

# **Communicating with children on the Autism spectrum**

## Abstract

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Title of the thesis <b>Communicating with children on the Autism spectrum</b>		
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Abstract <p>It is estimated that about 1-1.2% of the population are affected by Autism spectrum disorder and boys are more likely to be diagnosed compared to girls. Autism spectrum disorders represent a broad group of developmental disorders that begin early in childhood that manifests as an abnormality in communication and interaction, and limited, repetitive and inflexible patterns of behaviour, and limited interests. The causes of Autism are biological, but the specific mechanisms are still unknown as there is no single factor that fully explains the development of the disorder. Nurses have a responsibility to give high quality care to children with the Autism spectrum disorder and efficient communication strategies are essential in the delivery of quality care.</p> <p>This thesis concentrated on creating awareness about Autism spectrum disorder and how nurses can effectively communicate children on the autism spectrum, thereby promoting health and helping these children feel more comfortable during visits to the hospital environment.</p> <p>This thesis work was executed as a practice-based thesis and the product is an educational video produced for the immigrant nursing students at LAB University of Applied Sciences. The video contains basic information about autism spectrum disorders, the important roles played by nurses in quality care delivery, communication barriers and strategies that could aid effective communication.</p> <p>This practice-based thesis followed the linear model research framework. Thematic qualitative analysis was used to analyse the feedback generated after the exhibition of the video to the immigrant nursing students at LAB University of Applied Sciences. The topic has shown to be useful to nursing students and the lecturers teaching them. The video will be used for educational purposes for students.</p>		
Keywords Autism, communication, nurse, interaction		

## Tiivistelmä

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Tiivistelmä <p>On arvioitu, että noin 1-1,2 % väestöstä kärsii autismin kirjon häiriöistä ja pojilla on todennäköisempi diagnosoida kuin tytöillä. Autismikirjon häiriöt edustavat laajaa ryhmää varhaisessa lapsuudessa alkavia kehityshäiriöitä, jotka ilmenevät kommunikaation ja vuorovaikutuksen poikkeavuuksina sekä rajallisina, toistuvina ja joustamattomina käyttäytymismalleina ja kiinnostuksen kohteina. Autismin syyt ovat biologisia, mutta erityisiä mekanismeja ei vielä tunneta, koska ei ole yhtä ainoaa tekijää, joka täysin selittäisi häiriön kehittymisen. Sairaanhoitajien vastuulla on tarjota laadukasta hoitoa autismikirjon häiriöistä kärsiville lapsille, ja tehokkaat viestintästrategiat ovat olennaisia laadukkaaseen hoidon tarjoamisessa.</p> <p>Tämä opinnäytetyö keskittyi tietoisuuden lisäämiseen autismikirjon häiriöistä ja siitä, kuinka sairaanhoitajat voivat tehokkaasti kommunikoida autismikirjon lapsilla, mikä edistää terveyttä ja auttaa näitä lapsia tuntemaan olonsa mukavammaksi käydessään sairaalaympäristössä.</p> <p>Tämä opinnäytetyö tehtiin toiminnallisena opinnäytetyönä ja tuote on LAB-ammattikorkeakoulun hoitotyön maahanmuuttajaopiskelijoille tuotettu opetusvideo. Video sisältää perustietoa autismin kirjon häiriöistä, sairaanhoitajien tärkeistä rooleista laadukkaassa hoidon toimittamisessa, kommunikaatioesteistä ja strategioista, jotka voivat edistää tehokasta viestintää.</p> <p>Tiominällinen opinnäytetyö noudatettiin lineaarisen mallin tutkimuskehystä. Temaattisella kvalitatiivisella analyysillä analysoitiin videon näyttelyn jälkeen syntyneitä palautetta LAB-ammattikorkeakoulun siirtolaisille hoitotyön opiskelijoille. Aihe on osoittautunut hyödylliseksi hoitotyön opiskelijoille ja heitä opettaville luennoitsijoille. Videota käytetään opiskelijoiden opetustarkoituksiin.</p>		
Asiasanat Autismi, kommunikointi, sairaanhoitaja, vuorovaikutus.		

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Appendix 1. Educational video on communication

## 1 Introduction

Children living with autism are spread all over the world. Autism spectrum disorder affects about 1-1.2% of the world's population and in Finland, that is about 55,000 and 65,000 people. The main causes of autism are still largely unidentifiable but underlying factors such as genetic, environmental, hereditary and environmental have been found to bring about the onset and manifestation of autism. (Autismiliitto 2022.) Living with autism could be challenging therefore, adequate support for the child on the spectrum from an efficient multi-professional team in the healthcare sector is crucial because without effective support, the features of autism may appear more strongly thereby, leading to a further decline in intellectual growth and development. (Grandin & Panek 2013, 34) Support targeted towards helping children living with autism must be effective, timely and holistic (Kangas et al. 2011,164).

Neurological disability in communication, socializing and atypical ways of interpreting and processing information, typical in autism spectrum disorder, can gravely affect daily functioning and thus, critically hinder educational and communal successes (Autismiliitto 2021). The diagnosis of the autism spectrum disorder may bring comfort and understanding to the families of the child with autism regarding the unexplained difficulties in communication and interaction that had been experienced by the child (Kangas et al. 2011,161). It provides a means of accessing required interventions and support available for children on the spectrum. Consequently, from the point when the diagnosis is made, the way the child is viewed by other people is unfortunately, as a person with a neurological disability. (Charman et al. 2012).

The features of autism can vary from one child to another (Schlosser & Wendt 2008). To make a diagnosis of autism, the child will have had significant difficulties within social interaction, social communication and exhibits patterns of restrictive and repetitive behaviors, activities or interests (Moilanen et al. 2012). Symptoms such as not responding to their names, not pointing to things that has caught their attention, not waving goodbye, preference for objects, not engaging in reciprocal plays, carrying out activities in a repetitive manner, challenges adapting to change, significant difficulties in social communication and interaction. These challenges will have been present since childhood and would have caused significant distress in daily living. (Charman et al. 2012).

The extents of functionality among children on the autism spectrum varies significantly from one another. While some can live independently and go on to lead productive lives with different levels of support, others are greatly affected by autism. Consequently, predisposing them to needing more care and support throughout their lives. (Charman et al.

2012,1098.) There is currently no standard treatment for autism spectrum disorders, but a variety of evidence-based therapies are employed to meet specific needs in children with autism spectrum disorders (Prizant & Fields-Meyer 2019, 209). Early intervention techniques have been proven to be effective in encouraging the development of speech and social interaction. The knowledge of the level and extent of the disability experienced by a child is important for nurses in order to facilitate treatment specificity and aid effective communication with the child. (Miller et al. 2017.)

