The Integration of Social-Haptic Communication in Deafblind Interpreting and Educational Settings
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Haptic Signals as Part of Interpreter Services for Deafblind People

Historical and Developmental Perspectives from a Norwegian Context

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Abstract Interpreter services for deafblind people are relatively new services, and the profession of being an interpreter for deafblind people is understood and organized in various ways in different countries. The area of communication adjusted to deafblind people's tactile modality remains an area under international development. This article investigates the development of deafblind persons interpreter services from a Norwegian perspective, with a specific focus on the techniques developed to convey information on the environment to deafblind participants through haptic communication.

Keywords Deafblindness. Tactile modality. Haptic communication. Interpreting services. Haptic signals. Deafblind history.

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1 Introduction

Using Norwegian data, the aim of this article is to present the ongoing developments of communication practices in the provision of interpreter services for the deafblind population and for society. Part of this development has been a raising awareness of the tactile modality of communication, where the use of varies tactile signals is a growing area of interest and use. As part of the interpreter services, these relatively new signals have contributed to the increased quality of environmental description in an effective and simultaneous form – adjusted to empower a tactile orientation toward interaction and communication.

Different options in terminology are in for use for such signals where the body of the deafblind person functions as an articulation place for physical information signals – as for instance 'social-haptic communication' and 'haptic communication'. In this paper, we adopt the term 'haptic communication' and 'haptic signals' for such signals and communication forms. The impact of the haptic communication in deafblind society will be of specific focus in this paper, where the discussion will try to answer the research question: How have haptic signals become a part of interpreter services for deafblind people?

2 A Nordic Focus on Deafblindness

Within the Nordic countries, there is a collaboration on issues regarding social welfare. Because deafblind people are only found in small numbers in every Scandinavian country, the Nordic Council of Ministers established a study to report on their status (Petrén 1980). An important point in this report was the agreement that the combination of deafness and blindness functions as a separate and unique disability, namely deafblindness. The Nordic report on issues related to the deafblind population (Petrén 1980) concluded on three needed actions, all relevant as a background for this current study's research question:

Figure 1 Three of the conclusions from Petrén 1980

2.1 Agreement on a Nordic Definition of Deafblindness

In the description of the deafblind population, the Nordic Report provided a Nordic definition of deafblindness, identifying the group to be those totally deaf and blind, those having residual hearing and residual vision, those born with deafblindness, and those acquiring deafblindness after the age of learning a language (Petrén 1980). Based on the individuals' level of function living with this combination of impairments, deafblindness was proposed to be a specific disability. The Nordic agreement on the definition of deafblindness was formulated as follows (English translation from Göransson 2008, 22-3):

> A person is deafblind when he or she has a severe degree of combined visual and auditory impairment. Some deafblind people are totally deaf and blind, while others have residual hearing and residual vision. The combination of impairments mutually reduces the prospect of using the potential residual vision or hearing. This means that people with deafblindness cannot automatically utilize services for people with visual impairments or with hearing impairments. Thus deafblindness entails extreme difficulties with regard to schooling, further education, working life, family and social life, cultural activities, and information. For those who are born deafblind or acquire deafblindness at an early age, the situation is complicated by the fact that they have additional problems affecting their personality or behavior. Such complications further reduce their chances of using any residual vision or hearing and also make the development of other functions more difficult. Deafblindness must therefore be regarded as a separate disability which requires special methods for communication and special methods for coping with the functions of everyday life. (Petrén 1980, 78-9)

This definition of deafblindness points to a highly heterogeneous group in terms of age, living conditions, and educational and communicative background. This definition was quickly put to use and had an impact on introducing the need for further work to be done at the Nordic level as well as internationally. For a more updated version of the definition, see the Nordic Leadership Forum on Deafblindness (2024). This functional definition states that dual sensory loss affects functions in daily life in several critical areas. The effect of dual sensory loss is so severe that in 1980, the following formulation was used for the deafblind population: "deafblindness entails extreme difficulties with regard to schooling, further education, working life, family and social life, cultural activities, and information" (see above quotation from Göransson 2008, 22-3). With this background, the Nordic countries started to improve and establish services for their deafblind populations.

