excluded from educational opportunities. Excluded learners include those from the poorest households, ethnic and linguistic minorities, indigenous people, and persons with special needs and disabilities (UNESCO, 2017).

An inclusive model of education brought forward a social model of disability that encompasses the rights of all children to be educated together and is supported both ethically and morally (Forlin, 2010). According to Kozleski et al. (2007) the basic premise of inclusive education is that schools are about belong-

ing, nurturing and educating all students regardless of their differences in ability, culture, gender, language, class and ethnicity.

In high-income countries increasing numbers of students who are DHH attend their education in general education settings as they are supported by good conditions for early detection and interventions as well as rehabilitation and supportive measures in schools together with the technological advances such as newborn hearing screenings, cochlear implants, and improved hearing aids, as well as policies of inclusive education (Kelman & Branco, 2009). In contrast, in many low-income countries like Ethiopia where resources are scarce and early diagnosis and early intervention services are limited, very little has thus far been done to help persons with disabilities to participate in regular education. As a consequence, nearly 90% of children with disabilities in the sub-Saharan Africa and south Asia still do not have the opportunity to access education (UNESCO, 2014). Research indicates that teachers play a critical role in the implementation of inclusive education (Forlin et al. 2010). Developing an appreciation for the varying culture and contexts across countries can contribute to a more comprehensive understanding of the role of teachers in the implementation of inclusive education and can suggest ways to restructuring schools to accommodate the diverse needs of students in mainstream classrooms (Savolainen et al., 2012).

Educating DHH learners, as long as history has been recorded, is a topic that has been plagued with controversial issues, particularly with regard to placement and the language of instruction (Knors & Marschark 2014). The debates most often have focused on whether DHH students are best served by regular schools with a wide variety of students, including those with disabilities and those without disabilities, or special schools or programs designed specifically for DHH learners and whether sign language, spoken language, or both should be the language(s) of instruction (Knors & Marschark 2014, Knors & Hermans, 2010). Including DHH children in mainstream schools has been an extremely complex, controversial and contentious issue across the globe. While inclusive education movement has made much advancement in global acceptance many DHH adults in deaf communities across the world have campaigned for the rights of DHH children to be educated separately in special schools in which they can access information through their most natural first language, sign language, the language of the deaf community (Knors & Marschark 2014).

Arguments for educating DHH students in general education classes emphasized the benefits of social interaction with hearing peers and access to the regular curriculum (Eriks-Brophy et al. 2013). Those arguing in favour of educating DHH students in special schools highlight the issue that this context offers them more educational resources; opportunities for social interaction, and consequently, a better socio-emotional development supported especially by the access to sign language and other aspects of deaf culture (Angelides & Aravi 2006/2007; Doherty 2012; Freire 2009). Some authors, such as Jarvis (2002), even propose that school integration for these students leads to "internal exclu-

sions” or “excluding inclusions”. Others state that simply placing children who are DHH in regular classrooms does not automatically facilitate meaningful social interaction, peer acceptance, positive inclusion, and/or improvement in the children’s social communication skills (Antia, Stinson & Gaustad 2002; Bobzien et al. 2013). This explains why many deaf adults around the globe have made efforts advocating for these children to be educated in separate settings with other DHH students (Adoyo, 2007; Powers, 2002).

A pragmatic question that needs an answer is whether special needs educators and regular classroom teachers can work in an equal partnership to provide DHH children with the “reasonable accommodations” agreed in the international convention on the rights of persons with disabilities (UN, 2006) that is relevant and adequate education within the regular classroom. Further, to what extent can the classroom practice be modified to optimize the DHH child’s academic and social inclusion, considering that the ideal of inclusive education is a student who is well included both academically and socially? The fundamental challenges faced when DHH students are educated together with hearing peers are lack of full mutual access to communication (Antia & Stinson, 1999).

Since communication is the most important area in DHH education, a focus on this issue should provide a good platform from which to build inclusive teaching practices with DHH. DHH children are a diverse group in relation to the age of onset of deafness, degree of hearing loss and presence of additional disabilities. Therefore, clear communication in a language they understand with ease and comfort is of paramount importance for the comprehension of the curriculum content. The value of DHH children to establish a bond with others who speak the same language is an important aspect of the deaf culture and as many members associated with the deaf culture think that deafness constitutes a language minority rather than a disability (Adoyo, 2007; Powers, 2002).

Inclusion is a right and not a privilege (UN, 2006). Placing DHH children in an inclusive setting therefore demands the provision of relevant facilities such as teachers’ competent in sign language, appropriate hearing aids, sign language interpreters, flexible curriculum, positive attitude and good collaboration of stakeholders (Knoors & Marschark 2014). Moreover, issues of class size and provision of in-service teacher education programmes should be available for continuous professional development (Miles et al., 2011). Simply placing DHH students in a mainstream classroom without the implementation of accessible instruction in the education system, and particularly without access to sign language, does not qualify as inclusive education; rather, it is merely physical integration.

In the Ethiopian regular classrooms DHH learners face several major challenges, including the inaccessibility of sign language. The size of the regular class may be very large (60 - 80 students per class), and most of the regular class teachers do not know sign language or understand the communicational needs of DHH children. There are no educational sign language interpreters in the country, except in the capital city, Addis Ababa. This situation has created a challenge for most deaf students in continuing their schooling. Due to lack of

appropriate support, more specifically support in sign language and communication, deaf children with profound hearing loss (especially those who are pre-lingual) find learning very difficult in an environment that demands hearing; therefore, many of them are forced to drop out of *inclusive* schools (Mulat, 2011).

2 AIMS

The overall purpose of this thesis was to investigate the status of socio-emotional wellbeing and self-concept of DHH children and whether changes in the learning environment from a special class setting to a mainstream setting affect the socio-emotional wellbeing and self-concept (both academic and non-academic self-concept) domains of DHH students in Ethiopia. As it is very difficult to give absolute values to good socio-emotional wellbeing or self-concept, DHH students from special classes and special schools were compared to a group of hearing peers.

The major motivation to conduct this study was to add to the extant knowledge on why many DHH students in Ethiopia drop out of school when they transferred to fifth grade in the mainstream setting. I have worked as a teacher for the deaf for several years and now involved in providing in-service training for their teachers in the country. I have observed the situation and was repeatedly challenged by the phenomenon of drop-out problems of DHH students.

As earlier studies on this phenomenon in Ethiopia do not exist concrete hypotheses were not set in this study. However, on the basis of my long experience in working in the education system in Ethiopia it could be assumed that the achievement of fourth-grade DHH students in the special class would decrease when they get integrated into regular classrooms with their hearing counterparts in fifth grade. The fact is that these mainstream classes lack sign language interpretation services and/or relevant appropriate support to access school curriculum. DHH children could also be assumed to have difficulties in establishing positive peer relationships, because there may be lack of awareness of hearing loss among their hearing peers and a general negative attitude towards deafness.

The outcomes of the study will provide novel knowledge about the education of DHH children in Ethiopia and an alarming call for policymakers, teacher educators, implementers and other players to design appropriate ways to facilitate the inclusion of DHH students to enable them to become full participants in the regular schools. The research will likely contribute to raise awareness

among decision making bodies to consider seriously, among other things, the communicational needs particularly the importance of sign language when planning to provide education at the inclusive setting for DHH students and support them to have better access to the regular curriculum with their hearing classmates.

The thesis consists of three separate studies which addressed the following issues.

Study 1 investigated the impact of socio-emotional problems in the lives of DHH children attending special schools and special classes compared to hearing students in Ethiopia. It also examined whether there are differences in the self-reported externalizing behaviour patterns between the three groups (students in special school, in special class, and hearing students). Behavioural problems were measured with the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) using the self-report for children and adolescents SDQ(S) 11-17.

Study 2 investigated the specific self-concepts of DHH students in the two educational settings and compares these to those of hearing students. The Self-Description Questionnaire-I (SDQ-I), developed by Herbert W. Marsh (1990), was used to measure self-concept of children in primary school age. The SDQ-I assesses three areas of academic self-concept (reading, mathematics, and general school), nonacademic physical self-concept (physical appearance and physical ability), and nonacademic social self-concept (peer and parent relations). In addition to the academic and nonacademic self-concept scales, the SDQ-I consists of a scale for measuring students' self-esteem or self-worth (often labeled as general self-concept), which describes the degree of self-appreciation or self-respect.

Study 3 was aimed at investigating whether the change of educational placement has an effect on the academic achievement and self-concept outcomes of DHH students. SDQ-I (Marsh, 1990) scores of participants measured in 4th grade and 5th grade were compared to examine the changes in the self-concept domains. In addition, the students' grades in all subjects (percentages provided annually) assessed by the teachers, as recorded in the latest school reports, were used as indicators of the students' academic achievement.

3 METHODS

3.1 Participants

As stated in the overview section of DHH education in Ethiopia, placement options for DHH children are categorized into three broad types: (a) schools exclusively for DHH students, which includes day/residential schools; (b) special classes within the regular public schools, allowing DHH and hearing students social interaction during their free time and extracurricular activities; and (c) regular public schools, typically with limited DHH peers integrated with hearing students (often referred to as *inclusive*). The special classes provide education for DHH children up to grade four by teachers of the deaf before integrating them with regular hearing students beginning in grade five. In towns, where there is comparatively better awareness and services, the determination of the child's educational placement is made by parents and usually they send their child to the nearest special school or special class available for them. The special schools for DHH are located only in few towns like Hossana, Arba-minch, Nekemte and Addis Ababa while the majority of DHH (approximately 85%) are residing in the rural areas where only special classes are the choice, if there are any. In Ethiopia the differences between towns and rural areas are very wide. In the rural areas where newly special classes got established, parents might be ashamed of their DHH child to send to school and the special needs education teachers might have to do lots of awareness work to convince parents. In Ethiopia, unlike western countries, there is no team of professionals working with parents to make placement decisions, early screening tests, or appropriate early intervention programmes.

In line with natural experimental design (Figure 1), data was collected two times, at the end of 4th grade and at the end of 5th grade. In the study the design to follow a group of 4th graders was chosen because continuing to 5th grade is an important transition especially for the DHH students in special classes as they get integrated with hearing students on the 5th grade. The 4th grade measurement was to see the base-line, i.e. it is the pre-treatment measure in this study.

The 5th grade measurement was the post-treatment measure and change of learning environment, from the special class to the mainstream education, was the treatment in this study. The group of students integrated in mainstream education was the experimental group and the group continuing in special schools was the control group. A further control group of similar age hearing children from the same schools that belong to the experimental group were taken to control whether possible developments in the outcome variables are specific for the groups of DHH children only.

A total of 103 fourth grade students representing three types of groups in different school settings were recruited to the study. DHH students in special classes attached to regular schools, DHH students in special schools, and hearing students in regular schools participated in "Time 1" (T 1) of the study (Table 1). After a year 72 of these students were reached when they transferred to 5th grade (Time 2, see Table 2). The participants were selected from Hossna, Arbaminch, Hawassa, Asella, Adama, Bahir Dar and Addis Ababa. They were selected purposefully due to the small number of 4th grade DHH students in special classes. These selected schools had comparatively larger number of DHH students in the 4th grade and represents different topographies of the country. Among the participants in time 1 of the study, 29 were DHH students from special classes (mean age = 15.4, SD = 2.9; range from 10 to 22 years), 31 were DHH students from special schools (mean age = 13.1, SD = 1.7; range from 9 to 17 years), and 43 were hearing students from regular schools (mean age = 12.1, SD = 1.7; range from 10 to 18 years) where special classes were attached (Table 1). All 4th grade DHH students from selected special schools and special classes participated in the study. The hearing participants were selected randomly from the same school where the special classes were attached.

Almost all the students in the special classes and special schools had severe to profound bilateral hearing loss, except for one hard-of-hearing student from each setting. There were 58 DHH participants with profound hearing loss whose hearing levels were measured 90 - 130dB, five participants with severe hearing loss (75 - 87dB), and two hard-of-hearing (27dB and 29dB). I myself measured the hearing levels of DHH students using the pure tone audiometer. All DHH students participated in the study have hearing parents and none of them were found to have any additional disability. All the DHH students participated in the study learned sign language after they entered school from their teachers. The remaining 43 participants were hearing grade four students from the same school where the special classes were located. All DHH participants relied on sign communication, and none of them used amplification. The average age of the participants in the different groups varied, and especially students in special classes were somewhat older. However, the age range in all groups was quite wide (8 years in hearing classes and in special schools, and 12 years in special classes), which reflects a common situation in Ethiopian elementary schools. Some DHH students commonly join school late in their age because parents may not be aware that the child could actually learn, and thus miss the normal school entry age. Moreover, schools/classes for the DHH chil-

dren are typically far from the homes of DHH students which may postpone school entry as it may be difficult for the younger ones to walk long distances.

TABLE 1 Participants at Time 1 (N = 103)

School setting	N	Age	Hearing level		Gender		%
		Mean (SD)	<70dB	>70dB	Male	Female	
DHH in special class	29	15.4(2.9)	1	28	13	16	28.2%
DHH in special school	31	13.1(1.7)	1	30	16	15	30.1%
Hearing in regular school	43	12.1(1.7)	43	0	21	22	41.7%
TOTAL	103	13.3(2.5)	45	58	50	53	100%

TABLE 2 Participants at Time 2 (N = 72)

School setting	N	Age	Hearing level		Gender		%
		Mean (SD)	<70dB	>70dB	Male	Female	
DHH in special class	19	15.5(2.3)	1	18	7	12	26.4%
DHH in special school	22	12.9(1.5)	1	21	12	10	30.6%
Hearing in regular school	31	11.9(1.2)	31	0	16	15	43.0%
TOTAL	72	13.4(1.7)	33	39	35	37	100%

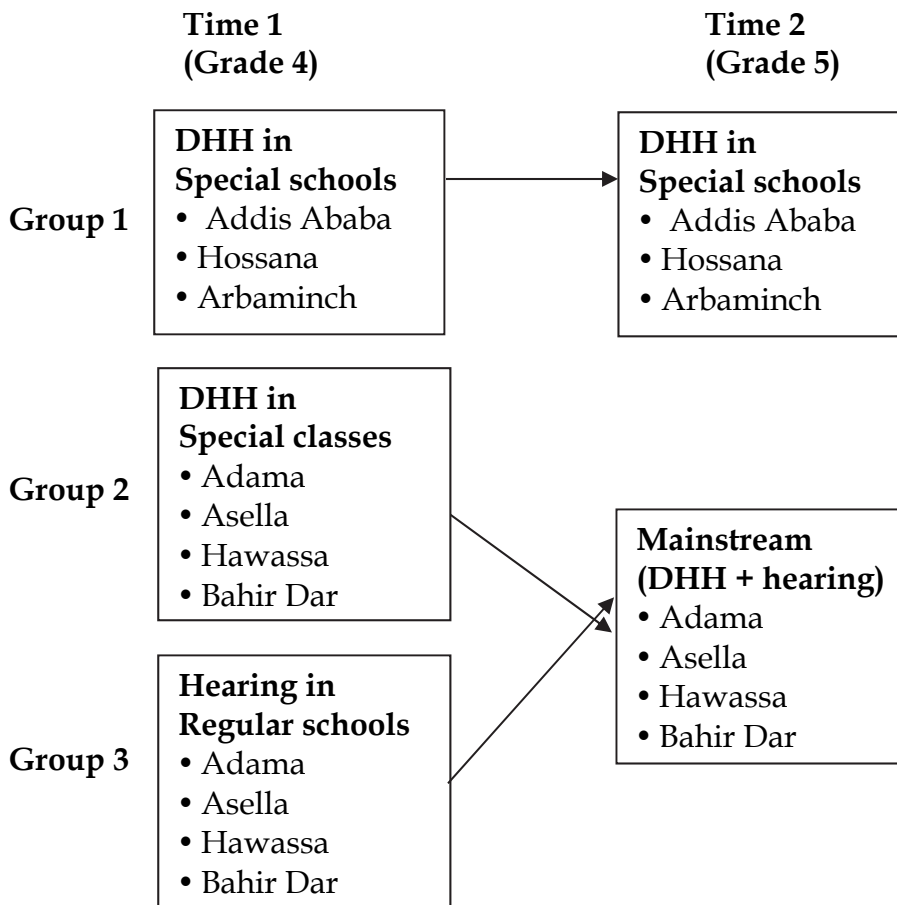


FIGURE 1 Natural experimental design

3.2 Measures and the assessment procedure

The quantitative research method was used to be able to provide a general picture of the phenomenon under the study. The method also allows summarizing the information systematically and facilitating making comparisons across outcomes over time. Combining case studies with this quantitative approach would have provided valuable in-depth comprehensive information. But due to financial and time constraints I was not able to incorporate the case studies in this research. Behavioural problems were measured with the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) using the self-report for children and adolescents SDQ(S) 11-17. The SDQ was chosen to be used in this study because it is a short, user friendly, easy to use behavioral screening questionnaire for children and adolescents, and also includes a positively worded pro-social scale, unlike most other behavioural problem scales. It has been translated into more than 80 languages, including Amharic and has been proven to have satisfactory construct and concurrent validity (Stone et al., 2010). The original SDQ measure for parents included a version translated into Amharic; however, a slight wording modification was made to the Amharic translation with respect to the self-report component (e.g. "has at least one good friend" changed to "I have at least one good friend"). The adapted questionnaire was used to measure difficulties as perceived by the students themselves (emotional, conduct and peer problems; hyperactivity and prosocial behaviour). It contained 25 statements pertaining to the child (e.g., "many worries, often seems worried"; "constantly fidgeting or squirming"; "considerate of other people's feelings"); the children graded these statements as "not true", "somewhat true" or "certainly true". The SDQ contains an impact supplement comprised of eight questions. The first question asks whether the child thinks that he/she has a problem, the remaining questions assess chronicity, distress, social impairment, and burden for others. For the impact supplement questionnaire, children had to rate their behavioural or emotional difficulties in terms of interference in daily life as "not at all", "only a little", "quite a lot", or "a great deal".

The 25 items and impact questions for SDQ measures were distributed to each child to fill out while the researcher presented them on an overhead projector. The researcher explained all the questions and instructions in sign language for DHH students and read them aloud for hearing students. It took approximately 30 minutes for the DHH group to complete the questions and 15 minutes for the hearing. They were presented in separate sessions for the hearing and DHH groups in order to avoid mixing sign and spoken languages. If the children did not understand a certain word, they were assisted with paraphrases. After replying to the 25 items, participants were asked to fill out the impact supplement questionnaire for the SDQ measures. At the beginning of the impact supplement, there was the following question: "Overall, do you think that you have difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?" For this

question, participants needed to reply as “No”, “Yes-minor difficulties”, “Yes-definite difficulties”, or “Yes-severe difficulties”. 30 participants (29%) answered “No” to this particular question, and they did not continue with further testing. Among those who answered “No”, the majority were hearing participants 32.6% (14/43). The remainder included 29% (9/31) of DHH students in special schools and 24.1% (7/29) of DHH students in special classes.