The aim of the thesis is to produce an educational video in Finnish language for the nursing students in LAB University of Applied Sciences whose first language is other than the Finnish language on how to effectively communicate with preschool-aged children on the autism spectrum disorder. The video will serve as an educational material containing easy to understand information in simple Finnish language on how to enhance communication and make hospital visits more comfortable for children on the autism spectrum disorder. This thesis work focused on children between the ages of 1 and 5. The purpose of the thesis is to promote the competence of nursing students on how to appropriately communicate with pre-school age children with the autism spectrum disorder.

#### Commissioning partner

LAB University of Applied Sciences is the commissioning party of this thesis. The result from the study is beneficial to the immigrant nursing students in the faculty of Social and Healthcare. LAB University of Applied Sciences is an educational body established to bridge the gap between higher education and working life. The main objective for founding the school was to make learning in the University and working life more fulfilling. The LAB University of Applied Sciences is an educational facility wherein prospective students can study a range of courses beneficial to the society at large. The university also offers open study options for students. Currently, the university can boast of approximately 8,500 students and 500 teachers and RDI experts. The vision of the university is to create an environment for students and experts that will facilitate and promote innovative thinking in working life. (LAB University of Applied Sciences, 2022.)

Nurses working with children will come across children with autism spectrum disorder. Due to the prevalence of the disorder, it is important for nurses to know how to efficiently communicate with these children and help them to feel more comfortable during hospital visits. With this understanding, the author has decided to produce an educational video about communication for the immigrant nursing students at the LAB University of Applied Sci-

ences. The final product of the thesis will be used by the lecturers teaching the family nursing course as an educational material for students on the importance of effectively communicating with children with the autism spectrum disorder.

## 2 Autism spectrum disorder

### 2.1 Definition of Autism spectrum disorder

Autism spectrum disorder is a neurobiological developmental disorder of the brain which affects the way a child communicates and interacts with others, how he perceives and experiences the world around him (Moilanen et al. 2012). It is a condition that continues throughout the life of affected individuals, and it is strongly individualistic in nature. Hence, the experiences from an encounter with a child on the spectrum could be significantly different from that of another child also living with autism. (Autismiliitto 2021.)

Autism spectrum disorder is an umbrella term for a range of developmental disorders that emerge in early childhood. The term encompasses the different dimensions of symptoms, individuality and variability in severity. The disorder manifests as an abnormality in interaction and communication, and restricted, repetitive and frigid mode of behaviour. (Moilanen et al. 2012.) The features of the autism spectrum disorder appear individually regarding the strengths and difficulties experienced by children on the spectrum in their day-to-day operations. Individual ability to function follows individual needs for support services. The functional capacity of a person with autism often varies according to given situations and the interactions within environment they operate in. (Grästen 2022.)

Insufficiencies in communication, social interaction and imagination skills are important in the diagnosis of autism spectrum disorder and this is according to the Wings' triad which was propounded in 1979 by Lorna Wing and Judith Gould (Grandin & Panek 2013). In their first few years of life, some children could be extremely autistic (Gupta et al. 2019). While some are easy to care for, others could be difficult as they hardly sleep, scream, and their ability to imitate is limited or completely absent (Barthelemy et al. 2019,6). A group of these children avoid eye contact, stare out of the corners of their eyes, or stare in strange ways (Kangas et al. 2011). It is however a general misconception that people with autism always avoid eye contact (Grandin & Panek 2013).

The disorder is more prevalent in boys than in girls because the features of the autism spectrum disorder manifests differently in girls and this could be the reason for the low diagnosis in girls. The ratio of diagnosis between boys and girls used to be at 15:1 but with the constant research into the autism spectrum disorder, the discrepancy is now at 3:1. (Moilanen et al. 2012.) Earlier, individual diagnosis such as childhood disintegrative disorder, Asperger syndrome, autism and atypical autism were classified as pervasive developmental disorder in the international classification of diseases (ICD-10). This has been

changed in the updated classification (ICD-11) and these single diagnoses now bear a new identity, the autism spectrum disorder. (Autismiliitto, 2021.)

Autism has most likely been around before the official diagnosis began in 1943 when Leo Kanner published an article "Autistic Disturbances of Affective Contact", in which he described similar symptoms observed in some children that had been referred to him for treatment. Symptoms such as the need for solitude, the need for sameness and the need to be alone in a world that never changed. He concluded the paper by writing that these children could have been born without the ability to provide the usual naturally occurring affective contact with other people just like some children are born with physical disabilities. This publication prompted an increase in the research of autism. (Grandin & Panek 2013.)

In 1981, Lorna Wing, a British psychiatrist introduced the work Hans Asperger had done in 1943 and 1944 in which he identified a group of children who shared distinct similarities such as uncoordinated movements, a lack of empathy, little or no abilities to form friendships, lack of responsiveness to other people usually starting before two and half years of age, one-sided conversations, intense insistence on uniformity in self-selected, often bizarre and excessive repetitive routines, the ability to talk endlessly about their favourite subjects, interest in and skill in manipulating objects, well-developed visuospatial skills and rote memory at the same time as learning difficulties in other areas. This behavioural pattern was termed the Asperger syndrome. (Grandin & Panek 2013.)

The perception of the concept of autism spectrum disorder is still developing because the disorder presents in a lot of ways (Grandin 2006). The spectrum recognises the child who is intellectually disabled and nonverbal, the child who is verbal and is extremely gifted in specific areas like mathematics, and the child who can work efficiently in isolation but experiences difficulties in social situations (Barthelemy et al 2019,6). However, the manifestation of the features of the autism spectrum is not necessarily long-lasting. The disorder majorly related to development, therefore, some children with the condition can grow and overtime, overcome their deficiencies, leading to a reduction in symptoms. (Charman et al. 2012, 1098.)

## 2.2 Symptoms of Autism spectrum disorder

An abnormal or complete absence of joint social communication skills is the major indication observed in children on the autism spectrum (Autismiliitto 2021). A typically growing child constantly initiates parental attention, establishes eye contacts and uses numerous gestures and facial expressions in comparison to children on the spectrum who rarely engage

in these actions. Inability to point or hold-up things that are interesting to them thereby sharing the experience with other people is also common in autism. (Moilanen et al, 2012.)

A remarkable difficulty in interaction and communication is a major feature exhibited by children on the spectrum. Inability to engage in pretend play and the abnormal or total absence in the use of gestures and facial expressions are prominent in the autism spectrum disorder. (Grandin & Panek 2013.) Behavioural deficits exhibited as repetitive actions such as flapping of hands, flicking of fingers in front of the face, walking on toes, the use of objects in unusual ways and the display of unrestricted fascination with objects or topics, unwillingness to change the course of familiar routines are all featured on the autism spectrum disorders (Turkington & Anan 2007).

A child with autism almost never reaches out to his or her parents to be lifted and sometimes do not like being touched thus leading to resisting body contact and may find it difficult to be comfortable in another person's arms (Turkington & Annan 2007). This is not the exception as there are equally several children on the spectrum who seek body contacts especially when it happens on their terms (Autism speaks 2016). Children with autism seldom search for new experiences or exhibit different skills. They also rarely ask for help when they need it and often treat people, animals and objects alike. (Turkington & Anan 2007.)