2.2 Awareness of Varying Communication Methods

The Nordic report from 1980 was precise when it came to describing the diversity within the groups of deafblind persons. There were various communication methods and modalities among those born deafblind and those having first acquired a language (visual/manual or oral/spoken) before becoming deafblind. Several communication techniques were in use but were not quantified in the report. However, as part of the first Norwegian national survey, the communication methods used between the interviewer and identified deafblind persons were considered categories for these communication methods for the total diagnosed population (Sosialdepartementet 1977, 45-6):

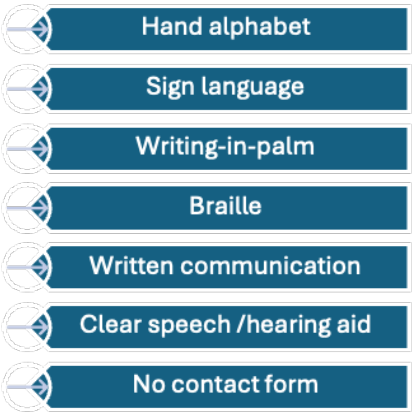

Figure 2 The diversity of communication techniques and modalities (elaborated by the Author)

Many of the deafblind persons had very few people in their surroundings they were able to communicate with. Isolation was a frequent theme when describing the individual person's life. Among the group of deafblind persons, many found it hard to understand other deafblind persons who used another way of communication than their own. This meant that when reaching out in society, but also within the group of deafblind persons, there were severe challenges in interaction and a lack of belonging to a community where one is easily understood. The general awareness of communication with deafblind persons was an area that society had little information on in the early 1980s. Techniques of what today is named haptic signals or haptic communication are not listed in figure 3, since such methods were not developed and taken in use back then.

2.3 Specific Services are Needed

The Nordic survey pointed toward several needed services, among them the need for interpreter services (Petrén 1980). The need for guiding and interpreting service had also been commented among deafblind persons from the first Norwegian national survey from 1977 (Sosialdepartementet 1977). In the recommendations, it was suggested to develop a combined guide and interpreter services. In a follow up Nordic report, the elements of such a service and a future draft for a Nordic curriculum for education of interpreters for the deafblind population were made (Hansen 1984). It took some years to get national education programs running to train interpreters. The process was supported by the United Nations' focus on disability and human rights, which led the process of expanding the regulation of social welfare to include deafblind persons' right to have interpreters working in health care, the educational system, and in cultural and daily living events.

3 Background and Context

In the Scandinavian countries, the work to improve the situation for deafblind individuals has a clear starting point. In the late 1970s, the Norwegian official health authorities took action to learn more about the status of the deaf and blind population. There existed little information on this group, and there was a need to learn more on basic questions such as: Where do we find those in our society who are deafblind or who have a severe combined loss of sight and hearing? How many individuals are deafblind? To what degree are they occupied and take part in society? How do they communicate? What are their needs for services? Investigations were needed to bring more knowledge on the group and to discuss the needs among individuals and the population having dual sensory loss (Sosialdepartementet 1977). Important questions were raised, and challenges were identified by this first national survey led by the health authorities in the years 1976 and 1977, and this led to more systematic work in this field (Sosialdepartementet 1977). Among the population of about 5 million Norwegian inhabitants at the time, a total of 202 persons were diagnosed with deafblindness (Sosialdepartementet 1977). The group was heterogeneous when it came to background and preferred communication methods, the average age was high, few were engaged in paid work, many did not make use of society's general offerings, and most had reduced or no access to ordinary public services. The survey concluded that there was little knowledge about the group and that actions were needed.

From 1980 to 1990, the United Nations encouraged the implementation of services and regulations aiming at reaching more equality for all populations, including those with disabilities.

During this period, in Norway the local authorities financed support services for deafblind people. This was an important step towards more inclusive positions in the deafblind person's daily life, neighborhood, and community.

The right to interpreters was incorporated into the Norwegian national insurance law of 1986, and the service had to be provided by certified professionals in interpretation and guiding and had to be free of charge. From the beginning, the regulations were limited to a specific number of hours per year financed by the government. Strong lobbying work from the deafblind associations, among others, changed this from 200 hours a year for each deafblind person to 500 hours, to today's regulation providing free use of the service based on the individual's needs (Lov om folketrygd 2023). From the beginning of the 1990s onwards, there was development from a voluntary working profession to a professional interpreter and guide service (Raanes, Berge 2017).

In 1993, the Nordic Council of Ministers' administration for disability performed a follow-up study on the status of deafblind people. One of their main points was the need for increased cooperation between associations for deafblind people, the parents' organization for deafblind children, and the public services with the aim to improve the living conditions for the deafblind population. Access to information was another critical point, and this included access to information via interpreters as well as supporting deafblind persons' ability to get access to information sources and to avoid isolation (Nordiska Nämndenför handikappfrågor 1993, 75; SOU 1991).