The multidimensional self-concept of students was measured using the Self-Description Questionnaire (SDQ- I), developed by Marsh (1990). It contains 64 items (plus 12 negatively stated control items not used in the final scales) designed to tap into eight different aspects of self-concept. The SDQ-I is one of the most extensively used instruments for measuring the multiple dimensions of self-concept in preadolescent children. It is also the most validated self-concept instrument and has been the target of well-planned research strategy to firmly establish its construct validity of interpretation based on the responses to its multidimensional sensitive items (Byrne, 1996). The SDQ-I assesses three areas of academic self-concept (reading, mathematics, and general school), non-academic physical self-concept (physical appearance and physical ability), and non-academic social self-concept (peer and parent relations) with preadolescent children aged 8-14. In addition to the academic and non-academic self-concept scales, the SDQ-I consists of a scale for measuring students’ self-esteem or global self-worth (often labelled as general self-concept), which depicts the degree of self-appreciation or self-respect. In completing the SDQ-I, children were asked to respond to simple declarative sentences (e.g., “I am a nice looking person”, “I am good at mathematics,” “I make friends easily”) with one of five responses: “false”, “mostly false”, “sometimes false/sometimes true”, “mostly true”, or “true”.

In addition, the students’ grades in all subjects (percentages provided annually) assessed by the teachers, as recorded in the latest school reports, were used as indicators of the students’ academic achievement. Data was collected twice, first when the students were in grade four and after a year when they transferred to grade five. The same measures of instruments were used in both years. The English version of the SDQ-I was translated into Amharic, the official language of Ethiopia. The translation was done by the researcher whose mother tongue is Amharic and who is fluent in English and Ethiopian Sign Language. The Amharic translation was checked by a language expert in Addis Ababa University who had experience in translation.

Tests were carried out in the students’ own classrooms; thus, the number of participants per selected school was not many, not exceeding 20 students in number. With the consent of the school director, practical arrangements were made with the students’ main teacher. The 76 items for the SDQ-I measures were distributed to each child for him or her to fill out while the researcher presented them on an overhead projector both in writing and Ethiopian Sign Language. The researcher explained all the questions and instructions in sign language for the DHH students and read them aloud for the hearing students. They were presented in separate sessions for the hearing and DHH groups to

avoid mixing sign and spoken languages. If the children did not understand a certain word, they were assisted using paraphrasing.

The reliabilities of the SDQ-I subscales were all acceptable with the Cronbach alphas ranging from .63 to .77 (Physical Abilities = .72; Physical Appearance = .74; Reading = .67; Mathematics = .67; Peer Relations = .64; Parent Relations = .71; General Self, = .63; General School = .63). In peer relations subscale two items, and in general-self subscale three items were removed as their correlation with the scale was low and deleting increased reliability. The reliability for the SDQ externalizing behavioural scales, which consists of the ten items of hyperactivity scale and conduct problems scale of the SDQ measure was also acceptable (.70).

3.3 Data Analysis

All statistical analyses were performed using SPSS version 22. One-way ANOVA was used to compare differences in the scores of the DHH and non-DHH students in the three groups. Post hoc tests were done using the Tukey method to find out which groups differed from each other statistically and significantly. A Repeated measures ANOVA was used to compare differences in the scores of the DHH and hearing students in the three groups and possible group by measurement time interactions. In all analyses effect sizes were estimated with the η^2 statistics of ANOVA. Effect size is important in estimating the practical importance of any differences found. In this estimation, a rule of thumb for the interpretation of η^2 statistics suggested by Cohen (1988) was used, where η^2 values above .01 indicate a small effect size, values above .06 a medium effect size, and values above .14 a large effect size. Finally, analysis of covariance was used to control for the effect of school grades on the academic self-efficacy subscales, as performance in school is a known predictor of self-efficacy. The effect of gender and age across all the scales was also controlled by adding it as a covariate in the models respectively.

3.4 Ethical Considerations

The Finnish National Advisory Board on Research Ethics (2009) was followed throughout the studies. Therefore, to ensure the safe running of the study, permission was obtained from the district education offices of the schools where this research was conducted. The general objective, nature of the research and how long will it take to complete the questionnaires were explained to the participant students, teachers and director of the schools. Information was disclosed to the parents of participant students and permission was obtained from parents or caregivers. Even if parents and caregivers gave their permission, ultimately the child had the right to withdraw from the study at any time and

their wishes were certainly respected. They participated only voluntarily, without any pressure or influence. The school directors and teachers agreed to conduct the research during the school time in the morning session while students were fresh and active. All information collected from participants of the research was confidential. The rating scale, the achievement score, the hearing status, and other data were maintained confidentially. This was done to protect participants from unpredictable psychological and social harm. The data collected through hearing screening about the hearing level of the children were debriefed to parents and children. After testing hearing level, the researcher provided and fitted hearing aids freely for those children who could benefit from the aids which made the children, parents and teachers happy.

4 OVERVIEW OF THE STUDIES

4.1 Study 1: Socio-emotional Problems Experienced by Deaf and Hard of Hearing Students in Ethiopia

This study aimed to examine whether the impacts of socio-emotional problems differ among DHH and hearing primary school students in three different educational settings (students in special school, students in special class, and hearing students). The study also investigates whether there are differences in the self-reported externalizing behaviour problems between DHH students in special classes, special schools and hearing students. The study compared the socio-emotional problems experienced by DHH students with those of hearing students in Ethiopia. The research involved a sample of 103 grade-four students attending a special school for the deaf, a special class for the deaf and a regular school. Socio-emotional problems were measured using Goodman's self-report measure, the Strengths and Difficulties Questionnaire (SDQ) for children and adolescents. Participants were selected from seven towns in Ethiopia.

The results show that, compared to the hearing sample, the DHH students experienced more severe socio-emotional problems across all dimensions, regardless of whether they were in special classes or special schools. The DHH children reported that socio-emotional difficulties interfered with their home lives, friendships, classroom learning and ability to get along with the people around them. The DHH students scored higher in the externalizing behavioural domains than did the hearing students. There was no statistically significant difference between the DHH students in the special school and special class settings. The results show that DHH children expressed great concern about their socio-emotional difficulties.

4.2 Study 2: The Self-Concept of Deaf/Hard-of-Hearing and Hearing Students

The purpose of this study was to examine the differences in the self-concept domains among DHH students who attend two different educational settings (special schools and special classes) compared to their hearing peers in Ethiopia. The research involved a sample of 103 grade-four students selected from seven towns in Ethiopia. They were selected from a special school for the deaf, a special class for the deaf, and a regular school. The Self-Description Questionnaire-1 (Marsh, 1990) was used to measure the children's self-concept. The study results indicated that, in comparison to their hearing peers, DHH students had a lower self-concept in the areas of general self, general school, reading, and parental relations. The DHH students in the special school showed a higher self-concept in regard to their physical appearance than the hearing and DHH students in the special class. There were no statistically significant differences between the groups in the self-concept dimensions of peer relations, mathematics, and physical abilities.

4.3 Study 3: Academic Achievement and Self-Concept of Deaf and Hard-of-Hearing and Hearing Students Transitioning from the First to Second Cycle of Primary School in Ethiopia

This study examined the effect of transition of DHH students from special education setting in Grade 4 to mainstream in Grade 5. Academic achievement and self-concept were measured longitudinally with 103 DHH and hearing students. Participants were selected from special schools for the deaf, special classes for the deaf and regular schools in Ethiopia. The Self-Description Questionnaire-I (Marsh 1990) was used to measure the children's self-concept. The results showed a decrease in the academic achievement and academic self-concept for DHH students who were in the special class (Grade 4) when transferred to the mainstream (Grade 5), but the DHH students continuing in the special school remained stable. In this study all the three groups, DHH in the mainstream, DHH in the special school and hearing students showed improvement in their social self-concept when transferred to the second cycle primary education.

5 GENERAL DISCUSSION

5.1 Overview of the study findings and their implications

The aim of this thesis was to investigate the status of socio-emotional well-being and self-concept of DHH children and whether changes in the learning environment from a special class setting to a mainstream setting affect the academic and non-academic self-concept domains of DHH students in Ethiopia.

Following a group of fourth-graders was chosen because continuing to fifth-grade is an important transition especially for the DHH students in special classes as they get integrated with hearing students on the fifth-grade. In all the three studies, DHH students attending special schools and hearing students from the regular schools were taken as comparison groups. Students in special schools continue fifth-grade studies in the same special school and thus we can compare whether the change of learning environment has an effect on the students' outcomes.

The following are the main findings of this study:

1. The DHH students, regardless of their educational settings, compared to the hearing sample seemed to have more chronic socio-emotional difficulties that interfere significantly in the home life, friendships, classroom learning and in getting people around them.
2. The DHH students, regardless of their educational settings, scored higher results in the externalizing behavioural domains compared to hearing students.
3. In the self-concept domain of physical appearance, the DHH students in the special school had higher scores compared to the DHH students in the special class and the hearing students.
4. On general self-concept and parent relations, the DHH students in the special class scored significantly lower than the hearing students. There was no significant general self-concept difference between the DHH groups in Time 1 of this study.

5. In the academic self-concept areas, the DHH students in both the special school and special class settings had significantly lower self-concepts in the general school and reading domains compared with the hearing students.
6. There were no statistically significant differences between the groups in the self-concept dimensions of peer relations, mathematics, and physical abilities.
7. When transferred to fifth grade (integrated setting), the academic achievement decreased for the hearing and DHH students who were in the special class. But the drop in the academic achievement for DHH students who were in the special class was comparatively higher than the hearing.
8. The academic self-concept for DHH students dropped significantly when they transferred from the special class to the integrated setting. But DHH students in the special school showed some small improvement in their academic self-concept, while the hearing students remained almost stable.
9. For DHH students who were in the special schools and continue in the same setting, there was no effect of transition on their academic self-concept or on their academic achievement.
10. All three groups (DHH in the special school, DHH in the mainstream and hearing students), regardless of the educational setting, seemed to benefit from the transition in terms of improving socially with regard to the self-concept domain of peer relations over time.

The study found that DHH students possessed significantly higher externalizing behaviour than their hearing counterparts. The pattern of these results support findings from earlier studies that have investigated the socio-emotional development and mental health of DHH children (Brown & Cornes, 2014; Dammeyer, 2010; Fellingner et al., 2008; Hintermair, 2007; van Eldik et al., 2004; van Gent et al., 2007). In this study the differences between the DHH students in the special class and special school settings, in terms of socio-emotional problems and externalizing behavior, were insignificant. The result was partially surprising as we expected better socio-emotional status among DHH students in the special schools compared to DHH students in the special classes. In the special schools where this data was collected there were better sign language skilled teachers, deaf adults who could be role models than in the special classes. In addition to this, the special schools have much more other DHH students, thus increasing the probability for creating better communication and social interaction. These conditions might result into lower socio-emotional problems for special school students, but this was not the case. The emotional and behavioural problems seemed to interfere significantly in the home life of DHH children, in their interaction with people around them and in relation to friendships. This could be because of the communication difficulties from the early childhood and negative attitude in the society towards deafness. All of these DHH

students come from hearing families in which the parents do not know sign language to communicate deeply and sensitively with their deaf children and this is likely to contribute to the findings. Interestingly the DHH students in both settings (special schools and special classes) reported that the socio-emotional problems did not affect their leisure activities.

In the academic self-concept areas, the DHH students in both settings had significantly lower self-concepts in the general school and reading domains compared with the hearing students. When the covariate academic performance was added to the model predicting general school self-concept, the main effect of placement was no longer significant. This means that the differences in the general school self-concept between the hearing students and the two groups of DHH students were explained by the better school achievement of the hearing students. Therefore, it is not deafness as such that leads to lower school self-concept but the fact that the DHH students do less well in school and, thus, have lower overall academic self-concept. In the reading self-concept, adding the covariate reduced the effect size of placement, but placement remained a significant predictor of the reading self-concept. This suggests that unlike with the overall school self-concept, the self-concept in reading is not explained fully by the lower achievement of the DHH students in school, but rather that deafness is a language-specific challenge that is also reflected as the lower self-concepts of the DHH students. Interestingly, there was no statistically significant difference in mathematics self-concept between the DHH and hearing students. Mathematics skill depends less on linguistic competence (the primary area of difficulty for the DHH students) than skill in reading (Van Gorp, 2001).

The DHH students in the special school seemed to have higher physical appearance self-concept than the DHH students in the special class and the hearing students. This result coincides with the findings of other researchers (Van Gent et al., 2012, Van Gorp, 2001) who have investigated the self-concept development of DHH children and found higher scores for the physical appearance self-concept among DHH students in special schools. This could be because the DHH students at the special school are less in number, all the students are deaf, use the same method of communication, and appear to make comparisons among themselves. In this study, the DHH students in the special class and the hearing students were from the same school and, therefore, had a much larger population of hearing students in their immediate environment with whom to compare their appearance than those who attended the special school. The lesser degree of competition in regard to "looking good" may have been the factor that contributed to the higher scores for physical appearance at the special school than the DHH students in the special class and the hearing students. However, the DHH students in both settings scored lower in the self-concept domain of the general self than the hearing students, thereby indicating that self-concept domains other than physical appearance were the major factors contributing to the students' feelings of global self-worth.

Most likely, these DHH students who participated in this study had not had access to language (signed or spoken) in their early years before they began

to attend school. In Ethiopia, early diagnosis, screening tests, and appropriate early intervention are not available; consequently, deaf children are subjected to painful traditional practices to cure their deafness in their precious early childhood, and this is done without communication and language learning. By the time they come to school, which is usually at 9–15 years of age, they are beyond the age at which they could have learned the fundamental basic skills more quickly and easily (Mekonnen et al., 2015), which might have contributed to their low scores on the general school self-concept.

After the transition into the 5th grade, academic achievement decreased for both hearing and DHH students who were integrated with their hearing peers. This suggests that there is a problem in the school system regarding the transition from one cycle to the next. In Ethiopia, in the first cycle of primary school (Grades 1–4), students are taught all subjects by a single teacher in their native language for hearing and sign language for those minority DHH students who have got the opportunity to enter either in special class or special school teaching. There is no reliable data indicating the total number of school age DHH children in Ethiopia, however, my estimation in this regard is that nearly 10% of them have got access to education. Beginning in the second cycle of primary school (Grade 5 and above), they are taught by subject teachers and for many children in a second language (Amharic or English), and the regular teachers most often not have sign language skills to communicate with DHH learners. This entirely new situation could have an impact on the learning of both DHH and hearing students and is shown as decreasing academic achievement in Study 3. Another possible explanation for this decrease could be that assessment practices change between the cycles and that teachers in the second cycle could be more strict in their assessments or could not be able to grasp the full picture of the students' achievements, as they teach them in only one subject. While this decrease was not present among the students continuing in special schools, it has to be borne in mind that the overall level of academic achievement of DHH students in special schools was clearly lower than either of the two groups in Grade 4, which is also problematic and needs attention.

As expected, the results also show that academic self-concept for DHH students dropped significantly when they transferred from the special class to the integrated setting. However, DHH students in special schools showed some small improvement in their academic self-concept in the transition, while the hearing students remained almost stable. The drop in academic self-concept for the DHH students who transferred to the mainstream could be attributed to the fact that DHH learners face several challenges in regular classrooms in Ethiopia, besides the inaccessibility of sign language. The size of a regular class may be very large (60–80 students per class), and most regular class teachers do not know sign language or understand the communicational needs of DHH children. There were no educational sign language interpreters in the regular schools that the participants were attending. Another reason might be that academic self-concept depends on one's frame of reference, as suggested by the 'big-fish-little-pond effect' (Marsh and Hau 2003). According to the big-fish-

little-pond effect theory, students compare their own academic achievements with those of their peers and use this social comparison impression as one basis for forming their academic self-concept. In this study, DHH students in special classes in Grade 4 were in a small group; thus, they compared themselves to few peers. However, when they transferred to Grade 5, in the mainstream setting, they compared themselves to a larger class of hearing students with better academic performance and determined their academic self-concept in light of the new environment. When the DHH students in the special school transitioned to Grade 5, they remained in the same school with the same classmates; therefore, there was no change in their frame of reference for comparison.

The results of this study also provide a positive image of the social integration of DHH children in mainstream educational settings in Ethiopia. DHH and hearing children showed improvement in the self-concept dimension of peer relations when they got integrated in the second cycle of primary school. This result was contrary to our expectation, because we expected DHH students who were integrated would have difficulty establishing positive relationships with peers. This finding suggests that DHH children can benefit from being educated in inclusive schools, as these general schools can provide all students with many opportunities to develop socially and cope with difficulties in everyday peer relationship problems. However, DHH students showed a significant drop in their academic self-concept and academic achievement when they transferred to Grade 5 and were integrated in the regular setting. Therefore, more important than physical school placement issues, the educational system as a whole requires pedagogical solutions adapted to the characteristics of DHH students that will allow them to develop not only socially but also academically.

The study showed that DHH children expressed great concern about their socio-emotional difficulties. The high rates of socio-emotional problems in DHH children require joint attention by teachers, parents and professionals. In the conditions of Ethiopia, where access to other services and support is very limited, teachers need training in how to overcome the obstacles faced by these children. Improvements in socio-emotional development enable DHH students to learn, complete their education and become productive citizens. Intervention programs need to be developed for the children, parents, and teachers. Such programs would provide knowledge about deafness, communication and languages, coping strategies and psychosocial support. Prior to attending school, DHH students' psychosocial development is affected by parental child-rearing attitudes and community-child relationships. Therefore, the early years are crucial in optimal development of the DHH child. In accordance with Muderedzi and Ingstrad (2011), a culturally-appropriate approach to disability, including deafness and hearing impairments, requires the involvement of parents and families. Families of DHH children need to learn sign language in order to provide a rich and fluent sign language environment for the child from an early age. Enhancing the interaction of DHH children with their environment will help improve socio-emotional and self-concept development.

