# Upside down

The feasibility of studying social skills in individuals with Down Syndrome who participate in drama training.

> Pauline Schuffelen (S1598538) Master: Positive psychology and technology Supervisors: Anneke Sools and Gerben Westerhof September 2018-April 2019 Enschede

- The true sign of intelligence is not knowledge but imagination - *Albert Einstein* 

#### Abstract

Background: Social skills are crucial to effectively communicate with others and function in society. Individuals with Down Syndrome (DS) are, however, suggested to have more limited social skills than those without DS, which makes them vulnerable to develop psychological problems. Previous research has demonstrated that social skills can improve by drama training, in particular the theory of mind (TOM), empathy and emotion regulation. This however has not been demonstrated in individuals with DS. The present study examined whether it is feasible to study the social skills of individuals with DS who participate in a drama training. Methods: To do this an expert was consulted on the potential of a drama training in the stimulation of TOM, empathy and emotion regulation in individuals with DS. In addition, the TOM-skills of 13 individuals with DS participating in drama training were examined, using the TOM-test-R. The TOM-test-R is an instrument which has only been used in children without DS and therefore participation observation and a cognitive interview were used to test its suitability and appropriateness for data-collection in future research. **Results:** According to the expert, individuals with DS do not have the capacity to cognitively evaluate what another person thinks, and therefore TOM should not be trained by a drama training. He suggests that individuals with DS have strong emotional antennae and possess a form of enhanced empathy which, just as emotion regulation, is stimulated by drama training. The scores on the TOM-test-R varied highly among participants, with some individuals being able to understand secondorder-beliefs and some only the precursors of TOM. Conclusion: These results suggest that individuals with DS have a higher potential regarding TOM than previously suggested. Based on the present study the investigation into the social skills of individuals in the DS-population who participate in a drama training is found feasible. It is suggested to further research the social skills in a longitudinal study. The recommendations elaborate on which instruments can be used for data-collection.

**Keywords:** Theory of Mind, TOM, empathy, emotion regulation, drama training, Down Syndrome.

#### Introduction

Social skills are important for maintaining healthy relationships and preventing individuals from developing psychological problems. According to Barati, Tajirshi and Sajedi (2012)

individuals who lack socials skills are more prone to developing difficulties such as antisocial behavior, a lack of confidence, anxiety, and depression. For decades social functioning has been considered a strength in individuals with Down Syndrome (DS) (Naess, Nygaard, Ostad, Dolva, & Lyster, 2017). Nevertheless, various studies have concluded that individuals with DS show fewer social skills in comparison to individuals without DS (Kasari, Freeman, & Bass, 2003; Alevriadou & Giaouri, 2011). In addition, Barati et al. (2012) found that individuals with DS show increased maladaptive behavior. This raises the question of whether it is possible to strengthen the social skills of individuals with DS to prevent them from developing psychological problems and how to examine this.

One manner of promoting social skills is by acting. Acting can be defined as the realistic portrayal of a character (Goldstein, 2010). This definition stems from Stanislavsky (19th-20th century) who says an actor has to create an inner life of a character to express it in a believable and artistic manner. He sees it as an embodied craft in which you use controlled vocal and physical responses. He says: '*To turn fiction into fact for me, I have to ask myself at every point in the play, 'If this situation were true, what would I do?'* (Gallagher & Gallagher, 2019). The Stanislavsky Definition is of western origin (Goldstein, 2010) and therefore, represents the type of acting taught in this study's training.

Although limited research has been done there is evidence that drama training has a positive influence on the theory of mind (TOM), empathy and emotion regulation (Goldstein & Winner, 2011; Ligthelm & Louw, 2014; Goldstein, 2010). Three constructs that are key for social understanding and social competence (Bosacki & Astington, 1999; Liddle & Nettle, 2006), which can be seen in individuals who show deficiencies in these abilities (e.g. autism spectrum disorders, depression and sociopathy; Inoue, Tonooka, Yamada, & Kanba, 2004; Kimbi, 2014; Dolan & Fullam, 2004). Findings suggest that theatrical arts are superior to visual arts, music training, dance training, and summer camp activities for increasing competence in these social constructs (Goldstein, 2010; Goldstein & Winner, 2011).

A specific mechanism responsible for these outcomes has however not been found. The studies of Goldstein (2010; 2011) did not show any explicit training on empathy or emotion regulation and only provided some interventions on TOM. Therefore, the mechanism is as precise as "acting classes". Goldstein (2010) does, however, suggest an underlying hypothesis in which she says potential actors increase their TOM skills by learning to analyze the emotions, beliefs, and motives of their character. In addition, she says acting classes increase empathy and emotion regulation because of the physical embodiment of other perspectives and personalities in a realistic manner. This corresponds to Stanislavsky's theory on acting, in which he says actors can only express real emotions when they use a form of

empathy that involves a simulation based on own experiences and a use of narrative when exploring the meaning of the complete play (Gallagher & Gallagher, 2019).

Before giving a more thorough definition of the three social skills and how they manifest in individuals with DS, a description of DS should be given. DS is a genetic chromosomal mutation in which individuals show a delayed pattern of development (Bull, 2011). This development is often described as abnormal or deviant, which stigmatizes individuals with DS (Jain, Thomsma, & Ragas, 2002). To prevent stigmatization and to contribute to more acceptance this study will not make any distinctions between abnormal and normal individuals, instead, there will be referred to individuals with DS and without DS. DS typically involves intellectual disabilities, characteristic facial features, physical growth delays, and somatic diseases. In 95% of the cases, symptoms are caused by a copy of chromosome 21 as a result of nondisjunction during the development of a sperm or egg cell. (Sherman, Allen, Bean, & Freeman, 2007; Bull, 2011). Four percent is due to chromosome 21 translocations, this is when a portion of chromosome 21 becomes attached to another chromosome. The remaining 1% is due to mosaic DS when only some cells of chromosome 21 are copied and other cells remain normal. Individuals with mosaic DS often have more potential for cognitive and social development than individuals who have a complete copy of chromosome 21 (Fishler & Koch, 1991; Bull, 2011). The degree of cognitive functioning in individuals with DS varies between an IQ of 20-70, which is related to poor judgment, impulsive behavior and limited social skills (Bull, 2011).