A Nordic training center for staff working with deafblind children and adults was established (NUD). NUD ran courses and intensively published materials to inform the professionals and the public. Development in the field and staff training were supported by Nordic resources and studies, and national education programs for deafblind children and rehabilitation centers for those with deafblindness were established in Norway starting in the 1980s.

The Norwegian Association for the Deafblind (FNDB) had for many years worked to establish needed services for deafblind people to be able to take part in society, and the national survey on deafblindness from 1977 had as one of the conclusions the need for guides and interpreters (Sosialdepartementet 1977, 45). The first interpreter training oriented toward the deafblind started in 1983 as short-term course run by the Department of Education. Admission to the course included an entrance examination in sign language and ended with a certification test in interpreting and guiding for deafblind persons. At the beginning, this training was only a 7-week education course,

but later the education model developed into a university program in 1990 – first as a 1-year full time program and then as a 3-year Bachelor program. In the curricula for the university education in sign language and interpreting, interpreting for deafblind clients was part of the program, including interpreting for the deaf and sign language as main subjects (Erlenkamp et al. 2011).

When the interpreter education was organized as ordinary programs of higher education, several structures around the curriculum had to be strengthened. The interpreter program went through an intensive process of improvement supported by the development of a theoretical foundation, especially theories for teaching subjects of tactile sign language, and a focus on using sign language grammar and interpreting skills in various arenas.[1] Teaching practical knowledge in the subject as well as developing research-based knowledge became areas of focus (Urdal 2017). As areas of specific knowledge, both national and international studies were included in the education as a basis for discussions and training.

During the early 2000s, the input from the deafblind community on the need for developing strategies for having access to one's environment through haptic signals was incorporated as a topic in the interpreting curriculum. This provided new awareness and knowledge on how interpreting and interaction could benefit from haptic information.

4 Evolution of Communication in Tactile Modality

The awareness and skills in communication methods in use among the deafblind community has seen ongoing developments within this community, and there has been increased knowledge among service providers, in academia, and institutions working on communication and other services needed by deafblind persons.

The first dissertation on tactile sign language was Mesch' study on tactile Swedish sign language from 1998, followed by studies of other national tactile sign languages (Mesch 1998; Mesch et al. 2015; Collins 2004; Raanes 2006), and interpreter-mediated communications have been studied using data regarding deafblind persons' communication methods (Berge, Raanes 2013; Gabarró-López, Mesch 2020; Raanes 2020a). There are still several aspects where more basic knowledge within communication and interaction in tactile sign language needs to be developed. New methodical resources – with corpus-based

1 See the *Bachelor Program in Sign Language Interpreter* of the Norwegian University of Science and Technology, Trondheim, at the link: `https://www.ntnu.edu/studies/ltbatgtolk`.

studies, cross-signing data, and studies on empirical data on communication and interpreter-mediated interaction – are areas that hopefully will contribute to useful developments in this field of linguistic and professional knowledge.

5 The Development of Haptic Communication

The awareness and regional development of haptic signals as part of the communication within the deafblind society were led by deafblind teachers and researchers. Some of this development is built on structures already used among deafblind persons. Tactile reception and tactile modality were in use by signing, fingerspelling, and a few response signals given on the person's hand or body. Standard response signals for 'yes' and 'no' – received as tapping and touched signals made on the deafblind person's hand – have a long tradition in communication for deafblind people and have been documented in Nordic journals for the deaf as far back as the nineteenth century (Keller 1864). From the early years of the twentieth century, this body-based channel of information signals started to be explored further in the Nordic countries as haptic signals.

These new haptic signals were spread by courses and through training. In Norway, the deafblind teacher Trine Næss led the development of haptic signals in a Norwegian context, and over several years she took part in national and Nordic courses involving deafblind persons, their family members, interpreters, and rehabilitation staff where haptic signals were trained to be included as part of everyday communication. Deafblind instructors were specifically trained and contributed to a raised awareness of communication and of deafblind people's participation. In all Nordic countries, the associations for the deafblind started working to spread information on the system of haptic signals. Associations for deafblind persons and by the Nordic staff education (NUD) contributed by producing instructional materials and papers on these developing techniques (Næss 2002; Lahtinen 2003; Nielsen 2012). The use of haptic information signals has become an international research area, with some variations of signs and terminology, including terms as social-haptic communication, haptic communication, or pro-tactile movement (Næss 2002; Lahtinen 2003; Edwards 2014; Bjørge, Rehder 2015).

