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Functionally oriented Music Therapy (FMT) as a method of improving children’s ability to function at school

Thesis (15 hp)
in Functionally oriented Music Therapy (FMT)

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Abstract

In a school system with fewer teachers, larger groups, and less resources, functionally oriented music therapy (FMT) could be a useful method of helping children function better at school. In what way can FMT help improve children’s ability to deal with the challenges facing them at school? During a project that lasted for 26 weeks, two children from a Swedish preschool class were offered individual FMT once a week. The group as a whole was divided in two and offered group music (according to the Music in preparation for school (MUSIC) programme) every second week. There was an interview with the teacher, along with an assessment of function for the two individuals, at the beginning and at the end of the project. The two individuals receiving regular FMT functioned better at school at the end of the project. FMT could be an effective resource to help improve children’s ability to deal with the challenges facing them at school.

Keywords: Functionally oriented Music Therapy, FMT, children, school, classroom, neurodevelopment, sensory perception, motor development, sensorimotor, sensory integration, adaptive response, neurophysiology, neuropsychology
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1 Introduction

1.1 My background

My early musical background consisted of singing in the school choir, dancing with the local folk dance group, and reluctantly learning to play the accordion. I dutifully went to my weekly accordion lessons until I reached an age when I felt it was too much of an embarrassment to be carrying around an accordion case at school. I enjoyed playing music, but there was no social context to keep my interest alive. I then became a very active music listener, until, at the age of 20, while studying biochemistry at the Uppsala University in Sweden, I discovered Irish traditional music. I bought a tin whistle and suddenly had the major, jubilant realisation that it was possible to actually create music myself. This feeling was entirely different from the accordion lessons and the choir singing: this was me making music as an independent individual, in charge, motivated, and connecting with music that I had strong feelings for.

At the age of 23, I moved on to the fiddle, and I now play the fiddle for a living. However, I have no formal music qualifications, so in 2010 I decided to look for a suitable course that would expand my career options while at the same time allowing me to continue doing music. I heard about the functionally oriented music therapy (FMT) courses at the Ingesund School of Music in Arvika, Sweden, and spent the next few months trying to learn to play the piano, as this was one of the requirements.

While living in Scotland, I had been involved in music therapy through Alpha Munro, who does a great amount of music therapy work around Inverness, and I went to several Orff Schulwerk short courses organised by Alpha and Music Trains. I also worked for Fèis Rois as a teacher of traditional music in schools around the Highlands of Scotland as part of the Youth Music Initiative programme. I feel that a music therapy qualification will allow me to use my music skills and previous teaching experience to help others transform their lives in a positive direction.
1.2 Purpose

My aim was to observe and assess two pupils in a Swedish preschool class (i.e. a “förskoleklass” of children aged 5-6 at the beginning of the school year) in order to find out if and how FMT could help improve children’s ability to deal with the various challenges facing them at school.

1.3 Outline of work

From the beginning of October 2012 to the end of March 2013, I carried out one FMT session per week (15-20 minutes each) with each of the two children. I also carried out one MUSC group music session per week (20-30 minutes each) with the class divided in two, so that each child participated in a group music session every second week. At the beginning of the project, I interviewed the teacher and asked her a number of questions regarding the two children. At the end of the project, I again interviewed the teacher and asked her the same questions regarding the two children. There was an assessment of function (also called an “observation”) carried out for each child at the beginning and at the end of the project.
2 Background

2.1 The history of music therapy

The idea of music as a therapeutic tool goes back as far as there are written sources, and ancient healing rituals involving sound and music have survived in many cultures. Myths and narratives on the healing powers of music are numerous in most cultures. (Wigram, Nygaard Pedersen, Bonde 2002:17) In the Bible, for example, David heals Saul with his harp playing. The tradition in Western cultures to maintain that music and health (physiological as well as psychological) are closely related goes back to Greek philosopher Pythagoras (circa 500 BC) and early Greek medical science of this time. (Wigram, Nygaard Pedersen, Bonde 2002:21) This tradition was not broken until the development of modern natural and medical science, based on empirical and statistical principles, in the 18th and 19th centuries. However, medicine, health psychology, and music therapy are now once again approaching each other, with the realisation that man is a unity of body, mind and spirit placed into a social order, with music having comprehensive effects and meaning on all levels. (Wigram, Nygaard Pedersen, Bonde 2002:21)

Modern music therapy, as we know it in a number of countries today, has its roots in the USA after the Second World War, when music therapy was used to rehabilitate war veterans. The first European music therapy qualification was offered by the University of Music in Vienna in 1959. Methods, systems, and theories on how to use music in a therapeutic context have been developed by Juliette Alvin, Paul Nordoff and Clive Robbins, Helen Bonny, and Mary Priestley, among others. (Ruud 1980:25) Juliette Alvin worked in psychiatry and developed a foundation model for improvisational music therapy between 1950 and 1980. She stressed the importance of an equal term musical relationship between the client and the therapist, sharing musical experiences at the same level and having equal control over the musical situation. There is also the Bonny Method of
Guided Imagery and Music, which is an approach to music psychotherapy where imagery is evoked during music listening. (Wigram, Nygaard Pedersen, Bonde 2002:115)

Paul Nordoff and Clive Robbins were pioneers of music therapy who worked in several countries, including the United Kingdom, the USA, Australia, and Norway. They believed that in each person, regardless of disability, there is a part that can be reached through music and called into responsiveness, thereby enabling healing. Nordoff and Robbins created assessment tools including scales of musical responsiveness, client-therapist relationship, and musical communicativeness. (Wigram, Nygaard Pedersen, Bonde 2002:251)

Bruscia has discussed the distinction between "music as therapy" and "music in therapy". In “music as therapy”, music serves as the primary medium and agent for therapeutic change and exerts a very direct influence on the client and his or her health. In this approach, the therapist’s main goal is to help the client relate to and engage in the music. The therapist serves as a guide who prescribes the appropriate musical experience for the client. On the other hand, in “music in therapy”, music is not only used for its own healing properties but also to enhance the effects of the client-therapist relationship or other treatment modalities, e.g. verbal discussion. Here music is not the only or primary agent of change, but the music provides the context or background which facilitates the therapeutic experience. (Bruscia 1998)

The music therapy methods mentioned above would be described as "music as therapy". Examples of music therapy methods where music is used “in therapy” include neurological music therapy (NMT), developed by Michael Thaut at the Centre for Biomedical Research in Music at the Colorado State University, USA. In NMT, music and rhythm are used to directly affect brain functioning, focusing on specific, non-musical goals such as cognitive and motor functions. It is defined as the therapeutic application of music to cognitive, sensory and motor dysfunctions due to neurological disease of the human nervous system. (Thaut 2005:126) NMT is connected to the World Federation for NeuroRehabilitation, and Thaut is the president of the International Society for Clinical Neuromusicology, which works to help improve the understanding of how music educates and re-educates the brain.

In NMT, music is regarded as a stimulus that influences the neurophysiological basis of cognition and sensorimotor functions. (Thaut 2005:116) The importance of sensory
stimuli is emphasised also in sensory integration therapy (SI), but with the difference that
music is not specifically used. Although singing and musical instruments are occasionally
used, SI is not a type of music therapy, but still has many similarities to FMT. In SI and
FMT alike, it is believed that sensory integration and development requires the client’s
own initiative when actively searching for sensory stimulation. SI was developed by
American occupational therapist Jean Ayres in the 1970s, and SI therapists use tools such
as swings and roller scooter boards to provide sensory stimulation and an opportunity for
the brain to learn to organise the sensory input. (Ayres 1979:141-142)

Another non-musical therapy method with similarities to FMT is occupational therapy
(OT). OT is used in a number of countries, including Sweden and the UK, as a way of
enabling people to retain or increase their functional and mental abilities. This method is
used for a wide range of problems, such as coordination difficulties, physical disabilities,
brain injuries, mental health problems, and sensory difficulties. In the case of sensory
difficulties, the work methods also have some similarities to SI, such as the use of swings,
trampolines, tunnels, and balance balls (e.g. lying on a balance ball while searching for an
object in a bowl of sand, thus combining the vestibular and the tactile senses). The aim of
these OT exercises is to improve coordination, strength, and postural control so that the
client can improve his or her everyday function. (British Association of Occupational
Therapists and College of Occupational Therapists 2011)

In Sweden, there are two universities offering music therapy training: there is a
graduate level music therapy course at the Royal College of Music in Stockholm
(psychotherapeutic practice), and there are three accumulative one-year-courses in FMT at
the Ingesund School of Music in Arvika (distance learning, half speed), currently
relocating to Karlstad University.

2.2 Music and the brain

As shown above, the relationship between humans and music goes a long way back.
Throughout human history and across all cultures, music has been produced, used, and
enjoyed. (Peretz 2006) Despite this, the view of music as a biological function rather than a cultural invention is quite recent and has been discussed by Wallin, Merker, and Brown. They divide the new field of biomusicology, a term coined by Wallin in 1991, into three main branches: evolutionary musicology, neuromusicology, and comparative musicology. Neuromusicology deals with the nature and evolution of the neural and cognitive mechanisms involved in musical production and perception. (Wallin, Merker 2000) Recent research has led to a need to rethink the role of music in therapy and medicine, showing us the possibility of using music as a powerful sensory stimulus able to engage the brain in retraining neural and behavioural functions that can then be applied to non-musical contexts in therapy and medicine. (Thaut 2005:61) For example, children with autism were shown to perform significantly better during a sustained attention task while listening to music compared with no music. Another study showed that when working to overcome visual neglect due to stroke or traumatic brain injury, musical stimulation was more beneficial than other sensory and cognitive cues, such as instructions and speech or tactile cues. (Thaut 2005:77)

A number of studies, for example on patients with Parkinson’s disease and children with Cerebral Palsy, have shown that rhythmic stimulation can influence and regulate motor control in complex and beneficial ways. Patients with traumatic brain injury have been reported to show improved gait patterns after four weeks of rhythmic-musical training. (Thaut 2005:67) Another study showed that auditory rhythm had a positive effect on muscle activation patterns during arm-reaching movements. (Thaut 2005:63)