The first social skill that is supposed to be promoted by acting is TOM which can be defined as the ability to attribute mental states such as ideas, desires, intentions, and emotions to others and oneself to predict and declare behavior. It is seen as a cognitive capacity that is fundamental for social understanding (Sabbagh & Seamans, 2008). Steerneman and Meesters (2009) describe three stadia of TOM. Stadium one is the precursors of TOM involving emotion recognition skills and the understanding of pretense. At this stage, children are able to attribute needs, emotions and mental states to others. Then there are the first manifestations of a real TOM, in this stadium, children learn first-order-beliefs and false beliefs. In first-order-beliefs children are able to recognize that the mind is separate from the physical world. Which means, that children understand that their own thoughts may reflect reality and may be manifest in behavior but are in spite of that, internal and mental, and should, therefore, be distinguished from real-world events. Secondly, there is the concept of false beliefs, which means that an individual is able to recognize that others have beliefs about the world that are diverging (Wellman, Cross, & Watson, 2001). The third stadium is that of second-order beliefs, the ability to think about someone else's thoughts. At this stage, children are able to

comprehend that two individuals can have different thoughts about the same reality (Carpendale & Chandler, 1996). They are now able to understand sarcasm (Keenan & Evans, 2009) and the influence of emotions on somebody's thoughts (Shakoor, et al., 2012). Perner and Wimmer (1985) also include a fourth stadium and that is one of the high-order-beliefs, the ability to think about what other people think about your thoughts.

Research into TOM in individuals with DS shows that they have more difficulties in solving TOM tasks (i.e. Sally-Ann test) than individuals without DS and those with other intellectual disabilities (Giaouri, Alevriadou, & Tsakiridou, 2010; Yirmiya & Shulman, 1996). In correspondence Giaouri, Alevriadou and Tsakiridou (2010) found evidence that TOM is positively related to verbal abilities. There is however also empirical evidence that individuals with DS do better on TOM-tasks than autistic individuals with higher cognitive abilities (Baron-Cohen, Leslie, & Firth, 1985; Wong & Leung, 2010) assuming that it might be a skill unrelated to cognitive capacity. There are two studies known which explicitly distinguished the stadia of TOM. Alevriadou and Giaouri (2011) studied the false beliefs and second-order beliefs of individuals with DS. They did this by distributing different stories accompanied by pictures depicting the characters and the main story events. Afterward, the experimenter asked the participants a series of questions. Amado et al. (2011) had the same approach but also researched first-order beliefs. Both studies demonstrated that individuals with DS perform more poorly on second- order-belief tasks than individuals without DS. Until now these have been the only studies known to make this distinction and therefore it is assumed that individuals with DS are able to reach the understanding of first-order-beliefs but not those of second-order-beliefs.

TOM can be seen as the cognitive component of the second social skill; empathy. There are a variety of definitions for empathy as shown by a literature study devoted to this subject done by Batson (2009). He distinguished eight conceptualizations of empathy with the common ground that there is a distinction between an affective (feeling) and a cognitive (knowing) component of empathy (Neumann, Chan, Boyle, Wang, & Westbury, 2015). In this study, TOM (cognitive) is distinguished from the construct empathy which is given an affective definition, namely: the capacity to feel the emotions of others (Zaki, Bolger, & Ochsner, 2008). At this moment only one study is known about empathy in individuals with DS (Kasari, Freeman, & Bass, 2003). They examined empathy in reaction to watching someone in distress. In comparison to nonspecific mental disabilities, individuals with DS show more prosocial behavior in a distress situation. They, however, do not react with distress of their own and show little affective responses. Kasari, Freeman, and Bass (2003) therefore

conclude that individuals with DS do display the social consequence of empathy but they do not empathize emotionally (i.e. respond with feeling the same emotion).

The last construct thought to be promoted by drama training is emotion regulation. Emotion regulation can be described as the knowledge of emotions and the influence and control an individual has over the experience and expression of these emotions (Gross, 1998). Emotion regulation is more complex than merely coping, it is not only the regulation of emotional responses but also the initiation or alteration of new emotional responses (Ochsner & Gross, 2005). Gross (1998) suggests a division between behavioral regulation, in which you suppress or express your emotions, and cognitive regulation in which you reevaluate or change your attitude about an emotional situation. When emotion regulation is optimal an individual is able to use a flexible range of regulation and coping strategies (Goldstein, 2010).

Limited research on emotion regulation in individuals with DS has been done but results suggest that it is less developed than in individuals without DS. Jahromi, Gulsrud, and Kasari (2008) found that children with DS had a limited repertoire in regulation strategies. In addition, the study of Knieps, Walden, and Baxter (1994) claims that toddlers with DS show different affective responses in the same situations as children without DS. Although Kasari and Sigman (1996) only write about emotional expression, they do state that individuals with DS show delays in emotions and affect display. Smith and Walden (1998) are the only ones known to find contradictory evidence namely that emotional regulation in children with DS, especially experience and expression of emotions, is more intense than previously suggested.

Altogether, it is assumed that TOM, empathy and emotion regulation are underdeveloped skills in individuals with DS. As the literature suggests (Goldstein, 2010; Goldstein & Winner, 2011; Ligthelm & Louw, 2014) drama training might be beneficial in promoting these social skills. When individuals with DS learn to understand the internal world, emotions, and beliefs of their character by acting, it is hypothesized that social competence increases. Nevertheless, previous research on drama training has never focused on the DS-population. It is unclear how to examine the possibilities of a drama training can have in this population and what is needed to design such a study. Therefore, the primary concern of this research is to describe the feasibility and relevance of studying social skills in individuals with DS who participate in a drama training.