Within rehabilitation, interpreter education, and interpreter services in Norway, there was an increased use of haptic signals in the deafblind community at the beginning of the 2000s. We can conclude that services and methods have spread and have gained ground over a relatively short period. As relatively easy signals to learn, many embraced the signals, and studies in Norway showed the signals

specifically useful for those having acquired deafblindness and who used the signals in combination with clear speech/reduced hearing. This is described in the studies by Skåren (2011) and Raanes (2020b), in which a range of everyday situations were regarded positively in terms of feeling empowered and in control in interactions when the interpreters added haptic signals into the interpreter-mediated communication. It took some more time before the signals were taken into use for the deafblind signing population (Raanes, Berge 2011).

6 International Reports and Status

In 2018, the World Federation of the Deafblind (WFDB) presented an initial global report on a population-based analysis of persons with deafblindness. The report showed that persons with deafblindness in general are a very diverse group that remain hidden in their societies and concluded with three areas in need of further work: 1) international acknowledgment and recognition of deafblindness as a unique and distinct disability, 2) publicly funded interpretation services providing interpreter-guides, and 3) funding for further research and strengthening needed support (WFDB 2018). These conclusions are in many ways parallel to the status presented in the Nordic report by the Council of Ministers in 1980.

The second global report by the WFDB, *Good Practices and Recommendations for the Inclusion of Persons with Deafblindness*, showed some positive developments in terms of awareness and services for the deafblind (WFDB 2023a). In 2023, a report with a specific focus on the oldest part of the population was also published (WFDB 2023b). The WFDB now identifies a new subgroup "Those who were both sighted and hearing until they started losing both senses due to ageing" – to be the largest group among the deafblind population (WFDB 2023c, 3). As deafblindness becomes more common as people age, this subgroup has challenges described as follows:

> its members are usually unfamiliar with the experience of being Deafblind and with alternative means of communication, and therefore experience more difficulties to communicate, read, access information, and move independently. (WFDB 2023c, 3)

The report concludes that the elderly deafblind population "is the least equipped to bridge the communication gap that is opening between them and their surroundings" (WFDB 2023c, 3). Internationally, there are few actions to improve the elderly part of the deafblind population's living conditions, and this is also true for the Nordic countries.

The report from the WFDB (2023a) also pointed to the ways in which awareness and empowerment of the groups of deafblind persons have improved over the last decades. There have internationally been several parallel processes in terms of initiatives aiming to improve access to information and communication. In guidelines for communication with deafblind people, international resources and studies show a clear picture of how deafblind persons' tactile communication has developed. In a core publication from 2002, Theresa B. Smith described the ways the deafblind community in the United States communicates. Even though minimal response signals produced by tapping on the interlocuter's body are described as being part of the communicative repertoire, the concept of what today are called haptic signals or pro-tactile communication was still not part of the described communication (Smith 2002, 99).

Digital tools as well as the emerging techniques of haptic communication have influenced the field. As part of an ongoing European development project, Laura Volpato has introduced haptic communication among Italian deafblind persons, their caregivers, and staff and has helped spread and develop the system. The signals are modified and adjusted to the national group's communication (Volpato 2023). In Willoughby et al.'s (2018) study, an overview of the status of tactile signing language is provided. Studies and services can thus be seen as an ongoing development and awareness of the group, their needed services, and their communication systems.

7 Documenting Evolution in the Use of Haptic Signals in Norway

During the last decades, deafblind communication has undergone an evolution where a tactile orientation towards interaction has been strengthened and the use of haptic signals has become a natural part of the communication repertoire. From the beginning, such haptic signals were seen to be useful, but there were also those among the sign language-speaking deafblind population having a different opinion. During my own studies, and by working within this field over time, I have witnessed the introduction of haptic signals for the deafblind community. During my own PhD work, I gathered groups of tactile signers in 2000 and 2002 (Raanes 2006). In the video-recorded data of deafblind persons communicating, there were in general no observations of other haptic signals than the conventional response signals by light tapping or stroking signals for 'yes' and 'no'. As said above, those tapping signals have a long tradition in deafblind person's communication (Keller 1864). For my PhD studies, I also interviewed tactile signers who commented on how they felt a possible disturbance in their conversation by being touched on the

body. They expressed that such signals would prompt them to turn or to let go of ongoing conversations to concentrate on something else going on. Among the primarily signing deafblind informants, they were not sure of this as a method for themselves to use or signals they needed. However, they reported that they were open to the situation where deafblind persons could use hearing aids as a communication method and where such new haptic bodily signals could orient the person on what was happening in their surroundings.