Neurophysiological research has shown that music can arouse and excite spinal motor neurons as a type of priming effect that sets the motor system in the brain in a state of readiness. This helps to prepare for movement. Furthermore, the timing of muscle activity can entrain, i.e. “lock into”, rhythmic sounds, thereby enabling the rhythm to act as a physiological template for the timing of movements. (Thaut 2005:79) The motor system is very sensitive to arousal by the auditory system, and neural impulses of auditory rhythm project directly into motor structures. (Miell, MacDonald, Hargreaves 2005) Music provides a stimulus that can compensate for malfunctioning internal processes and access compensatory networks in the brain. This may even help to build new pathways in the brain, changing the brain in the process. (Thaut 2005:79)
Scientific findings like these have lead music therapy interventions onto more physiologically grounded theories on how music engages the brain and how it can be used to change neural processes in therapy. (Thaut 2005:67) Instead of music therapy being viewed as a complementary discipline that might enhance other forms of therapy, it can now be applied within a neuroscientific framework and focused specifically on areas such as motor therapy, speech rehabilitation, and memory and attention training. (Thaut 2005:115) Previously, and even today, there has been an emphasis on the emotional components of music therapy, but this recent research has led to the revelation of other areas of cognition that could also be considered important in music therapy, such as learning, attention, and memory. Music and rhythm seem to have an effect also in these areas. (Thaut 2005:73)

As a result of combined research efforts, it has been suggested that music is indeed related to core functions of the biology of the human nervous system and therefore must be viewed as a biological fact, not just as a cultural phenomenon. In both the cultural and the biological area, music is a powerful communicator. (Miell, MacDonald, Hargreaves 2005)
3 The FMT method

3.1 Background

Functionally oriented music therapy, FMT, is a Swedish music therapy method that was created by Lasse Hjelm in 1975-1976 and developed during the 15 years he was working with children and young people with e.g. Cerebral Palsy at the Folke Bernadotte habilitation department at the Uppsala University Hospital in Sweden. Hjelm, with a background as a jazz pianist and as a music teacher in schools and in a psychiatric hospital, had found that music could be used as a powerful tool to activate people with severe disabilities, and he set out to develop his ideas with the intention of “playing music together with” his clients rather than “playing music for” his clients. He was convinced that in each individual, regardless of abilities or disabilities, there is a deep, basic desire to interact, as long as there is another individual to interact with. He realised that his music therapy work would have to be carried out on a one to one basis, meeting the other person at his or her own level of development, without judgement and without time constraints, and with no preconceived notion of right or wrong. Instead, it would all be a matter of development. The department was reluctant to let Hjelm teach on an individual basis, as the general opinion was that “the group makes the society”, but he managed to push through with his counter-argument that “the individual makes the group and the group makes the society”.

Hjelm’s first client was a 12-year-old girl with Cerebral Palsy, called Annika. He began by studying her in the classroom, where Annika was able to use very large and slow movements of her arms to roughly point to symbols on a chart in front of her. Hjelm decided to try and copy this situation in the music room, and, on their first musical meeting together, placed a bass drum with a large red dot in front of her. He played three notes on the piano as a question, and then waited. After many seconds Annika had managed to lift her arm and drop it onto the drum, with Hjelm immediately confirming her reply with a
chord on the piano. He again played his three-note-question, and the procedure was repeated a number of times. A dialogue was established between the two individuals in the dyad, and Hjelm and Annika were playing music together. Over time, as Annika’s movements became more controlled and stable, the size of the drum could be decreased and the number of drums increased. Hjelm learnt that he was able to activate his clients without words, with the action being born out of the tension created in the music. (Hjelm 2005:26-44)

3.2 The theory behind FMT

3.2.1 A therapy method based on Piaget’s theory of cognitive development

When Hjelm was invited to work at the Folke Bernadottehemmet in Uppsala in 1975, he began studying Jean Piaget’s ideas of cognitive development and felt a great connection to Piaget’s way of thinking. In his developmental theory, Jean Piaget describes the intellectual development from early childhood, with its simple sensor-motor activities, to the abstract thinking of the adult. He regarded intelligence as a specific form of adaptive behaviour, i.e. the type of behaviour that benefits the individual’s adjustment to its surrounding, and that organises and reorganises his or her thoughts and actions.

According to Piaget, the adaptation takes place in stages, and the transfer from one stage to another occurs as a result of the child’s interaction with its surrounding environment. (Piaget 2006) Children will construct an understanding of the world around them, and then experience discrepancies between what they already know and what they discover in their environment. Piaget labelled the building blocks of knowledge gathered by the child schemas. When a child’s existing schemas are capable of explaining the surrounding situation, the child is said to be in a state of equilibrium, i.e. a state of cognitive/mental balance. As the child experiences new situations, its behaviour will be
expanded, restructured, and organised by the two processes of assimilation and accommodation. Assimilation occurs when an existing schema is used to deal with a new situation, and new information can be added to this already existing schema. Accommodation occurs when the existing schema does not quite fit the new situation and therefore needs to be adjusted. If assimilation is not possible, i.e. if the new information cannot be fitted into existing schemas, the result is an unpleasant state of disequilibrium. Since the state of disequilibrium feels uncomfortable and frustrating to the child, he or she will seek to restore the balance by mastering the new situation through accommodation, i.e. by developing new schemas that can handle the situation. This search for equilibrium takes place in all new situations, and is therefore what drives the learning process. (McLeod 2009)

Lasse Hjelm incorporated into his own work Piaget’s view that a transfer to the next developmental stage is only possible if the previous stage is securely in place. (Hjelm 2005:74) He used his therapy method as the basis on which he gently guided his clients towards the next stage of development. Each step of the way would need to be firmly established, always by repeating the activity many times. He stressed the importance of repeating an action many times in order for the experience to be established and the movement automated, and quoted Piaget’s idea of how the child develops through actions that provide experiences which lead to maturity. While studying children playing by themselves, Hjelm noted how they repeat specific actions many times during play, and he decided to offer his clients suitable circumstances to develop through repetition. (Hjelm 2005:59-60) At each stage, he would stress, the individual, sensorimotor experience must be well established before new skills can be acquired. (Hjelm 2005:78)

In the spirit of Piaget’s theories, Hjelm believed in focusing on the process of development rather than the end product of it, and in assessing the level of a client’s development so that suitable tasks could be set. By setting suitable tasks, he wanted to create disequilibrium in the client so that the client’s own desire for equilibrium would drive the development.
3.2.2 Sensory integration and Jean Ayres

Jean Ayres was the American occupational therapist who during the 1970s developed the sensory integration therapy method (SI). She believed that learning and behaviour problems in children are often due to inadequate sensory integration, where the child is unable to organise its sensory input in a meaningful way. All the incoming sensory information must be organised in the brain for a person to be able to create perceptions and to be able to learn. If organisation is not achieved, Ayres believed that the ensuing internal chaos would make it difficult for the individual to interact with his or her surroundings in an efficient and satisfying way. (Ayres 1979:5)

There is a constant stream of sensory input into the brain, not just from the ears and the eyes but also from the rest of the body. The vestibular sense registers the gravitational pull and the body’s movements against this force, and the proprioceptive sense provides information regarding how muscles and joints are angled within the room. Sensations are streams of electrical impulses, and the brain must integrate these sensory impulses in order to turn the sensations into meaningful perceptions. Sensory integration is the reason we are able to perceive our own body, other people, and objects around us. (Ayres 1979:6)

Every child is born with the basic capacity for sensory integration, which is then developed during childhood by interaction with the surroundings. Ayres believed that the main exercise for the development of sensory integration is the adaptive response: a purposeful, goal-directed response to a sensory experience. In FMT, the adaptive response is utilised when a drum is placed in front of a client and the client hits it with a drumstick or a beater. The client might see the drum with his or her visual sense, hear the musical question from the piano, use the vestibular sense to stay balanced and the proprioceptive sense to lift the arm and aim at the drum. The feedback (“did I hit the drum or did I miss it?”) comes in the form of all these senses. You might hear if you managed to hit the drum, because there will be a sound, you might see if you hit it, and you might feel it in your hand and in your body. If the feedback shows that the beater never hit the drum, the client will have to adapt the response to the visual and auditory stimuli and try again, maybe by moving the arm slightly and readjusting the balance. During the adaptive response a challenge can be mastered, and the ensuing feeling of satisfaction will strengthen the neurological connections that were involved in the successful action,
helping its automisation. The next time the same action needs to be carried out it will be a little bit easier, and capacity can be freed up and used for other purposes. Something new has been learned, and the brain develops and organises itself so that sensory integration can take place. (Ayres 1979:7)

Ayres believed that children enjoy driving their own development by carrying out gradually more complex adaptive responses, and that they actively seek out sensations that will help organise the brain, such as running and jumping. She called the first 7 years of a child’s life the years of sensorimotor development, since the adaptive responses are more motor than mental during these years. As the child grows older, mental and social responses replace some of this sensorimotor activity, but the brain’s social and mental functions are always based on a foundation of sensorimotor processes. (Ayres 1979:7)

For a child with poor sensory integration, starting school could mean the revelation of the true extent of the problem. The child might find it difficult to remember instructions, hold a pen, ignore distracting sounds, participate in PE, get on with the other children, or move from one task to another. The internal chaos could make it impossible to concentrate and might show itself as hyperactivity. Without well-developed sensory integration, it is very difficult to move onto the so-called “basic skills” of reading, writing, and counting, which are in fact highly complicated neurological processes. This child might have to struggle more than the other children, it might be labelled badly-behaved, find it hard to make friends, and could experience low self-esteem. (Ayres 1979:11-12)

Speaking to the child, telling it to behave, or offering rewards or punishments is of no use in this situation, as the difficulties are based on subconscious neurological processes that cannot be governed by will. Ayres stressed the fact that words and thoughts are unable to organise the brain. The only way to overcome these problems is by experiencing sensations and practising adaptive responses. Based on this conviction, Ayres created her sensory integration therapy method (SI), where children are offered sensory stimulation (concentrating on the vestibular system, muscles, joints, and skin) and guided physical interaction with the surroundings in order to strengthen sensory integration. A child with this type of problem needs an environment created especially for his or her nervous system, so that he or she will manage to integrate sensations in a way that has been impossible in normal everyday life. (Ayres 1979:141) This will create a feeling of success and satisfaction, and help improve self-esteem. The aim of SI therapy is not to learn motor
activities, but to develop the ability to learn motor skills and to develop the sensorimotor foundation needed to function in life. (Ayres 1979:143) These thoughts are very similar to the ideas on which Lasse Hjelm based his FMT method.

3.2.3 Britta Holle and Gunnar Kylén

Among other theoretical ideas that influenced Lasse Hjelm are those of Britta Holle and Gunnar Kylén.