This study showed that the academic self-concept and academic achievement of DHH students in Ethiopia decreased when they transferred from the special class (4th grade) to the mainstream setting (5th grade). This may be one reason why many DHH students in the country drop out of schools in the transition. This again could be explained by lack of support necessary for DHH students' participation in the mainstream setting. The findings of this study suggest an urgent need for the improvement of inclusion of DHH students. This requires the attention of all educational stakeholders including policymakers, teacher educators, implementers and other players to design appropriate ways to facilitate the inclusion of DHH students to enable them to become full participants in the regular schools. The Ethiopian special needs education strategy (FDRE, Ministry of Education, 2012) promised that sign language interpreters would be assigned to inclusive schools, but this has not been implemented far outside of Addis Ababa. The fact is that for most DHH students learning in a mainstream class depends on the regular teachers' skills and willingness to learn sign language. I have been intensively involved for several years providing short-term sign language and pedagogical training in teaching DHH children for regular and special teachers in Ethiopia and observed positive changes in increasing the enrolment of DHH children to schools and improvement of their learning in different educational settings. In any case, despite these and other possible efforts the regular teachers who may not have received the trainings know very little how to help DHH children in the "inclusive classrooms". There are no sign language interpreter training institutes yet available in the country which should be addressed urgently. It is important to remember that the number of DHH children in Ethiopia is much higher than in many high-income countries where medical prevention mechanisms like vaccinations have reduced numbers of DHH children born, and where ordinary illnesses like otitis media seldom lead into deafness which often happens in Ethiopia. Moreover, there's no discussion on having cochlea implantation for deaf children in Ethiopia, which often is provided in high-income countries like Finland.

Furthermore, both DHH students and their teachers need appropriate support with provision of necessary materials and resources. Placing DHH children in an inclusive setting therefore demands the provision of relevant facilities such as sign language skilled teachers, appropriate hearing aids, sign language interpreters, hearing classmates who are able communicating using sign language, flexible curriculum, positive attitude and good collaboration of other stakeholders. Moreover, reduced class size and provision of in-service teacher education programs should be strengthened for continuous professional development. Simply placing DHH students in a mainstream classroom without the implementation of accessible instruction, to guarantee them an access to the regular curriculum, does not qualify as inclusive education, but rather is simply physical integration finally leading in many cases the DHH children to be excluded from learning and contributing to their drop out of schools.

5.2 Limitations and suggestions for future research

The possibility of pupils' communication competence having affected the results is one limitation of this thesis. Many of the DHH participants, especially those who were attending special classes, had limited language skills (signed or spoken). These children usually started to learn Ethiopian Sign Language only after they came to school. The translation of instruments from another culture and from the English language to Amharic and then to Ethiopian Sign Language might have had an effect on the DHH children's ability to understand the items especially some concepts with negative expressions that were presented indirectly. However, the DHH students' limited language skills were addressed as much as possible with the assistance of their teachers and the researcher; for example, the researcher showed the questionnaire using an overhead projector and provided explanations as needed in sign language and oral language (Amharic). There are no standard instruments available specifically for DHH children to test the self-concept and socio-emotional problems. Cornes et al. (2006) have noted that using standard written questionnaires underestimates the prevalence of psychological problems among deaf children and therefore sign language versions of instruments yields higher results. Therefore, it is important that future studies translate the *Strength and Difficulties Questionnaire* (Goodman, 1997) and *Self-Description Questionnaire-I* (Marsh, 1990) self-reports into Ethiopian Sign Language (video) using a rigorous iterative process of translation and back-translation. There is also a need for more research among DHH children in other issues as little is done in Ethiopia.

The data of this thesis relied solely on students' self-reports. In order to have comprehensive understanding of DHH students' social emotional, self-concept and transition related issues, future studies need to include parents and teachers reports as the source of data. Students' academic achievement was measured using the grades awarded by their teachers in all subjects, indicated by the percentage score recorded on the students' grade reports. This may lack uniformity, as the assessments in different schools are unique. Therefore, it is important that standardized academic achievement tests be considered for future studies. Furthermore, the sample size in this study was small, comprising children from seven schools. Future research should include larger sample sizes and more extended longitudinal studies. Moreover, the difference in learning outcomes between special classes, special schools and inclusive schools as well as the assessment practices between the cycles used by teachers are issues worthy of further research. Additionally, a mixed method approach (for example, combining surveys and in-depth interviews) would be a valuable addition through which to validate the findings of this study.

6 CONCLUSIONS

Self-concept and socio-emotional development are very important domains to consider when providing educational services for DHH children, especially when considering transitioning from one setting to another. During such transitions many changes can occur such as the teacher, peers, routines, environments and material being taught which all could have an impact on the DHH children social emotional skills and academic outcomes.

This study is the first to investigate the differences in the socio-emotional, self-concept and transitional aspects between DHH and hearing children in a sub-Saharan African country. Results suggest that the comparatively lower self-concept of DHH children in the areas of general school, reading, general self, and parent relations requires the joint attention of teachers, parents, and professionals. Attention should also be given for teacher education and for the socio-emotional development and appropriate support in the provision of education for these children.

While the main concern in the education of DHH children in sub-Saharan African countries has been access to education, in developed countries it has been marked throughout its long history by argument and controversy. Over the years the major concern and debate have been focused on three major issues:

1. Communication and language choices – how DHH children should be educated: oral/aural (spoken language alone), those using speech and sign simultaneously (total communication), and sign-bilingualism.
2. Where DHH children should be educated – the educational placement issues: special/residential school for the deaf, a unit or resource base in mainstream school (with varying degrees of integration into mainstream class), mainstream/inclusive education.
3. Educational attainments of DHH children – literacy attainments and academic achievements.

However, as a result of the global trend towards inclusion, certain financial pressures, parental expectations, and technological developments, the inte-

gration of DHH children into mainstream schools appears to be on the increase (Powers, 2001).

The recent debate in developed countries has focused on the medical view of deafness vs the sociocultural perspective. In this regard, Lehtomäki E. (2005), in her doctoral dissertation, called for a realistic perspective, combining the two, so have Bhaskar & Danermark (2006). Today the words “cochlear implant”, “mainstreaming,” and “inclusive classroom” present for many advocates of choice a triple threat to sign language. The increasing number of DHH children receiving cochlear implants raises new, complex issues concerning the choice of communication method and schooling for DHH children. The conflict is amplified and complicated by the fact that over 90% of DHH children are born to hearing parents with little, or no prior knowledge of deafness (Knooks & Marschark 2014). The technology of cochlear implantation offered many parents and teachers the hope that new hearing provided by electrical stimulation would provide a means of overcoming many of the difficulties caused by childhood deafness by providing access to spoken language. In developed countries implementation of Universal New-born Hearing Screening (UNHS) allows for children with hearing loss to be identified at birth, fitted with cochlear implant early, and receive early intervention services at a very early age. These intense interventions allow for children with hearing loss to enter the mainstream educational setting at the much younger age with greater access to sound than previously possible.

According to the socio-cultural view of deafness, the deaf belong to a linguistic and cultural minority in which they are neither inferior nor disabled. During the past decades the recognition of sign language as a minority language has increased and a shift towards a bilingual education has been evident. The threat towards Deaf culture and sign language related to the use of cochlear implants in born-deaf infants is confronted by the sociocultural perspective that sees Deaf people as whole and able, with their own identity, culture, language, and community. The cochlear implantation is an ongoing controversial issue, and strongly opposed by supporters of Deaf culture, including many hearing educators. These changes towards cochlear implantation mean, however, that children with hearing loss are getting greater opportunity to participate in and benefit from the mainstream environment. Since the advent of the cochlear implant more than 30 years ago, the devices have benefited thousands of children with hearing loss and have had an unprecedented impact on deaf education. Recent changes in cochlear implant technology and use, including revised candidacy criteria, more sophisticated processing strategies and bilateral implantation have added to the benefits (Peters, Wyss, & Monrique, 2010).

While the technological changes are challenging the approaches in teaching DHH children in developed countries, the educational context of DHH children in Ethiopia and most sub-Saharan African countries is struggling to focus primarily on the basic human right to education. Identity of DHH children in Ethiopia is determined by constraints, e.g. early diagnosis, screening tests, and appropriate early intervention are not available. Negative attitudes

and cultural beliefs affect DHH children's development and social participation. In the sub-Saharan Africa, there are neither reliable data nor reliable estimates of the number of school-age DHH children, however, it is estimated that over 90 % of DHH children have never been to school (Kiyaga & Moores, 2003). In many low-income and sub-Saharan African countries families are not able to afford to buy hearing aids for their hard of hearing children nor do states provide support for hearing aids. Lack of resources is part of the cause for poor education provision, lack of specially trained teachers and interpreters, and absence of medical care, vocational programs, poor legal and social services for DHH are the major issues. The situation is especially serious in the rural areas of most developing countries, where majority of DHH are residing and poverty is widespread, and services are limited.

Despite the various challenges and barriers, there are encouraging progresses in improving the provision of education for DHH children in recent years in Ethiopia. For example, the project which I myself am coordinating (SEP Deaf), supported by the Finnish development program through FELM, was able to create educational access for over 7000 DHH children in 400 special classes. We have prepared various relevant educational materials like sign language books and video materials and distributed to most of the schools in the country where DHH students are learning. We have provided successive skill training for over 1000 teachers and awareness raising programs for families, education officials and community members. Generally, the number of DHH children attending schools shows a fast increment in recent years in the country. In 2012 the number of DHH students registered in schools was 10379 and by the year 2016 the number has grown to 34358 (Ministry of Education, 2012 and 2016). The international declarations which Ethiopia has signed, like the EFA and Millennium Development Goal agendas, pushed the country to make improvements in creating access to education even in a situation with its rapid population growth. The quality of education for all children is still low, and it is now on the priority area of the ministry of education in its ESDP V priority list together with the special needs education/ inclusive education provision (Ministry of Education, 2015). The government recognizes the need for sign language interpreters and at least there is readiness at the policy level which needs to be functional without delay. In 2008 a BA degree programme in Sign Language and Deaf Culture opened at Addis Ababa University and recently some Teacher Education Collages are accepting DHH candidates. In my experience, I noticed better sign language communication taking place among DHH students and their hearing teachers in schools/units where there were DHH teachers working as teachers or assistants as compared to schools/units having only hearing teachers. In the context of Ethiopia where hearing teachers have poor sign language skills and lack appropriate training; DHH teachers or DHH assistants who are fluent in sign language could help hearing teachers improve sign language skills, be role models for the DHH children and create positive attitude towards deafness within the community.

YHTEENVETO

Kehittyneissä maissa teknologinen kehitys on muuttanut perinteistä kuurojen opetuksen lähestymistapaa, kun kuurot lapset saavat usein sisäkorvaistutteen. Kehitysmaissa, kuten Etiopiassa, suurin haaste on edelleen oikeus koulutukseen. Etiopiassa puuttuvat edelleen kuurojen lasten diagnosointi, seulonta testit ja varhaiskuntoutus. Kielteiset asenteet ja haitalliset kulttuuriset uskomukset kuuroutta kohtaan vaikuttavat kuurojen ja huonokuuloisten lasten kehitykseen ja johtavat joskus lasten eristämiseen. Etiopiassa, kuten monissa muissa Afrikan maissa, ei ole luotettavia tilastoja tai edes arvioita kouluikäisten kuurojen ja huonokuuloisten oppilaiden määrästä. Kuitenkin yleisesti arvioidaan, että yli 90% kuuroista ja huonokuuloisista on vielä koulumahdollisuuksien ulkopuolella. Koulutettujen opettajien ja tulkkien puute, puutteelliset opetusmenetelmät ja opetusmateriaalit, terveystalvelujen vähyys sekä huonot oikeus- ja sosiaalipalvelut ovat pääsyytä koulutusmahdollisuuksien vähäisyyteen. Tilanne on erityisen vaikea maaseudulla, jossa suurin osa kuuroista asuu. Maaseudulla eletään laajalti köyhyydessä eikä siellä ole tarvittavia palveluita.

Ne harvat kuurot, joilla on mahdollisuus päästä kouluun, ovat seuraavallisissa kouluissa: 1) Kuurojen erityiskoulu, joka voi olla päiväkoulu tai asuntolakoulu 2) Erityisluokka, julkisen koulun yhteydessä. Yleensä kuurot opiskelevat näissä erityisluokissa (0-4lk) viittomakielellä. Heillä on mahdollisuus olla sosiaalisessa yhteydessä kuulevien kanssa vapaa-aikana ja urheilutunneilla 3) Julkinen/Yleinen koulu, jossa kuurojen on mahdollisuus olla integroituna kuulevien oppilaiden kanssa, hyvin usein kuitenkin ilman minkäänlaista tukea. Aikaisemmin kuurot ovat olleet erityiskouluissa, mutta nykyään erityisopetuksen strategia, joka on tarkoitettu antamaan kuuroille tasavertaiset mahdollisuudet opiskeluun kuulevien kanssa, suosittaa heidän sijoitusta julkisiin kouluihin.

Monista esteistä huolimatta viime vuosina Etiopiassa on tapahtunut kuitenkin rohkaisevaa kehitystä kuurojen ja huonokuuloisten koulutussektorilla. Esimerkiksi johtamani Felm:n kehitysyhteistyöhanke (Kuurojenopetuksen tukiohjelma, SEP Deaf) on avannut koulumahdollisuuden yli 7000 kuurolle ja huonokuuloiselle lapselle, yli 400:llä erityisluokalla. Projekti on valmistanut opetusmateriaalia kuuroille; mm. viittomakielen kirjoja ja videoita, joita on jaettu maan kaikkiin kouluihin, joissa opetetaan kuuroja. Projekti on kurssittanut yli 1000 opettajaa kuurojen luokille, antanut kuurotietous -koulutusta opetusvirastojen henkilökunnille, kuurojen lasten perheille ja kyläyhteisöille. Etiopian Opetusministeriön raporttien mukaan vuonna 2012 kuurojen ja huonokuuloisten oppilaiden määrä oli 10379, vuoteen 2016 heidän lukumäärä oli jo kohonnut 34358: aan. Kansainväliset sopimukset, EFA (koulutus kaikille) ja vuosituhanen kehitystavoitteet, jotka Etiopia on allekirjoittanut, kannustivat maata kehittämään ja parantamaan koulutusoloja väestön nopeasta kasvusta huolimatta. Opetuksen taso kaikissa koulumuodoissa on edelleen alhainen, ja opetuksen tason kohottaminen onkin Opetusministeriön prioriteetti yhdessä erityisopetuksen ja inklusion kehittämisen kanssa. Suomen valtiolla on ollut merkittävä rooli Etiopian erityisopetuksen kehittämisessä. Etiopian valtio on huomionut

viittomakielen tulkkien tarpeen kuurojen opetuksessa ja sille on olemassa laillinen perusta. Tulkkien koulutus olisi nyt viipymättä saatava myös toteutetuksi. Addis Ababan yliopistossa avattiin vuonna 2008 kandidaattitason koulutus, "Viittomakieli ja kuurojen kulttuuri". Myös opettajankoulutuslaitokset ovat hyväksyneet kuuroja koulutettaviksi opettajiksi.

Tämän tutkimuksen tavoite oli tarkastella etiopialaisten kuurojen ja huonokuuloisten lasten sosio-emotionaalista hyvinvointia ja heidän minäkäsitystään, ja arvioida vaikuttaako oppimisympäristön muuttuminen erityisluokasta yleisopetukseen, ts. inklusio-opetukseen, kuuron ja huonokuuloisen oppilaan sosio-emotionaaliseen hyvinvointiin ja minäkuvaan. Koska on hyvin vaikeaa antaa absoluuttista arviota kuurojen ja huonokuuloisten oppilaiden sosio-emotionaalisen hyvinvoinnin ja minäkuvan tasosta erityisluokalla ja erityiskoulussa, heitä verrattiin kuulevien ikätovereittensa ryhmään.

Tämän tutkimuksen yksi päätavoite oli saada tietoa siitä miksi monet kuurot ja huonokuuloiset oppilaat Etiopiassa keskeyttävät koulun siirryttyään viidennelle luokalle yleisopetukseen. Olen itse työskennellyt useita vuosia kuurojenopettajana ja nyt järjestän täydennyskoulutuskursseja koko maan kuurojen opettajille. Olen seurannut kuurojenopetuksen tilannetta pitkään ja toistuvasti törmännyt kuurojen ja huonokuuloisten viidesluokkalaisten oppilaiden koulun keskeyttämisen ongelmaan.

Koska Etiopiassa ei ole aiempia tutkimuksia tästä ilmiöstä, en ole voinut asettaa varsinaisia hypoteeseja. Vedoten pitkään työkokemukseeni ja tuntemallani etiopialaisen koulusysteemin, saatoinkin kuitenkin olettaa, että neljäsluokkalaisten kuuron tai huonokuuloisen oppilaan saavutukset laskevat, kun heidät integroidaan yleisopetukseen kuulevien kanssa viidennelle luokalle. Tosiasia on, että yleisopetusluokissa ei ole viittomakielentaitoisia opettajia eikä tulkkipalveluita. Voin myös olettaa, että kuuroilla on vaikeuksia solmia positiivisia suhteita kuulevien oppilaiden kanssa. Kuulevilla oppilailla ei ole tietoa kuuroudesta ja heillä on yleisesti kielteinen asennoituminen vammaisuutta kohtaan.

Tämä väitöskirja koostuu kolmesta eri tutkimuksesta.

Ensimmäisessä osatutkimuksessa tarkasteltiin etiopialaisten erityiskouluissa ja erityisluokilla olevien kuurojen ja huonokuuloisten oppilaiden sosio-emotionaalisia ongelmia ja verrattiin heitä kuuleviin ikätovereihin. Tutkimuksessa tarkasteltiin onko kolmen eri oppilasryhmän itseraportoiduissa käyttäytymismuodoissa eroja. Aineisto kerättiin "Strength and Difficulties Questionnaire", (Goodman, 1997) kyselylomakkeella, jolla oppilaat itse arvioivat sosio-emotionaalisia vahvuuksiaan ja vaikeuksiaan. Tulokset osoittivat, että kuuroilla ja huonokuuloisilla, olivat he sitten erityisluokilla tai -kouluissa, oli vakavampia sosio-emotionaalisia ongelmia kuin kuulevilla. Kuurojen ja huonokuuloisten vastauksista ilmeni, että sosio-emotionaalisia ongelmia oli niin kotona kuin kaverisuhteissa, kuin myös oppitunneilla ja kaikissa ihmissuhteissa. Kuurot ja huonokuuloiset arvioivat että heillä on enemmän käyttäytymishäiriöitä kuin kuulevilla. Tässä tutkimuksessa ei ollut merkitystä sillä olivatko nämä kuurot oppilaat erityisluokilla tai erityiskoulussa. Tulos osoitti, että etiopialaisten kuurojen ja huonokuuloisten oppilaiden tilanne on hyvin huolestuttava.