Three research questions are under investigation. First, the potential of a drama training in the DS-population is evaluated to get a better understanding of the relevance of future research (Bowen, et al., 2009). More precisely an expert will be questioned on the possibilities that a drama training can have in stimulating social skills in individuals with DS. Therefore, the first research question of this study is: *How can TOM, empathy and emotion* 

## regulation be stimulated in individuals with DS who participate in drama training according to an expert in practice?

Furthermore, the TOM-skills of individuals with DS who participate in a drama training are examined to get an understanding of how TOM manifests in this population and how this relates to previous literature. For the scope of this study, it was not feasible to examine both TOM, empathy and emotion regulation and since literature (Goldstein, 2010; Goldstein & Winner, 2011) suggests that TOM is the first to develop when participating in drama training, before empathy and emotion regulation, this research merely focusses on TOM. TOM skills, were also found to increase regardless of verbal IQ (Goldstein & Winner, 2011), which means that lower verbal abilities in individuals with DS are not contraindicated to develop TOM by means of a drama training. The second question is: *How does TOM manifest itself in individuals with DS who participate in drama training?* 

To examine TOM a new instrument will be introduced to the DS-population. This instrument will be evaluated on its appropriateness for data-collection and suitability for the DS-population. The Sally-Ann Task is currently a widely-used instrument to examine TOM and is also used to examine individuals with DS (Baron-Cohen, Leslie, & Firth, 1985). What makes this instrument so suitable is that it is non-verbal. It does, however, has its limitations; the most important one being that it only examines false beliefs and therefore it only provides a limited description of TOM. To get a better view of all stages of TOM the TOM-test-R (Steerneman & Meesters, 2009) will be introduced. The third question is: *How should the TOM-test-R be applied when examining individuals with DS*?

#### **Methods**

#### **Research setting**

This study took place at KamaK, a non-profit organization in Hengelo (the Netherlands). KamaK was founded in 1991 and has since been a growing institute in which health care professionals and volunteers work as a team to train individuals with intellectual disabilities to become an actor in a theatre setting. The participants train five days a week, six hours a day and work on body exercises, elementary play, music, and the actual play. Some of the participants have been part of KamaK since the beginning while others just started their training. Each year a new theatre piece is introduced by KamaK. This is in addition to the already known pieces played throughout the year.

#### **Participants**

One of the participants in this study was the director of a drama training institute for individuals with DS. He can be seen as an expert in providing drama training in this population as he has 27 years of experience training individuals with DS to become actors.

Apart from the director, the study involved 13 adults with DS (7 women, 6 men) between the ages of 20 and 48, recruited through non-probability sampling. All participants attended drama training at KamaK at the time of testing. The length of time they had attended KamaK ranged between 1 to 27 years. To construct a heterogeneous sample with a broad range of individual characteristics, the individuals were purposively selected for verbal abilities, length of attendance at KamaK and gender. Inclusion and exclusion criteria were set to determine participation in the interview. Participants had to be able to verbally express themselves. The level of verbal expression of the participants was independently estimated by two mentors from the support staff at KamaK, who observe the actors on a daily basis. Their assessments corresponded in most cases, however, in a few cases their assessment differed. The difference lay in the fact that one mentor tended to assess the participants with higher verbal abilities than the other mentor. In this study, three cases are presented in which both mentors agreed upon the assessment of the verbal abilities of the participants. Adults with significant hearing deficits or visual deficits were excluded, because of the verbal and visual stimuli used in the test material.

#### Procedure

The study started with a trial administering the TOM-test-R (Steerneman & Meesters, 2009) and a structured interview among two participants. The trial was used to estimate the feasibility of using this test in this particular population. Attention was paid to the verbal abilities to answer questions, the degree to which questions were comprehended and the suitability of the length of the test. It was observed that the results were varied, some questions seemed to be fairly easy to answer for both individuals, competence in answering other questions seemed to be dependent on verbal abilities or motivation. This was reason to further investigate the feasibility of conducting this instrument within this population.

Subsequently, the TOM-test-R was administered to all participants, in individual sessions of 30-50 minutes. This was done by the researcher, a trained assessor in conducting this instrument. In three of the interviews, there was assistance from one of the mentors at KamaK. This was in the two trial cases and an interview where the quality of the answers had been compromised by poor verbal abilities and perseverating. The assistance offered consisted of adapted language use making questions more personal (e.g. if you are in bed

dreaming, are you able to touch what your dreaming of? Instead of when Jan is dreaming, is he able to touch his bike?) and portrayal (e.g. using hand gestures to depict someone sleeping) and gave information on how to approach and motivate the target population in the following interviews. Directly after the TOM-test-R, participants were subject to a 10-minute cognitive interview. In all cases, the parents/caregivers of the participants were informed of the study through an informative letter and official approval was obtained. The participants themselves verbally approved their participation in the study. Finally, an interview was conducted with the expert. This research proposal was reviewed and approved by the ethical committee of the University of Twente, on 25<sup>th</sup> of October 2018, reference number: 18852.

#### Measures

#### Interview with expert

The first measure was a two-hour in-depth interview with the expert. The aim of this interview was to get a better understanding of how drama training of individuals with DS can be defined and how TOM, empathy and emotion regulation can be stimulated by this training. Open-ended questions were formulated to get information on admission criteria, the content of the training, the requirements for the training and the degree to which individuals with DS are able to empathize when participating in drama training (see Appendix I). The interview was recorded and transcribed.

#### TOM-test-R

The TOM-test-R (Steerneman & Meesters, 2009) is the second measure used. The TOM-test-R is a structured interview that assesses the presence of social understanding, social insight, and social sensitivity. In this way, it gives an overview of TOM abilities in children without DS at the age of 4 till 12. The test consists of fifteen items in which different social stories are proposed and 36 questions are asked. The instrument measures three stages of TOM namely: 1. The precursors of TOM (TOM1) consisting of pretense (e.g. pretend to comb your hair), the difference between reality and non-reality (e.g. can people see a bicycle they are dreaming about?) and emotion recognition (e.g. who in this picture is sad?). 2. The understanding of beliefs (TOM2) consisting of First-order-beliefs (e.g. What somebody can think about a real event, John thinks Cindy is sad) and false beliefs (e.g. Sally-Ann test). 3. Second-order-beliefs (TOM 3, e.g. understanding of humor). Although 'De commissie testaangelegenheden Nederland' (COTAN), a Dutch commission that assesses psychological test material on its psychometric qualities, evaluated the TOM-test-R as insufficient (COTAN documentatie, 2013), Muris et. al. (1999) indicated the TOM-test-R to be reliable and valid.