Britta Holle, Denmark, believed that the child’s motor development follows a certain pattern, where each step builds on the previous step. Motor skills and emotional function develop through perception, which in turn leads to the development of cognitive functions. This, in turn, allows for further perceptive learning. (Magnusson, Molin 2008)

Holle stressed the importance of physical activity and of practising basic motor skills, such as crawling, in order to develop perception and cognition. In her opinion, it is not possible to skip a stage of the developmental process, but different individuals might spend different amounts of time on each stage. (Magnusson, Molin 2008) You cannot force a child to develop. Instead you should strengthen and solidify the current developmental stage as well as possible to facilitate the natural transition onto the next developmental stage. (Larsson 2004)

Swedish psychologist Gunnar Kylén was a leading authority on learning disabilities. He was interested in the holistic view of the individual, and studied the individual’s interaction with the surrounding environment. (Vårdguiden 2012)

3.3 Method

The FMT method is based on the idea of creating a room, or a space, where structured sensorimotor experiences can take place in a safe and fun environment free of demands and judgement. (Smideman 1999) This space is called the FMT room. Lasse Hjelm believed in the importance of recognition, and talked of recognition as being the single
most important factor for creating a sense of security. The FMT room needs to look the same every time the client arrives. The instruments need to be positioned in the same places as usual, and all curtains should be drawn in order to exclude visual distractions and to create the same brightness in the room regardless of the weather outside. The room should be as “clean” as possible with regards to decorations, so as not to create unwanted sensory stimulation that the client will be forced to spend energy on sorting. Instruments that are not in use can be covered up so that they provide less of a distraction.

The FMT therapy method is a non-verbal method, with no words being spoken inside the FMT room. This creates a peaceful atmosphere in the room, and provides an often welcome respite from other noisy environments. In line with Jean Ayres’ thoughts (see page 16), Lasse Hjelm believed that “you cannot use words to organise a brain – you cannot use words to organise a human being”. (Hjelm, translation by Ann-Sofie Jonsson)

During an FMT session, there is no verbal judgement, no verbal encouragement, and no verbal reproach. There is no “right” and no “wrong”. Instead, the developmental process is guided by the client’s own personal experience within the musical dialogue. It is the client’s natural urge to interact with the surrounding world, at his or her own pace, that drives the development towards increased maturity. Furthermore, the absence of verbal communication and verbal instructions creates greater opportunities for spontaneous responses, with more direct connections to, and a more direct effect on, sensorimotor areas of the brain. (Smideman 1999) With no need for the immensely complex task of linguistic and intellectual interpretation, a larger part of the brain can instead focus on the sensorimotor experience.

Eye-contact is also avoided during the FMT therapy session, in order to avoid the client feeling “observed” and pressurised. A glance can reveal many feelings, such as approval, reproach, encouragement, surprise, and empathy, and the therapist’s personal, spontaneous feelings should not be allowed to interrupt the client’s developmental journey.

The FMT therapist wishes to leave the client in as much peace as possible, while at the same time radiating positive and supportive energy. Body language should be kept to a minimum, and there should be no “gestures”, such as pointing, as an attempt to help. This would be what Lasse Hjelm called “instruction”, i.e. teaching, and this, he stressed, has no place in FMT. His intention was not teach, as something that is taught will have to be constantly practised in order not to be forgotten. In FMT there is no teaching of new
behaviour – FMT helps the client to develop a new, more beneficial behaviour. This means that the client will not revert to previous developmental stages, and the positive effects of the treatment will stay with them. (Larsson 2004)

In practice, this means that the aim of FMT is to create favourable conditions for the client to find their own solutions. Lasse Hjelm wanted to create the right conditions to allow for:

- **personal reaction** - without the wishes and demands of other people
- **personal action** - without instructions
- **personal thoughts** - without the words and rebuke of other people
- **personal planning** - without physical influence

(Hjelm 2005:68, translation by Ann-Sofie Jonsson)

All the music used in FMT is composed by Hjelm himself. Following an experience with a client reacting very strongly in a negative way to a particular, well-known song, the power of music was confirmed to Hjelm. He decided to avoid all commercial music and instead compose his own, original melodies that would not conjure up any associations. (Hjelm 2005:63-64) The melodies are very simple, and no improvisation is allowed. This means that the treatment of a client is not tied to a specific FMT therapist (a colleague can take over during illness, for example), and further establishes that in the FMT method, music is used as a tool, not as a goal.

Always using the same musical pieces is another factor of recognition that adds to the feeling of safety inside the FMT room. At the start of every session, the same melody is played as a welcome.

Each melody is used in conjunction with a specific positioning of the drums and cymbals in front of the client, or with a specific use of the whistles by the client. The melody plus the specific positioning of drums and cymbals, or use of whistles, is what Hjelm calls a “code”. The therapist uses these codes to guide the client’s development, and to expand the range of perception and motor skills and develop the breathing.

The reason Hjelm chose the drum as the main musical instrument of the FMT therapy method was its inherent ability to attract the interest of most people, but especially children. With one of the goals of FMT being to stimulate a response from the client, the
drum is perfect for satisfying the child’s wish, or indeed need, to make a noise. Furthermore, a drum is not tied to a specific note, chord, or genre, and it is reasonably easy to hit. Drums come in many different shapes and sizes, and can be moved, raised, lowered, and angled in a number of ways, allowing the therapist to create the most beneficial conditions, best suited to the purpose, for the client. (Hjelm 2005:129)

Along with the drums and cymbals, the FMT therapist provides a great number of drumsticks or beaters of different sizes, shapes, and weights. The handles of the beaters might be round, square, or extra thick, and the ends might be fitted with balls, e.g. tennis balls, that provide weight and a stimulating bounce when hitting the drum. Each client is different and needs beaters that are appropriate for the purpose.

Hjelm especially emphasised the importance of using a suitable chair, in order to achieve a beneficial sitting posture. The seat should be adjustable so that it can be adapted to the client’s needs. (Hjelm 2005:130)

The whistles used in FMT are intended to stimulate the client’s breathing, exercise the muscles involved in the breathing (which in turn improves posture), and to activate and stimulate muscles and nerve endings in and around the mouth. Some of the whistles are relatively easy to play, such as the recorders, and some are harder to use, such as the train
whistle and some of the bird whistles. In addition to their usefulness, the clients often find the whistles, with their varying sounds, fun to play. (Hjelm 2005:130)

3.4 The sensorimotor benefits of FMT

The musical dialogue in combination with the various FMT tools form the basis of the therapy work, and allow the client to experiment with physical movement and sensory integration in a way that could help improve functional abilities. The brain and the nervous system of the client will be provided with impulses that lead to new discoveries and experiences. (Hjelm 2005:188-191) Through FMT, the client is able to experience a mixture of different types of sensory input, and through this sensory mixture, in combination with physical movement, an understanding of the body, the surroundings, and the relationship between the two, can be developed. Hjelm believed that it is the movement itself that “creates the room” and shapes the brain’s image of the body. He regarded movement as being the most important ingredient in his therapy work. (Hjelm 2005:158)

The first type of sensory stimulation that we think of in connection with FMT is perhaps that of the auditory perception. By using different types of drums, drumsticks, and beaters, and with the piano, the FMT therapist is able to create differences in sound quality, volume, and pitch, and the client can practise listening out for tempo, continuity, direction, and distance.

The client’s visual perception will be stimulated by the shape, size, colour, and angle of the instruments, the way they are placed in relation to each other, and by the way they look when moving between them.

By using different types of drums, drumsticks, beaters, whistles (with different mouth pieces), and seating material, the tactile perception is stimulated. The varying shapes will feel different against the skin, and one might feel cold while the other feels warm.

FMT also offers a chance to perceive vibrations, with vibrations being transferred from the drum, through the drumstick or beater, via the hand, and into the body. The
whistles will also transfer vibrations via the lips, and there will be vibrations originating from the piano travelling towards the client’s body.

There is also stimulation of the proprioceptive perception (i.e. information from muscles and joints regarding their exact position at any given time) when the client aims at the drum and intends to hit it. Further stimulation can be created by changing the position of the body, e.g. by changing the height or the angle of the seat, varying from sitting to standing and back to sitting, or by placing wooden blocks under the client’s feet. The position of the drums and cymbals can also be varied, so that the posture must be adjusted, and beaters of different weight can be used.

The vestibular system and the perception of balance and movement can be stimulated by having the client sit on a balance cushion or a balance ball, or stand up. For some clients, even sitting upright on a hard-seated chair can be a challenge to the vestibular system.

Even the visceral perception (signals from bodily organs) will be stimulated when the brain regulates levels of oxygen etc. during the therapy session. (Smideman 1999)

While providing sensory stimulation, the variations mentioned above also provide the chance of extensive motor activity. Gross motor skills can be developed while working on breathing, balance, stability, expanding movements, bilateral coordination, crossing the midline, coordination of hands and feet, and trunk rotation. Fine motor skills can be developed while working on hand position, grasp, flexibility of wrists, and eye-hand coordination.

The combination of sensory stimulation and activation of motor skills, along with personal motivation with regards to reactions, action, thoughts, and planning, create a neuromuscular dialogue that leads to synaptic development. This in turn structures and reorganises the brain, and leads to the development of functions, not only on sensorimotor levels but also on cognitive and emotional levels. (Smideman 1999)
3.5 Observation points

When Hjelm developed his FMT method he was greatly interested in children and in the process of the individual developing as a human being. There are a large number of separate functions that must be coordinated for an individual to function as a whole. What may seem as small insufficiencies could build into larger problems that exclude a person from the coordinated world, the functioning world. This is especially true of children starting school, as there are a number of separate functions within the chain of development that need to have been coordinated by this point for the child to even have a chance to function in harmony with its surroundings.