Toisessa osatutkimuksessa tarkasteltiin erityisluokkien ja -koulujen kuurojen ja huonokuuloisten oppilaiden minäkäsitystä, jota verrattiin kuulevien oppilaiden minäkäsitykseen. Oppilaiden minäkäsityksen mittaamiseen käytettiin ”Self-Description Questionnaire-I” mittaria, SDQ-I (Marsh, 1990) jossa oppilaat kuvailevat väittämällä itseään. SDQ-I arvioi akateemisen minäkäsityksen kolmea aluetta (lukeminen, laskeminen ja yleinen kouluminäkuva) sekä fyysistä minäkäsitystä (fyysinen ulkomuoto ja fyysiset taidot) ja sosiaalista minäkäsitystä (suhde vanhempiin ja kavereihin). Lisäksi SDQ-I sisälsi yleisen itsetunnon tai itsearvostuksen mittauksen. Tutkimuksen tulokset osoittivat että kuuroilla ja huonokuuloisilla oppilailla (riippumatta kummassa koulumuodossa he opiskelivat) oli heikompi yleinen itsearvostus ja kouluminäkuva sekä heikompi minäkäsitys lukemisessa ja huonompi suhde vanhempiinsa. Erityiskouluissa olevilla kuuroilla ja huonokuuloisilla oli parempi minäkäsitys ulkonäöstään verrattuna kuuleviin tai erityisluokilla oleviin kuuroihin ja huonokuuloisiin. Ystävyysuhteissa, matematiikassa ja fyysisissä kyvyissä ei ollut tilastollisesti merkitsevää eroa ryhmien kesken.

Kolmannessa osatutkimuksessa tarkasteltiin vaikuttaako koulumuoto kuurojen ja huonokuuloisten oppilaiden koulumenestykseen ja heidän minäkäsitykseensä oppilaiden siirtyessä viidennelle luokalle. Marsh:n SDQ-I mittarin tulokset mitattiin neljännellä ja viidennellä luokalla ja minäkäsityksen muutosta sekä kaikkien kouluaineiden keskiarvon muutosta vertailtiin eri koulumuodoista tulevien oppilaiden välillä. Tulokset osoittivat, että erityisluokilta tulevien kuurojen ja huonokuuloisten akateemiset saavutukset ja heidän kouluminäkvansa laski, kun he siirtyivät viidennelle luokalle yleisopetukseen. Erityiskouluissa olevien kuurojen ja huonokuuloisten oppilaiden akateemisiin saavutuksiin ja minäkuvaan ei tullut muutoksia heidän siirtyessä viidennelle luokalle. Tässä osatutkimuksessa todettiin myös, että kaikki kolme ryhmää (yleisopetuksessa olevat kuurot ja huonokuuloiset, erityiskouluissa olevat kuurot ja huonokuuloiset sekä kuulevat oppilaat) osoittivat sosiaalisessa minäkäsityksessä kehittymistä siirtyessään neljänneltä viidennelle luokalle.

Tutkimuksen tulokset antavat hälyyttävää tietoa lainsäätäjille, opettajan-koulutuslaitoksille ja alan ammattilaisille sekä kuurojen opettajille Etiopian kuurojen opetuksen tilasta. Kaikkien näiden asianosaisten tulisi ottaa huomioon kuurojen erityistarpeet ja suunnitella heille asianmukaiset tukitoimenpiteet, jotta heistä tulisi tasavertaisia oppijoita inklusiivisessa koulussa. Tutkimus auttaa päättäjiä ymmärtämään kuurojen kommunikaatiotarpeet, erityisesti viittomakielen tärkeyden, kun he suunnittelevat kuurojen opetuksen kehittämistä inklusiivisen koulun mallin mukaisesti. Kuuroilla ja huonokuuloisilla pitää jatkossa olla paremmat mahdollisuudet tasavertaiseen oppimiseen kuulevien luokkatovereidensa kanssa.

Erityisluokkien, erityiskoulujen ja inklusiivisten koulujen oppimistulosten erot sekä opettajien arviointikäytännöt voisivat olla tulevien tutkimusten aiheita. Lisäksi, laadullisen ja määrällisen menetelmän yhdistelmä (mixed methods) voisi olla arvokas lisä vahvistamaan tämän tutkimuksen tuloksia.

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ORIGINAL PAPERS

I

SOCIO-EMOTIONAL PROBLEMS EXPERIENCED BY DEAF AND HARD OF HEARING STUDENTS IN ETHIOPIA

by

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Abstract

This study compares the socio-emotional problems experienced by deaf and hard of hearing (DHH) students with those of hearing students in Ethiopia. The research involved a sample of 103 grade-four students attending a special school for the deaf, a special class for the deaf and a regular school. Socio-emotional problems were measured using Goodman's self-report measure, the Strengths and Difficulties Questionnaire (SDQ) for children and adolescents. Participants were selected from seven towns in Ethiopia. The results show that, compared to the hearing sample, the DHH students experienced more severe socio-emotional problems across all dimensions, regardless of whether they were in special classes or special schools. The DHH children reported that socio-emotional difficulties interfered with their home lives, friendships, classroom learning and ability to get along with the people around them. The DHH students scored higher in the externalizing behavioural domains than did the hearing students. There was no statistically significant difference between the DHH students in the special school and special class settings. The results show that DHH children expressed great concern about their socio-emotional difficulties. Teachers and other professionals need to raise their awareness about DHH issues in order to help these children overcome their challenges.

KEYWORDS: Deafness; Hearing impairment; Deaf students; Hard-of-hearing students; Socio-emotional problems; Deaf education; Ethiopia, Africa

Introduction

Previous studies on cognitive development and functioning show that deaf and hard of hearing (DHH) students face special challenges. Studies show that DHH children are more impulsive than hearing children due to the developmental delay resulting from early language deprivation (Marschark & Wauters, 2011). Research into socio-emotional development (Calderon & Greenberg, 2011) reveals that reduced auditory perception influences many processes that are significant for children's effective interaction with the world. The prevalence of mental health problems in DHH students remains difficult to establish for a number of reasons such as the heterogeneous nature of students with hearing loss relating to the degree and type of hearing loss, age of onset, time of diagnosis, communication and cultural identification. Other significant issues are the appropriateness of instruments used and the informants who provide the data (Brown & Cornes, 2014). Therefore, attention must be given to socio-emotional development when raising and educating DHH children. The present study investigates the impact of socio-emotional problems in the lives of DHH children attending special schools and special classes compared to hearing students in Ethiopia. It also examines whether there are differences in the self-reported externalizing behaviour patterns between the three groups (students in special school, in special class, and hearing students). To our knowledge, the socio-emotional development of DHH children in Africa has yet to be studied.

Educational settings for DHH students in Ethiopia

According to recent survey data reported by the World Health Organization (WHO, 2013), 360 million people worldwide have disabling hearing loss, and two-thirds of them live in developing countries. In most developing countries, the incidence and causes of hearing impairment remain largely undocumented due to limited resources and access to health care as well as lack of screening

and early intervention services. In sub-Saharan Africa, these limitations combined with lack of information and traditional beliefs and practices, cause preventable hearing losses (Olusanya, 2008). In Ethiopia, there is no reliable data indicating the total number of DHH people or the number of school-aged DHH children. The national average gross enrolment rate at the primary level for all types of children with disabilities was approximately 3.2% (MoE, 2012), implying that 96.8% of children with disabilities remain unserved by the education system, often remaining out of school. For the minority of DHH children who have accessed education, placement options can be categorized into three broad types: (a) schools exclusively for DHH students, which includes day/residential schools; (b) special classes within the regular public schools, allowing DHH and hearing students social interaction during their free time and extracurricular activities; and (c) regular public schools, typically with limited DHH peers integrated with hearing students (often referred to as *inclusive*). The special classes provide education for DHH children up to grade four before integrating them with regular hearing students beginning in grade five. In 2013, there were 13 special schools and 302 special classes. Traditionally, DHH students have been placed primarily in schools exclusively for DHH students. In recent years, placement has shifted considerably, and the global trend has been to educate DHH children in inclusive settings (Marschark & Knoors, 2012), which is likely to be the case for Ethiopia in the future.

In Ethiopia, however, the challenge is getting DHH children to any form of schools. To address this issue, the Ministry of Education (MoE), with support from Finland, designed the first SNE Program Strategy in 2006 (Ayana & Lehtomäki, 2006). The strategy focuses on the promotion of inclusive education to meet the Millennium Development Goals and the Education for All Goals. In 2012, the strategy was revised and re-released in April 2013 along with implementation guidelines (MoE, 2012). The government also has referred to international conventions, declarations and statements related to inclusive education after ratifying the UN Convention on the Rights of the Child in 1991 and the UN Convention on the Rights of Persons with Disabilities in

2010. The Ethiopian Constitution (Article 9) affirms that all international agreements ratified by Ethiopia are an integral part of the law. Within this legal framework, the government, along with other stakeholders, is moving forward in addressing the educational needs of DHH children.

Nonetheless, DHH learners face several major challenges in Ethiopian regular classrooms, including the inaccessibility of sign language. The size of the regular class may be very large (60 - 80 students per class), and most of the regular class teachers do not know sign language or understand the communicational needs of DHH children. There are no educational sign language interpreters in the country, except in the capital city, Addis Ababa. This situation has created a challenge for most deaf students in continuing their schooling. Due to lack of appropriate support, more specifically support in sign language and communication, deaf children (especially those who are pre-lingual) find learning very difficult in an environment that demands hearing; therefore, many of them are forced to drop out of school (Mulat, 2011).

Behavioural and emotional problems in DHH children

Behavioural and emotional disorders include a wide range of behavioural patterns, ranging from externalizing to internalizing behaviour disorders as well as combined behaviours that include features of both subtypes. Externalizing behaviours are actions that direct problematic energy outward and may include behaviours such as verbal and physical aggression, hyperactivity, noncompliance, and delinquent acts. In contrast, internalizing behaviours are directed toward the self that include social withdrawal, depression, substance abuse, feeding and eating disorders, anxiety, and schizophrenia (for a review, see Kauffman & Landrum, 2013). Most current studies on DHH students show that, regardless of educational placement, they have significantly higher rates of behavioural and emotional difficulties than hearing students. Various studies have compared the total scores for problems between DHH students and hearing students using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) or the Child Behaviour Checklist (Achenbach,

1991). These studies are in agreement that DHH students show up to a 2.6-fold higher rate of disorders than their hearing counterparts (Dammeyer, 2010; Fellingner et al., 2008; Hintermair, 2007; van Eldik et al., 2004; van Gent et al., 2007). Dammeyer (2010) reported that the prevalence of psychosocial difficulties in DHH children in Denmark was 3.7 times greater compared to a group of hearing children; DHH students who had additional handicaps were particularly affected. However, as Cornes and Brown (2014) noted, it is challenging to diagnose emotional disturbance in deaf children because the instruments available are difficult for deaf children to understand. In an effort to overcome this, studies made in Australia by Cornes et al. (2006) have used a signed version of the Youth Self Report and found higher prevalence of psychological problems among deaf adolescents than that reported for the wider Australian adolescent population.

Educational settings and psychosocial difficulties in DHH children

There is no overall agreement on how educational placement of DHH students into mainstream classes, regular school settings or more specialized arrangements affects their psychosocial difficulties. Hintermair (2013) and Keilmann, Limberger and Mann (2007) found low levels of psychosocial difficulties among DHH children attending mainstream schools compared to those in special schools. Earlier researchers, such as Hindley, Hill, McGuigan and Kitson (1994), found the level of psychosocial difficulties lower at special schools compared to DHH units. Polat (2003) documented better psychosocial adjustment patterns in residential school students compared to mainstream school students. Generally, additional disabilities (physiological and/or psychiatric disorders) have been associated with a higher prevalence of psychosocial difficulties among the deaf (van Eldik et al., 2004; van Gent et al., 2007; Hindley et al., 1994; Hintermair, 2007; Polat, 2003; Sinkkonen, 1994; Dammeyer, 2010). As in studies concerning hearing children, parental resources and stress socioeconomic status and ethnicity also correspond to psychosocial wellbeing among DHH children (Stacey et al., 2006).

The globally well-known controversy between the medical/audiological and cultural/ecological perspectives on deafness has emerged in discussions regarding the psychological development of DHH children with and without cochlear implants (Hindley et al., 1994; Polat, 2003). A bicultural (deaf and hearing) and bilingual (signed and oral) perspective has proven to be positive for deaf children's psychosocial and cognitive development because it gives the children a greater ability for natural communication from early in life; it also provides the opportunity to develop a positive self-image and self-esteem as a deaf person (Preisler, 1999). The research in deaf identity carried out by Bat-Chava (2006) also indicated that deaf people with bicultural identities would have higher self-esteem. Adequate communication is crucial for deaf children's development, and sign language abilities correlate with psychosocial well-being (Polat, 2003; Sinkkonen, 1994). Parental hearing status also has been discussed as an important issue (Mayberry, 2003). Deaf children of deaf parents have shown better psychosocial adjustment than deaf children of hearing parents; as a result, discussions are ongoing about whether it is deafness itself or communication factors that influence the psychosocial well-being of children with hearing loss (Polat, 2003).

Recent studies show that, regardless of the mode of communication and language chosen, DHH children lag behind their hearing peers in cognitive development and academic performance (Marschark & Knoors, 2012). Almost all of the research available and reviewed has focused on DHH children in high-income countries, countries with conditions for early detection and intervention as well as rehabilitation and supportive measures in schools. Therefore, it is important to investigate the effects of educational placement on the behavioural and emotional wellbeing and academic performance of DHH children in low-income countries with limited resources and services, such as Ethiopia.

Using a sample of Ethiopian students, this study aimed to examine whether the impacts of socio-emotional problems differ among DHH and hearing primary school students in three different

educational settings (students in special school, students in special class, and hearing students). The study also investigates whether there are differences in the self-reported externalizing behaviour problems between DHH students in special classes, special schools and hearing students. This research will help professionals and educators globally to better understand the problems related to the socio-emotional aspects of DHH children and to make appropriate interventions promoting the socio-emotional development of these children. On one hand, the study has international significance reflecting the African perspective of DHH education; for the wider audience, it compares the impacts of socio-emotional problems of DHH students in different educational settings.

Methods

Participants

The present study included a total of 103 fourth grade students who were attending three types of schools: DHH students in special classes attached to regular schools, DHH students in special schools and hearing students in regular schools. The characteristics of the students who participated in this study are described in Table 1. They were from the Southern Nations, Nationalities and Peoples' Region (from Hossana, Arbminch and Hawassa Town Administrations), Oromia Region (from Asella and Adama Town Administrations), Amhara Region (from Bahir Dar Town Administration) and from Addis Ababa City Administration. The participants were selected purposefully due to the small number of fourth-grade DHH students in special classes. Among the participants, 29 were DHH students from special classes (mean age = 15.4, SD = 2.9), 31 were DHH students from special schools (mean age = 13.1, SD = 1.7) and 43 were hearing students from regular schools (mean age = 12.1, SD = 1.7) where special classes were attached (Table 1). The age of DHH participants in special classes ranged from 10 to 22 years old. Almost all the students in the

special classes and special schools had severe to profound bilateral hearing loss, except one student from each setting who was hard of hearing. The researcher measured the hearing levels of DHH students using the pure tone audiometer.

Table 1 Participants of the study (N = 103)

School setting	N	Age	Hearing level		Gender		%
		Mean (SD)	<70dB	>70dB	Male	Female	
DHH in special class	29	15.4(2.9)	1	28	13	16	28.2%
DHH in special school	31	13.1(1.7)	1	30	16	15	30.1%
Hearing in regular school	43	12.1(1.7)	43	0	21	22	41.7%
TOTAL	103	13.3(2.5)	45	58	50	53	100%

The special classes selected for this study were located in Adama, Asella, Bahir Dar and Hawassa. The special schools for the study were Mekane Yesus School for the Deaf in Hossana, Arba Minch Special School in Arba Minch, and Victory School for the Deaf in Addis Ababa (Table 2).

Table 2 Location and number of participants by the school setting

School setting	A/minch	Adama	Asella	Hawassa	B/Dar	Hossana	AA Victory	Total
DHH in special class	0	10	5	9	5	0	0	29
DHH in special school	9	0	0	0	0	17	5	31
Hearing in regular school	1	12	10	8	12	0	0	43
Total	10	22	15	17	17	17	5	103

Procedure

Behavioural problems were measured with the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) using the self-report for children and adolescents SDQ(S) 11-17. Goodman's SDQ (Goodman, 1997) is a brief child behavioural screening questionnaire that asks about 25 negative and positive attributes, generating scores for five subscales: Conduct Problems, Hyperactivity-Inattention, Emotional Problems, Peer Problems and Prosocial Behaviour. The emotional and peer subscales could be categorized into an internalizing subscale and the behavioural and hyperactivity subscales into an externalizing subscale. There is also an impact supplement of the SDQ with the 25 items that asks whether the child thinks that she/he has a problem, and if so, enquire further about chronicity, distress, social impairment, and burden to others. The original SDQ measure for parents included a version translated into Amharic; however, a slight wording modification was made to the Amharic translation with respect to the self-report component. The adapted questionnaire was used to measure difficulties as perceived by the students themselves (emotional, conduct and peer problems; hyperactivity and prosocial behaviour). It contained 25 statements pertaining to the child (e.g., "many worries, often seems worried"; "constantly fidgeting or squirming"; "considerate of other people's feelings"); the children graded these statements as "not true", "somewhat true" or "certainly true". For the impact supplement questionnaire, children had to rate their behavioural or emotional difficulties in terms of interference in daily life as "not at all", "only a little", "quite a lot", or "a great deal".

The data were collected just before the end of the academic year in May – June, 2011. The 25 items and impact questions for SDQ measures were distributed to each child to fill out while the researcher presented them on an overhead projector. The researcher explained all the questions and instructions in sign language for DHH students and read them aloud for hearing students. They were

presented in separate sessions for the hearing and DHH groups in order to avoid mixing sign and spoken languages. If the children did not understand a certain word, they were assisted with paraphrases. After replying to the 25 items, participants were asked to fill out the impact supplement questionnaire for the SDQ measures. At the beginning of the impact supplement, there was the following question: “Overall, do you think that you have difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?” For this question, participants needed to reply as “No”, “Yes-minor difficulties”, “Yes-definite difficulties”, or “Yes-severe difficulties”. 30 participants (29%) answered “No” to this particular question, and they did not continue with further testing. Among those who answered “No”, the majority were hearing participants 32.6% (14/43). The remainder included 29% (9/31) of DHH students in special schools and 24.1% (7/29) of DHH students in special classes.