#### Cognitive interview

A cognitive interview was conducted to explore the feasibility of administering the TOM-test-R to individuals with DS. This interview was constructed using the cognitive model of Tourangeau (1984). In this model, Tourangeau proposes four cognitive factors involved in answering a question. For the TOM-test-R to be feasible, individuals have to be able to comprehend questions, retrieve the right information from memory and have the motivation to answer questions in a non-desirable and objective way. It was opted to test these factors in a retrospective interview since interjecting probe questions could interfere with their ability to follow instructions – something that is a real possibility when people with low educational levels are involved (Bates & DeMaio, 1989). Example questions were: 'which questions did you find hard?' (comprehension), 'Which stories were the easiest, short or long stories?' (information retrieval) and 'what did you think about doing this test?' (motivation and social desirability). During the interview questions were fairly often rephrased or adjusted to obtain an answer from participants. All interviews were recorded and transcribed.

#### Participant observation

A second manner to explore the feasibility of using the TOM-test-R in individuals with DS was through participant observation. The open observation was done during the interview sessions. This resulted in a variety of impressions on verbal abilities, in which some individuals were able to make complete sentences saying (e.g. 'because she does not dare to tell the truth; she does not want to hurt their feelings') while others only used disjoint phrases (e.g. lady crying). Moreover, a variety of behavior was observed in which all participants had the tendency to associate but only some individuals were rocking during the interview and a few individuals sighed repeatedly. Lastly, there appeared to be various levels of cognitive insight among participants, some individuals were able to understand sarcasm and gave coherent and differentiated answers on questions. Others had a hard time answering relatively simple questions such as: 'which questions were difficult for you?' they responded to a question like that by randomly indicating a picture they had just pointed out when asked: 'which questions were easy for you?'. In addition, observations provided insight into how beneficial certain strategies (e.g. portrayal) were while the TOM-test-R was being implemented in the DS-population. Based on the observations a coding scheme could be made (see Appendix II).

#### Method of analysis

Because of the exploratory nature of this study, the interview with the expert was analyzed using a holistic-content analysis (Lieblich, 1998). This preserves the essence of the information told (Charmaz, 2011) and provides a first broad impression of the possibilities and effects that a drama training can have for individuals with DS. A holistic-content picture was made by reading the interview multiple times. Four themes were subsequently selected based on the literature and research questions, namely: the definition of drama training, TOM, empathy and emotion regulation. Based on these themes different subthemes were abstracted, namely: emotional antennae, perspective-taking, social desirability, enhanced empathy, emotion expression, and on-and-off button. All related content was retrieved from the transcript and used to give a broad but also a concise description based on the expert's view. Citations were translated by an official translator to preserve their essence and to prevent misinterpretation. In addition, they were selected based on their succinct representation of the expert's view.

Furthermore, the results on the TOM-test-R were analyzed by calculating descriptive statistics (e.g. min, max, mean, SD) for the complete sample. Because the test does not provide normcores for the DS population and does not provide cut-off scores per stage, the scores were interpreted based on raw scores and gave an answer to the second research question. The third research question was answered with the use of a more detailed analysis of three interviews. The interviews were selected based on the TOM-test-R scores namely a low, an average and a high score. In this analysis the results of the TOM-test-R, the cognitive interview and observations were combined and again studied from a holistic perspective. In this way, relationships between observations, the participant's own experience, and the results could be traced (Lieblich, 1998), thereby it not only gave an answer to the research question but also provided information on how to administer the TOM-test-R in the DS-population.

#### **Findings**

#### Interview with expert

The expert-interview was used to answer the following question: *How can TOM, empathy and emotion regulation be stimulated in individuals with DS who participate in drama training according to an expert in practice?* During the interview the expert constructed a thorough description of what drama training for individuals with DS entails. The expert defines acting as: 'Taking on a role as someone else and living out the role in such a way that the audience *believes it'*. Which is similar to Goldstein's (2010) definition of acting as the realistic

portrayal of a character. The expert distinguishes four different components as part of the training and elaborates on the requirements that need to be met to provide the training.

The training components are: body exercises, elementary play, music and the actual play. To come to acting the expert states that the most important ability is that individuals with DS should learn to express themselves physically: 'To have the capacity to bring your role to life with your whole body. You have to use your body as a means of expression'. Body exercises and elementary play are used to teach an individual to use their body to express themselves and to improvise. For example: 'Different dancing styles... you can vary from someone doing an English waltz, that could work... whether someone dares to completely let themselves go listening to deafening heavy metal or sensual dancing?'. Music lessons are needed to train speech, breathing control and the feeling for rhythm. The skills acquired during these three courses should benefit the play itself.

Furthermore, the expert distinguishes other requisite components when providing drama training for individuals with DS. Apart from practical requirements like location and decor materials, support staff need to have an affinity with theatre and be caregivers at the same time. This is because: 'The handicap influences the way you work... you have to be creative to allow something to grow out of it'. The expert says this is particularly important for the director who writes the plays, because: 'It demands of you [the ability] to think up a theatrical piece and give the people [involved] an appropriate role/task'. Besides the important role he attributes to artistic qualities in a director, he implicates that in this population it is important that plays are written in such a way that the characters suit the individuals instead of the other way around: 'I see it as a challenge for myself to ensure that we involve all the various qualities... in situations with people who are not handicapped you chose people for a role and you eliminate the people you do not need'. Because some individuals with DS are not able to express themselves verbally, this means each play should have both verbal and non-verbal roles. The match between actor and character can thus be based on verbal abilities, but the expert says it can also be done by: 'Making a play based on an [available] actor'. The expert, for example, wrote a play called Clown Syndrome.