With the FMT method, there is a chance to discover the small weaknesses that might be the cause of the difficulties. Within the musical dialogue, the FMT therapist creates an interplay that reveals the client’s functional level. This enables the therapist to meet the client on the correct level, which contributes to a feeling of safety and opens up for interaction. (Hjelm 2005:225)

The main tool within the FMT therapist-client interplay is a number of observation points that allow the therapist to systematically dissolve the whole in order to discover the human being that is the client:

**Interaction:** The interaction in FMT is what occurs within the interplay, in the musical question from the therapist and the physical reply from the client. The level of interaction reveals itself in the therapist-client dyad. For a client on a more developed functional level, the physical reply might consist of a well-directed strike towards the drum, while a client on a less developed functional level might reply with a sigh, or by the slight movement of a hand. A client who finds it difficult to make contact with other people might be moving around the room without reacting to any attempts to communicate, in which case the therapist might try to make contact by coordinating the music with the movement of the client. (Hjelm 2005:107-108)

**Stability:** Physical stability and balance is essential to a person’s well-being, as it is the foundation carrying all other functions. Problems with stability and balance are energy
consumers that manifest themselves as postural problems when sitting, standing, and walking. A client lacking in stability will give an unstable appearance, or might even look stiff and immobile, as this could be another way of handling balance difficulties. (Hjelm 2005:204-205) Holding the body upright is a basic motor skill that involves vestibular, proprioceptive, tactile, and vibrational perception. It offers the opportunity to experience the self and the body in contact with the floor or the chair, and in movement when using the floor as support for the body. Automated motor control of legs and trunk is also essential to the stability of the body as a whole. Hjelm coined the phrase “Känsla För Underlaget” (KFU), roughly translated as “sensing the floor and the chair”, to describe the need for physical stability and balance. Good KFU is essential for being able to fully utilise the body’s motor abilities and for achieving optimal sensory integration. (Smideman 1999)

**Side irregularity:** Most humans show a preference for one side of their body over the other (e.g. they have one dominant hand and one non-dominant hand), but extreme irregularities between the function in each side can cause KFU problems, which might lead to instability and a sense of insecurity. Valuable energy will have to be spent on trying to keep the body as stable as possible, and some motor activities will prove very difficult. Sensory integration could also be affected, if the level of perceptive abilities is different on one side of the brain compared to the other. A person with extreme side irregularity might be aware of only one side of the body. (Hjelm 2005:205)

**Bilateral coordination:** Physical instability and side irregularity can lead to problems with simultaneously carrying out separate movements with each side of the body, e.g. holding a piece of paper with one hand and cutting the paper with a pair of scissors with the other hand. (Hjelm 2005:206) The ability to simultaneously carry out separate movements with each side of the body requires well developed communication between the two hemispheres, good proprioceptive perception, stability, and wide visual perception. (Smideman 1999)

**Trunk rotation:** An additional factor important to bilateral coordination is the ability to free the upper half of the body from the lower part in a rotational movement while
maintaining stability. Trunk rotation is a very complicated function from a sensorimotor point of view, with a number of muscle groups closely interacting with proprioceptive feedback processes. Large muscle groups in one half of the body must be freed from muscle groups in the other half – muscle groups that were closely connected in earlier human developmental stages. Trunk rotational abilities are also important for the balance, while weak trunk rotational abilities could increase side irregularities. (Smideman 1999)

**Crossing the midline:** The ability to cross the midline – i.e. the sagittal plane – with arms and hands requires coordination of the signals being sent out from the separate sides of the brain, which in turn demands a well-developed connection between the hemispheres via the corpus callosum. (Hjelm 2005:207-208) The proprioceptive perception and the visual perception need to have reached a certain developmental level in order to cope with the switch-over between the hemispheres. (Smideman 1999)

**Hand function (right/left):** Functioning hands are essential to a person’s well-being, as the hands are used in most activities throughout the day. A less developed hand can sometimes manage everyday tasks, such as tying shoe-laces, but a weak hand function will constantly need to be compensated for, and might lead to tiredness and loss of concentration. One of the main goals of hand development is to be able to hold a pen and write. To achieve this goal, the child needs to pass all the hand’s developmental stages: each of these builds on the previous stage (see Piaget’s theories above: page 13). A child that has not had the chance to develop its hand function at its own pace could be faced with difficulties when starting school. The grip of the hand might be too loose or too tight, or the writing movement might be controlled from the shoulder, rather than the smaller muscles in the fingers, hand, and wrist. For a child with less developed hand function, a lot of energy and concentration will have to be spent on actually holding the pen, and there might be less energy available to focus on the writing task itself. (Larsson 2004) Through FMT therapy, the child is able to develop its hand function at its own pace.

**Wrist function (right/left):** In many motor tasks, the wrist is essential for optimal function. An inactive wrist, whether too stiff or too loose, results in imprecision, and the
movement will have to be controlled from the shoulder or the hand instead. (Larsson 2004)

**Logical thinking:** In the FMT room, the client is faced with a varying number of drums and cymbals positioned in certain patterns. Without any instructions or directions, the client has to find a structure, or model, to solve the challenge and to achieve a musical dialogue with the therapist. The client reads the room and designs a plan of action. Using the interplay as motivation, and starting at the client’s own level, the therapist is able to challenge the client’s problem solving abilities and initiative by adding more drums and varying the placing of the drums. (Smideman 1999)

**Perception (auditory, visual, tactile, vestibular, proprioceptive):** The FMT therapist will assess the client’s perception level by e.g. observing the ability to react to the piano, the ability to perceive the drums, the willingness to hold drumsticks and beaters of varying material, the level of balance, and the ability to hit the drum in an efficient manner. The concept of function is made up of sensory perception in combination with motor skills. In the FMT room, the therapist is able to expand the perceptive field so that the client learns to manage and feel confident in different types of environments. The client will be able to develop perception in parallel with motor skills. (Larsson 2004) Hjelm often mentioned the phrase “the ear guides the eye – the eye guides the hand”. (Hjelm 2005:198, translation by Ann-Sofie Jonsson) He regarded the auditory sense as the most important part of overall perception – the one sense that guides the development of the other senses and eventually also leads to the development of motor skills. (Hjelm 2005:198, 210)

**Breathing coordination:** The FMT therapist uses whistles and recorders to assess the client’s mouth motor skills and ability to use and adjust the breathing. (Hjalmarsson 2012) There is also the opportunity to observe the client’s posture while blowing into the whistle: is the posture stable, with the client standing up, balanced, on both feet? Or does the blowing affect the overall stability of the body? If so, the blowing might not be an automated action. This could be affecting speech etc., as energy would have to be spent on controlling the breathing.
Foot function (right/left): Functioning feet are essential to the physical stability when walking and running, and even when sitting, as the body is supported against the floor, through the feet. Problems with foot function could affect the KFU, leading to energy being wasted when trying to keep the body upright. Remaining foot reflexes could make it difficult to control foot movements and precision. The FMT therapist might use a bass drum with pedals to assess foot function.

Foot and hand coordination: For an individual to function well there needs to be coordination between the hands (representing the upper half of the body) and the feet (representing the lower half of the body). The lower half of the body needs to provide sufficient KFU so that the upper part is able to concentrate on the many challenges of everyday life. (Hjelm 2005:211) The FMT therapist might use a drum, e.g. a snare drum, in combination with a bass drum to assess foot and hand coordination.

Eye-hand coordination: Research has shown that the gaze supports the planning and control of manipulatory actions. (Johansson, Westling, Bäckström, Flanagan 2001) In the FMT room, the drums act as visual stimuli encouraging the brain to send signals to the hands telling them to move in a striking action towards these stimuli. The FMT therapist is able to observe any problems in this complex process, e.g. if there is trouble focusing the eyes on the hand movements.

Overall coordination: This is where the coordination of motor skills, breathing, sensory perception, and thought process is observed. The client is viewed as a whole: is he or she able to carry out a task in an efficient way, using only the amount of energy needed? The ability to prepare the body for activity is expressed as motor preparation, with the client utilising all senses in order to master the challenge without wasting energy. (Hjelm 2005:211) Judging distance and direction, adjusting posture and force, and registering feedback are all important factors contributing to the way the individual functions. (Smideman 1999)
Each observation point is given a number between 0 and 3:

0 – no difficulties
1 – noticeable difficulties
2 – substantial difficulties
3 – extreme difficulties

This rating system, which is entirely subjective, helps the FMT therapist to plan and evaluate the therapy work.

### 3.6 MUISC

While working at the Folke Bernadotte habilitation department at the Uppsala University Hospital, Hjelm also worked as a music teacher in a school, and he realised that there was a need for FMT in the school as well. In his work, he met many children who found school difficult and who needed help. In order to help these children, but also to provide a method of screening for children who might be in need of help, Hjelm developed his group music programme MUISC: MUsic In preparation for SChool. (Hjelm 2005:137) This group music programme was not labelled “therapy”, but was to be seen as structured, fun music making with very little verbal interaction, and with the emphasis on personal motivation rather than on learning songs. This musical activity would be well-planned, structured, and aimed at the correct level for the children, supporting their overall development during this important stage in life. (Hjelm 2005:141)

While there are some musical aims within the MUISC programme, such as stimulating the interest in music, creating a positive attitude to music, and building a foundation for future active musicianship, most of the aims are non-musical:

- supporting overall development
- strengthening motor development and coordination
- strengthening the development of sensory perception
- developing imagination and self expression
Through song, movement, and simple play on percussive instruments, Hjelm wanted his group music programme to help children with their motor skills, balance, coordination, breathing, concentration, focus, memory, creative thinking, sensory perception, and identity. (Hjelm 2005:142) Recognising that all children have reached different developmental stages by the time they start school, he wanted to give them all a chance to succeed by helping them achieve the self-confidence that comes from possessing sufficient motor control, being able to “read” and understand the room, and being able to express themselves. Without these skills in place the self-confidence could be affected and there is a risk of difficulties developing. Hjelm viewed sensory perception problems as one of the most important reasons for children finding school difficult. Without the ability to distinguish, classify, and process information and instructions, the child might feel insecure and excluded, lag behind in the school work, become dependent on the help of others, or might even give up and look for other ways of gaining attention. Most children already possess the abilities needed to master the challenges of starting school, but with his MUISC programme, Hjelm was hoping to give the children who might need extra help with their development a chance to also start school with confidence. (Hjelm 2005:143-144)

In MUISC, there is one person playing the piano, singing, and offering the auditory stimulation, while a second person, called the “mirror”, carries out the movements and offers the visual stimulation. By offering the choice of what sensory stimuli to concentrate on, and by the music session being virtually non-verbal, there is less risk of the child being overwhelmed by sensory stimulation. Furthermore, concentration skills are developed when “reading” the mirror and imitating the movements. The ability to imitate movements is essential to the ability to read and write, as imitation leads to copying skills. (Hjelm 2005:144)

The songs used in MUISC are very simple, and there is no requirement for the group to learn the songs or practise them. There is no right or wrong, and there should be no pressure on the children to participate and sing along.