Analysis

All statistical analyses were performed using SPSS version 18.0. One-way ANOVA was used to compare differences in scores between the three school settings with a significance level set at $P \leq .05$. In estimating the magnitude or practical importance of the difference a rule of thumb suggested by Cohen (1988) for interpretation of η^2 statistics was used. In One-way ANOVA η^2 values above .01 are considered as indicating small effect size, values above .06 a medium effect size and values above .14 a large effect size.

Results

The results show that the impact of socio-emotional problems is more severe across all dimensions for the DHH students; this finding holds true for those attending special classes and for those in special schools when compared to the hearing sample (Table 3). The DHH students in the two

different settings differed significantly from the hearing children in all domains of socio-emotional problems, except in leisure activities and likelihood to become upset or distressed about difficulties.

Table 3 The impact of socio-emotional problems as perceived by the students (N=73)

Impact items	Hearing students (N=29)		DHH in special class (N=22)		DHH in special school (N=22)		F	Sig.	Eta-squared (η^2)
	M	SD	M	SD	M	SD			
How long difficulties being present	1.97	1.05	2.73	1.20	3.05	0.99	6.78	.002	0.16
Difficulties upset or distress me	2.24	0.87	2.86	1.03	2.41	1.05	2.60	.08	0.07
Difficulties interfere with home life	1.83	1.00	2.86	0.99	2.23	0.87	4.94	.01	0.12
Difficulties interfere with friendships	1.83	0.89	2.45	1.10	2.45	0.96	3.59	.033	0.09
Difficulties interfere with classroom learning	1.72	0.88	2.76	1.09	2.64	1.18	7.66	.001	0.18
Difficulties interfere with leisure activities	1.62	0.90	2.18	1.14	2.00	0.98	2.11	.129	0.06
Difficulties make it harder for people around me (family, friends, teachers, etc.)	1.41	0.63	3.00	1.14	2.23	0.87	20.2	.000	0.37
SDQ Externalizing	1.34	0.31	1.71	0.38	1.70	0.34	14.19	.000	0.221

As measured by how long difficulties been present, DHH students seemed to have more chronic socio-emotional difficulties compared to hearing students ($P \leq .002$, $F = 6.78$, $\eta^2 = .16$), and the effect size of this difference was large ($\eta^2 = .16$). Emotional and behavioural problems interfere more in the home life of DHH students compared to their hearing peers ($P \leq .01$, $F = 4.94$) and the difference had a medium effect size ($\eta^2 = .12$). Behavioural difficulties also interfere more in the classroom learning of DHH students than for their hearing peers ($P \leq .001$, $F = 7.66$, $\eta^2 = .18$), as indicated by the large effect size of the differences. There were also significant differences in relation to friendships between hearing students and the DHH group in both settings ($P \leq .033$, $F = 3.59$) with a medium effect size ($\eta^2 = .09$). However, hearing and DHH children differ most in the way behavioural and emotional difficulties interfere with getting along with people around them ($P < .001$, $F = 20.2$), as indicated by the massive effect size ($\eta^2 = .37$).

A statistically significant difference also was found in the SDQ externalizing behavioural patterns of DHH students and hearing students. SDQ externalizing consists of the hyperactivity scale and conduct problems scale of the 25 SDQ measures. The DHH students in both the special schools and special classes scored higher results in the externalizing behavioural domains compared to hearing students, and the effect size of the differences was large ($P \leq .000$, $F = 14.19$, $\eta^2 = .22$).

Because there were differences with age across the three groups, we wanted to ascertain whether or not age affects the outcomes. Therefore, we added age as a co-variate to all of the equations with significant effect on the impact items. Adding age to the variable “difficulties interfere with home life” made it no longer significant. With all other variables, adding age as a co-variate did not change the results in a meaningful way.

Discussion

This study investigated the impact of socio-emotional problems in DHH students compared to hearing students in Ethiopia. The data were collected through a survey administered to a sample of 103 grade four students attending a special school for the deaf, a special class for the deaf and a regular school. The survey instrument was the self-report measure of SDQ (Goodman, 1997) for children and adolescents. The comparison of the impacts of socio-emotional problems revealed significant differences between the DHH and hearing students, with severe impacts across most dimensions. The differences between the DHH students in the special class and special school settings were insignificant, and therefore, the presentation of results focused on the differences between DHH and hearing students. In this study, DHH students possessed significantly higher externalizing behaviour than their hearing counterparts. The pattern of these results support findings from earlier studies that have investigated the socio-emotional development and mental health of

DHH children (Brown & Cornes, 2014; Dammeyer, 2010; Fellingner et al., 2008; Hintermair, 2007; van Eldik et al., 2004; van Gent et al., 2007). This result was partially surprising as we expected better socio-emotional status among DHH students in the special schools compared to DHH students in the special classes. In the special schools where this data was collected there were better sign language skilled teachers, deaf adults who could be role models than in the special classes. In addition to this, the special schools have much more other DHH students, thus increasing the probability for creating better communication and social interaction. These conditions might result into lower socio-emotional problems for special school students, but this was not the case. The more restricted communication between DHH students and their families, hearing peers and the community seemed to affect negatively the socio-emotional development of all DHH students regardless of the educational settings. The emotional and behavioural problems seemed to interfere significantly in the home life of DHH children, in their interaction with people around them and in relation to friendships. This could be because of the communication difficulties from the early childhood and negative attitude in the society towards deafness. All of these DHH students come from hearing families in which the parents do not know sign language to communicate deeply and sensitively with their deaf children and this is likely to contribute to the findings. Interestingly the DHH students in both settings (special schools and special classes) reported that the socio-emotional problems did not affect their leisure activities.

The findings of this study highlight the significance of early access to communication and language development, whether signed or spoken languages, which has been well documented also in previous research on the psychosocial development of DHH children (Calderon & Greenberg, 2011) As Polat (2003) stated, the main obstacle deafness imposes is a communication problem, and the communicative development of the child starts at a very early age.

In Ethiopia, as in many other sub-Saharan African and low-income countries, society still holds negative attitudes and cultural beliefs characterizing disabilities, and affecting child's

development and social participation (Derseh, 1995; Eide et al., 2011; Hartley, et al., 2005; Njelesani, et al., 2011; Parnes et al., 2009; Tirusew, 2005), which could contribute for the high score of socio-emotional problems in DHH children. Especially in rural areas, disability is perceived as a threat to the survival of the family (Eide et al., 2011; Njelesani et al., 2011). Deafness often is understood as demonic possession or as a punishment from God for the parent's sins. For this reason, parents often hide their deaf children from the public, especially in rural areas. A common view in society is to show pity to deaf children and to consider them as a burden because they are dependent and cannot be educated. Erroneous terms like “denkoro” and “duda” for hearing impairment in Amharic have a negative meaning. The terms imply that they are “idiots” who do not understand at all or can't be educated; such attitudes may directly or indirectly contribute to the DHH children's development of psychosocial problems. Usually parents in Ethiopia realize that their child can't hear when the child is at the age of three or above and fails to respond to sounds and communication. In sub-Saharan Africa, especially in rural areas where access to health care is limited, parents attempt various traditional practices that usually worsen temporary or mild hearing impairments and damage residual hearing (Olusanya, 2008). In Ethiopia, early diagnosis, screening tests and appropriate early intervention are not available, and, consequently, deaf children pass through these painful traditional practices and their precious early childhood without communication and language learning. By the time they come to school at 9-15 years of age, they often are beyond the age at which they could have learned fundamental basic skills more quickly and easily.

Among DHH people in Ethiopia, the students who participated in this study belong to the minority who attend school. Therefore, their wellbeing and learning require more attention. In four African countries, according to Eide et al. (2011), children with sensory impairments (hearing and visual impairments) are far more often excluded from primary education than children with other types of impairments, and 40–60% of adults with sensory impairments are illiterate. Due to the low

gross enrolment rate (about 3%) of children with disabilities in primary school (MoE, 2012), it can be assumed that the illiteracy rate for DHH adults is much higher in Ethiopia.

It is difficult to test behavioural and emotional problems of DHH children because there are no standard instruments available specifically for deaf children. Furthermore, as Cornes et al. (2006) have noted using standard written questionnaires underestimates the prevalence of psychological problems among deaf children and therefore sign language versions of instruments yields higher results. The translation of SDQ from another culture and from the English language to Amharic and then to Ethiopian Sign Language might have impacted DHH children's ability to understand, especially some concepts with negative expressions that were presented indirectly. Moreover, many DHH children, especially those who were attending special classes, had limited language skills (signed or spoken), which was addressed as much as possible by the assistance of the teachers and the researcher. These children usually started to learn Ethiopian Sign Language after they came to school. Therefore, it is important that future studies translate the SDQ self-report into Ethiopian Sign Language using a rigorous iterative process of translation and back-translation. The sample size in this study is small, consisting of only grade four students. In future studies, there should be larger sample sizes and longitudinal studies. This study, to our knowledge, is the first to investigate the behavioural and social problems of DHH children in sub-Saharan African countries.

In this study, DHH children expressed great concern about their socio-emotional difficulties. The high rates of socio-emotional problems in DHH children require joint attention by teachers, parents and professionals. In the conditions of Ethiopia, where access to other services and support is limited, teachers need training in how to overcome the obstacles faced by these children. Improvements in socio-emotional development enable DHH students to learn, complete their education and become productive citizens. Intervention programs need to be developed for the children, parents, and teachers. Such programs would provide knowledge about deafness, communication and languages, coping strategies and psychosocial support. Prior to attending

school, DHH students' psychosocial development is affected by parental child-rearing attitudes and community-child relationships. Therefore, the early years are crucial in optimal development of the DHH child. In accordance with Muderedzi and Ingstrad (2011), a culturally-appropriate approach to disability, including deafness and hearing impairments, requires the involvement of parents and families. Parents of DHH children need to learn sign language in order to provide a rich and fluent sign language environment for the child from an early age. Enhancing the interaction of DHH children with their environment will help improve socio-emotional and self-concept development.

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II

THE SELF-CONCEPT OF DEAF/HARD-OF-HEARING AND HEARING STUDENTS

by

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The Self-Concept of Deaf/Hard-of-Hearing and Hearing students

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Abstract

The present study investigated the self-concept of deaf and hard-of-hearing (DHH) students in different educational settings compared to those of hearing students in Ethiopia. The research involved a sample of 103 grade-four students selected from seven towns in Ethiopia. They were selected from a special school for the deaf, a special class for the deaf, and a regular school. The Self-Description Questionnaire-1 (Marsh, 1990) was used to measure the children's self-concept. The study results indicated that, in comparison to their hearing peers, DHH students had a lower self-concept in the areas of general self, general school, reading, and parental relations. The DHH students in the special school showed a higher self-concept in regard to their physical appearance than the hearing and DHH students in the special class. There were no statistically significant differences between the groups in the self-concept dimensions of peer relations, mathematics, and physical abilities.

Introduction

There is noticeable interest in the study of the self-concept of DHH children because it is a dimension of psychological development in which there is interaction between the socio-affective, cognitive, communicative, and linguistic aspects, and the DHH children may exhibit significant differences compared with the hearing children (Bat-Chava, 1993; Hintermair, 2008; Kluwin, et al., 2002; Obrzut et al., 1999; Van Gent et al., 2012). Earlier studies (Powers, 1990) showed that DHH children had more negative self-concept than their hearing counterparts in terms of communication and social competence due to the developmental delay resulting from early language deprivation. Other studies comparing the self-concept of DHH children and their hearing peers have shown inconsistent results. Some studies have established a higher incidence of low self-concept in DHH individuals than in hearing individuals (Bat-Chava, 1994; Schlesinger, 2000), whereas others have found no difference (Cates, 1991). It has also been suggested that one must examine this complex phenomenon more closely to understand how deafness influences self-concept and self-esteem (Bat-Chava, 2000; Foster, 1998). Most studies in this field have focused on the communication challenges that DHH individuals face in developing positive self-concept and have noted that conducive communicative conditions in the early years and related experiences of acceptance are significant factors in the development of self-concept. Some researchers have found that DHH children who have DHH parents showed better self-concept than DHH children who have hearing parents (Bat-Chava, 2000; Crowe, 2003; Obrzut, et al., 1999; Woolfe and Smith, 2001). DHH parents act as positive role models for their DHH children and share the same identity, culture, and language; therefore, the children are more likely to develop similar concepts of the other and the self. However, about 90 to 95 percent of DHH children are born to hearing parents, who often have little experience with individuals who are DHH and who, therefore, face challenges in raising children with hearing loss in a world in which the majority of the surrounding population is

typically hearing. Moreover, despite the development of advanced amplification devices, the ability of deaf children to learn spoken language remains limited (Marschark, 2007) which is still true in the Ethiopian context. In Ethiopia the amplification devices are not available for most of DHH children especially for those who live in the rural parts of the country. For some who may have access to hearing aids, they are expensive and not affordable for parents to buy. The global trend in recent years has been to educate DHH children in mainstream settings, and this is also likely to be the case in Ethiopia in the future.

To provide an appropriate learning environment for DHH students, the socio-emotional and academic impacts of educational settings on DHH students need to be examined. Self-concept is considered an important construct within education because of its links to students' motivation, achievement, confidence, and psychological well-being (Hay, 2005). Many studies on self-concept have addressed the academic domain. This has likely resulted from the relationship found between students' academic self-concept, academic achievement, and academic behavior (Marsh & Craven, 1997, 2006).

The purpose of this study was to examine the differences in the self-concept domains among DHH students who attend two different educational settings (special schools and special classes) compared to their hearing peers in Ethiopia. In Ethiopia, though DHH students in both settings (special schools and special classes) follow the regular curriculum of the country, we had the assumption that the special classes were low ability environment as compared to the special schools because the special classes didn't have enough relevant educational materials, resources, and teachers lack skills for teaching DHH students. The special schools where this data was collected were considered to be better ability environment compared to the special classes. In the special schools there were better sign language skilled teachers, more resources and materials, and DHH adults who could be role models than in the special classes. In addition to this, the special

schools have much more other DHH students, thus increasing the probability for creating better communication and social interaction.

Self-Concept and Self-Esteem

According to Harter (1999), self-concept is defined as the perception that individuals have of themselves regarding the different aspects of their personalities and who they are. Self-concept is the cognitive thinking aspect of the self (related to one's self-image), and it generally refers to the totality of a complex, organized, and dynamic system of learned beliefs, attitudes, and opinions that each person holds to be true about his or her personal existence and where he or she belongs in the world (Purkey, 1988). Self-esteem is often used to refer to the affective or emotional aspect of the self, generally refers to how one feels about or values him- or herself, and refers to particular measures about the components of self-concept. Some authors even use the two terms interchangeably (Huitt, 2004).

Current investigators tend to view self-concept as multidimensional, involving different aspects of oneself. In fact, Shavelson, Hubner, and Stanton (1976) developed a theoretical model of a multidimensional, hierarchical self-concept, in which the general self appears at the apex and is divided into academic and nonacademic components that are further divided into more specific components. Historically, a unidimensional perspective in which self-concept is typically represented by a single score, which is variously referred to as general self-concept, total self-concept, global self-worth, or self-esteem (these terms are treated as synonymous; Marsh, 1993), has dominated the self-concept research. In many psychological disciplines (e.g., psychology in education, sport, and development), the multidimensional perspective of self-concept is now widely accepted and used.

Self-concept theory emphasizes that perceptions of the self cannot be adequately understood if the role of frames of reference is ignored (Marsh, 1991). The same objective

characteristics and accomplishments can lead to disparate self-concepts, depending on the frames of reference or standards of comparison that individuals use to evaluate themselves, and these self-beliefs have important implications for future choices, performance, and behaviors. In their original proposal of a hierarchical, multidimensional self-concept structure, Shavelson et al. (1976) also suggested that individuals have multiple frames of reference against which to evaluate their accomplishments. Two widely researched frame-of-reference effects in the self-concept literature are the internal/external and big-fish-little-pond-effects (BFLPE) models. According to Marsh (1991), academic self-concept is affected by both an internal and external frame of reference. In the external frame of reference, students compare their self-perceived performances in a particular school subject with the perceived performances of other students in the same school subject and other external standards of actual achievement levels. If they perceive themselves to be able in relation to other students and to these objective indicators of achievement, they should have a high academic self-concept in the school subject. In the internal frame of reference, students compare their own performance in one particular school subject with their own performance in another school subject. If, for example, mathematics is their best school subject, they should have a positive math self-concept that is higher than their verbal self-concept. In the BFLPE model, Marsh (1991) hypothesized that students also compare their own academic abilities with those of their classmates and use this social comparison impression as one basis for forming their own academic self-concept. According to Marsh (1991), the BFLPE effect predicts that equally capable students have lower academic self-concepts when attending schools in which the average ability levels of classmates is high and higher academic self-concepts when attending schools in which the average ability is low. Hence, academic self-concept depends not only on a student's educational setting but also on the accomplishments of those at the school that the student attends. An implication of this effect is that low- or medium-ability students might prefer to attend low-ability schools instead of high-ability ones, as this would be better for their self-concept. These pupils can receive additional

motivation from low- or medium-ability pupils in their classes because their own achievements appear more significant. They may feel more honored and may be motivated to maintain their edge over the other pupils.

Self-Concept and Deafness

The factors that affect a DHH individual's self-concept have been identified as poor parental communication skills, inadequate maternal bonding, feelings of mistrust due to a sense of inequality and negative attitudes toward DHH people, poor acquisition of sign language skills, lack of appropriate role models, social isolation, negative body image, lack of a strong cultural identity, and rejection from family members and society in general (Bat-Chava, 1993, 1994, 2000; Hintermair, 2008; Schlesinger, 2000).

In a meta-analytical study of self-esteem, Bat-Chava (1993) examined the effects of family and school factors and the influence of DHH group identification. Among other findings, being a DHH child of DHH parents and using sign language were associated with higher self-esteem. Bat-Chava (2000) also found that people with culturally deaf and bicultural identities could be expected to have higher self-esteem. In a recent study, Hintermair (2008) examined 629 DHH people and showed that those with marginal acculturation collectively have lower self-esteem and show less satisfaction with life than those with who have a stronger cultural identity. This result was in keeping with the findings of other studies (Bat-Chava, 2000; Maxwell-McCaw, 2001), and with regard to one's psychosocial well-being, it heightens the significance of having a cultural anchor. Overall, although these studies address diverse groups and settings of DHH individuals and include different variables, they indicate that good communicative conditions in the early years and related experiences of acceptance are significant factors in the development of self-concept.