Another requirement is that individuals with DS need to have certain basic skills before taking part in a drama training. Firstly, individuals need to be able to distinguish reality from fantasy to prevent their character interfering with their daily lives. This means that individuals are required to have reached the precursors of TOM, in particular the stage that individuals come to understand the concept of pretense (Steerneman & Meesters, 2009), before they can effectively participate in drama training. Secondly, individuals should have the ability to concentrate, this is needed: *'to get in to playing a part'*. The third prerequisite is that individuals should not have any physical limitations that prevent them from expressing themselves using their body. Secondly, individuals have to be able to follow instructions, the expert states: '*They need to be resilient to a degree* ... *because you need to use 'disordering techniques' to achieve genuine play acting.*' A certain amount of emotion regulation is thus expected in advance. The last requirement is that individuals should be able to function in a group and need to be able to act together. According to the expert: '*There is no place for loners and egoists in a play* ... *you need to support and assist each other during the play.*'

To test these abilities, a three-month trial period must precede the drama training. In this trial individuals take part in the training while testing them in both the theatre setting and the home situation. Pretense for example is tested during breaks and in the home situation, when: 'an actor playing a knight in the play keeps slashing with a sword when he is at home' he is unable to distinguish fantasy from reality. Concentration takes longer to test because: 'When you are dealing with people with a handicap, you are often dealing with behaviour designed to please others. As time goes on, the mask drops, and other things emerge.' The ability to follow instructions is tested during the training and is usually detected very quickly. The last requirement, the ability to function in a group, is tested by means of improvisation exercises: 'Then you see if people begrudge others. That they do not make contact ... that they only do things they want. That each improvisation task ends in a trick or game they chose for themselves.' If it turns out that someone's abilities are too limited, they should be rejected from the training. In other words, a certain amount of competence, including social skills, is expected to effectively participate in a drama training.

The following part will describe in more detail how the expert elaborated on the themes TOM, empathy and emotion regulation and specifically how these skills can be stimulated by drama training. Furthermore, the themes inductively led to the subthemes: emotional antennae, perspective-taking, social desirability, enhanced empathy, emotion expression and on-and-off button.

#### I. Theory of Mind

The first theme is TOM, the ability to attribute mental states such as ideas, desires, intentions and emotions to others and oneself to predict and declare behaviour (Steerneman & Meesters, 2009). Based on the expert's view TOM in individuals with DS is limited: '*They can* recognize certain behaviors and emotions shown by others, but they cannot oversee the consequences ... the acting does not get much beyond external characteristics.' He adds: 'I can reflect on how others see me, but they don't have that ability.' According to the expert,

observations of individuals with DS reveal that emotional antennae, perspective-taking and social desirability are aspects related to TOM.

*Emotional antennae.* When it comes to the recognition of emotions the expert states that individuals with DS are more sensitive than individuals without this disability: 'That antenna is very sensitive to whether someone is feeling bad or has just received bad news. This is much stronger than in people with no handicap. 'This doesn't seem to be a result of reading facial expressions or merely reflecting on the situation, but it seems to be based on the way individuals with DS feel in a certain situation, as an example: 'If I have a little difference of opinion with a colleague and am a bit pissed off, this is picked up very quickly and their focus is drawn to it.' He adds: 'I think that they feel it more easily because their antenna is more tuned to it ... there is a sort of emotional antenna that is very strong, whereby information is picked up and translated in a different way. 'When it comes to the training the expert says, the participants are continuously exposed to theatrically staged topics, which they normally do not encounter. By probing the actors about their own lives, for example by asking 'What's your own love life like?' he challenges them to evaluate and recognize their own emotions. In other words, emotion recognition in individuals with DS does not seem to be typically based on cognitive reasoning but more on affective reasoning. The training can challenge them to use cognitive reasoning.

*Perspective-taking.* Although the expert states that individuals with DS can only recognize behaviour and emotions but cannot reflect on them, the expert also describes that one of the requirements is that individuals should be capable of acting from different perspectives. This is seen in improvisation exercises: *'There are improvisation tasks where the idea is, for example, that a man comes to the door and every time the door opens, the person who comes in ... they can completely change the situation on the stage ... if the person at the door pretends that he is an ex-finance, then everyone on the stage has to immediately go with the new situation.' Being aware that there are different ways you can react in a certain situation demands that you can distinguish internal and mental states from real-world-events and this capability goes beyond the reactive response using the emotional antennae. However, the expert adds: <i>'This is partly attributable to imitation, and giving that imitation form, but it can be developed from different influences/perspectives.* 'Which implicates that perspective-taking is based on learned behavior instead of cognitive reflection. The expert uses different interventions to increase insight into the perspective of their character; he says: *'I tell stories about how someone feels in a certain role or why they do things.'* 

Social desirability. Furthermore, the expert elaborated on the aspect of social desirability: 'You often have to deal with behaviour designed to please. They want to do well

*for you.* Although well-developed TOM skills do not automatically lead to socially desirable behaviour (Smith, 2017), acting in a way that somebody else prefers demands knowing what the other wants and therefore you need to take perspective. At a later stage, the expert qualifies his assessment: '*The filter is dropped more quickly, before they return to their true self … how do I make myself popular or good looking or successful, that doesn't interest them as such, and the insights that I have... I can reflect on how other people see me, they don't have that.' This could implicate that just as perspective-taking, social desirability is not based on reflection but on learned behaviour.* 

To conclude, TOM in individuals with DS, as described by the expert, is characterized by emotional antennae and learned behaviour. The emotional antennae serve as a way to read somebody's emotions and state. It provides information about the other person on which they can anticipate. Although individuals with DS are able to take different perspectives in relation to others and show socially desired behaviour, this, according to the expert, seems to be mainly based on imitation and learned behaviour. This implies that, in the opinion of the expert, individuals with DS sense the other person and show adaptive behavior in response.