Hjelm recognised the fact that a child’s development is guided by experiences, both positive and negative experiences, and he stressed the importance of only creating positive experiences for his clients. He wanted to create a safe, fun environment, with a lot of
repetition and recognition, where the structured music programme could be of benefit to the children and their development. (Hjelm 2005:146)

The MUISC programme also develops social skills, such as waiting for your turn, leading the group, and collaborating. Overall perception is strengthened, which improves concentration. Improved body control transfers to the classroom and could make it easier to e.g. sit on the chair during lessons. (Hjelm 2005:145)

### 3.7 Applications

Hjelm started his music therapy work with children and teenagers with Cerebral Palsy, and his MUISC work with children facing challenges when starting school, but his ideas and methods are not limited to these groups of people. The FMT method has proved successful when working with people with Down’s syndrome, dementia, birth injuries, autism, physical disabilities, brain injuries, etc. (Hjelm 2005:14) The method has even been shown to benefit people suffering from schizophrenia, dyslexia, fibromyalgia, chronic burnout, or suffering from trauma such as losing a loved one. (Hjelm 2005:227-229, 224, 243, 251, 258)

The FMT method can also be used for general well-being, and has been reported to improve sleep, increase energy levels, improve memory, reduce headaches, improve speech, and improve mental balance and general quality of life. These benefits might be due to the balancing effect of FMT on the body and the nervous system, and the way it increases the functional level, strengthening the individual overall. When the imbalance is reduced, the individual can also be freed from unbalanced behaviour, tensions, and limitations. When a person’s basic functions improve through FMT, he or she will also function better in everyday life, and will be better prepared to face the challenges of life. (Hjelm 2005:266-268)

The MUISC group music programme can also, with some adjustments, be used for other groups of people, such as seniors in nursing homes.
4 Case studies

4.1 Challenges facing children in the classroom

“A child will do the right thing if it is able to.”

When a child starts school it is expected by society to have reached a certain functional level. It is assumed that each individual can manage to participate in a work session where he or she is able to integrate all senses, i.e. receive, distinguish, sort, and process sensory stimuli and convert all of these into one or more actions. The child must be able to concentrate and at the same time stay in balance while sitting on a chair. It needs to be able to control its body when moving the arms and upper body, and to hold objects in his hands or handle objects such as pens, paper, and scissors. Furthermore, the child needs to believe in its own abilities.

When a child is put under pressure to perform, weaknesses can become very obvious. Remains of earlier developmental stages, that should have been conquered at an earlier age, might linger, so that the overall functionality is affected. The developmental process is made up of a network of functions that are connected and dependent of each other. A weakness in one area often causes problems also in other areas, like a domino effect. (Hjelm 1005:136-138)

Many of the problems that might occur when a child starts school are of physiological/functional, as opposed to intellectual/educational, nature. A bad start could result in a lack of motivation, and there is a risk that the problems deepen as the pressure on the child grows. Difficulties that can affect school work include:

- Balance problems: Affects the ability to sit on a chair. A great deal of effort will have to be spent on staying upright and keeping the balance, and less energy will be available to

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1 Barbro Matsson, lecture on 18 January 2012, translation by Ann-Sofie Jonsson.
concentrate on the school work. To tell the child to sit still is of no use if physical stability has not been developed.

- Weak auditory perception: Could make it difficult to distinguish important auditory information while discarding distractions.
- Side irregularity: One side of the body being less developed than the other could affect sensory perception, as well as balance.
- An unyielding trunk where the upper body is unable to move independently of the lower body: Could affect the ability to sit on a chair while turning the upper body towards the teacher or the writing board.
- Late development of hand function: The grasp of the pen could be too stiff or too loose. A large amount of energy could be required to force the muscles in the shoulder, arm, hand, and fingers to cooperate when trying to write.
- Under-developed breathing coordination: If the breathing has not been automated, concentration will have to be spent on keeping the breathing going. The many other challenges of the classroom could turn the breathing shallow and reduce oxygen levels in the body.
- Weak muscle tone: Could affect the ability to stay upright with postural control, and to handle objects such as a pens, books, and scissors.

Functional difficulties like these might steal the focus away from the school work, and could in turn lead to additional layers of social and psychological problems that can affect not only the child but also parents, teachers, and other children. There is a risk of conflict and struggle, and the child’s well-being could be in danger. (Hjelm 2005:147-148, Larsson 2004)

It is important that the child gets support as early on as possible, before a negative pattern has been created, before a bad self-image has developed, and before the child has been labelled by the children and adults in its surroundings and, maybe most importantly, by itself. The longer it takes before support is offered, the less chance the child has of a successful life in terms of relationships, development, and contentment. It is also important that the child is offered the right type of help – support that targets the underlying problems and actually improves the child’s situation. In his book Med musik som medel – FMT-metoden, som den blev till, Lasse Hjelm expresses his outrage at the
lack of suitable support offered in the school where he was working: “Help measures were rarely seen, apart from a few additional classes of e.g. reading training. Additional classes – to work harder with what is impossible! This was intended to be seen as a privilege, but was often perceived as punishment.” (Hjelm 2005:135, translation by Ann-Sofie Jonsson)

Without sufficient sensorimotor skills and overall functionality, it is very difficult to move onto the so-called “basic skills” of reading, writing and counting, which are in fact highly complicated neurological processes.

### 4.2 Robin

#### 4.2.1 Background

Robin seemed to have difficulties within group situations. He would not follow rules and often had to be chided. He needed something to be happening constantly, and would interrupt with seemingly irrelevant questions. He had trouble remembering instructions, so that he would constantly need to be told what to do and what not to do. His teacher described him as being very confident but having trouble making friends. She had noticed problems with his gross motor skills, in that he often kicked and hit other children, unprovoked, sudden, and hard. Often he showed regret, but sometimes he was not even aware of having hit anyone. Sometimes his arm, or a leg, would strike out and hit somebody standing nearby. This behaviour affected his relationship with the other children in a negative way.

I asked the teacher to subjectively grade Robin’s difficulties according to the same scale used during an FMT observation:

- 0 – no difficulties
- 1 – noticeable difficulties
- 2 – substantial difficulties
- 3 – extreme difficulties
Table 1: The teacher’s assessment of Robin at the start of the project

<table>
<thead>
<tr>
<th>ROBIN</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>1</td>
</tr>
<tr>
<td>Concentration</td>
<td>2</td>
</tr>
<tr>
<td>Learning</td>
<td>0</td>
</tr>
<tr>
<td>Memory</td>
<td>1</td>
</tr>
<tr>
<td>Speech</td>
<td>0</td>
</tr>
<tr>
<td>Motor skills</td>
<td>3</td>
</tr>
<tr>
<td>Initiative</td>
<td>0</td>
</tr>
<tr>
<td>Social relationships</td>
<td>1</td>
</tr>
<tr>
<td>Well-being</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

The first time I met Robin, I carried out an observation:

Table 2: Observation scores for Robin

<table>
<thead>
<tr>
<th>OBSERVATION POINTS</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>0</td>
</tr>
<tr>
<td>Stability</td>
<td>3</td>
</tr>
<tr>
<td>Side irregularity</td>
<td>1</td>
</tr>
<tr>
<td>Bilateral integration</td>
<td>0</td>
</tr>
<tr>
<td>Trunk rotation</td>
<td>3</td>
</tr>
<tr>
<td>Hand function right</td>
<td>2</td>
</tr>
<tr>
<td>Hand function left</td>
<td>2</td>
</tr>
<tr>
<td>Wrist function right</td>
<td>2</td>
</tr>
<tr>
<td>Wrist function left</td>
<td>2</td>
</tr>
<tr>
<td>Perception:</td>
<td></td>
</tr>
<tr>
<td>Auditory</td>
<td>0</td>
</tr>
<tr>
<td>Visual</td>
<td>0</td>
</tr>
<tr>
<td>Vestibular</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Proprioceptive</td>
<td>0</td>
</tr>
<tr>
<td>Tactile</td>
<td>0</td>
</tr>
<tr>
<td>Logical thinking</td>
<td>0</td>
</tr>
<tr>
<td>Breathing coordination</td>
<td>2</td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>0</td>
</tr>
<tr>
<td>Overall coordination</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

Robin seemed very unstable on the chair, with his body swaying back and forth, although his feet were placed on the floor. He remained seated throughout the session and watched carefully as I placed the drums in front of him. He often started playing on the drums before I had played the pick-up note on the piano, but he was able to perceive the end of each melody, and he could tell when I was not responding on the piano.

He had no problems understanding the drumming patterns.

When leaning from his lower back and stretching his arms forward to play on drums placed in front of him his head tilted backwards, and when the drums were pulled even further away he stood up to reach them. When three or four drums were placed in a horizontal line in front of him (to be played from left to right), he chose to use his left hand, and was very unwilling to use his right hand. When playing with his left hand, his right arm was lifted in order to increase stability. When playing with his right hand, he maintained stability by holding onto the seat of the chair with his left hand. He was able to use the left and the right hand together, but using both sides simultaneously caused him to forget the playing pattern a couple of times.

While playing on the drums, Robin often displayed associated movements in his face, and there were spasms in his face, neck, and shoulders.

Robin was not rotating his trunk, and instead he swayed from side to side to reach the drums.

Both wrists were stiff, with much of the movement originating from the shoulder, and actually involving his whole body. He was holding the beaters with a digital pronate grasp.
His strikes onto the drums were inefficient and unsteady. Robin was able to perceive all the drums, and he was able to hit the drums with just enough force. He displayed some motor preparation when adjusting himself on the chair, and he had good eye-hand coordination. His musical pulse was slightly uneven when playing.

When blowing into the whistles he used his whole body, and he preferred to sit on the chair rather than stand up.

To summarize, Robin’s difficulties seemed to be connected to instability and side irregularity.

### 4.2.2 FMT work with Robin

Following the initial observation session, Robin and I met for FMT on 16 occasions in total. I kept the sessions short (around 15 minutes) and simple, with swift changes between drums, cymbals, and whistles, sitting, standing, and sitting on a balance ball, and with frequent changes of beaters. I often let him play with one hand at a time, as well as both hands (often using a so-called double beater: two beaters attached to each other at the end that hits the drum). I also let him change between a snare drum and a cymbal, and between beaters of different weight and thickness, with different shapes of the handle, and some with different types of balls attached to the end. I let him play with different types of
balls, e.g. tennis balls, directly onto the drums, or sometimes with his hands directly onto the drums.

I varied the drumming position between sitting and standing. Sometimes I let him walk between drums or sit on a balance ball (pilates ball). Occasionally I used three or four drums placed on a horizontal line in front of him.