In 2007, I worked in collaboration with my colleague Sigrid Berge on a new project in which deafblind persons were involved in the collection of empirical data from a meeting of an association for deafblind persons. In videotaped conversations and interviews, it was seen that the deafblind persons and their interpreters took into use various bodily haptic information signals. Compared to what was seen in datasets from the very early years of the 2000s, there had been a change toward haptic signals becoming part of the communication. In interviews with the deafblind informants, they commented as follows: "for me it is the best system ever invented" or "yes in some situations these signals are useful for me". The attitude had turned, and there had been a movement from skepticism to acceptance (Berge, Raanes 2013).

Material for haptic communication was incorporated in the education programs for interpreters and in rehabilitation programs for persons with deafblindness and blindness from the early years of the twentieth century. The research found positive attitudes as to the usefulness of haptic signals for deafblind as well as blind participants. The first studies regarding experiences with haptic communication indicated a strengthened feeling of access among those taking part in the situations (Lahtinen, Lahtinen, Palmer 2010; Skåren 2011; Berge 2020; Raanes, Berge 2021).

The process leading to this change is based on multiple factors which will be discussed in the following three subsections: improvement in services and knowledge (§ 7.1), identity, awareness, and empowerment (§ 7.2), and progress and continuing work (§ 7.3).

7.1 Improvement in Services and Knowledge

This review has documented an ongoing development, where there have been emerging services and aids assisting persons with deafblindness (Sosialdepartementet 1977; Petrén 1980; SOU 1991). Interpreting has become an important service and is central to opening social services for the deafblind population. To have qualified interpreters suitable for the deafblind population's needs is a continuing process. Legal regulations and the establishment of interpreter services have been important parts in the process of

improving deafblind persons' participation in society. Official work on the government level supported by an international focus of disability groups through the United Nations has put a focus on deafblindness and made changes possible for the population of deafblind people. Interpreter mediation in rehabilitation and education has been crucial in the process of opening the society and improving living conditions for deafblind persons. The services of interpreting have undergone many improvements in the last few decades, and the professionalization of the field has increased.

The establishment of interpreter services and regional organizations were important to meeting the needs for deafblind people to be active in family life, work, cultural participation, and society. Access to information has been developed through new services and improved technical and digital aids. The change in the definition of deafblindness has removed the formulations of "extreme difficulties" and replaced this with an understanding of how deafblindness is not incompatible with being able to contribute to society. The consequences of deafblindness requires rehabilitation, aids, and specific services adjusted to deafblind people's needs (Gullacksen et al. 2011). The data from these studies in Norway show that during the past few decades, there have been dramatic improvements in several areas.

The introduction of haptic signals has been emphasized in this review, where representatives of deafblind professionals and organizations for the deafblind have made important contributions. Haptic signals are today a part of the communication repertoire and are useful for deafblind persons and for society in general. Knowledge on communication through the tactile modality has contributed to a better understanding of tactile interactions and tactile orientation and has extended our understanding of human experiences and communication.

Dual sensory loss raises many practical and mental barriers to accessing activities. The lack of rehabilitation programs toward the oldest part of the population may mean that the services do not reach all those with deafblindness. The WFDB (2023b) states that among the oldest part of the population, there are important actions needed to improve access to services, society, and interactions. This is also relevant in the Nordic context.

7.2 Identity, Awareness, and Empowerment

Communication and identity are linked together, and to be understood and have access to information and participation is critical for all. Increased awareness of the deafblind population and improved interpreter services have strengthened the deafblind community and their access to society. The right to access to interpreters and the establishment of educational programs for interpreters have been important in the development of a more accessible society for deafblind persons. The development of haptic signals has supported the understanding of a tactile orientation and awareness. In addition to providing information, haptic signals may also emphasize the need for taking time to integrate the deafblind persons into the ongoing activity. Provision of haptic information and orientation may be understood as a way to empower deafblind persons' feelings of access in interaction and to enable their participation in social activities. A similar development has been seen internationally, labeled with terms such as 'social-haptic communication' (Lahtinen 2003), 'haptic signals' (Næss 2002), and 'pro-tactile movement' (Edwards 2014), all of which have in common an emerging understanding of the tactile modality in communicative actions.