Sensitivity to sensory stimulation is another manifestation of the autism spectrum disorder (Miller et al. 2017). The interpretation of sensory stimulus among children on the spectrum is highly individual for instance, a child could be sensory seeking, sensory avoiding or a combination of both. Stimuli in form of taste, smell, touch, sound, temperature, light and colours could lead to sensory overload, a condition likened to experiencing physical pain. (Kangas et al. 2011.) A child in sensory overload may engage in stimming. This is a protective mechanism that the child engages in to soothe self when experiencing sensory overload. Rocking, jumping and pacing around are examples of stimming. (Autismiliitto 2021.)

According to the World Health Organisation (2022), research informed evidence supports the identification of environmental and genetical factors as the major predisposing factors for developing autism. The use of certain vaccines, infections and bad parenting do not cause autism. Predisposing factors such as the age of the parents at the time of conception, maternal obesity, low birth weight, exposure to certain pollutants have however been identified. The combination of these predisposing factors with genetical and environmental factors could make a child exhibit the symptoms of autism (Barthelemy et al. 2019, 7).

A child on the spectrum could get fascinated by an object or an idea for a while and then, the same object becomes uninteresting and consequently gets discarded. It could also happen that the child gets fascinated by the object throughout their lives, becoming a significant

part of their identity. A child can grab an adult's arm and guide it to something off the shelf that he or she wants in situations where the item cannot be reached. (Barthelemy et al. 2019,7.) Many children on the autism spectrum usually improve on their skills overtime and go on to lead independent lives, some do not and have to be dependent on others throughout their lives (Grästen 2022).

### 3 Communication as an integral part of interaction

#### 3.1 The significance of communication

Communication is the process of transferring information between people (Brown & Elder 2014). It is primarily based on emotion and language which enables individuals to express their motivations and expression to manage interpersonal relations. Efficient development and acquisition of communication skills enables individuals to demonstrate appropriate acceptable behaviours in the society which are important in the development of certain cognitive skills. (Lacroix et al. 2016, 7.)

Establishing, carrying on and ceasing an interaction could sometimes be difficult for children because it requires specific abilities such as being able to make a request, paying attention, making inquiries, keeping people interested in an activity and finally ending a conversation. Due to the inherent difficulties experienced by children on the autism spectrum disorder concerning social interactions, these seemingly simple acts become demanding and stressful and could lead to the avoidance of interaction with others. (Kangas et al. 2011.) Effective communication skills are essential in establishing a bond with children on the autism spectrum disorder and gaining their trust. It is a skill that should be constantly improved because learning to communicate with and listening to these children is a fundamental building block in a culture of respecting the rights of children. Nurses who have been charged with the responsibility of caring for children on the autism spectrum have to understand the importance of interacting skilfully and sensitively. (Lambert et al. 2012.)

Communication can be established through written forms expressed as reading and writing and it encompasses the understanding and use of non-verbal means of communication such as body-language, eye-contact, gestures, personal space. Forms of communication includes the use of language, speech, non-verbal methods and pragmatics. (Gupta et al. 2019.) Challenges in communication are common in children with autism spectrum disorder. Communication is not exclusively portrayed by the act of speaking and the other acts used in communication such as facial expressions, body language, eye contacts, gestures, and the contexts of what is being said all have the potential of overwhelming the child and consequently leading to a condition of sensory overload. (The spectrum 2022.)

An interactional activity begins when two or more individuals develop awareness about each other and in turn, make efforts to join an ongoing activity or initiate new activities (Miller et al. 2017). Interaction in children emanates from the desire to locate a mutual understanding about an activity. They initiate contacts and engage in shared activities in order to establish or join an activity. The initiation usually happens in a non-verbal manner where children

listen, watch, stand, or sit, closely monitoring an event, wandering around or smiling to another person. (Kangas et al. 2011.)

### 3.2 Social interaction strategies in Autism spectrum disorder

Social interaction entails knowing what to expect from people and how to act during interaction with others. Paying attention to social information, interpreting current situations, problem solving skills and consequently responding are the basis of social interaction. The ability to interact successfully with others helps to foster relationships, connect with and make new friends and encourages the development of new interests. Children learn to interact with others through play and turn taking. (Kangas et al. 2011.)

Children on the autism spectrum generally have difficulties in social interactions and understanding the way other people behave (Autismillitto 2021). While some children avoid interaction, some tend to overly indulge and enjoy social interactions and that is why the importance of teaching in the moment cannot be overemphasized. It is an effective way of teaching skills and language to children on the autism spectrum disorder. It involves teaching skills through structured intervention programs during an interactive period, giving the child enough time to process and understand the information and allowing the child to respond accordingly when ready. These strategies are integrated in play skills which can be developed through solitary play, parallel play and social play. (Grandin & Patek 2013.)

Problem solving skills can be taught to a child with the use of appropriate models of learning. In problem solving training, a five-rule model which is commonly used in cognitive and behavioural therapies can be adopted. The first step is to stop the situation and explain to the child as clearly as possible what the problem is. The second step is to think of solutions to the problem together with the child, thirdly, evaluate solutions together from the perspective of consequences, step four, choosing the best rated option and then evaluating the outcome of the solution. (Autism speaks 2016.)

Many children on the autism spectrum disorder make use of echolalia to communicate. It is the use of repetitive words or phrases continuously, often without context. The repeated words are those that had been heard from familiar people or from their favourite television programmes. (Prizant & Fields-Meyer 2015.) Children who use echolalia as a form of communication do so in order to express a need such as to ask for things, to draw attention to something, to start an interaction, to protest something or to answer a question. (Kangas et al, 2011.)

### 3.3 Communication strategies in Autism spectrum disorder

Visual supports. Visual aids are support mechanisms that helps to enhance communication and language skills in children with the autism spectrum disorder. The aids can be the use of symbols, written words, photos and objects to improve the learning and acquisition of language skills, processing of information and enhancing of communication skills. (Schlosser & Wendt 2008.) Spoken words have the tendency to disappear quickly. This naturally disposes children on the spectrum to prefer and respond well to visual information which can be processed and referred to continuously. (Grandin 2016, 113.) Communication books with images and cards with written words facilitates the learning of words and their meanings. The pictures and words can be pointed at when a child needs to register a grievance or make requests. Intentional and functional communication can be developed overtime with the use of the picture exchange communication system as the child learns to make sentences and answer questions which further improves interaction and communication with other people. (The spectrum 2022.)

It is common knowledge that children on the autism spectrum do not respond well to changes in their daily routines and rituals. A visual schedule helps to show the child what can be expected to happen next or if there is going to be a change in their routines as this knowledge helps to mentally prepare for the change and cope with it more easily. (Grandin 2006.) The child can go over the schedule repeatedly and get familiarized with the word representing change (Kangas et al. 2011). Visual schedules help a child to understand and learn the stages of an activity, such as using the bathroom. A combination of images displays the order of the activity and overtime, the goal is that child will be able to remember each step without having to refer to the schedules. (Grahn 2013.)