![Figure 3: Playing code no. 7 standing up](image)

We used eight recorders with covered holes, creating a C major scale, as well as different types of whistles.

I also let him play on drums while sitting on the balance ball, at first with one drum at a time and eventually with two or three drums at a time. Sometimes I would let him blow into a whistle while sitting on the balance ball.

A couple of times I let him play on a bass drum with pedals (first the right foot, then the left foot, and then both feet together). I sometimes placed a wooden block under one of his feet.

On a few occasions, I also placed a snare drum on each side of Robin, to be played simultaneously with one hand on each drum. This code was extended when I placed a cymbal in front of each snare drum.
4.2.3 Results

During the FMT sessions, we ended up spending a lot of time working on interaction. From session number three and onwards, Robin had seemed more unsettled and unfocused: he often did not want to hand the beaters back, sometimes hiding them behind his back, and sometimes he used great force to hit my outstretched palms with the beaters as a way of handing them back. Sometimes he just threw them back instead. He would disassemble the beaters, and walk over to the place where the beaters are kept to have a look at them or try to grab them.

Despite keeping all the exercises very simple, so that he would have a chance to succeed with them, the interaction difficulties continued, and Robin would hide the beaters, throw the balls, try to play on the piano, run around the room, and refuse to hand back the whistles.

In therapy session number nine there was a tipping point in the interaction between us. Six minutes into the session, Robin was looking quite tired. While I went to get the balance ball, he grabbed a book that I had been using to prop up the back legs of his chair (to create a slight tilt). He sat down on the balance ball and began looking through the book. I wanted to avoid a confrontation with me trying to wrestle the book from him, so I let him keep the book, and instead I played the pickup note and waited for his response. He held onto the book with one hand and kept looking at it, but started hitting the side of the balance ball with his other hand, so I responded to this on the piano. I decided to challenge him with something where he would need both his hands and not be able to hold onto the book, so I placed a snare drum in front of him and played the pickup note. I decided to respond only when he played on the drum with both hands. He tried various ways of playing with only one hand, on the balance ball and on the drum, but when he noticed that this resulted in no response from the piano he eventually put the book down on the floor and started playing on the drum with both hands. He kept looking down towards the book on the floor, so eventually I stopped responding on the piano unless he was focusing on the drum. From then on he lost interest in the book completely. I was able to push the book aside while placing new drums in front of him and we continued with the session.
Later on during the same session, he grabbed a whistle and ran off with it. Again, I wanted to avoid a confrontation, and instead I tried to create a situation where he would hand the whistle back to me by his own initiative. I gave him a double beater to play with, and for a while he tried to keep the whistle in his mouth while holding onto the double beater (I only responded when he kept both hands on the double beater), but eventually he gave up and handed the whistle back to me with a smile and continued playing on the drums according to the pattern. Towards the end of the session he grabbed a recorder, so I gave him a whistle and only responded when he blew into the whistle I had given him. Eventually he handed back both the recorder and the whistle and we were able continue the session to the end.

From then on, there were no problems at all when handing back beaters and whistles, there was no trying to play on the piano, and no grabbing beaters or whistles and running off with them.

Another exercise that generated a good feeling of interaction between us was when Robin was alternating between playing very loud and very soft on the drum and I copied his dynamics on the piano.

During the project, Robin stopped using the digital pronate grasp, and instead kept his index fingers resting on the side of the beaters. However, the digital pronate grasp sometimes returned in his left hand, especially when faced with a challenging task, such as using the left hand only, without the help of the double beater. He still dropped the beaters regularly, with both hands. His right wrist was supple, but still suffered from the lack of stability in the rest of his body. His left wrist seemed inefficient and difficult to control.

Towards the end of the project, he was able to rotate his trunk, but his feet were unstable during trunk rotation. I noticed an improvement in his stability and his balance, mainly in the way that his feet were in better contact with the floor. Also, his bouncing on the balance ball was smoother (although he still struggled), he was able to sit on the balance ball (and even bounce) while blowing into a whistle, his shoulders were more relaxed while playing, and there were fewer associated movements in his face and fewer spasms in face, neck, and shoulders (although they had not disappeared completely).

Although his right hand seemed to grow stronger, he often chose his left hand when accepting the beater. I would say that his right hand was his dominant hand, but that he
often chose to use his left hand instead, especially if the drum was nearer his left hand than his right hand.

Towards the end of the project, Robin was sometimes able to play with his right and his left hand separately without lifting the opposite hand in order to stabilise his body. He was able to focus on the playing and watch what he was doing more often. However, when he got tired he would still tense up and start playing hard and fast on the drums, as well as stop watching what he was doing and even look up into the ceiling instead.

Robin’s breathing coordination improved during the project, so that he was able to stand up while blowing into the whistles, and it was no longer necessary for him to use his whole body when doing so.

Robin was often attentive during the therapy sessions and used to copy my hand signs for “stand up” and “sit down”. He would also sing the melodies used during the therapy to himself while I changed the instrument set-up in front of him.

During the MUISC sessions, Robin struggled on a couple of occasions. For example, in the third week of therapy, during MUISC, there was an incident during the exercise when the children, one at a time, walk up to a cymbal in front of the piano and hit the cymbal with a beater. Robin ran towards the cymbal but missed it when he tried to hit it with the beater. The rest of the class started laughing, Robin flinched, and then immediately started “clowning”, which made the class laugh even more. When handing over the beater to the next person, Robin hit the boy hard on top of his hand, and the boy almost started crying. Robin seemed sad and upset that he had hurt the other boy and gave him a hug. Later on during the same MUISC session, when a hand drum and a beater was passed around the group, Robin dropped the drum when trying to hit it with the beater. The rest of the class started laughing, and Robin broke down in tears, saying “Why are they laughing at me?”

During a later MUISC session, while doing the jump and dance song, Robin’s arm hit the face of a girl who was standing next to him, and she got very upset. Robin hugged her and apologised. Later on, when the hand drum was passed around the group, he was so uncoordinated when hitting it that it flew across the room and landed on the floor. He had a worried look on his face, but his teacher remained very calm and did not look at him, but at the drum on the floor. Robin walked over to get the drum, went back to his chair, continued playing, and then passed the drum to the next person.
Another time at MUISC, towards the end of the project, Robin dropped a beater when it was his turn to play with two beaters on a cymbal placed in front of the piano, and the beater flew across the room. This time there were no reactions, and we simply continued with the music.

Table 3: Observation scores at the start of the project (“before”) and at the 16th therapy session (“after”)

<table>
<thead>
<tr>
<th>OBSERVATION POINTS</th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stability</td>
<td>3</td>
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<tr>
<td>Side irregularity</td>
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</tr>
<tr>
<td>Bilateral integration</td>
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<td>0</td>
</tr>
<tr>
<td>Trunk rotation</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Hand function right</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Hand function left</td>
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<td>2</td>
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<tr>
<td>Wrist function right</td>
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<td>Wrist function left</td>
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<tr>
<td>Perception:</td>
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<td></td>
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<tr>
<td>Auditory</td>
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<td>0</td>
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<tr>
<td>Visual</td>
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<td>0</td>
</tr>
<tr>
<td>Vestibular</td>
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<td>1</td>
</tr>
<tr>
<td>Proprioceptive</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Tactile</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Logical thinking</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Breathing coordination</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Overall coordination</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>21</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

The week after the end of the project I interviewed the main teacher regarding any changes she had noticed in Robin during the project. According to her, Robin’s problem of hitting
other children had disappeared almost completely by the end of the project. From having hit other children daily, sometimes several times per day, it now happened “very rarely”. His previous lack of physical control, with arms and legs swinging out unexpectedly and sometimes hitting other people who happened to be standing next to him, had changed so that he was able to control his body in most situations. He was able to control himself also in the classroom, and he had the ability to sit down as part of the group, and stick to rules without having to be reminded. He had stopped running around the classroom, and had stopped interrupting by asking irrelevant questions. He was calmer and more patient. The teacher felt that “Robin has turned into a gentle boy who loves a cuddle”. He was still trying to control his friends somewhat, but he was more of a team player now and he was more accepted as part of the group. His teacher explained that Robin had found “new routes to new friends”. She described him as being a calm, settled, and very generous boy. He would lend his toys to other children and invite them along to his house and to various activities.

**Table 4:** The teacher’s assessment of Robin at the start of the project (“before”) and at the end of the project (“after”)

<table>
<thead>
<tr>
<th></th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Concentration</td>
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<td>1</td>
</tr>
<tr>
<td>Learning</td>
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<td>0</td>
</tr>
<tr>
<td>Memory</td>
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<td>0</td>
</tr>
<tr>
<td>Speech</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motor skills</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Initiative</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Social relationships</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Well-being</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
4.3 Victor

4.3.1 Background
Victor was described by the teacher as the ruler of the group – a child “with power” who conducts and dominates the rest of the class. He would often cause mischief, with other children joining in. The teacher described him as a “negative leader”, regarded as cool and tough by the other children. At the same time, he was said to come across as insecure and difficult to make contact with. When playing, he would constantly keep an eye on the teachers and their whereabouts, but without making contact with them. In the classroom, he would put his hand up and not interrupt, and he was good at learning and remembering. He had some problems holding a pen properly and seemed unsure of what hand to use, but would struggle on with his writing exercises regardless. The teacher felt that Victor was difficult to communicate with, and that he perhaps needed to feel in power by directing the people around him, sometimes causing drama and disturbance by simply throwing a glance at another child.