#### II. Empathy

The second theme was empathy, the capacity to feel the emotions of others (Zaki, Bolger, & Ochsner, 2008). This seems to be related to the emotional antennae of individuals with DS. According to the expert, empathy in acting is an ability that is characteristic for the DS population: '*In this group, acting is such an intense experience, that every time the story is told, they relive it again.*' He expands this statement by saying empathy is not only typical for this population, but they also excel in it in comparison to the individuals without DS: '*Yes, really, I dare to suggest that even more than average. We would show more exterior characteristics in this field [than they do].*' Furthermore, he adds that individuals with DS are better in expressing these emotions on stage: '*They have an extra talent for demonstrating their emotions in a way that is so authentic.*' This demands a further exploration of the subthemes of enhanced empathy and emotion expression.

Enhanced empathy. According to the expert individuals with DS experience the emotions of their character more deeply than individuals without DS and he explains this using the metaphor of an onion: '*They have less layers that they need to remove before they* get to their real self.' People without DS: '*Have to peel away many more [layers]built up* through their upbringing, embarrassment, socially desirable behaviors and barriers and therefore have their own 'handicap'. Enhanced empathy is often observed when the individuals come off stage: 'If I have been stabbed on stage, I still experience pain in the

wings. Or I might still need resuscitation if I have had a heart attack.' In practice this means special attention must be paid to the individuals after they come off stage to help them come out of their role. According to the expert this has nothing to do with misunderstanding the concept of pretense: 'It is all part of the play, it will never go as far as someone really wanting to see a doctor'. This could indicate that TOM, the ability to reflect on a social situation, might impede empathy in acting.

*Emotion expression.* According to the expert, the success in acting by individuals with DS lies in the ability to express emotions in a way that feels genuine and sincere, he says: 'The expressive power of people with Down or with a handicap ... is so strong that there is ... almost a special art form that arises which can deeply affect others.' The expert says this can take place because the individuals with DS are able to feel the emotions of their character on stage. This would imply an interaction between enhanced empathy and emotion expression abilities. He does, however, say that their talent for emotion expression has its limitations: 'They pick something up and feel it very intensely ... but they find it difficult to see the nuances in that and to fine-tune the emotion.' Note that the expert says emotion expression is a talent of individuals with DS, but at the same time this is also the skill most practiced during the drama training: 'So it's the expressive skills that are most important, [whether] you can carry the audience away. 'This is because 'We have a biased audience. They are accommodating and easily satisfied. We want to grab people by the throat, so they forget that they are looking at someone with a handicap'. The expert says, in the end, that when individuals gain more drama skills, like expression, they become more empathetic 'Yes, so when the actors come [to us] they need to learn the ropes by understanding how the mechanisms of theatre work. The next step is the improvement of their empathetic skills'.

To conclude, individuals with DS, in the opinion of the expert, have an aptitude when it comes to empathy. In acting this means the feelings of a character are more deeply felt than by people without DS. This form of enhanced empathy seems to be interacting with the ability to express emotions. Emotion expression, as specified by the expert, is an innate talent of individuals with DS, which develops to a greater extent during a drama training and has a deep authentic ring. This, according to the expert, would be the result of genuinely feeling the emotions of a character.

#### III. Emotion regulation

The third theme is emotion regulation, a construct which is described as the knowledge of emotions and the influence and control an individual has over the experience and expression of emotions (Gross, 1998). According to the expert, emotion regulation is one of the

prerequisites for good acting: 'The criterion of being able to accept coaching or direction, has to do with the fact that they have to be somewhat [emotionally] resilient.' This quality is needed because: 'I use disordering techniques to break through existing frameworks to free up new emotions.' Although emotion regulation is a requirement, the expert says at different points during the interview that he is more careful with this population because of their feelings, for example: 'It's a very tense time when the roles are being assigned, you would be less concerned about how it is being received in a group of people without this handicap.' This would indicate that individuals with DS are more limited than individuals without DS in handling their own emotions.

*On-and-off button*. Emotion regulation is partially stimulated through drama training by the use of the term on-and-off button, when individuals stay in their role and keep wallowing in emotions: 'We name it the on-and-off button ... and tell them that they may now step out of their role'. This seems to help the individuals to control the emotions they are feeling through acting and get more influence over the suppression and expression of their emotions. In this case, it is behavior- and not cognitive regulation which is stimulated.

*Emotion expression.* Emotion expression is not only related to empathy but also to emotion regulation. In the expert's view, good emotion expression skills help to overcome verbal limitations: 'On the other hand, an improving ability to express yourself can remove frustration as other usable means of expression become accessible'. Individuals who gain better strategies to express themselves become better at regulating their emotions and feel less frustration. Just as in the on-and-off button it is behavior regulation, and not so much cognitive regulation, which is stimulated.

To conclude, according to the expert, individuals with DS are more limited when it comes to emotion regulation skills but are able to overcome some of these limitations (e.g. frustration-intolerance) through the means of a drama training which stimulates behavior regulation.

#### TOM-test-R

The scores on the TOM-test-R of the participants (N=13) are presented in table 1. Because the test does not provide normcores for the DS population and does not provide cut-off scores per stage, the scores were interpreted based on raw scores. As can be observed in Table 1, all individuals reached a score of seven or higher on the precursors of TOM, which implies that individuals with DS participating in a drama training are able to reach this stage. When it comes to the second and third stage, the scores differ highly among participants, between a score of three to twelve for TOM 2, and a score of one to ten for TOM 3

ТОМ	Minimum	Maximum *	Mean	SD
TOM 1 Precursors of TOM	7.00	12.00	10.85	1.77
Pretense	3.00	3.00	3.00	0.00
Difference between reality and non-reality	0.00	4.00	3.16	1.28
Emotion recognition	4.00	5.00	4.85	0.38
TOM 2 Understanding of beliefs	3.00	12.00	8.31	2.69
First-order beliefs	2.00	8.00	6.62	1.85
False beliefs	0.00	4.00	1.69	1.32
TOM 3 Second-order beliefs	1.00	10.00	5.77	2.31
TOM Total	15.00	32.00	24.92	5.41

Table 1. Minimum, Maximum, Mean and Standard deviation on all TOM-test-R scores from all participants (N=13).