Augmentative and alternative communication (AAC). According to Schlosser & Wendt (2008), studies have shown that the use of AAC strategies significantly improves the development and progression of communicative language. To get the desired benefits from the use of AAC intervention, realistic goals and expectations must be set from the outset. Augmentative and alternative communication is a model of interaction that focuses on improving communication skills and other related needs of people that have significant communication disorders exhibiting as little or no functional speech (Grahn 2013). Giving individuals the opportunity of maximizing their greatest potential and improving their overall quality of life

are the main objectives of using AAC techniques. Education, advocacy, research and clinical service delivery are the main components of AAC. (AAC institute 2022.)

There is a need to need to provide expert training for nurses on the use of the picture exchange system (PECS) because it provides a way for children who are non-verbal or easily misunderstood to develop and improve on verbal communication, recognise sound patterns and build language skills (Warren et al. 2011). The unaided systems of AAC include the use of gestures, written words, pictures and sign language while the aided system of AAC involve the use of sophisticated gadgets and devices such as speech generating devices and applications on smartphones (Autism speaks 2016).

### 3.4 Behavioural strategies in Autism spectrum disorder

Behaviour is the way we react to our environment and to other people and our understanding of why people behave the way they do (Gupta et al. 2019). Autism can impact the way a child reacts and attends to other people and the world around them thereby sometimes making them behave unexpectedly (Autism speaks 2016). A child on the autism spectrum may process sensory information differently, be good at identifying irregularities, have logical reasoning and adhere strictly to preferred routines and rituals to feel safe and secured. Self-harming and aggressive behaviours can be exhibited when a child is unable to fully express themselves or feels overwhelmed by excessive sensory inputs. (Kangas et al. 2011.)

A behaviour becomes concerning when it impedes the quality of life of the child or negatively affects other people with whom the child interacts (Miller et al. 2017). Verbal aggression, physical aggression, wandering, absconding and lack of inhibitions are examples of concerning behaviours. These behaviours create barriers to interacting with other people. (Gupta et al. 2019.) The prompt recognition of triggers and addressing it, such as a change in routine, could forestall the exhibition of these behaviours and thus, prevent them from happening. When the triggers of a concerning behaviour has been identified, efforts can be made to modify the environment within which they happen, new skills can be taught and positive alternative behaviours, reinforced. (Autism speaks 2016.)

Positive behaviour support is a process of reducing and preventing the occurrence of concerning behaviours using theoretical frameworks and strategies with the purpose of improving the quality of life by teaching new skills and making changes in the environment a child lives in (Autismilliitto 2021). Person-centered strategies focusing on the dignity, rights and overall wellbeing of the child are employed by a group of multi-professionals such as psy-

chologist and therapists, in collaboration with the families of the children to assess behaviours, to determine triggers and provide explanations on why a child a child may behave in a certain way and the possible benefits the child enjoys from the concerning behaviour (Autism speaks 2016). A positive behaviour support plan can be developed for the child. It will include suggestions on how to adjust the environment the child lives in by making it more suitable to their needs, motivating the child to use new skills in changing environments to address their needs, reducing or removing any benefit a child could be getting from displaying the concerning behaviour and teaching and encouraging different skills to express their needs and wants in order to prevent the need to showcase a concerning behaviour. (The spectrum 2022.)

Applied behaviour analysis (ABA) is an early intensive behavioural intervention comprising of a range of strategies used in the prevention and reduction in the display of concerning behaviours in children with autism (Miller et al. 2017). It is used to analyse behaviours exhibited by a child and providing explanation on the motives for these behaviours and then teaching appropriate skills to the child in an organised manner with short term goals that can be easily achieved (Gupta et al. 2019). Evidence has shown that the use of ABA in combination with other rehabilitative therapies helps to reduce the display of concerning behaviours, encourages the learning and use of new skills. It also improves social communication in children with the autism spectrum disorder. (Grandin & Patek 2013.)

Positive reinforcement is a concept of behavioural psychology that focuses on the encouragement of preferred behaviour by offering a gratifying reward when the acts are displayed (Schlosser & Wendt 2008). Most children on the autism spectrum respond well to tangible reinforcements because of their inability to understand and predict the feelings of other people. The idea that they will receive something that is desirable to them in return for acting in a particular way has proven to be a motivating factor in the exhibition of desirable skills and behaviours. (The Spectrum 2022.)

## 4 Sensory processing in Autism spectrum disorder

### 4.1 How autism affects the sensory system

Sensory processing is the way the body receives and processes external inputs through the senses. The successful coordination of sensory inputs leads to efficient functioning in daily life, exhibited the capability to self-regulate, socially interact and form self-adaptive behavioural skills. (Miller et al. 2017.) A child with sensory processing difficulties will react to external inputs in atypical ways and can exhibit symptoms such as dyspraxia, unusual response to pain, clumsiness, ingestion of inedible materials, unusual reactions to light, sound and fabrics. These symptoms are indicative that the child experiences some problems in their olfactory, visual, auditory, vestibular-proprioceptive, interoception and tactile sensory systems. A child can be hypersensitive or hyposensitive and some children can experience fluctuations in the level of their sensitivities. (Arky 2022.)

Atypical reactions to sensory stimulus are highly common in children with the autism spectrum disorders with the preponderance up to 90 percent. Majority of these children visit the hospitals due to medical afflictions rather than a behavioural problem and they usually have one or more chronic health comorbidity such as gastrointestinal problems. (Fraatz & Durand 2021.) The uniqueness in the core characteristics of a child with autism may impede the treatment and management of their current medical illness. This places emphasis on why it is important for nurses to become familiar with the problems associated with sensory sensitivities, and how to prevent them from escalating. (Gupta et al. 2019.)

### 4.2 Sensory strategies in Autism spectrum disorder

Limitation in the capacity to develop normal social relationships with other people is specific to children on the autism spectrum (Kangas et al. 2011). Although the difficulties associated with social interactions could become less noticeable as a child's communication skills improves, the inability to play reciprocally usually remains (Miller et al. 2017). Several studies have shown that children with autism have no disability regarding experiencing emotions such as joy, anger and sorrow (Grandin & Panek 2013).

Children with autism experience difficulties in following rapidly changing social interactions because they require more time to successfully shift their attention between visual and auditory stimuli (Grandin 2006, 159). In a child on the autism spectrum, the reaction to the senses is often different than usual. A child may react more strongly, weaker than normal or have normal reaction. (Warren et al. 2011.) Usual sensations in daily living like brushing

of teeth or hair, showering, surprising touches, background sounds, or human noises and colourful surroundings can make a child with autism spectrum feel disturbed. This could lead to developing anxiety, restlessness, irritability and feeling physical pain. (Kangas et al. 2011.) Difficulties in sensory integration and sensory processing predisposes a child to reacting to sensations in unusual manners and this could lead to the lack of awareness of themselves in the environment (Hudson 2006).