Table 5: The teacher’s assessment of Victor at the start of the project

<table>
<thead>
<tr>
<th></th>
<th>VICTOR</th>
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<tbody>
<tr>
<td>Attention</td>
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<td>Concentration</td>
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</tr>
<tr>
<td>Learning</td>
<td>1</td>
</tr>
<tr>
<td>Memory</td>
<td>0</td>
</tr>
<tr>
<td>Speech</td>
<td>0</td>
</tr>
<tr>
<td>Motor skills</td>
<td>3</td>
</tr>
<tr>
<td>Initiative</td>
<td>0</td>
</tr>
<tr>
<td>Social relationships</td>
<td>3</td>
</tr>
<tr>
<td>Well-being</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>
The first time I met Victor, I carried out an observation:

<table>
<thead>
<tr>
<th>OBSERVATION POINTS</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>1</td>
</tr>
<tr>
<td>Stability</td>
<td>2</td>
</tr>
<tr>
<td>Side irregularity</td>
<td>3</td>
</tr>
<tr>
<td>Bilateral integration</td>
<td>3</td>
</tr>
<tr>
<td>Trunk rotation</td>
<td>3</td>
</tr>
<tr>
<td>Hand function right</td>
<td>1</td>
</tr>
<tr>
<td>Hand function left</td>
<td>2</td>
</tr>
<tr>
<td>Wrist function right</td>
<td>1</td>
</tr>
<tr>
<td>Wrist function left</td>
<td>2</td>
</tr>
<tr>
<td>Perception:</td>
<td></td>
</tr>
<tr>
<td>Auditory</td>
<td>1</td>
</tr>
<tr>
<td>Visual</td>
<td>0</td>
</tr>
<tr>
<td>Vestibular</td>
<td>1</td>
</tr>
<tr>
<td>Proprioceptive</td>
<td>0</td>
</tr>
<tr>
<td>Tactile</td>
<td>0</td>
</tr>
<tr>
<td>Logical thinking</td>
<td>2</td>
</tr>
<tr>
<td>Breathing coordination</td>
<td>1</td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>2</td>
</tr>
<tr>
<td>Overall coordination</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

During the observation, Victor was very attentive but showed little initiative to play on the drums. His strikes towards the drums were very careful. He would not always watch what he was doing, but often looked towards my face, and sometimes towards the ceiling. He was sitting very still on his chair, leaning against the back rest, and did not show any motor preparation, such as adjusting his posture in preparation for playing on the drums. There
was no trunk rotation: when there were drums placed in a row in front of him he would lean to reach the drums.

Victor would suddenly forget a drumming pattern even after having played it for a while. For the drumming patterns with three or four drums placed horizontally on a line in front of him (to be played from left to right), he would switch between his left and his right hand, although he seemed to always settle on his right hand. For these patterns, he was also unable to play on each drum using both hands together, i.e. using both sides simultaneously.

His right wrist was stiff, with the striking movement originating from the elbow, but this was even more the case on his left side. His right elbow was raised high when playing on the drums, but his left elbow was raised even higher. He held the beaters with a digital pronate grasp, although the index finger would sometimes slide down the side of the beater and join the other fingers. I also noticed some supination of the hands.

He had no visual difficulties perceiving the drums. Also, he was able to audibly perceive when the music stopped, except when he had problems playing with both hands simultaneously on each of four drums placed on a line in front of him. On this occasion, he kept playing (although not according to the pattern) despite there being no response from the piano.

Victor was able to stand up while blowing into the whistles, but his breathing seemed shallow.

Overall, Victor’s main difficulties seemed to be connected to stability, side irregularity, bilateral coordination, and logical thinking.

4.3.2 FMT work with Victor

In total, I met Victor for one observation and fourteen therapy sessions. I often placed an A4 sheet under each foot, or sometimes a wooden block under one foot at a time. I often also used a balance cushion with a textured surface under his feet. Sometimes I let him hold a small, cuddly toy in his dominant hand while playing with his less dominant hand, and I often let him use the double beater.
I used a number of different codes (see p. 19) during the sessions, for example one snare drum and a cymbal to the right, to be played with the right hand, and then to the left to be played with the left hand, the distance to the cymbal gradually increasing. The snare drum and the cymbal could also be placed in front, to be played forwards using a double beater. The double beater could also be used to play on six drums and cymbals placed in a semi-circle, either sitting on a chair, sitting on a balance ball, or standing up, or on two cymbals, one at a time, while standing up, with the distance between the cymbals gradually increasing.

One code consisted of four drums and cymbals being placed horizontally on a line in front of Victor, and another of a snare drum being placed in front of him, two hand drums in front of the snare drum, and then two cymbals in front of the hand drums, so that the five drums formed a V pointing towards him (called “code no. 8” – see Figure 4 below). There was also a code where a snare drum was placed on each side of him, with a cymbal in front of each snare drum, to be played with both sides simultaneously. This code could be extended with a hand drum on each side, so that there were now three drums in total on each side, to be played in turn by each side simultaneously.

Figure 4: Code no. 8
Sometimes I angled, raised, or lowered the drums, and sometimes I let Victor play with his hands or with tennis balls directly onto the drums. Sometimes he sat on a balance ball, or on a balance cushion placed on a chair, while playing on the drums or blowing into the whistles.

I also introduced a bass drum with pedals to be played with one foot, the other foot, and then both feet.

### 4.3.3 Results

The first thing that struck me about Victor was how shy and insecure he looked, how reserved he seemed, and how little initiative he showed. He would sit quietly on his chair, slumping, leaning against the back rest, and would rest his hands on his lap even during playing, trying to hit the drums with as little movement as possible. He looked down most of the time and would only throw quick glances towards me. Sometimes he would smile shyly but he always tried to hide his smile by looking down or covering his mouth with his hands. He was very attentive, and would watch carefully as I moved the instruments around. He would study my face while I was working, in a way that he would not do if I was looking back at him when outside the FMT room.

Towards the end of the project he seemed less shy and insecure, and he looked more relaxed and more comfortable with his body. Therapy session number seven was the first time I noticed that he had a more active body, with better awareness of and better positioning of his feet. He was able to straighten himself up most of the time, and there was better interaction between us. Now and then he smiled, e.g. when a ball fell off a beater, or when I let him play with his hands directly onto the snare drum while sitting on the balance ball.

After the seventh therapy session, Victor also seemed more stable when standing up and alternating between two whistles, one in each hand. When bouncing on the balance ball his body seemed less stiff and more active. The seventh session was also the first time that he almost hung around afterwards to say goodbye to me. Previously, he would run off before I had even got out of the room, and I would be calling out “bye Victor, see you next week” as he ran off. On this occasion, however, there was more contact as he at least
attempted to look at me before running off. The following week he said “bye, see you next week” to me before running off. There was a new feeling of contact and communication.

During the project, Victor’s wrist and hand function improved in both his right and his left side. His hands would sometimes regress to a digital pronate grasp, but most of the time his index fingers would be resting on the side of the beater. His right wrist seemed very supple by the end of the year, although his left wrist looked more stiff. It seemed harder for him to strike towards the drums in an efficient way with his left hand. Furthermore, he would often miss his mouth when holding a recorder in his left hand. His arm movement when raising the recorder to his mouth with his left hand was jerky.

At the beginning of the project, Victor was sometimes unable to perceive that I was not responding on the piano, and he would keep playing regardless. Towards the end of the project however, he was able to notice that I did not respond on the piano if he for example moved the beater from the left to the right hand, and he would subsequently move the beater back to the left hand. He also used to wait carefully for the pickup note before starting playing.

Victor’s eye-hand coordination also improved, and his breathing seemed less shallow when playing the whistles and the recorders.

He made great progress with his bilateral coordination and was able to start using both sides simultaneously. Furthermore, his KFU improved, hand in hand with his stability. However, at the end of the project, he was still not able to straighten up at all times.

Although Victor’s ability to think logically had improved and he was able to play the drumming patterns better than during the observation, there were still occasions when he would lose the pattern.

His trunk rotation had improved, but he often needed to play with both hands in order to start using his trunk. When playing with his right or left hand only, he still preferred to stretch towards the drum rather than use his KFU and rotating his trunk.

During the MUISC sessions, Victor seemed calmer towards the end of the year, especially when his teacher was sitting next to him, calming him down, not verbally or by looking at him, but by putting her hand on his back when he became anxious, and by supporting him with her presence.

On the day that I came to collect Victor for his fifteenth FMT session, he told me he did not want to play. I told him I would come back in the afternoon and ask him again, in
case he changed his mind. However, in the afternoon he came to the FMT room along with his teacher and she explained that he did not want to do any FMT that day. I told him that was fine, and that he could have a think about it until the next week when I would be back at school. The next week he came to me on his own and explained that he did not want to play that day either, because he “didn't have the energy”.

This meant that we met for fourteen therapy sessions in total.

Table 7: Observation scores at the start of the project (“before”) and at the 14th therapy session (“after”)

<table>
<thead>
<tr>
<th>OBSERVATION POINTS</th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Stability</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Side irregularity</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Bilateral integration</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Trunk rotation</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Hand function right</td>
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<td>0</td>
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<tr>
<td>Hand function left</td>
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<td>Wrist function right</td>
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<td>Wrist function left</td>
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<td>Perception:</td>
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<td>Visual</td>
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<tr>
<td>Vestibular</td>
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<td>Proprioceptive</td>
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<tr>
<td>Tactile</td>
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<td>0</td>
</tr>
<tr>
<td>Logical thinking</td>
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<td>1</td>
</tr>
<tr>
<td>Breathing coordination</td>
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</tr>
<tr>
<td>Eye-hand coordination</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Overall coordination</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>
When interviewed at the end of the project, the teacher explained that Victor was still controlling the other children to some extent, and there was still a noticeable difference in the group when he was not present compared to when he was. The group was calmer when he was away. However, his influence on the other children during playtime had diminished, and he seemed to be spending less energy on dominating the other children and orchestrating drama among them. Instead, he had become more keen to behave well and to learn. He was responding very well to praise. His teacher described it as a “shift of focus” for him. He was now easier to make eye contact with and to speak with. At the beginning of the year, he would arrive at school in the morning and quickly run past his teacher, avoiding all contact. In contrast, now he would walk up to her, maintain eye contact, and voluntarily converse with her. In doing so, his teacher felt that Victor’s new openness had revealed the fact that he perhaps was less mature than most of the other children, and displayed some speech difficulties. She felt that his previous way of playing the role of “the coolest guy in the class” might have been a way for him to cover up speech difficulties and a feeling of insecurity.

The second teacher in the class also told me that when being chided for his behaviour, Victor would now often break down in tears.

On a couple of occasions, Victor had chosen to stay at home and spend the day with his mother (a Swedish preschool class is voluntary), which was new for him. She had noted the way Victor had begun being more open, making contact with her, and in turn had expressed joy about this change in his behaviour.

**Table 8:** The teacher’s assessment of Victor at the start of the project (“before”) and at the end of the project (“after”)

<table>
<thead>
<tr>
<th></th>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
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<td>0</td>
</tr>
<tr>
<td>Concentration</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Learning</td>
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<td>1</td>
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<tr>
<td>Memory</td>
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<td>0</td>
</tr>
<tr>
<td>Speech</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Motor skills</td>
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<td>2</td>
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<td>Well-being</td>
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<tr>
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5 Summary of results and discussion

5.1 Robin

When starting off the FMT work with Robin I was expecting to be focusing on his stability and balance, and on his right side, which he had seemed unwilling to use during the observation. We did work on his stability and balance, but it was not his right side that needed most attention, but his left side. A small, cuddly toy placed in his right hand seemed to be an efficient way of helping him to use his left hand. The toy was a small, cuddly cat, and he seemed very fond of it. He would cuddle it on his right shoulder with his right hand, and maybe this action stabilised his body, making it easier for him to play with his left hand.