The development of self-concept is a continuous process with the ongoing assimilation of new ideas and the rejection of old ones, although self-concept is likely to become more stable during

adulthood. Given that the development of self-concept is based on the accumulation of experiences and the individual's interpretation of them from infancy onward, we might predict that language plays a central role in its formation (Edwards & Crocker, 2008). It is well established that DHH children lag behind their peers in their understanding and use of vocabulary related to emotions (Knoors & Marschark, 2014), and this is likely to have an impact on the development of a multifaceted self-concept. An awareness of other people's thoughts, feelings, and experiences makes it easier for children to understand their own experiences and emotions. In DHH children, the language defects and communication difficulties that are typically experienced, particularly in early childhood, will affect their awareness of what other people experience and, hence, their understanding of their own internal worlds (Edwards & Crocker, 2008).

In the literature, no consensus has been reached regarding the effect of type of education on DHH children's self-concept: some researchers have shown the existence of a higher self-concept in DHH children who are enrolled in mainstream education than those who are enrolled in special education, whereas others have found no difference (Leigh et al., 2009). Possibly, DHH children evaluate their abilities differently in varied school contexts. Whilst DHH children who attend special schools evaluate themselves within a compatible peer group, DHH children in the mainstream setting will compare themselves with their hearing peers (van Gorp, 2001). Conversely, it could also be argued that DHH children who attend mainstream schools actually feel higher self-worth because they are able to fit in with their hearing peers, which can be perceived as a major achievement. van Gorp's (2001) research on the self-concept of deaf secondary students in different educational settings in Canada, found that although students who were educated at integrated centers tended to have a higher academic self-concept, those who attended special schools had a higher social self-concept. Her studies showed that being in segregated settings (special schools) had social advantages over being in integrated settings (congregated and resource settings) with regard to feelings about one's physical appearance, peer relations, and self-worth, whereas, general

school self-concept was better at integrative schools than in units or special schools. The children who attended the integrated schools also had better self-perception with regard to their reading skills than those at special schools. In van Gurp's (2001) study, there was no difference between self-concept and the form of communication used by the children.

The purpose of the present study was to investigate the specific self-concepts of DHH students in two educational settings (special school and special class) and compare these to those of hearing students in Ethiopia. This research will allow professionals and teachers to design appropriate self-concept enhancement intervention programs to maximize the academic and social self-concepts of DHH children. Moreover, it reflects the African perspective of DHH education for the wider audience.

Methods

Participants and school settings

In Ethiopia placement options for DHH children can be categorized into three broad types: (a) schools exclusively for DHH students, which includes day/residential schools; (b) special classes within the regular public schools, allowing DHH and hearing students social interaction during their free time and extracurricular activities; and (c) regular public schools, typically with limited DHH peers integrated with hearing students (often referred to as *inclusive*). The special classes provide education for DHH children up to grade four by teachers of the deaf before integrating them with regular hearing students beginning in grade five. The determination of the child's educational placement is made by parents. In Ethiopia, unlike western countries, there is no team of professionals working with parents to make placement decisions, early screening tests, or appropriate early intervention programmes.

The participants were 103 fourth-grade students representing three types of groups in different school settings: DHH students in special classes attached to regular schools, DHH students in special schools, and hearing students in regular schools. The characteristics of the students who participated in this study are described in Table 1. They were from the Southern Nations, Nationalities, and Peoples' Region (from the Hossana, Arbminch, and Hawassa Town Administrations); Oromia Region (from the Asella and Adama Town Administrations); Amhara Region (from the Bahir Dar Town Administration); and Addis Ababa City Administration. The participants were selected purposefully due to the small number of fourth-grade DHH students in special classes. Among the participants, 29 were DHH students from special classes (mean age = 15.4, SD = 2.9; range from 10 to 22 years), 31 were DHH students from special schools (mean age = 13.1, SD = 1.7; range from 9 to 17 years), and 43 were hearing students from regular schools (mean age = 12.1, SD = 1.7; range from 10 to 18 years) where special classes were attached (Table 1). For the present study following a group of 4th graders was chosen because continuing to 5th grade is an important transition especially for the DHH students in special classes as they get integrated with hearing students on the 5th grade. Students in special schools continue 5th grade studies in the same school and thus we can compare whether the change of learning environment has an effect on the students outcomes. Hearing students were included as a control group to learn about average age and transition related changes in the outcome variables of the study. All fourth grade DHH students from selected special schools and special classes participated in the study. The hearing participants were selected randomly from the same school where the special classes were attached.

Almost all the students in the special classes and special schools had severe to profound bilateral hearing loss, with the exception of one hard-of-hearing student from each setting. There were 58 DHH participants with profound hearing loss whose hearing levels were measured 90 – 130dB, five participants with severe hearing loss (75 – 87dB), and two hard-of-hearing (27dB and

29dB). The remaining 43 participants were hearing grade four students from the same school where the special classes were located (Table 1). The first researcher measured the hearing levels of the DHH students using the pure tone audiometer. All DHH participants relied on sign communication, and none of them used amplification. The average age of the participants in the different groups varied, and especially students in special classes were somewhat older. However the age range in all groups was quite wide (8 years in hearing classes and in special schools, and 12 years in special classes), which reflects a common situation in Ethiopian elementary schools. Some DHH students commonly join school late in their age because parents may not be aware that the child could actually learn, and thus miss the normal school entry age. Moreover, schools/classes for the DHH children are typically far from the homes of DHH students which may postpone school entry as it may be difficult for the younger ones to walk long distances, e.g. 2 - 3 hours one way.

TABLE 1 HERE

The special classes selected for this study were located in Adama, Asella, Bahir Dar, and Hawassa. The special schools for the study were the Ethiopian Evangelical Church Mekane Yesus School for the Deaf in Hossana (residential school), Arba Minch Special School in Arba Minch (day school), and Victory School for the Deaf (day school) in Addis Ababa (Table 2).

TABLE 2 HERE

Procedure

The Self-Description Questionnaire (SDQ I), developed by Herbert W. Marsh (1990), was used to measure self-concept of children in primary school age. It contains 76 items designed to tap into

eight different aspects of self-concept. The SDQ-I is one of the most extensively used instruments for measuring the multiple dimensions of self-concept in preadolescent children. It is also the most validated self-concept instrument and has been the target of well-planned research strategy to firmly establish its construct validity of interpretation based on the responses to its multidimensional sensitive items (Byrne, 1996).

The SDQ-I comprises eight scales for measuring different components of academic and nonacademic self-concept. The SDQ I assesses three areas of academic self-concept (reading, mathematics, and general school), nonacademic physical self-concept (physical appearance and physical ability), and nonacademic social self-concept (peer and parent relations) with preadolescent children aged 8–14. In addition to the academic and nonacademic self-concept scales, the SDQ I consists of a scale for measuring students' self-esteem or self-worth (often labeled as general self-concept), which depicts the degree of self-appreciation or self-respect.

The English version of the SDQ-I was translated into Amharic, the official language of Ethiopia. The translation was done by the first researcher whose mother tongue is Amharic and who is fluent in English and Ethiopian Sign Language. The Amharic translation was checked by a language expert in Addis Ababa University who had experience in translation.

Tests were carried out in the students' own classrooms; thus, the number of participants per selected school was not many, not exceeding 20 students in number. With the consent of the school director, practical arrangements were made with the students' main teacher. The 76 items for the SDQ-1 measures were distributed to each child for him or her to fill out while the first researcher presented them on an overhead projector both in writing and Ethiopian Sign Language. The researcher explained all the questions and instructions in sign language for the DHH students and read them aloud for the hearing students. They were presented in separate sessions for the hearing and DHH groups to avoid mixing sign and spoken languages. If the children did not understand a certain word, they were assisted using paraphrasing. In completing the SDQ-1, the

children were asked to respond to simple declarative sentences (e.g., “I am good at mathematics,” “I make friends easily”) with one of five responses: false, mostly false, sometimes false/sometimes true, mostly true, or true. The reliabilities of the SDQ-1 subscales were all acceptable with the Cronbach alphas ranging from .63 to .77 (Physical Abilities = .72; Physical Appearance = .74; Reading = .67; Mathematics = .67; Peer Relations = .64; Parent Relations = .71; General Self, = .63; General School = .63). In peer relations subscale two items, and in general-self subscale three items were removed as their correlation with the scale was low and deleting increased reliability.

In addition, the students’ grades in all subjects (percentages provided annually) assessed by the teachers, as recorded in the latest school reports, were used as indicators of the students’ academic achievement.

Analysis

All statistical analyses were performed using SPSS version 18.0. One-way ANOVA was used to compare differences in the scores of the DHH and non-DHH students in the three groups. Post hoc tests were done using the Tukey method to find out which groups differed from each other statistically and significantly. In all analyses effect sizes were estimated with the η^2 statistics of ANOVA. Effect size is important in estimating the practical importance of any differences found. In this estimation, a rule of thumb for the interpretation of η^2 statistics suggested by Cohen (1988) was used, where η^2 values above .01 indicate a small effect size, values above .06 a medium effect size, and values above .14 a large effect size. Finally, analysis of covariance was used to control for the effect of school grades on the academic self-efficacy subscales, as performance in school is a known predictor of self-efficacy. The effect of gender and age across all the scales was also controlled by adding it as a covariate in the models respectively.

Results

The results indicated that the groups differed in the dimensions of self-concept related to physical appearance, parent relations, general school, reading, and general self. In the post hoc test, there were pair-wise differences between the DHH in the special class and the DHH in the special school in the areas of physical appearance. In this study, there were no statistically significant differences between the three groups in the dimensions of self-concept of physical abilities, peer relations, and mathematics.

TABLE 3 HERE

There was a statistically significant difference in the physical appearance self-concept between the three groups ($p \leq .031$, $F = 3.59$), and the effect size of this difference was moderate ($\eta^2 = .07$). The post hoc tests revealed that the DHH students in the special school showed a more positive self-concept in regard to physical appearance than the DHH students in the special class ($p = .043$).

In regard to the parent relations self-concept, a significant difference was observed between the three groups ($p \leq .000$, $F = 8.47$, $\eta^2 = .15$), as indicated by the large effect size of the differences. The post hoc tests indicated that the DHH students in the special class scored less on the parent relation self-concept than the hearing students ($p = .000$). The difference in the parent relation self-concept between the DHH in the special school and the hearing students was not significant ($p = .062$). Interestingly, the DHH students in the special school showed better parental relations (mean = 4.19, SD = .62) than the DHH in the special class (mean = 3.94, SD = .73), although the difference was not statistically significant (Tukey $p = .216$).

There was a significant difference in the general school self-concept between the hearing and the DHH students ($p \leq .008$, $F = 5.04$) with a medium effect size ($\eta^2 = .09$). The post hoc test showed that regardless of their educational settings, the DHH students had a lower general school self-concept than their hearing counterparts ($p = .027$ for the DHH in the special class and $p = .022$ for the DHH in the special school), but there was no significant difference between the DHH groups ($p = 1.00$).

In regard to the reading self-concept, a significant difference existed between the three groups ($p \leq .001$, $F = 7.77$, $\eta^2 = .13$), as indicated by the medium effect size. The DHH students in the special class (Tukey $p = .001$) and special school (Tukey $p = .016$) showed a lower reading self-concept than the hearing students. There was no statistically significant reading self-concept difference between the DHH groups in the two settings ($p = .678$).

A statistically significant difference was also found in the general self-concept dimension between the hearing and DHH students ($p \leq .005$, $F = 5.65$), and the effect size of the difference was moderate ($\eta^2 = .10$). The post hoc test revealed that the DHH students in the special class scored significantly lower on general self-concept than their hearing counterparts ($p = .004$); however, the difference between the DHH in the special school and the hearing students was not significant ($p = .154$). Moreover, there was no significant general self-concept difference between the DHH groups ($p = .354$).

In the general school self-concept areas, we wanted to test whether academic performance as a known covariate of self-concept explains the differences in the three groups and added academic performance as a covariate to the three models. In the model predicting general school self-concept, academic performance was a significant covariate ($p = .000$; $F = 14.38$; $\eta^2 = .13$), while the main effect of placement was no longer significant ($p = .203$; $F = 1.62$; $\eta^2 = .032$). In the model predicting the self-concept of reading, adding the covariate ($p = .010$; $F = 6.83$, $\eta^2 = .07$)

reduced the effect size of placement ($\eta^2 = .082$), but placement remained a significant predictor of self-concept ($p = .014$; $F = 4.43$). In the mathematics self-concept, the covariate was not significant and did not change the result in any way. Furthermore, gender and age differences had no impact on the self-concept domains within this sample.

Discussion

The present study examined the self-concept of DHH students who attended different educational settings compared to hearing students in Ethiopia. The data were collected through a survey administered to a sample of 103 grade-four students who attended a special school for the deaf, a special class for the deaf, and a regular school. The SDQ-1 (Marsh 1990) for preadolescents was used as a survey instrument.

In the self-concept domain of physical appearance, the DHH students in the special school had advantages over the DHH students in the special class and the hearing students. This result coincides with the findings of other researchers (Van Gent et al., 2012, Van Gorp, 2001) who have investigated the self-concept development of DHH children and found higher scores for the physical appearance self-concept among DHH students in special schools. The explanation for the results of the current study might be that at the special school, all the students are deaf, use the same method of communication, and appear to make comparisons among themselves. In this study, the DHH students in the special class and the hearing students were from the same school and, therefore, had a much larger population of hearing students in their immediate environment with whom to compare their appearance than those who attended the special school. The lesser degree of competition in regard to “looking good” may have been the factor that contributed to the higher scores for physical appearance at the special school than the DHH students in the special class and the hearing students. However, the DHH students in both settings scored lower in the self-concept

domain of the general self than the hearing students, thereby indicating that self-concept domains other than physical appearance were the major factors contributing to the students' feelings of self-worth.

In this study, there was a significant difference in regard to the self-concept domain of parent relations between the hearing and DHH students. The DHH students in the special class scored significantly lower in the self-concept domain of parent relations than the hearing students. Self-concept is affected by interactions with significant others and by social comparison (Marsh, 1991). An essential aspect of social interaction is linguistic communication. If an individual has difficulty communicating with significant others, this factor may affect his or her self-concept, particularly in the social dimensions (peer and parent relations). When we compared the degree of the parent relations self-concept between the DHH groups, the students in the special school had more positive scores than those in the special class; however, this was not statistically significant. The reason could be that in Ethiopia, the special schools have much better resources and more qualified teachers than the special classes. Therefore, parents' first choice is to ensure that their deaf children are registered at the special school to enable them to receive a better education, and parents may pay greater attention to their DHH children during the short time they have together at home. Usually, the special schools also offer sign language training for parents, which could favor better communication at home.

The formation of a healthy positive self-image may pose significant challenges for a child when family, peers, community, or societal evaluations of the individual are perceived by him or her as being negative or inaccurate. According to Desselle (1994), deafness does not directly cause poor self-esteem; rather, the degree to which the child is to communicate contributes to the development of his or her self-worth. If parents view deafness as a defect or disability and this is conveyed to the child over time, we might expect negative consequences for the child's development of self-concept.

In the present study, there was no significant difference in the self-concept dimension of peer relations between the hearing and DHH students. The reason for this could be that for the DHH students in both settings (special school and special class), their friends are DHH students in the school/class with whom they could communicate freely and deeply in sign language. Therefore, at school, they had better opportunities to socialize on a day-to-day basis with other deaf people than they did at home.

In the academic self-concept areas, the DHH students in both settings had significantly lower self-concepts in the general school and reading domains compared with the hearing students. When the covariate academic performance was added to the general school self-concept, the main effect of placement was no longer significant. This means that the differences in the general school self-concept between the hearing students and the two groups of DHH students were explained by the better school achievement of the hearing students. Therefore, it is not deafness as such that leads to lower school self-concept but the fact that the DHH students do less well in school and, thus, have lower self-concepts. In the reading self-concept, adding the covariate reduced the effect size of placement, but placement remained a significant predictor of the reading self-concept. This suggests that unlike with the overall school self-concept, the self-concept in reading is not explained fully by the lower achievement of the DHH students in school, but rather that deafness is a language-specific challenge that is also reflected as the lower self-concepts of the DHH students. Interestingly, there was no statistically significant difference in mathematics self-concept between the DHH and hearing students. Mathematics skill depends less on linguistic competence (the primary area of difficulty for the DHH students) than skill in reading (Van Gorp, 2001). These sample DHH students in Ethiopia had no access to language (signed or spoken) in their early years before they began to attend school. In Ethiopia, early diagnosis, screening tests, and appropriate early intervention are not available; consequently, deaf children are subjected to painful traditional practices to cure their deafness in their precious early childhood, and this is done

without communication and language learning. By the time they come to school, which is usually at 9–15 years of age, they are beyond the age at which they could have learned the fundamental basic skills more quickly and easily (Authors, 2015), which might have contributed to their low scores on the general school self-concept.

Limitations

In addition to the possible delays in language development among the DHH students, the translation of SDQ-I from another culture and from the English language to Amharic and then to Ethiopian Sign Language might have an effect on the DHH children's ability to understand. The possibility that communication competence of the pupils may affect the results is a limitation in the study. However, the DHH students' limited language skills, particularly in the special classes, were addressed as much as possible by the assistance of the teachers and the researcher, for example, the researcher showing the questionnaire with an overhead projector and providing explanations as needed with sign language and oral language (Amharic). These children usually started to learn Ethiopian Sign Language after they began to attend school which has an effect on their communication competence. Therefore, it is important that future studies translate the SDQ-I self-report into Ethiopian Sign Language using a rigorous iterative process of translation and back-translation. The sample size in this study is small, consisting of only grade-four students. Future research should include larger sample sizes and longitudinal studies. This study, to our knowledge, is the first to investigate the differences in the self-concept between DHH and hearing children in a sub-Saharan African country.

Conclusions

Finally, the comparatively lower self-concept of DHH children in the area of general school, reading, general self, and parent relations requires the joint attention of teachers, parents, and professionals in improving DHH children's self-concepts. There is mounting evidence that self-concept enhancement intervention programs would help to improve the self-concepts of adolescents in educational settings (O'Mara et al., 2006) and contribute to improved academic performance. We can improve self-concept through appropriate encouraging comments, and praise and/or feedback strategies, especially if the strategies are contingent upon performance that is attributional in nature and goal relevant. According to O'Mara et al. (2006), interventions need to focus on specific dimensions of self-concept and then assess the effects of the intervention in relation to that particular self-concept domain instead of, or in addition to, other specific and global components of self-concept (e.g., math self-concept outcomes in an intervention intended to enhance math self-concept). Hence, teachers and professionals need to design appropriate self-concept enhancement intervention programs to enhance the academic and social self-concepts of DHH children.