A child on the autism spectrum can be easily become overloaded due to inappropriate sensory load (Higashida 2014, 38). A child can try to reduce the load by themselves by putting hands on their ears, abruptly withdrawing from the situation, or stimming. Stimming may be in form of speech, a pronunciation or a repetitive movement, such as flapping of hands, jumping and reflecting. (Grandin & Panek 2013, 42.) A child that has been identified to be going through a session of sensory overload should be offered aids, breaks and be allowed to use self-calming techniques if possible (Autismiliitto 2021).

Sensory and auditory-based interventions are specialized forms of occupational therapy that focuses on the presumption that before higher order processes can be acknowledged, the way the brain interprets basic sensory inputs must first be regulated (Warren et al. 2011). The treatment is individual-centered and focuses on somatosensory and vestibular systems (Fraatz & Durand 2021). The goal of treatment is that if the child can accept and tolerate basic sensory inputs, the chance of acquiring higher-level skills will develop over- time (Schlosser & Wendt 2008).

Auditory integration training deals specifically with the auditory system. Modulated music is repeatedly presented to a child using specific guidelines with the goal of increasing the auditory input tolerance, improving concentration and lessening auditory hypersensitivities. (Schlosser & Wendt 2008.) Music therapy has shown to be effective in the improvement of both verbal and non-verbal communication skills in addition to joint attention abilities, consequently improving the main symptoms of autism (Warren et al. 2011).

#### 4.3 Nursing care of children with Autism spectrum disorder

The process of becoming an expert nurse focuses on the combination of education, tutoring and experience. Nursing should be studied through the interpretation of actions and conditions as significant learning comes from tutoring received from experienced nurses and the application of theoretical principles. The foundation for understanding children with autism is openness and acceptance which comes automatically with regular encounters with patients requiring special needs. (Rooth & Oliver 2016.) The inability of a child to efficiently

process sensory stimulus, the unfamiliar hospital environment and the unfamiliarity of the nurse in dealing with sensory related challenges, may hinder timely diagnosis of medical illness and consequently, care delivery (Gupta et al. 2019).

Nursing students planning to work with children will meet and care for children with the autism spectrum disorders and difficulties in communication can lead to problems and misconceptions in care and assessment. The struggles a child experiences can make hospital visits unbearable, triggering feelings of anxiety. Nurses need to feel confident in their communication skills when caring for children with special needs. (Rooth & Oliver 2016.)

Children with the autism spectrum disorders benefit significantly from personalized and special supports to help develop skills and handle symptoms (Hudson 2006). Nurses often experience complexities during contacts with children with autism due to lack of knowledge on how to adequately handle challenging situations (Brown & Elder 2014). This could lead to nurses developing insecurities in their encounters with autism spectrum disorder. Nurses have a duty to care for all patients with an unbiased mind, the need for education and learning about autism is pertinent for nurses to become experts in their fields. Developing routines and structure focusing on how to care for children with autism spectrum disorder can further facilitate quality of care. (Rooth & Olinder 2016.)

The knowledge of the level and extent of the disability experienced by a child is important for nurses in order to facilitate treatment specificity and aid effective communication with the child (Miller et al. 2017). Nurses are obligated to provide high quality of care to children with autism spectrum disorder and effective communication is significant in providing quality of care. To effectively communicate with patients with autism, nurses should understand the diagnostic criteria and the major signs of autism such as repetitive behaviours, deficiencies in social interaction and language disability which will in turn, help to improve the nurse-patient relationship leading to positive outcomes for the parties involved. (Kangas et al. 2011.) A disruption in communication can lead to frustration and confusion and that is why it is important for a nurse to be able to discern behavioural outbursts as a sign of communication frustration. Being knowledgeable about the presence of coexisting conditions such as sleep disturbances, seizures, gastrointestinal disorders and psychiatric disorders is also important because these are often the reason for hospital visits for children on the autism spectrum disorder. (Brown & Elder 2014.)

#### 4.4 Approaches to facilitate effective communication

The importance of the need to develop strategies that will serve as guidelines for practice when working with children on the autism spectrum disorder cannot be overemphasized (Brown & Elder 2014). These will help nurses feel confident in their abilities to interact accurately and in turn, make hospital visits bearable for the children. The initial assessment of a child during first contact is an important strategy that will assist in making hospital visits less uncomfortable. Engaging in the initial assessment is essential for nurses because it may help prevent the development of difficulties and foster collaboration and continuity of care. Moreover, the use of autism specific care plans promotes safety and understanding. (Fraatz & Durand 2021.)

Through the assessment, details about the child's diagnosis, individual needs, routines, preferences and triggers that could lead to behavioural disturbances will be brought to light. This helps the nurses working with the child to develop autism-specific care plans containing interventions and supports that will encourage consistency in care and help the child feel heard and included. (Fraatz & Durand 2021.) Inclusion involves belonging and being heard. An included person can influence the course of their own lives and the services they get. In promoting inclusion, special attention is paid to the most vulnerable and discriminated against. If a vulnerable person can participate, influence and belong to the group, the conditions for inclusions are more likely to be good for others. (Finnish institute for health and welfare 2021.)

Initiating a connection with the child through play is a helpful way of providing a sense of calmness in an unfamiliar and stressful environment such as an hospital. Through play, the mind and the body are connected in a non-verbal way. (Fraatz & Durand 2021.) This approach is particularly helpful for children who are non-verbal or are in the process of becoming verbal. Play as an innate form of communication has the potential to help children effectively handle their fears and anxieties without having to use language. Squishy toys that light up and spin can be used by nurses during play sessions to help encourage the effective regulation of the child's sensory systems. (Brown & Elder 2014.)

The use of different modes of communication suitable to the cognitive level of the child is another means that can be used by nurses to ensure comfortable hospital visit (Brown & Elder 2014). It is important for nurses to learn how to effectively communicate with children on the autism spectrum disorder because an improper method of communication could make the child feel agitated and frustrated, leading to a mental breakdown that could threaten the safety of both the child and the attending nurse (Grandin & Panek 2013,15).

Discovering efficient ways that will assist during periods of change and transitions to prevent escalation is another strategy for nurses to ensure successful communication and comfortable hospital visits when working with children on the autism spectrum disorders (Fraatz & Durand 2021). It is common for children with autism to have delayed or the total absence of the theory of the mind which enables a person to understand the position of another, concerning matters relating to beliefs, knowledge, emotions, intentions and using that understanding to enhance social situations. When it is difficult for children to predict what to expect from other people or when they have troubles with communicating their wants and need, unexpected concerning behaviours could be displayed. (Grandin & Panek 2013, 27.) Ritualistic behaviours such as headbanging and biting especially in stressful situations, may lead to self-injury and aggression (Gupta et al. 2019).