Furthermore, it became necessary to focus on his interaction skills for a large part of the time, and also on his proprioceptive sense. While playing, both sitting down, standing up, and walking between drums, he would often miss the drum, which I feel was indicative of problems with his proprioceptive sense, and also with his eye-hand contact. The exercise of walking between two cymbals was especially difficult for him when part of MUISC, as the presence of the other children seemed to distract him and make it harder for him to focus and to aim efficiently.

I believe that Robin’s problem of hitting other children, often without him even being aware of having hit them, might have had to do with his lack of stability and physical control, his associated movements and spasms, as well as the difficulties with his proprioceptive sense. Without well-integrated perception of where his muscles and joints are located within the room, and without being able to control his arms and legs, it could be that his arms or legs were able to suddenly strike out towards another person standing near him, as if in spasm, without him ever knowing that his arm or leg had moved. The fact that he often showed regret after having hit somebody could indicate that his behaviour was not intentional, and was in fact something beyond his physical control. I
feel that the FMT work, which involved efforts to improve his balance and stability and
develop his proprioceptive sense, might have helped to improve his physical control and
his ability to remain in charge of his arms and legs in a more efficient way (see p. 42).

The sensory feedback that was created by Robin himself when playing on the drums
(hearing, seeing, and feeling the drum) would have helped him learn about the way his
body acts in motion. Thanks to this sensory feedback, it was very obvious to him when he
missed a drum, and he would be able to learn from his mistake, focus his senses, and try
again. This process might have helped sharpen his proprioceptive sense. When he did
succeed to hit the drum, his brain’s wish to create structure would have been satisfied, and
the neurological synapses and the muscle activation programmes involved in the successful
action would have been strengthened (see p. 15-16).

One of the main things I worked on with Robin was to improve his interaction skills,
and to learn how to hand back the beaters and whistles to me. Perhaps Robin’s desire to be
in charge of the beaters and whistles had been a way for him to compensate for not being
in charge of his own body. By creating an environment within the FMT room where he
was able to be in charge of his body, an environment adjusted to his own developmental
level, the need to be in charge of the beaters and whistles might have diminished. Also,
because there were no verbal directions (positive or negative) in the FMT room, the
interaction that developed was entirely by his own initiative. The dynamic interaction
within the music (with Robin playing soft or loud on the drum and me copying him on the
piano) was also initiated by Robin, and he seemed to enjoy this musical interplay (see p.
39).

The response from the piano was a very efficient way of guiding Robin through the
exercises, and replaced the need for vocal instructions. He quickly became accustomed to
listening out for the response from the piano. If he did not hold the beater properly, I
simply stopped responding on the piano, and he would correct his hold. If he moved the
beater from his left hand to his right hand and I wanted it back in the left, the lack of
response from the piano would prompt him to move the beater back to the left hand. If he
lost his focus and started playing randomly on the drums, I would stop responding on the
piano and he would regain his focus. No words were needed, and all the corrections were
carried out on his own initiative.
The progress that I had noticed during the FMT work seemed to correspond with the progress that his teacher described in the classroom. The way that Robin was now able to control his body more efficiently, sit down as part of the group, and stick to rules could be connected to the improvement in stability, balance, physical control, and interaction that I had noticed in the FMT room. The newfound calm and patience in him that she described was something that I also recognised from the way he had calmed down during the FMT sessions and was now able to focus better on the tasks at hand (see p. 42).

When scoring the observation points at the last therapy session, there were a couple of points that I scored higher than during the initial observation. These were the difficulties with his proprioceptive sense and with his eye-hand coordination, which were both something that I did not notice until we started working together. I decided to score his overall coordination the same as during the observation, as there were still many things to work on (see p. 39-40).

If I had been able to continue the FMT sessions with Robin, I would have kept working on his stability, balance, KFU, trunk rotation, lower back flexibility, and separate as well as simultaneous side movement. I would have used the balance ball often to help him develop his vestibular sense, wooden blocks under his feet and beaters of varying weights to stimulate his proprioceptive sense, raised and lowered drums to challenge his eye-hand coordination, and angled drums to work on his hand and wrist function.

Robin had also been playing a lot of ice-hockey alongside his FMT sessions, which might have helped improve his motor skills. I would have encouraged his parents to let him continue doing sports.

5.2 Victor

The main thing that I wanted to work on with Victor was to make him more confident within his own body and better at communicating with other people. I felt that I might be able to help him with this by working on his stability and interaction and by making his body more active and open so that he would feel more secure and at ease with himself in
the classroom and elsewhere. I wanted him to get to know his body and the way it moves better so that he would be able to navigate his surroundings with confidence. In my opinion, opening up his posture and expanding his movements would be very important in order to help him open up, both during the FMT work and in his communication with other people, outside the FMT room.

I think the sensorimotor work we did during the FMT sessions helped Victor learn about the way his body functions. His increased stability and improved bilateral coordination might have helped him to be more open to his surroundings and to make contact with adults, i.e. teachers and his mother. The fact that he now breaks down in tears when being chided could in fact be a positive change, as he displays emotion instead of remaining closed off (see p. 50).

Perhaps the absence of eye contact during the FMT sessions was also beneficial to Victor. He used to study my face very closely in the beginning of the project, and maybe the fact that I was not looking back at him could have given him a chance to practise looking at a person’s face without the risk of being looked back at (see p. 47).

I am very pleased that his new openness has also been noticed by his teacher and by his mother (see p. 50). The fact that there is still turbulence around him in the classroom might have more to do with the other children than with him. The label Victor has been given by the others, as a leader and somebody they need to impress, could be difficult to remove, and might perpetuate even if he himself now has different priorities and is not so interested in dominating the others anymore.

I felt disappointed that Victor did not want to come along to the final two sessions, but I am glad that he was able to speak to me himself and communicate his decision. To me, this in itself was in a way a sign that our music therapy sessions had benefited his development.

In order to try and make Victor’s body more open and active I focused on interaction, stability, bilateral coordination, trunk rotation, breathing coordination, and the vestibular sense. The progress in these areas is what I believe helped to create the change in him that was also noticeable outside the FMT room.

I often let Victor sit on a balance ball in order to help stimulate his vestibular sense and get his feet more active when trying to find his balance. The balance ball can also work to raise the chest and straighten up the posture. Sometimes I combined the balance
ball with a whistle for extra effect. Blowing into a whistle gets the breathing and chest muscles going, which also aids the straightening up. The balance ball was also very efficient in combination with playing on a snare drum, as this would challenge his vestibular sense as well as his proprioceptive sense and his motor skills when aiming towards the drum. I often added heavy beaters to further stimulate his proprioceptive sense.

Because his arms and hands were so inactive, I often let him play with his hands or with tennis balls directly onto a snare drum, so that the strong vibrations would transfer into his hands and arms, activate them, and stimulate his tactile sense.

The double beater was good for working on trunk rotation. For example, six drums and cymbals placed in a semi-circle, combined with the double beater, resulted in a more active trunk while also straightening him up. It also made his feet more active, as he moved his feet further apart to increase stability. For this drumming pattern, I varied the sitting on a chair with sitting on a balance ball or standing up, in order for him to practise different ways of balancing his body and finding stability when hitting the drums.

As his body loosened up, he started dropping the beaters more often. He would get the beater stuck under the rim of the drum and then drop it. He sometimes seemed very unfocused and very haphazard with his aim, and was not watching what he was doing. Sometimes it almost seemed intentional, as if he wanted to see what would happen. Perhaps he wanted to explore the room in a way that he was unused to with his new, more active body. It happened mostly with his weaker, left hand (see p. 48).

At the end of the project, Víctor was still not able to straighten up at all times, perhaps due to remaining issues with his vestibular sense. Underlying instability could also be what still caused him to sometimes lose the drumming pattern.

When scoring the observation points at the last therapy session, I scored the problems with his proprioceptive sense higher than during the initial observation. The reason for this was that I did not start suspecting any problems with his proprioceptive sense until we started working together. I feel that the jerky arm movements when raising the recorders to his mouth could be due to problems with his proprioceptive sense, as well as the jerky arm movements when playing forwards and needing to use his lower back, and the inefficiency of his left hand. However, this could also be due to weak muscle tone. For
example, weak muscle tone could be affecting his postural control, causing stiff and static shoulders and arms when playing, and resulting in jerky arm movements (see p. 48).

If I would have done anything differently during the project, it would have been to use the balance ball more often, as it had such a good effect on him with regards to stability, KFU, trunk rotation, and breathing.

Now that his body has loosened up, I feel that he would benefit from learning how to be more in control of his body. Had I been able to continue the FMT work with Victor, I would have kept working to improve his stability, KFU, trunk rotation, vestibular sense, and bilateral coordination. I would also have worked on gaining more flexibility in his lower back, and on improving his focus and concentration.
6 Conclusions

The FMT and MUISC work that I have been carrying out during this project has been very rewarding, as I have seen the children develop and mature and become more able to successfully function in the school environment. The progress that I have personally witnessed in the FMT room, and which was confirmed by the evaluation from the teacher, could lead to the children being better equipped to learn and grow at school and to experience more enjoyment in their lives. Obviously there are always many different factors that could be contributing to a child’s development (see below for examples), but I feel that the FMT, and also the MUISC, has contributed in a positive way and has helped improve the two children’s ability to deal with the challenges facing them at school.

Other factors that might have contributed to the children’s development is their daily music, dance, and movement session with their teacher in the classroom, as well as the fact that the children have grown and perhaps matured naturally during the course of the project. Also, these children participate in a lot of sports activities, including skiing, which could contribute to improved balance and better motor skills.

It is my hope that more schools will understand how valuable FMT can be in helping children who experience difficulties at school. Through music, the FMT therapist is able to build a relationship with the child, without having to use words, meeting the child on his or her developmental level and working from there. The FMT therapist is able to let the child experience success in a safe environment, build confidence, and gain a chance to function in everyday life. A diagnosis is not necessary to begin this process. All that is needed is an assessment of function, a wish to really see the individual, with genuine interest, and a desire to seek the true causes of the perceived difficulties.
References