From the early work of Riitta Lahtinen and Trine Næss, the haptic approaches have become well known and are still being developed for further use by children and for adults involved in a range of specific areas and purposes. An example of this was seen at the first international conference on haptic communication – Hapticconf 2023 – arranged in Italy by Ca' Foscari University of Venice in 2023. Here several new approaches were presented, as was the presentation on the use of haptic signals for those training to work together with guide dogs (Timm 2023 and the article by Cathrine Timm Sundin and Nina Frisnes Øyan in this volume). Haptic signals are thus being adopted and adjusted toward various areas, needs, and personal preferences.

7.3 A Combined Process – Clear Improvements and Starting from Basics

There are several aspects on how to answer the research question on how haptic signals have become a part of the interpretation services. The services and knowledge around deafblindness can be described as a field with steady and clear improvements. Within the established services and among those deafblind persons actively working at participating in society and social life, there has been progress in knowledge and offerings. Interpreting services and general knowledge among care givers, families, and deafblind persons in

terms of tactile communication, rehabilitation, and haptic signals makes these people's lives easier. Thus, recent developments might be presented as a rising linear improvement with a growth in knowledge and in the number of services for the population of deafblind people. As part of these improvements, there has been increased identity, awareness, and empowerment among its members.

Not all those who are deafblind are included in this development, however. While there has been positive development among the population of deafblind, there are still groups facing the risk of being excluded in interactions and who live under conditions as described in the first Nordic definition on deafblindness, namely under extreme difficulties. Undiagnosed elderly persons with combined sensory deprivation, children with specific special needs, and persons with the use of alternative and argumentative communication are among groups where a tactile approach to communication and interaction may be useful and may extend the available inputs of communications patterns.

Due to the average high age in the group of deafblind, many are often not mentally capable of arguing for the many services and aids they need. The new persons joining the population of the deafblind are usually elderly people, as described in the WFDB report from 2023. Those becoming deafblind may take a long time to be introduced and motivated to undergo rehabilitation and to start the process of learning new skills. The new orientation process may be complicated and involves the deafblind person, family, caregivers, and professional service providers in the person's local community. Because these people belong to a rare group, it may take time to establish the needed knowledge and information to learn to use adaptive services and aids. Both in Norwegian as well as in international data, those becoming deafblind in the elderly part of the population are at risk of not getting the needed attention and help they need, thus resulting in challenges for both the deafblind person and those around them.

In parallel with this process of improvement, the perspectives may also be described as a circular orientation toward those experiencing becoming deafblind and those around them who are being introduced and recruited into the field of deafblindness. For many, the starting point of understanding the challenges and issues concerning this field is of little knowledge and awareness. Within different groups of the deafblind population, the process will have to be starting from a very basic level – again and again.

8 Conclusions

In this study, I have investigated how haptic signals have become a part of interpreter services for deafblind people. In the Norwegian context, I have documented the process of how interpreting services have developed and the way haptic communication has been spread in society. Important parts of this process have been legal regulations regarding the right to interpreter service and governmental funding of education programs for interpreters. These services have strengthened deafblind persons individually and as a group.

The ongoing development and awareness of the deafblind population, the services they need, and their communication methods are documented here based on Norwegian data. The WFDB suggests in their report from 2023 that there should be a new definition of how deafblindness is understood, which is related to the prevalence of dual sensory impairment (hearing and vision loss) that increases substantially with age and influences the services that need to be developed. On-demand interpreter services are important services to give access to information, participation, and rehabilitation for deafblind persons. The development of haptic signals as a new method might be introduced and spread among deafblind people in a wide area with the potential to strengthen interaction processes. This study shows the need for continuing work to include deafblind persons and to improve their access to services and participation in social life and social activities.

Bibliography

Berg, K.T. (2020). *Signaler som berører. Haptisk kommunikasjon, erfaringer fra personer med blindhet* (Haptic Communication, Experiences from Persons Living with Blindness) [Master's Thesis]. Oslo: OsloMet.

Berge, S.S.; Raanes, E. (2013). "Coordinating the Chain of Utterances: An Analysis of Communicative Flow and Turn Taking in an Interpreted Group Dialogue for Deaf-Blind Persons". *Sign Language Studies*, 13(3), 350-71. https://doi.org/10.1353/sls.2013.0007.

Bjørge, H.; Rehder, K. (2015). *Haptic Communication*. Sands Point, NY: Helen Keller National Center.