\* The maximum score possible is 12 on all three stages and 36 on total.

As can be seen in Figure 1 the results on the TOM-test-R were relative to verbal abilities of the participants. Lower verbal abilities were related to lower scores on all stages of TOM and higher verbal abilities were related to higher scores on all stages.



*Figure 1. Mean scores on TOM stages in relation to verbal abilities on all participants (N=13)* 

#### Cognitive interview and participant observation

To give a more thorough description of the widely-spread scores and the appropriateness and suitability of the TOM-test-R for the DS-population three cases are discussed. The cases involve one low, one average and one high score on the TOM-test-R. Participant observation and the cognitive interview were integrated into the description of all three cases.

#### Participant 1, low score

The first individual is a 20-year-old man with DS, who has been part of the training for a year. He had a total score of 15 on the TOM-test-R which was the lowest score of all participants. At TOM 1, the precursors of TOM, he scored seven out of twelve, at TOM 2, the understanding of beliefs, he scored five out of twelve and he scored three out of twelve on TOM 3, second-order-beliefs. The verbal abilities of the participant were estimated as low, by both the mentors and the researcher. The participant seemed motivated and concentrated during the entire interview. He was focused on the test-material, stayed in contact with the interviewer and seemed to be socially oriented.

At the start of the interview it became clear that it was difficult to understand the participant because of verbal limitations. He perseverated and kept on saying: 'Indeed' while rocking on his chair. This made it hard to judge his comprehension of questions. For this reason, a mentor assisted during his interview, using portrayal to clarify the content of stories. For example, she used hand gestures to depict someone sleeping. In addition, she rephrased questions by making them more personal. To give an instance, she asked the participant: 'Does your father sometimes say, 'what a lovely weather today'? [sarcastic tone] What does he mean by this?'. In the case of this participant, the assistance, did not seem to have any added value because the participant kept on perseverating and did not give any answers related to the questions.

Furthermore, the participant had the tendency to linger in associations during the interview. One of the stories, for example, introduces the dog Olaf, upon which the participant started saying different names. With the help of the mentor it became clear that the participant was talking about his own dogs and cats. It proved to be hard to return to the original question, as the participant kept on talking about his pets. This was also the case during the cognitive interview, in which the participant in reaction to the question: *'what did you think about the interview?'* suddenly started talking about *'Furia'*, one of the plays he is part of. Not only questions, but also the pictures from the TOM-test-R led to association and seemed to distract the participant from the original question. In one of the questions, to test the comprehension of sarcasm, for example, there is a story about rain in which a character says:

*'Isn't it a lovely day?'* The picture however portrays both rain and sun. The participant kept on talking about the sun and pointed at the sun different times. At last the participant seemed to be socially oriented. This was illustrated when the participant said: *'Hello Jan'*, when Jan was introduced in one of the stories. He did this on multiple occasions.

The cognitive interview of the participant was hard to interpret, because it was unclear whether he did not comprehend the questions or if it was perseveration stopping him from adequately answering questions. At the question: *'What did you like about the questions?'* He answered: *'Indeed'*. *'Indeed'* was however also his answer to the next question: *'Which questions were easy for you?'*. In addition, he kept on saying he found the questions *'super'*. This positive valuing seemed to be a form of socially desirable behavior, in which the participant eventually lingered. Most of his answers had a positive connotation, he said the questions were: *'super', 'easy'* and *'asked really well'*.

In retrospect, by comparing the participant's score with the average score from different age groups, it can be concluded that his TOM score represents the average score of a four-year-old child. This indicates that he is able to recognize emotions and understands pretense, however he does not seem to understand that somebody's thoughts are separate from reality. This means that he is not cognitively able to take different perspectives. Part of this low score might be explained by his verbal limitations. Visual stimuli, like portrayal and pictures, however, also did not seem to help him in the right direction.

#### Participant 2, average score

The second individual is 27-year-old female with DS, who has been part of the training for eight years. This individual had a total score of 26 on the TOM-test-R, which was average in comparison to other participants. At TOM 1, the precursors of TOM, she scored eleven out of twelve, at TOM 2, the understanding of beliefs, she scored nine out of twelve and lastly, she scored six out of twelve on TOM 3, second-order-beliefs. The verbal abilities of this woman were estimated as average, by both her mentors and the researcher. The participant seemed concentrated and was focused on social contact.

In general, the participant was able to adequately answer questions. However, in some questions her answers seemed to be subject to association and socially desirable behavior. The tendency to associate became clear in one of the stories about a child having a cold. In this story, the participant is tested for the understanding of a proverb: *'Having a frog in your throat'*. But the participant started talking about how she is treated when being ill: *'I always put Dampo on and nose spray'*. The participant also started associating in a story about a dog burying his bone. At the question: *'Where will the dog look for the bone?'* the participant

answered: 'Dig up with his paws'. Furthermore, the participant showed socially desirable behavior during the TOM-test-R. She largely focused on the interviewer during the test and kept on smiling towards her. This meant she was focused to a lesser extent on the pictures and did not get all the information. When pointing out the pictures she was able to come to the right answer. During the cognitive interview, social desirability seemed to be prominent as well. Although there were different questions during the TOM-test-R to which she replied, 'I don't know', during the cognitive interview she said: 'Of course I knew everything'. When it was emphasized that she did not know all answers, she first said: 'They weren't all easy.' but when asked which questions were hard, she says: Yes, I think everything is easy'. These inconsistencies remained during the entire interview. For example, the participant, at first says the pictures helped her answer the questions, but when asked if it would be harder if the pictures were left out, she says 'No'. Furthermore, the participant says she thinks sarcasm means 'breathing'. Sarcasm is one of the answers during the TOM-test-R, which implies that although this participant has average verbal abilities in comparison to others of the DSpopulation, she is still too verbally limited to answer all questions. The questions on the TOM-test-R therefore, seem to remain subject to verbal limitations.