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Table 1 Participants of the study (N = 103)

School setting	N	Age	Hearing level		Gender		%
		Mean (SD)	<70dB	>70dB	Male	Female	
DHH in special class	29	15.4(2.9)	1	28	13	16	28.2%
DHH in special school	31	13.1(1.7)	1	30	16	15	30.1%
Hearing in regular school	43	12.1(1.7)	43	0	21	22	41.7%
TOTAL	103	13.3(2.5)	45	58	50	53	100%

Table 2 Location and number of participants by the school setting

School setting	A/minch	Adama	Asella	Hawassa	B/Dar	Hossana	AA Victory	Total
DHH in special class	0	10	5	9	5	0	0	29
DHH in special school	9	0	0	0	0	17	5	31
Hearing in regular school	1	12	10	8	12	0	0	43
Total	10	22	15	17	17	17	5	103

Table 3 Dimensions of Self-Concept differences as perceived by the students (N = 103)

Items of self-concept	Hearing students (N = 43)		DHH students in special class (N = 29)		DHH students in special school (N = 31)		F	Sig.	eta-squared (η^2)
	mean	SD	mean	SD	mean	SD			
Physical Appearance	3.65	0.82	3.58	0.67	4.04	0.63	3.59	0.031	0.07
Physical Abilities	3.50	0.79	3.67	0.73	3.62	0.77	0.47	0.626	0.01
Parent Relations	4.51	0.41	3.94	0.73	4.19	0.62	8.47	0.000	0.15
Peer Relations	3.53	0.37	3.65	0.57	3.87	0.78	2.09	0.129	0.04
General School	4.33	0.37	3.99	0.65	3.99	0.57	5.04	0.008	0.09
Reading	4.43	0.43	3.97	0.65	4.08	0.64	7.77	0.001	0.13
Mathematics	4.22	0.62	3.84	0.69	4.04	0.69	2.87	0.061	0.05
General Self	4.19	0.53	3.66	0.77	3.90	0.71	5.65	0.005	0.10



III

ACADEMIC ACHIEVEMENT AND SELF-CONCEPT OF DEAF AND HARD-OF-HEARING AND HEARING STUDENTS TRANSITIONING FROM THE FIRST TO SECOND CYCLE OF PRIMARY SCHOOL IN ETHIOPIA

by

Mekonnen Mulat , Elina Lehtomäki, & Hannu Savolainen, 2018
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Title page

Academic Achievement and Self-Concept of Deaf and Hard-of-Hearing and Hearing Students Transitioning from the First to Second Cycle of Primary School in Ethiopia

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There are no conflicts of interests. The schools involved in this study have received informed consents from the research participants, parents or guardians.

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Introduction

As long as history has been recorded, educating learners who are deaf or hard-of-hearing (DHH) has been a topic plagued with controversial issues, particularly with regard to placement and the language of instruction (Knoors and Marschark 2014). Debates in high income countries have focused especially on whether DHH students are best served by regular schools with a wide variety of students, including those with and without disabilities, special schools or programmes designed for DHH learners, and whether sign language, spoken language or both should be the language(s) of instruction (Knoors and Marschark 2014).

In Ethiopia and other sub-Saharan African countries the main concern in the education of DHH children has been access to education as the majority are still out of school. There is no reliable data indicating the total number of DHH people or the number of school-aged DHH children in the country. According to the survey data reported by the World Health Organization (WHO, 2013), 360 million people worldwide have disabling hearing loss, and the majority of them live in low- and middle-income countries. Early diagnosis, screening tests, and appropriate early intervention are not available in Ethiopia; consequently, DHH children are subjected to painful traditional practices to cure their deafness in their precious early childhood, which usually could damage the residual hearing and might cause additional health problems. By the time they come to school, which is usually at 9–15 years of age, they are beyond the age at which they could have learned the fundamental basic skills more quickly and easily (Mekonnen et al. 2016).

DHH learners in the Ethiopian regular classrooms face several challenges, including the inaccessibility of sign language. The size of the regular class may be very large (60 - 80 students per class), and most of the regular class teachers do not know sign language or understand the communicational needs of DHH children. There are no educational sign

language interpreters in the country, except in the capital city, Addis Ababa. This situation has created a challenge for most deaf students in continuing their schooling. Due to lack of appropriate support, more specifically support in sign language and communication, deaf children with profound hearing loss (especially those who are pre-lingual) find learning very difficult in an environment that demands hearing; therefore, many of them are forced to drop out of *inclusive* schools (Mekonnen et al. 2016).

The purpose of this study was to investigate the effects of DHH students' transition from a special class/unit to the mainstream setting in comparison to DHH students' transition within special schools and that of their hearing peers in mainstream education in Ethiopia. The first author of this study has been working for 10 years as a teacher for the DHH students in Ethiopia and now as a trainer for teachers, therefore, we were initiated to look at why many DHH students in the country drop out of school when they transferred to fifth grade to the mainstream setting. Our assumption was that the achievement of fourth-grade DHH students in the special class would decrease when they were integrated into regular classrooms with their hearing counterparts in fifth grade. This is because in Ethiopia, DHH students in the mainstream setting lack the necessary support for equitable learning access and participation. There are no sign language interpreters or skilled teachers to communicate with DHH students in regular classrooms. Their difficulties in establishing positive peer relationships could also be challenged by a lack of awareness of hearing loss among their hearing peers and a general negative attitude towards it.

DHH Learners and Inclusive Education

According to UNESCO (2005), inclusion is a process of addressing and responding to the diversity of needs of all learners by increasing their participation in learning, cultures and communities, and reducing exclusion within and from education. This process involves changes and modifications in content, approaches, structures and strategies, with a common

vision which covers all children within the appropriate age range and a conviction that it is the responsibility of the regular school system to educate all children (UNESCO 2005).

Inclusion is different from mainstreaming. While the latter term refers to placing DHH students or other students with special educational needs in regular educational settings, the former term implies changes in the education system as a whole, and it is associated with broad and varied issues related to equity, social justice and human rights (Eriks-Brophy and Whittingham 2013; UNESCO 2005). However, it is still very common to talk about inclusion by focusing on the place where children are being educated – that is, a regular versus special school – than on the possibilities offered by these contexts. Inclusion emphasises values, which puts at the centre the right of DHH students to receive education that does not discriminate against them in any possible way (Adoyo 2007; Powers 2002). According to Powers (2002), inclusive education is best conceived as a response to students' diversity, based on the principles of equity and acceptance, which is aimed at giving all children an equal right to participate in mainstream curricula and communities as valued, accepted and fully participating members of those communities, as well as the right to achieve as much as they can academically, physically and in their social and emotional development.

This view of inclusive education reflects a sociocultural perspective of disabilities and special educational needs. From such a perspective, barriers and obstacles preventing an individual's participation in any educational context are responsible for his or her special needs or disability condition. Inclusive education involves eliminating those barriers and obstacles through appropriate accommodations and support and the promotion of students' participation in equitable and discrimination-free conditions (Miles and Singal 2010). Thus, several prerequisites and indicators of inclusive education contexts for DHH students have been identified. These include understanding the actual experiences of all students, a whole school approach to the needs of DHH students, effective communication in the classroom,

flexible access for DHH students to the general curriculum, well-prepared teachers and access to Deaf Culture, among others (Powers 2002; Slobodzian 2011).

Previous research conducted in Europe and Cyprus has explored DHH individuals' reflections on their school experiences, both in regular and special education settings (Angelides and Aravi 2006–2007; Doherty 2012), and it has been shown that DHH students in mainstream settings received little support, did not have curricular adjustments and participated minimally in class. DHH individuals tend to perceive regular schools as being more challenging than schools for the deaf, because they present higher demands and have a richer curriculum, and DHH students think that this contributes to higher academic achievements (Angelides and Aravi 2006–2007). However, students have also reported difficulties in following and understanding classes, and have indicated that they need to dedicate extra time at home, alone or with tutors to compensate for this (Angelides and Aravi 2006–2007). Many obstacles, including regular teachers' attitudes, instructional practices and communication skills, make classroom participation difficult for DHH students in mainstream contexts (Stinson and Liu 1999).

For DHH students to be able to engage and fully participate in classroom activities, actions need to be taken to provide accessible instruction including appropriate support and promote communication and positive interactions between DHH and hearing students (Jarvis 2002). Thus, an inclusive setting for DHH students in regular education usually requires other professionals working together with the regular education teacher to support instruction. Depending on the students' ages and linguistic skills, special education teachers, teacher aids and/or interpreters are needed, and they all have specific roles to perform. Sign language interpreters enable access to the teacher's discourse and classmates' interventions; they make it possible for DHH students to participate in class and they facilitate interactions between DHH students and their hearing peers (Cawthon 2001). A key issue for successful inclusion is

that regular classroom teachers and special educators work together to modify their classroom practices so as to promote social and academic inclusion for DHH students. Frequent communication between these instructors, as well as clearly defined and shared responsibilities, prevent negative prejudices and potential conflicts, making them important components of this collaborative work (Reed, Antia, and Kreimeyer 2008). Collaboration requires not only perceived equal status but also a process of questioning assumptions and stereotypes about DHH students (Antia and Stinson 1999). Differences in their methods of handling curricular knowledge and their views on DHH students partially explain the different perspectives of regular teachers and specialists regarding the educational process and its goals; for example, one may consider the educational process as merely a passing on of information or as the promotion of conceptual change (Marschark et al. 2011).

Education of DHH Students and Their Educational Integration in Ethiopia

In Ethiopia, individuals with disabilities have limited access to educational and vocational training opportunities (Malle, Pirttimaa, and Saloviita 2015). The situation is especially serious in the rural areas of the country where poverty is widespread and services are limited. The national average gross enrolment rate at the primary level for all types of children with disabilities was approximately 4% (FDRE MoE, 2015), implying that 96% of children with disabilities remain unserved by the education system, often remaining out of school. For the minority of DHH children who have accessed education, placement options can be categorized into three broad types: (a) schools exclusively for DHH students, including day and residential schools; (b) special classes within regular public schools, allowing social interaction between DHH and hearing students during their free time and extracurricular activities; and (c) regular public schools, typically with limited DHH peers integrated with hearing students (often referred to as *inclusive*). The special classes provide education for

DHH children up to Grade 4, before they are integrated with regular hearing students in Grade 5 (Mekonnen et al. 2016).

In Ethiopia, there are many definitions of inclusive education, integrated education and special needs education, leading to different interpretations in both policy language and implementation. According to a UNESCO-commissioned report on education for all, Ethiopia utilizes the terms ‘special needs education’ and ‘inclusive education’ as one concept, defined as ‘focusing on children and students who are at risk of repetition and dropout due to learning difficulties, disabilities, socio-emotional problems, or are excluded from education’ (UNESCO 2010). Importantly, this statement recognizes children with disabilities as a group at risk of dropout, echoed in Ethiopia’s *Study on Situation of Out of School Children* (Ministry of Education, 2012). However, further clarification is needed to understand the core of the term ‘inclusion’, because DHH students in Ethiopia face several major challenges in regular schools and are excluded in regular classrooms, where they cannot access information and do not actually participate in the learning like their hearing peers do (Mekonnen et al. 2016). In this context, simply placing DHH students in a mainstream classroom, without making the necessary adjustments in the education system, does not qualify as inclusive education; rather, it is merely integration. Inclusion is a ‘process’; it is not merely about access but is also about education ‘quality and completion’ (Miles and Singal 2010).

Academic Self-Concept and Deafness

Self-concept is a domain-specific construct according to the multidimensional, hierarchical model of self-concept (Marsh 1990; Shavelson, Hubner, and Stanton 1976). In this model, global self-concept is at the apex of the hierarchy and is divided into academic and non-academic components. The academic component is divided into self-concepts specific to school subjects, including reading and mathematics, whereas the non-academic component is divided into physical, social and emotional components. Self-concept is considered an

important construct within education because of its links to students' motivation, achievement, confidence and psychological well-being (Hay 2005). It is suggested that specific components of self-concept should have more predictive power on outcomes in specific domains than a single, global component of self-concept (Marsh and Hau 2003).

Academic self-concept is a student's perception of his or her academic abilities. It constitutes one of the most relevant variables in the academic domain because of its influence on learning and cognitive functioning (Marsh and Craven 2006). Research on education indicates that academic achievement has a stronger correlation with academic self-concept than with global self-concept and that achievement in specific domains should be correlated with the corresponding specific domains of self-concept (Marsh and Craven 2006).

The literature lacks consensus on the effects of the type of education on DHH children's self-concept. Some researchers have identified the existence of a higher self-concept in DHH children who are enrolled in mainstream education than those who are enrolled in special schools, whereas others have found no difference (Leigh et al. 2009). Furthermore, some have identified advantages to attending special schools over being assigned to special units or special classes in relation to the self-concept domains of physical appearance and peer relations (Mekonnen et al. 2016; van Gent et al. 2012; van Gurp 2001). The results of previous studies examining the impact of integrated versus segregated education placements on social acceptance and the self-esteem of DHH children have been contradictory. Some studies examining the social integration of these students have concluded that inclusion provides opportunities for friendships to develop between children with and without hearing, that DHH children experience no negative social or emotional consequences as a result of being educated in inclusive environments and that inclusion can operate successfully at both the academic and social levels (Eriks-Brophy and Whittingham 2013; Kluwin 1999). In contrast, other studies have shown that these children may become socially

isolated or even marginalized within the general classroom environment (Stinson & Kluwin 2003). Integrated children with hearing loss have been identified as being at potentially higher risk of experiencing interpersonal difficulties, reduced self-esteem and increased social rejection and loneliness compared to typically developing children as well as children with hearing loss who are educated in segregated settings (Hintermair 2007).

Following this line of thought, in the present study, we wanted to investigate the influence of the transition of DHH students from a special class or unit setting to the mainstream setting on their academic and social self-concepts and their academic achievement. In the research setting, we compared the transition of DHH students into mainstream education to that of DHH students within special schools and that of their hearing peers within mainstream education. For all three groups of students, the transition was from the first cycle of primary school (Grade 4) to the second cycle (Grade 5). The aim of this research was to inform policymakers and implementers, to facilitate their design of appropriate ways to implement the inclusion of DHH students to enable them to become full participants in regular schools. Moreover, the study has international significance, as it presents one of the African countries approach to DHH education to a wider audience.

Methods

Participants and School Settings

A total of 103 students representing three groups in different school settings – DHH students in special classes attached to regular schools, DHH students in special schools and hearing students in regular schools – participated in this study at Time 1. The first test was done when participants were in Grade 4 (N = 103) and the second test was done after a year on 72 participants who transitioned to Grade 5 (Time 2). The reasons for attrition were that some students dropped out of school, some DHH students in units joined special schools and others moved away with their parents. We excluded from the analysis students who participated in

only one year of the study. Although the study's attrition rate was 30%, based on the criteria cited by Polyhart and Vandenberg (2010), this did not bias the longitudinal results. Participants were selected from urban areas in different parts of Ethiopia: Hossana, Arbaminch, Hawassa, Asella, Adama, Bahir Dar and Addis Ababa. They were selected purposefully due to the small number of fourth-grade DHH students in special classes. Among the participants, 29 were DHH students from special classes (mean age = 15.4, SD = 2.9; 10–22 years), 31 were DHH students from special schools (mean age = 13.1, SD = 1.7; 9–17 years), and 43 were hearing students from regular schools (mean age = 12.1, SD = 1.7; 10–18 years), which offered special classes. In the study, fourth graders were chosen because continuing to fifth grade is an important transition especially for DHH students in special classes, as they get integrated with hearing students in the fifth grade. Since students in special schools proceed to fifth grade in the same school, we could compare to determine whether the change of learning environments has an effect on students' outcomes. Hearing students were included as a control group to learn about average age and transition-related changes in the outcome variables of the study. All fourth-grade DHH students from the selected special schools and special classes participated in the study. The hearing participants were selected randomly from the same school running special classes.

Almost all students in the special classes and special schools had severe to profound bilateral hearing loss, with the exception of one hard-of-hearing student in each setting. There were 58 DHH participants with profound hearing loss, whose hearing levels were measured at 90–130 dB; five participants had severe hearing loss (75–87 dB); and two were hard-of-hearing (27 dB and 29 dB). The remaining 43 participants were hearing Grade 4 students from the same school where special classes were offered. The first author measured the hearing levels of the DHH students using a pure tone audiometer. All DHH participants relied on sign communication, and none of them used hearing aids or amplification. The average age

of the participants in the different groups varied; in particular, students in special classes were somewhat older. However, the age range in all groups was quite wide – 8 years in hearing classes and in special schools, and 12 years in special classes – which is typical of Ethiopian primary schools. DHH students commonly join school later than their hearing counterparts, because their parents may be unaware that they can actually learn and that schools are willing to receive DHH children. Moreover, schools and classes for DHH children are typically located far from the homes of DHH students, which may postpone school entry because it may be difficult for younger children to walk long distances.

Procedure

The Self-Description Questionnaire (SDQ I), developed by Herbert W. Marsh (1990), was used to measure students' self-concept while they were in Grade 4 and again in Grade 5. This questionnaire contains 76 items designed to tap into eight different aspects of self-concept. SDQ I is one of the most extensively used instruments for measuring the multiple dimensions of self-concept in preadolescent children. It is also the most validated self-concept instrument and has been the target of well-planned research strategies to firmly establish its construct validity of interpretation, based on the responses to its multidimensional sensitive items (Byrne 1996).

SDQ I employs eight scales to measure different components of academic and non-academic self-concepts. It assesses three areas of academic self-concept (reading, mathematics and general school), two areas of non-academic physical self-concept (physical appearance and physical ability) and two areas of non-academic social self-concept (relationships with peers and parents) in preadolescent children aged 8–14 years. In addition to academic and non-academic self-concept scales, SDQ I includes a scale for measuring students' self-esteem or self-worth (often labelled as general self-concept), which depicts the degree of self-appreciation or self-respect.

The English version of SDQ I was translated into Amharic, the official language of Ethiopia. The translation was done by the researcher, whose mother tongue is Amharic and who is fluent in English and Ethiopian Sign Language. The Amharic translation was checked by a language expert at Addis Ababa University, who had experience in translation.

Tests were carried out in the students' classrooms. With the consent of the school director, practical arrangements were made with the students' main teacher. The 76 items of the SDQ I measures were distributed to each child for him or her to fill out while the researcher presented them on an overhead projector both in writing and in Ethiopian Sign Language. The researcher explained all the questions and instructions in sign language for the DHH students and read them aloud for the hearing students. They were presented in separate sessions for the hearing and DHH groups to avoid mixing sign and spoken languages. If the children did not understand a certain word, they were assisted using paraphrasing. In completing SDQ I, the children were asked to respond to simple declarative sentences (e.g., 'I am a nice looking person', 'I am good at mathematics', 'I make friends easily') with one of five responses: false, mostly false, sometimes false/sometimes true, mostly true or true. In addition, the students' grades in all subjects (percentages provided annually), assessed by the teachers and recorded in their latest school reports, were used as indicators of academic achievement.