Collins, S. (2004). *Adverbial Morphemes in Tactile American Sign Language* [PhD Dissertation]. Cincinnati, OH: Union Institute and University.

Edwards, T. (2014). *Language Emergence in the Seattle DeafBlind Community* [PhD Dissertation]. Berkeley, CA: The University of California.

Erlenkamp, S.; Amundsen, G.; Berge, S.S.; Grande, T.; Mjøen, O.M.; Raanes, E. (2011). "Becoming the Ears, Eyes, Voice, and Hands of Someone Else: Educating Generalist Interpreters in a Three-Year Program". Leeson, L.; Wurm, S.; Vermeerbergen, M. (eds), *Signed Language Interpreting: Preparation, Practice, and Performance*. Manchester, UK: St. Jerome, 12-36.

Gabarró-López, S.; Mesch, J. (2020). "Conveying Environmental Information to Deafblind People: A Study of Tactile Sign Language Interpreting". *Frontiers in Education*, 5, 157. https://doi.org/10.3389/feduc.2020.00157.

Gullacksen, A.-Ch.; Göransson, L.; Henningsen Rönnblom, G.; Koppen, A.; Rud Jørgensen, A. (2011). *Life Adjustment and Combined Visual and Hearing Disability/ Deafblindness – An Internal Process Over Time*. Stockholm: Nordic Centre for Welfare and Social Issues.

Göransson, L. (2008). *Deafblindness in a Life-Perspective*. Habilitation & Assistive Technology in Region Skåne. Malmö: Elanders Berlings. https://nkcdb.se/wp-content/uploads/2018/11/Deafblindness-in-a-Life-Perspective.pdf.

Hansen, B. (1984). *Rapport vedrörande uddannelse af tolke indenfor hörehanicappområdet* (Report on Education for Interpreters for Hearing Impaired). Nordisk ministerråd.

Keller, J. (1864). "Fortellinger om de blinde døvstumme" (Stories About the Blind Deaf-Mute). *Nordiske Blade for Døvstumme*, 6(2), 61-2.

Lahtinen, R. (2003). *Development of the Holistic Social-Haptic Confirmation System: A Case Study of the Yes & No - Feedback Signals and How They Become More Commonly and Frequently Used in a Family with an Acquired Deafblind Person* [Master's Thesis]. Helsinki: University of Helsinki, Department of Teacher Education.

Lahtinen, R.; Lahtinen, M.; Palmer, R. (2010). *Environmental Description for Visually and Dual Sensory Impaired People*. Essex: A1 Management.

Lov om folketrygd (The National Insurance Act) (2023). *Forskrift om stønad til tolke- og ledsagerhjelp for døvblinde* (Law Regulation on the Right to Interpreter and Guide Assistance for Deafblind People). https://lovdata.no/dokument/SF/forskrift/1997-04-15-321.

Mesch, J. (1998). *Teckenspråk i taktil form: turtagning och frågor i dövblindas samtal på teckenspråk* (Tactile Sign Language: Turntaking and Questions in Signed Conversations of Deafblind People) [PhD Dissertation]. Stockholm: Stockholm University.

Mesch, J.; Raanes, E.; Ferrara, L.N. (2015). "Co-Forming Real Space Blends in Tactile Signed Language Dialogues". *Cognitive Linguistics*, 26(2), 261-87.

Nielsen, G. (2012). *103 Haptic Signals: A Reference Book*. Taastrup, Denmark: Danish Association of the Deafblind/Graphic Studio.

Nordiska Nämdeen för Handikappfrågor (1993). *Dövblindas livsvilkor i Norden inför år 2000*. Rapport 8/93. (Deafblind Persons' Living Condition in the Nordic Countries Before a New Century). Vällingby: NNH.

Næss, T. (2002). "En trangsynt erfaring" (From a Narrow Perspective). *Tolkeavisa* (*J. Interpret.*), 4, 15-18.

Petrén, F. (1980). *Bättre livsvillkor för dövblinda i Norden: förslag från Nordiska arbetsgruppen för dövblinda* (Better Life for Deafblind in the Nordic Countries). Bromma: Nordiska nämden för handikappfrågor.

Raanes, E. (2006). *Å gripe inntrykk og uttrykk: interaksjon og meningsdanning i døvblindes samtaler: en studie av et utvalg dialoger på taktilt norsk tegnspråk* (To Catch Impressions and Expressions: Interaction and Meaning Construction in Deafblind People's Conversation: A Study on Tactile Norwegian Sign Language Dialogues) [PhD Dissertation]. Trondheim: Norwegian University of Science and Technology.