## 5 Methodology

### 5.1 Practise-based thesis

This thesis was implemented as a practice-based thesis. A practice-based thesis consists of a written report and the research aspect. The best evidence is derived from well-made research. Practice-based research is one that involves a needs assessment wherein the commissioning party has major research questions that have been unanswered in previous studies, leading to a need to commission research from a specified party. The commissioning party must approve the research proposal and the method to be used in the research and both the commissioning party and the specified party undertaking the research will work in collaboration with each other to achieve desired results. (Remler & Ryzin 2021, 10-18.)

In a practice-based thesis, new information about a phenomenon is generated from research. The student acts as both a researcher and a product developer and the result of the research is usually a concrete product, for example, a model, a guidebook, a video, a brochure or an activity. The commissioning party and the researcher work together towards jointly agreed goals and output. Most of the research work is done in the working phase where the main component of the study such as the roles and responsibilities of the research parties, the information required to support and give directions to the work, the research methods and the documentation methods. (Salonen 2013, 16.)

Professional abilities such as planning, responsibility, independence, interaction, tolerance of uncertainty, tenacity and self-development are usually activated in the researcher undertaking a practice-based thesis. The guidance, peer support and feedback received at this stage is essential to the researcher to ensure the overall success of the project and professional development. (Salonen 2013, 20.)

A practice-based thesis was chosen because of the need to plan and implement something new and necessary. An educational video is the finished product of this practice-based thesis. The video contains vivid instructions for the nursing students in the nursing course target at immigrants in LAB University of Applied Sciences on how to effectively communicate with children on the autism spectrum disorder. Basic information about autism was discussed in the video. The production of the video was done in collaboration with the commissioning party which is LAB University of Applied Sciences.

## 5.2 The linear model

The linear model project framework was used in this practice-based thesis. In this model, the developmental process involved in the implementation of the research process will be described in a linear step-by-step plan. Research work progresses from goal definition to planning, implementation, and final evaluation of the work. The linear model is simple and straightforward. (Salonen 2013,15.)

In the linear model, research work is done according to the initial research plan and although it may not take into cognisance of factors that could change the way the work progresses, it is a technical-rational way of working that has been proven to be effective. The model has a built-in way of working and progressing in small steps, where everything cannot be planned exactly right before the start of the project and things become more precise and can change during the project. A depiction of the linear model is presented in figure 1. (Salonen 2013,16.)

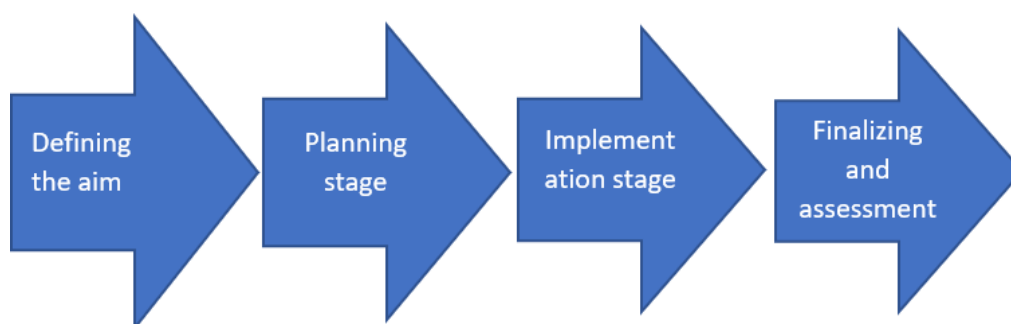


Figure 1. The linear model. (Converted from Salonen 2013, 20.)

The finished product which is an education video will be presented to the nursing students at LAB University of Applied Sciences for assessment and feedback. A questionnaire to assess the usability of the product will be drawn up as part of the thesis and it will be presented to the nursing students in the nursing course targeted at immigrants at LAB University of Applied Sciences. The data from the questionnaire response will be analysed using the qualitative research method.

### 5.3 Criteria for an educational video

The use of educational video for educational purposes have become popular in tertiary education and it has proven to be an efficient educational tool. Educational videos are continually being integrated into conventional courses. Before the production of an educational video, attention must be paid to the cognitive load of the content, how interested the students are in the topic to be addressed and such mechanisms to be included in the video to promote active learning. (Brame 2016.)

In the creation of an educational video, cognizance must be taken concerning the video production and design. Clear instructional intentions and research-based design guidelines must strictly be adhered to. It is important to operate from a storyboard because it helps to plan the sequence of the content of the video, gives a direction of the things to say, defines the application of visual components and gives an outline of how design principles will be applied. After preparing a storyboard, a script of the content of the educational video must also be drawn up. This is an important step because it will help to organize the contents of the video. When writing the script, keep a conversational tone and practise reading the script aloud. The script must be edited accordingly to promote a smooth delivery of the content of the video. The rate of speech must also be considered by ensuring that it is not too slow or too fast. (Columbia University.)

Important details concerning the design principles must be assessed when planning to create an educational video. It is good to ascertain that an educational video is the best option to decipher the chosen topic. Clear goals must be set about the purpose of the video to facilitate learning on the part of the students. The words, sounds and pictures to be used in the video must be carefully screened and selected. Visual characters that are unnecessary must be limited or totally removed. The video should be kept simple and conveniently short. To make the video engaging, captivating graphics and animations should be used. (Columbia University.)

#### Planning stage

The planning stage refers to the tasks executed to demonstrate the total capacity of a project. It describes and clarifies the objectives and establishes the approach require to accomplish set goals and objectives. It comes before an action is made. It is a collection of stages and correlated efforts that is put before the implementation of a project. A good plan determines the overall success of a project. (Serrador 2013.)

The thesis process started in February 2022 when contacts were made with the representative of the commissioning party and their expectations on the product of the thesis were

made known and their request, accepted. The idea of the video was formed from the specifications of the commissioning party which is an educational video focusing on how nurses can communicate effectively with children on the autism spectrum disorder, made in Finnish language for the nursing students in LAB University of Applied Sciences who speak other languages as their mother tongue.

The collection of necessary information from reliable sources for the thesis started and it continued well into Autumn 2022. Various studies about autism spectrum disorders, communication and nursing were reviewed and studied. The nursing field was the basis for research materials from printed and online sources. Scientific sources were an essential part of gathering data for the thesis because it provides an outline about how the subject of the research had been studied in the past.

Databases containing evidence-based research materials such as Duodecim, Terveystietokirjasto, CINAHL, Sage publications, PubMed, Finnish institute for health and wellbeing (THL), Finnish institute of social affairs and health (STM), EBSCO, Autismiliitto platform were employed in the implementation of the developing process. Clearly defined goals in conjunction with expansive research made the production of the product possible.

This thesis provides evidence-based knowledge about autism spectrum disorders and the video was produced in collaboration with the commissioning party after the initial assessment of the need for the product by the commissioning party. The commissioning party has indicated that there is a need to produce an educational video containing information about how nursing students can effectively communicate with children in the autism spectrum in simple Finnish language for the immigrant nursing students in LAB University of Applied Sciences.