Analysis

All statistical analyses were performed using SPSS version 22. A repeated measures ANOVA was used to compare differences in the scores of the DHH and hearing students in the three groups and for possible group and time interactions. In all analyses, effect sizes were estimated with the η^2 statistics of ANOVA. Effect size is important in estimating the practical importance of any differences found. In this estimation, a rule of thumb for interpreting η^2 statistics suggested by Cohen (1988) was used, where η^2 values above .01

indicate a small effect size, values above .06 a medium effect size and values above .14 a large effect size. Within-group change effect sizes were calculated using Cohen's *d* (Cohen, 1988), with values above .20 indicating small, above .50 moderate and above .80 a large effect size. Finally, analysis of covariance was used to control for the effect of school grade on the academic self-efficacy subscales, as performance in school is a known predictor of self-efficacy. The effects of gender and age across all scales were also controlled by adding it as a covariate in the models.

Results

Reliabilities of the SDQ I subscales were all acceptable, with Cronbach's alphas ranging from .63 to .77 (Physical Abilities = .72; Physical Appearance = .74; Reading = .67; Mathematics = .67; Peer Relations = .64; Parent Relations = .71; General Self, = .63; General School = .63). On the peer relations subscale, two items were removed, and on the general-self subscale, three items were removed, as their correlations with the scale were low and deleting these items increased reliability.

Table 1: Means and standard deviations of the three groups in areas of academic performance, academic self-concept and social self-concept at T1 (Grade 4) and T2 (Grade 5)

	Hearing (N = 31) Mean (SD)		DHH in Special Class (N = 18) Mean (SD)		DHH in Special School (N = 23) Mean (SD)	
	T1	T2	T1	T2	T1	T2
Academic Achievement	74.96 (12.46)	68.87 (9.29)	72.01 (14.39)	61.57 (9.61)	64.11 (9.86)	63.86 (10.81)
Academic Self-Concept	4.29 (.39)	4.26 (.58)	4.19 (.57)	3.76 (.79)	4.02 (.53)	4.11 (.49)
Social Self- Concept	3.50 (.74)	3.81 (.73)	3.60 (.63)	3.78 (.65)	3.78 (.83)	3.91 (.63)

Table 2: Tests of interaction effects of time and placement

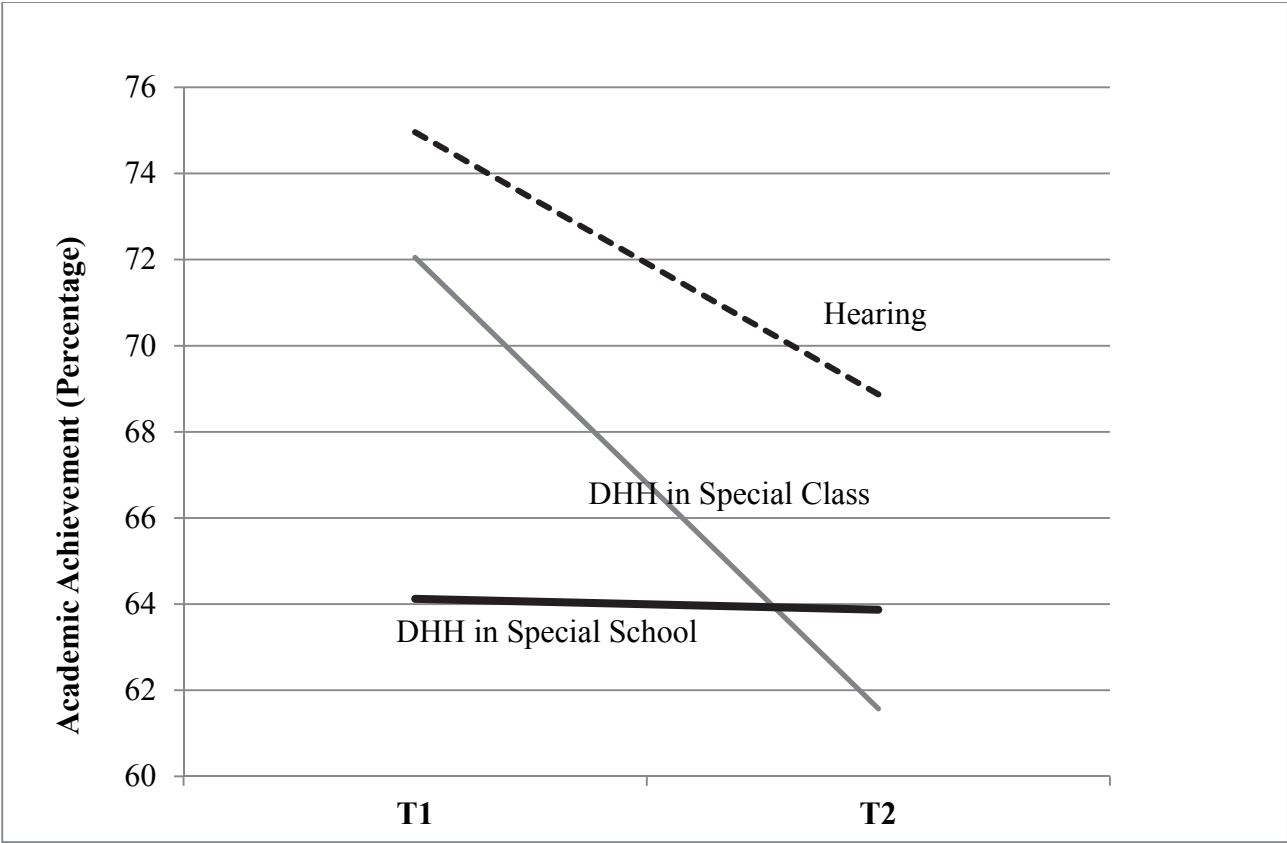
Measures	Tests of Within-Subjects Effects						Tests of Between-Subjects Effects		
	Time			Time * Placement			Placement		
	F	Sig.	η^2	F	Sig.	η^2	F	Sig.	η^2
Academic Achievement	14.77	.00	.183	3.74	.03	.10	4.87	.01	.13
Academic Self-Concept	2.59	.11	.04	3.81	.03	.10	2.82	.07	.08
Social Self-Concept	4.01	.05	.06	.32	.73	.01	.74	.48	.02

The results show a significant change in academic achievement over time ($p \leq .00$, $F = 14.77$, $\eta^2 = .183$) and a significant interaction effect between time and placement in academic achievement ($p \leq .03$, $F = 3.74$, $\eta^2 = .10$) as well as differences in between-subjects effects in placement ($p \leq .01$, $F = 4.87$, $\eta^2 = .13$). Academic achievement decreased for the hearing students and DHH students who were in special classes when they transitioned to Grade 5, but not for the DHH students continuing in the same special school (see Table 1). The drop in academic achievement was large by effect size ($d = .90$) for the DHH students in special classes (from mean 72.01, SD 14.39 to mean 61.57, SD 9.61), whereas the drop for hearing students was of a moderate effect size ($d = .55$; from mean 74.96, SD 12.46 to mean 68.87, SD 9.29). In the academic self-concept dimension, there was a significant interaction effect between time and placement ($p \leq .03$, $F = 3.81$, $\eta^2 = .10$), indicating a significant academic self-concept drop of a moderate effect size ($d = .60$) over time for DHH students who got integrated (from mean 4.19, SD .57 to mean 3.76, SD .79), while the self-concept of the other two groups remained almost stable.. Thus, for DHH students in special schools and continuing in the same setting, there was no effect of the transition on academic self-concept or on academic achievement. The results also indicate a significant improvement in peer

relations self-concept over time for all groups ($p \leq .05$, $F = 4.01$, $\eta^2 = .06$), but no significant interaction effect between time and placement ($p \leq .73$, $F = .32$, $\eta^2 = .01$) and no differences between the groups ($p \leq .48$, $F = .74$, $\eta^2 = .02$). As a result of the transition, all three groups seemed to improve socially.

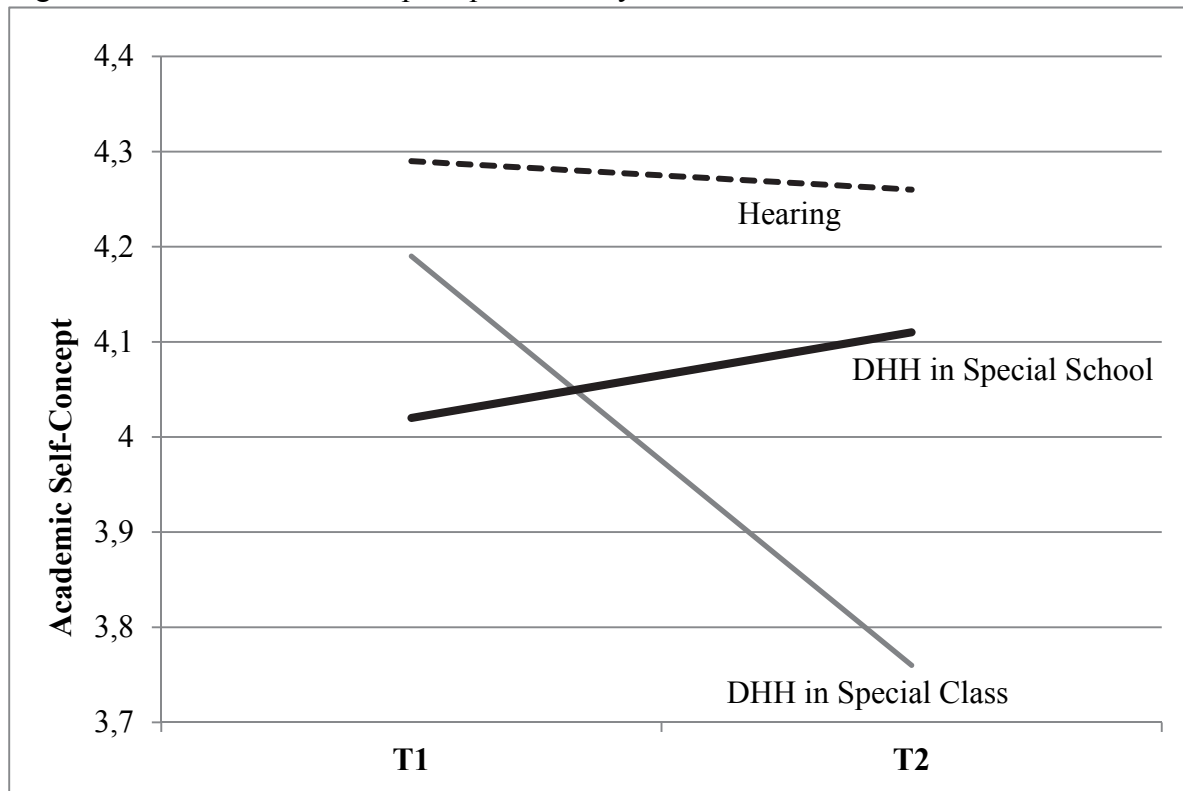
We tested whether the drop in academic self-concept could be explained by the drop in academic achievement by adding a covariate indicating a change in performance between the two grades. The results did not change in any significant way, indicating that there were two separate phenomena occurring at the same time.

Figure 1. Academic achievement, percentages (grades in all subjects assessed by teachers) across time for the three groups



Note: T1 (Time 1) indicates Grade 4 and T2 (Time 2) indicates Grade 5.

Figure 2. Academic self-concept as perceived by the students over time



Discussion

The main objective of the present study was to investigate the effect of the transition from Grade 4 to Grade 5 on the learning outcomes and self-concept development of DHH students staying within special school and DHH students transiting in to mainstream education, compared to their hearing peers transiting within mainstream education in Ethiopia.

After the transition, academic achievement decreased for both hearing and DHH students who were integrated with their hearing peers in the transition. This suggests that there is a problem in the school system regarding the transition from one cycle to the next. In Ethiopia, in the first cycle of primary school (Grades 1–4), students are taught all subjects by a single teacher in their native language for hearing and sign language for DHH students. However, beginning in the second cycle of primary school (Grade 5 and above), they are taught by subject teachers in a second language (Amharic or English), and the regular teacher

may not have sign language skills to communicate with DHH learners. This entirely new situation could have an impact on the learning of both these DHH students and hearing students. However, while there was no change in the level of achievement of DHH students in special schools, their overall level of academic achievement was lower than either of the two groups in Grade 4, which is also problematic and needs attention (see Figure 1 and Table 1).

As we expected, the results also show that academic self-concept for those DHH students who transferred from the special class to the integrated setting dropped significantly. However, DHH students who stayed in special schools showed some small improvement in their academic self-concept in the transition, while the hearing students remained almost stable. The drop in academic self-concept for the DHH students who transferred to the mainstream could be attributed to the fact that DHH learners face several challenges in regular classrooms in Ethiopia, besides the inaccessibility of sign language. The size of a regular class may be very large (60–80 students per class), and most regular class teachers do not know sign language or understand the communicational needs of DHH children. There were no educational sign language interpreters in the regular schools that the participants were attending. Another reason might be that academic self-concept depends on one's frame of reference, as suggested by the 'big-fish–little-pond effect' (Marsh and Hau 2003). According to the big-fish–little-pond effect theory, students compare their own academic achievements with those of their peers and use this social comparison impression as one basis for forming their academic self-concept. In this study, DHH students in special classes in Grade 4 were in a small group; thus, they compared themselves to few peers. However, when they transferred to Grade 5 and studied in the mainstream setting, they compared themselves to a larger class of hearing students with better academic performance and determined their academic self-concept in light of the new environment. When the DHH students in the special school

transitioned to Grade 5, they remained in the same school with the same classmates; therefore, there was no change in their frame of reference for comparison.

In this study, all three groups (DHH in the special school, DHH in the mainstream and hearing students), regardless of the educational setting, seemed to benefit from the transition in terms of improving socially with regard to the self-concept domain of peer relations over time. This result was contrary to our expectation, because we expected DHH students who were integrated would have difficulty establishing positive relationships with peers. This change may be due to the fact that all of the students got older, which is in agreement with previous studies suggested that transition into adolescence with entry into the social group of adolescents, might increase the importance of peer relations (Damon & Hart, 1988; Petersen, 1988). DHH students in both settings also had DHH friends with whom they could communicate freely and deeply in sign language. Therefore, at school, they had better opportunities to learn to socialize on a day-to-day basis with other DHH people than they did at home or elsewhere. This result also indicates that the integrated setting may indeed have social benefits or that inclusion provides socialization advantages for both DHH and hearing students. This result is in agreement with previous studies examining the social integration of DHH students which found that inclusion provides opportunities for developing friendships between children with and without hearing loss and children with hearing loss experience no negative social or emotional consequences as a result of being educated in inclusive environments (Eriks-Brophy and Whittingham 2013; Kluwin 1999; Leigh, et al. 2009). However, the finding that inclusion can operate successfully also at the academic level (Eriks-Brophy and Whittingham 2013; Kluwin 1999; Stinson and Kluwin 1996) was not fully supported by the results of this study. Opportunities for interacting with hearing students and teachers can nevertheless be seen as important for oral language development, learning and social integration (Angelides and Aravi 2006–2007; Furlonger et al. 2010).

Limitations

Students' academic achievement was measured using the grades awarded by their teachers in all subjects, indicated by the percentage score recorded on the students' grade reports. This may lack uniformity, as the assessments in different schools are unique. Therefore, it is important that standardized academic achievement tests be considered for future studies. The possibility of pupils' communication competence having affected the results is also a limitation of the present study. The translation of SDQ I from another culture and from the English language to Amharic and then to Ethiopian Sign Language might have had an effect on the DHH children's ability to understand the items. However, the DHH students' limited language skills were addressed as much as possible with the assistance of their teachers and the researcher; for example, the researcher showed the questionnaire using an overhead projector and provided explanations as needed in sign language and oral language (Amharic). Another limitation is that originally the scale is for students between 8-14 years of age, but there are few students older than this in the data. However, having older students in classrooms is common in Ethiopia. Furthermore, the items per se make sense to students of any age and students typically assess themselves in comparison to other students in their classes. Finally, the sample size in this study was small, comprising children from seven schools. Future research should include larger sample sizes and longitudinal studies. Moreover, the difference in learning outcomes between special classes and special schools as well as qualitative studies on the students' experiences of the transition are worthy of further research.

Conclusion

The results of this study provide a positive image of the social integration of DHH children in mainstream educational settings in Ethiopia. DHH and hearing children showed improvement

in the self-concept dimension of peer relations when they got integrated in the second cycle of primary school. This finding suggests that DHH children can benefit from being educated in inclusive schools, as these general schools can provide all students with many opportunities to develop socially and cope with difficulties in everyday peer relationship problems.

However, in this study, DHH students showed a significant drop in their academic self-concept and academic achievement when they transferred to Grade 5 and were integrated in the regular setting. This indicates that there is an alarming problem in the Ethiopian school system with regard to providing accessible, inclusive education for DHH learners. More important than physical school placement issues, the educational system as a whole requires solutions adapted to the characteristics of DHH students that will allow them to develop not only socially but also academically. In Ethiopia, the conditions for inclusive education have yet to be appropriately created (Dagnew 2013), and achieving true inclusion will require actions which are rooted in the conviction that inclusive education is not merely about access but is also about changes in society and systems. According to the UNESCO (2005) statement, inclusion refers to the diversity of needs of all learners in bringing change to the education system by identifying and overcoming barriers to presence, participation and achievement for every learner within mainstream settings. This statement also mentions the crucial difference between ‘inclusive education’ and ‘integrated education’, with the former demanding changes in the education system and the latter demanding changes within the learner (UNESCO 2005). In the current context of inclusive education in Ethiopia, simply placing DHH students in a mainstream classroom without the implementation of accessible instruction in the education system, and particularly without access to sign language, does not qualify as inclusive education; rather, it is merely integration. Nonetheless, rather than determining which is the better placement for DHH students in Ethiopia, it is important to consider that the substantial variety of students within this population requires a more flexible

framework of educational services for them, offering more opportunities so that informed decisions can be taken regarding the most appropriate inclusive educational context for each student at each stage. The results of this study also showed that the academic achievement of hearing students decreased when they transitioned to the second cycle, which needs attention and further investigation.

Finally the comparatively lower academic self-concept and academic achievement of DHH students in the mainstream setting in Ethiopia could be explained by lack of support necessary for DHH students' participation in learning. To enhance inclusion of DHH students, both students and their teachers need appropriate support with provision of necessary materials and resources. This requires the attention of all educational stakeholders. Policymakers, teacher educators, implementers and other players need to design appropriate ways to facilitate the inclusion of DHH students to enable them to become full participants in the regular schools.

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