Raanes, E. (2020a). "Access to Interaction and Context Through Situated Descriptions: A Study of Interpreting for Deafblind Persons". *Frontiers in Psychology*, 11, 573154. https://doi.org/10.3389/fpsyg.2020.573154.

Raanes, E. (2020b). "Use of Haptic Signal in Interaction with Deaf-Blind Persons". Hunt, D.I.J.; Shaw, E. (eds), *The Second International Symposium on Signed*

Language Interpretation and Translation Research. Selected Papers. Washington, DC: Gallaudet University Press, 58-79.

Raanes, E.; Berge, S.S. (2011). "Tolketjenesten: avgjørende for døvblindes deltagelse" (Interpreter Services: Decisive for the Participation of the Deaf-Blind). *Fontene Forskning*, 1(11), 4-17.

Raanes, E.; Berge, S.S. (2017). "Sign Language Interpreters' Use of Haptic Signs in Interpreted Meetings with Deafblind Persons". *Journal of Pragmatics*, 107, 91-104. https://doi.org/10.1016/j.pragma.2016.09.013.

Raanes, E.; Berge, S.S. (2021). "Intersubjective Understanding in Interpreted Table Conversations for Deafblind Persons". *Scandinavian Journal of Disability Research*, 23(1), 260-71.

Skåren, A.-L. (2011). *Hva øynene ikke ser og ørene ikke hører* (What The Eyes Don't See and The Ears Don't Hear) [Master's Thesis]. Trondheim: Norwegian University of Science and Technology.

Smith, T.B. (2002). *Guidelines: Practical Tips for Working and Socializing with Deaf-Blind People*. Burtonsville, MD: Sign Media, Inc.

Sosialdepartementet (1977). *Helsedirektoratets engangskartlegging av Norges døvblinde 1976/77* (National Survey of Norwegian Deafblind. 1976/1977, Department of Health and Social Security). Oslo: Sosialdepartementet.

SOU (1991). *En väg till delaktighet och inflytande: Tolk för döva, dövblinda, vuxendöva, hörselskadade och talskadade* (A Road Towards Participation and Empowerment: Interpreters for the Deaf, Deafblind and Deafened). Stockholm: Allmänna förlaget.

Timm, C. (2023). *Haptisk kommunikasjon og førerhund* (Haptic Communication and Guiding Dogs). Rapport. Drammen: Eikholt Senter.

Urdal, G.H.S. (2017). "Conquering the Interpreter's Operational Space: Sign Language Interpreting Students and their Acculturation to Deafblind Clients". *International Journal of Interpreter Education*, 9(2), 21-35.

Volpato, L. (2023). "A Preliminary Description of Haptices in Italian Social-Haptic Communication: A Phonological Perspective". *FEAST. Formal and Experimental Advances in Sign Language Theory*, 5, 210-27. https://doi.org/10.31009/FEAST.i5.17.

WFDB – The World Federation of the Deafblind (2018). *At Risk of Exclusion from CRPD and SDGs Implementation: Inequality and Persons with Deafblindness*. https://www.wfdb.eu/wp-content/uploads/2019/04/WFDB-global-report-2018.pdf.

WFDB – The World Federation of the Deafblind (2023a). *Second Global Report on the Situation of Persons with Deafblindness. Good Practices and Recommendations for the Inclusion of Persons with Deafblindness*. March 2023. https://wfdb.eu/wfdb-report-2022/.

WFDB – The World Federation of the Deafblind (2023b). *Global Report on the Situation of Older Persons with Deafblindness*. December 2023. https://wfdb.eu/wfdb-global-report-on-older-people-with-deafblindness/.

WFDB – The World Federation of the Deafblind (2023c). *Executive Summary of 1st Global Report on the Situation of Older Persons with Deafblindness*. December 2023. https://wfdb.eu/wp-content/uploads/2023/12/EN_WFDB-Summary-of-Report-on-Older-people-with-Deafblindness_FINAL_L.P.pdf.

Willoughby, L.; Iwasaki, S.; Bartlett, M.; Manns, H. (2018). "Tactile Sign Languages". Östman, J.-O.; Verschueren, J. (eds), *Handbook of Pragmatics*. Amsterdam: John Benjamins, 239-58. https://doi.org/10.1075/hop.21.tac1.