After an agreement was reached with the commissioning party that the thesis output would be an educational video, the representative of the commissioning party gave specifications and recommendations about the contents of the video. The specifications were that the video will contain basic information about autism spectrum disorders and how nurses can effectively communicate with children under their care who have been diagnosed with autism, and that the language of instruction must be strictly in Finnish language because LAB University of Applied Sciences no longer offered English language nursing courses to students.

The representative of the commissioning party is privy to all matters relating to the product and its production. Contacts were made with the representative of the commissioning party and their specific preferences were duly considered. Extensive guidance was received from

the thesis supervision workshops and prompt evaluation of the theory part of the thesis was at planned intervals and these positively promoted the success of the thesis work.

Platforms that could be helpful in the production of an animated video were explored and a computer application used to make animated videos called Animaker was found suitable to produce the educational video. Animaker is a program that provides a platform to produce high-quality videos with little effort, cost and time. It gives people the power to showcase their creativity and bring their imagination to life. (Animaker 2014.) The application was studied and mastered before the commencement of the process of creating the video. A manuscript based on the theoretical framework of the research topic was drawn up before the video production commenced.

### Implementation stage

The implementation process involves the execution of activities targeted at achieving the initial plan of the project. Activities such as the identification and meeting the needs of the client, providing a high-quality product, and providing accountability for achieving outcomes while following evidence-based guidelines. (Newcomer et al. 63, 2004.)

The video was produced as an animation video using an animated video-making software, called Animaker. Following the concrete plans already made in the planning stage, executing this phase was not too complicated. The standards for creating an educational video were duly followed and they played a major role in the production of the educational video. Following the standards ensured that an interesting, educational, captivating, and easy to watch and follow video was made. Ready to use animated pictures, backgrounds, images and graphics provided by the software were used in the production of the educational video. The voice of the creator was not used in the video due to not being a native speaker of the Finnish Language. This is to prevent problems of mispronunciation, confusion and miscommunication associated with the inappropriate use of words, accents and intonations. A computerized native Finnish female voice was used in the presentation to avoid these problems and guarantee the audibility while preserving the dignity of the Finnish Language. A well-accented presentation will keep the listeners interested in the educational video. Although the educational video was made for the international students at LAB University of Applied Sciences, native Finnish students will also benefit greatly from the contents of the educational video. The script was however written in Finnish Language by the creator.

Animated images of children and adults of different racial backgrounds were depicted in the video and characteristics specific to Autism spectrum disorders such as repetitive movements and situations of sensory overload were also integrated into the video. Conscientious considerations were made in the determination of the appearance of the animated characters, catchy scenes, the length of the video, the voice of the explainer and the overall quality of the video. Finnish language was the language of instruction used in the video. Producing the video was not as easy as the creator has envisaged it to be. It was a demanding process that required hard work, dedication and determination. The critical thinking and imaginative skills of the creator were also valuable in the production of the educational video. The video was produced in different versions and the best version was selected.

Collaborations between the commissioning party and the creator of the educational video also took place during the implementation of this phase. The representative of the commissioning party was asked for specific suggestions on what they would like to be depicted in the educational video as production has begun. The recommendations and suggestions were duly accepted. The creator suggested that a translation of the presentation in English Language could be added to the video, but the representative of the commissioning party replied that this was unnecessary since the students were taught using only the Finnish Language and for this reason, no English Language translations were used in the video.

This stage also included the written part of the theoretical aspect of the project. Ethical guidelines prohibiting plagiarism and encouraging honesty were duly followed during the implementation of this phase. Evidence-based sources of information were used in the gathering of data related to the subject matter and a well-articulated thesis was written.

### Evaluation and data analysis

The concluding aspect of the project framework involves the evaluation and assessment phase. For this thesis, the concluding part was executed using the qualitative analysis method. The study embraced the thematic qualitative research approach in analysing the data generated from the feedback received from the final product. Thematic analysis seeks to distinguish the specific characteristics of the themes that constitutes the data. Themes are concepts that collectively recur in data. The thematic analysis method progresses from identifying and separating data, to allowing a researcher to make informed investigation of the subject matter. It involves identifying the themes and patterns consistent with a data through a process of coding and refining until a thematic structure of the data is realised.

Various steps are taken to aid the in the arrangement and visualization data to recognise emerging patterns and themes. (Jyväskylän yliopisto 2010.)

Firstly, the context of the generated data is vigorously studied, then emerging codes are generated to establish the features of the data. After the codes have been established, the categorization of the data into themes begins. Categorized themes are further reviewed in connection with the sub themes to ensure that the themes specifically represent the thoughts depicted in the sub themes and vice versa. Finally, the result from the data analysis can be presented. (Javadi & Zarea 2016.)

The initial plan according to the thesis plan was to show the video to the students and then receive feedbacks through a questionnaire. This plan was not realised due to the unavailability of time. Instead, verbal feedbacks on the video were received from a group of nursing students taking the family nursing course after watching the video in a classroom setting of about 30 students with the creator of the video physically present. The feedback has been added to this thesis. The feedbacks were promptly written down as there was no personal recording or collection of information from the participants. The feedbacks were anonymously generated. The thematic analysis method was executed through the writing of the generated feedbacks on paper. The assessment of the feedback then started by deciding on the kinds of themes they represented.

These feedbacks were transcribed into codes from which related themes were generated. The resulting themes typify the criteria to be followed when producing an educational video. The gathered feedbacks were studied, reviewed and grouped into four distinct themes. These include the perception of the video, the quality of the content of the video, the length of the video and the overall relatability of the video. Approximately 10 verbal feedbacks were received from the audience. The themes in the analysis table also represent the feedback received from the representative of the commissioning party. Following the thematic analysis approach, the generated data were accordingly assessed and analysed. The classified themes are depicted below in table 1.

Themes	Subthemes	Codes
Perception of the video	Display Visual appeal	Apparent Vivid Graphical Thoroughly thought out in terms of colour and composition.

Quality of the contents of the video	Educative content Illuminating presentation Academic material	Pertinent information about autism Information was well articulated Easy to understand Appropriate topic Comprehensible Specific
The length of the video	Duration	Precise Relatively short
The relatability of the video	Volume Clarity	Intelligible presentation Simple and clear language Comprehensibility of the subject matter Beneficial knowledge

Table 1. Thematic analysis

The feedback received from the representative of the commissioning party, a lecturer for whom the product was made is as follows.

*The video can be used in our paediatric course. The length was okay, not too long video. It is easy to rewatch. Pictures and colours were well chosen and are suitable for this video. (Family nursing lecturer 2022.)*

The lecturer requested for the permission to post the video on the school Moodle page so that the contents could be used for educational purposes.

Specific questions such as: Do you find the video usable for educational purposes? Did the video teach you something new? Is the quality of the video appropriate? These questions received the answer “yes”. A comment was made concerning the speed of the video being too fast. This comment was formally addressed that the creator tried to make the video slower, but it became too slow and that the current speed was the best the creator could achieve. The environment in which the feedback was received was unbiased because the creator had never met with any member of the audience and had no personal relationship whatsoever.

The specific questions asked were to ascertain if the purpose of the thesis which was to promote the competence of nursing students on how to appropriately communicate with pre-school age children with Autism spectrum disorder through the production of an educational video has been achieved. From the feedback received, the purpose of the thesis has been achieved. The questions were generated based on the aim and purpose for producing the educational video. Personal information was neither saved nor gathered in this project.

## 6 Discussion

### 6.1 Ethical aspect and trustworthiness

The way research is conducted lays a foundation for its acceptability and reliability. Good research must be conducted in a way such that it follows the ethical guidelines and practices obtainable in the scientific community such as diligent and accurate methods of research, recording and presentation of findings and the evaluation of research and its results. Researchers are required to give recognition to the work and achievements of other researchers and refer to their publications in an appropriate manner in their own research and in the publication of its results. Good research is carefully planned, implemented and reported. The data generated from the research is stored as required by the research community. At the beginning of the research procedure, the required permits will be obtained, and ethical evaluation will be carried out as required by the researchers. The parties involved in the research must agree on the rights of each party regarding the research agreement, authorship principles and responsibilities of the parties concerning the implementation of the research. (Finnish Advisory Board on Research Integrity 2012, 31-34.)

The purpose is to increase the student's professional growth and development of expertise in preparation for working life. (Salonen 2013, 9.) The student must have access to quality thesis guidance. In a product-based thesis, the student is rightly supported by the supervising teacher and the commissioning party. Data protection and ethical guidelines that will ensure the quality of the thesis must be provided by Universities of Applied sciences. At the beginning of the thesis process, it is important to create an agreement between the parties involved in the thesis and matters such as supervision, topic, costs, ownership, usage rights and confidentiality should be properly addressed. (Finnish Advisory Board on Research Integrity 2012, 31-34.)

The regulations, requirements and guidelines strictly followed in this practice-based thesis were based on ethical considerations consistent with this type of project. The thesis was conducted with honesty and due diligence. The methods used in the execution of the thesis met the standards according to set guidelines. Reporting and referencing the works of other authors and researchers were appropriately and respectfully done. No misconduct or dishonesty was practiced in this work. A contract guaranteeing the collaboration with the commissioning partner was signed by the parties involved in the thesis. This research was done by an individual in collaboration with the commissioning party and the members of the audience from which the feedback from the video was generated. The processes involved in

the thesis were conducted in accordance with the ethical guidelines and in an honest approach. The parties involved in the thesis were respectfully treated throughout the thesis process. Commenting on the video was discretionarily and anonymously observed. The purpose of the thesis was to promote the knowledgebase of the immigrant nursing students at LAB University of Applied Sciences without causing harm to the parties involved or the environment at large. Personal information was not collected during this process. The parties involved in the thesis process include the representative of the commissioning party and about 30 students from which the feedback from the video was generated. Collected feedbacks were analysed following ethical standards. No third party is privy to the contents of the feedbacks received. Appropriate ethical guidelines and trustworthiness were duly followed during the entire thesis process.

The author has previously worked with children with autism spectrum disorder and has consciously ignored previous knowledge which could potentially affect the study. The author took a neutral stand during the collection of feedbacks in order not to influence the participants.

## 6.2 Conclusion and recommendation

The aim of producing an educational video that will contain relevant information about how to effectively communicate with children with the Autism spectrum disorder which will be immensely useful for nursing students has been achieved. The recommendations and expectations of the commissioning party were realised and duly incorporated into the educational video. The thesis accentuated the important roles played by nurses and the need for nurses to become aware about Autism spectrum disorders and get familiar with the communication mechanisms that have been proven to be efficient when working alongside children with autism. The elaborate work undertaken in the execution of this thesis have provided the nursing students with information on the appropriate methods of overcoming communication barriers and making hospital visits less uncomfortable for these children. It is crucial to seek information about Autism spectrum disorders and how to effectively support interaction when caring for children on the Autism spectrum (Kangas et al, 2016).

The thesis highlighted the insufficiency of the current nursing curriculum in tackling how students can efficiently communicate with children on the Autism spectrum and the need to provide evidence-based recommendations on how to deal with these undefended group. Teaching the rules of dialogue and following of cues is an important way of empowering nurses caring for children on the Autism spectrum (Kangas et al. 2016). Autism affects about

1-2% of the general population in Finland and yet, the disorder hardly gets recognised in the nursing curriculum. Nursing students are expected to develop ways to deal with children on the Autism spectrum all by themselves. This practice is wrong and needs to change. It is however important to point out that this change is required in both in the practical and academic settings. This will involve the collaboration of the nurse educators and hospital administrators. Providing an evidence-based framework for working with children on the Autism spectrum will promote efficient and effective care delivery.

The study experienced limitations in the process of searching for evidence-based sources of information on the subject matter. While there are numerous materials on Autism spectrum disorders, limited information was found on how nurses can actively help these children when caring for them in Finland and as such, sources from outside Finland were mostly used. Regardless of this limitation, the information contained in this study have significant implications on the subject matter. The product can be improved upon, edited and shared with nursing students, nurses and lecturers teaching the family nursing course at LAB University of Applied Sciences.

Limitations were also faced as a result of the project framework used for this thesis. It is a framework that does not recognise factors such as the cultural, humanitarian and societal factors even though they are heavily embedded into the process of the research. For example, an automated voice had to be used in the video to preserve the dignity of the Finnish Language, and by extension, the Finnish culture. The linear model project framework dictates that research work progresses from goal definition to planning, implementation, and final evaluation of the work. The linear model is said to be simple and straightforward. (Salonen 2013,15.) Using an anonymous questionnaire for the purpose of generating feedbacks from the audience would have been a more efficient way of generating data in retrospect in order to get more unbiased feedback but overall, the verbal feedbacks were efficient too and the chance of the feedbacks being biased are very low because no relationship existed between the creator and the participants.

The strategies presented in this thesis and the final product in form of the educational video are not absolute and do not serve as a standard for treating every child on the Autism spectrum. The disorder affects every individual in varying levels and what works a child might not work for another despite both being on the Autism spectrum. The means of supporting communication and interaction with children on the Autism spectrum disorder must be based on personalised and specific scrutiny (Lacroix et al. 2016). For this reason, it is recommended that discretion must be exercised when caring for a child on the Autism spectrum based on the dictates of this study in order to appropriately meet the individual needs

of these children. Professional experience in combination with quality interdisciplinary approaches and education of nursing students are the major factors that will make a difference in the care delivery to children with the Autism spectrum disorder.

The study is appropriate for further research and development because of the lack of information often experienced by nurses when caring for children with children on the autism spectrum. New perspectives can be generated on the subject matter. An idea for future studies could focus on exploring the reasons for the lack of inclusion of autistic perspectives in medical model approaches in Finland.

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Appendix 1. Educational video on communication.

Miten kommunikoida tehokkaasti autismikirjon häiriöistä kärsivien lasten kanssa