Based on the TOM-test-R it can be concluded that the TOM of this participant represents an average score of a seven-year-old child. Meaning she is able to reach the first two stages of TOM in which she can recognize emotions, understand pretense and is aware that the mind is separate from the physical world. In the second stage however, she scored high on the first-order beliefs, but low on false beliefs. Meaning she can distinguish thoughts from reality, but she does not understand that people's thoughts diverge from that reality. In addition, she is not able to estimate what another person thinks about a certain situation or somebody else's thoughts.

#### Participant 3, high score

The third individual is a 48-year-old female with DS, who has been part of the training for 24 years. This individual had a total score of 31 on the TOM-test-R, which is high in comparison to other participants. At TOM 1, the precursors of TOM, she scored twelve out of twelve, at TOM 2, the understanding of beliefs, she scored eleven out of twelve and finally, she scored eight out of twelve on TOM 3, second-order-beliefs. The verbal abilities of this woman were estimated as high, by both the mentors and the researcher. The participant did not seem to be as motivated as other participants and kept on asking when she was allowed to go back to the training. Additionally, she continuously said: *'I don't know'*, when she did know the answer after validating her feelings and being asked a second time.

In general, this participant was able to adequately answer the questions, she understood the questions asked and if not, she asked for clarification. Because the participant was one of the two trial cases, one of the mentors assisted during the TOM-test-R. This assistance mainly consisted of motivating this participant. The participant allowed herself to be corrected by her mentor fairly easy but did not follow the corrections of the interviewer. During the cognitive interview she said: '*My mentor explained this better*'. According to the participant this was because: '*You read too fast*'. She said: *I don't like it*'. The participant was, in this way, very honest in comparison to other participants who mainly seemed to show socially desirable behaviour. Furthermore, the mentor used portrayal in harder questions. She portrayed one of the stories together with the interviewer. This proved to be helpful to the participant, because afterwards she was able to correctly answer the question. It was also noticeable that this participant was fairly impulsive. On different occasions the participant started talking while the interviewer was telling a story. This was especially when telling longer stories, she also sighed a lot during these stories. After the TOM-test-R, the participant was visibly tired and seemed to be relieved that the test had ended.

Based on the TOM-test-R it can be concluded that the TOM of this participant represents an average score of a ten-year-old child. Meaning that she is able to reach all three stages of TOM. The participant understands pretense and is also able to understand that different people have different thoughts on reality. In addition, she is able to understand sarcasm, the influence of emotions on somebody's thoughts and she is able to estimate what somebody else thinks about a certain situation.

#### **Conclusions and discussion**

The present study examined three research questions. The first is question was: *How can TOM, empathy and emotion regulation be stimulated in individuals with DS who participate in drama training according to an expert in practice?* The expert, consulted by the researcher, considers TOM - the ability to understand someone's internal world, beliefs and motives (Steerneman & Meesters, 2009) - as an underdeveloped skill in individuals with DS. He says individuals with DS have strong emotional antennae, which they use to recognize emotions, but they are not able to cognitively evaluate what the other person thinks. This means he considers individuals with DS to have fewer skills than found in previous research (Giaouri, Alevriadou, & Tsakiridou, 2010; Yirmiya & Shulman, 1996). In his opinion, TOM can only be trained to a small extent and should not be the focus of a drama training.

The expert identifies empathy - the capacity to feel the emotions of others (Zaki, Bolger, & Ochsner, 2008) - as one of the main strengths of individuals with DS. The expert believes that individuals with DS are better able to sense another person's feelings because they have a limited capacity to rationalize emotions. This is in contrast to previous research in which individuals with DS were found to be less empathic than individuals without DS (Kasari, Freeman, & Bass, 2003). This form of enhanced empathy, which the expert describes, seems to interact with the expression of emotions on stage, the expert says emotions seem more authentic when expressed by people in the DS-population. Although it is not empathy but emotion expression which is stimulated during drama training, the expert does observe empathy increasing as drama skills improve.

The last construct emotion regulation - described as the knowledge of emotions and the influence and control an individual has over the experience and expression of these emotions (Gross, 1998) - is, according to the expert, indeed stimulated with drama training. In his opinion, emotion regulation skills in individuals with DS are naturally more limited but can be stimulated by training skills of expression. This has a positive side effect of helping overcome frustrations in verbally limited individuals. In addition, drama training stimulates a behavioral form of emotion regulation by using the term on-and-off-button. Individuals learn to turn their role on and off, which also helps them to control their emotions off stage.

The second research question was: *How does TOM manifest itself in individuals who participate in drama training?* The present study found that the level of TOM skills in individuals with DS participating in a drama training vary highly. Some participants have high TOM skills and are able to understand second-order beliefs and some participants have relatively low TOM skills and only understand the precursors of TOM. Although the results are not statistically tested, there is reason to believe that these results might be positively related to verbal capacities. The highest score was reached by an individual with mosaic DS, which corresponds with the hypothesis that individuals with mosaic DS have more emotional and cognitive developmental potential (Fishler & Koch, 1991). The results, based on performances on the TOM-test-R and the cognitive interview, are higher than could be expected from the expert's perspective and literature (Giaouri, Alevriadou, & Tsakiridou, 2010; Yirmiya & Shulman, 1996; Alevriadou & Giaouri, 2011; Amado, Benejam, Mezuca, Serrat, & Vallès-Majoral, 2011). This implies that individuals with DS, have a higher potential regarding TOM skills than previously demonstrated.

The last research question was; *How should the TOM-test-R be applied when examining individuals with DS*? Based on participant observation and a cognitive interview it became clear that several changes have to be made to make the TOM-test-R suitable for the DS-population and appropriate for data-collection. At first, observation revealed that individuals enjoyed doing the tasks but seem to remain ignorant about what they were doing. This ignorance was illustrated by association, perseveration, distraction and unrelated answers to questions. Long stories in particular evoked association. This means when applying the TOM-test-R, textual changes must be made. Long stories should be shortened and the level of difficulty of the text should match the level of the vocabulary of the DS participants. However, it is thought that for some individuals with lower verbal skills, this change is not sufficient, which makes the feasibility of using the TOM-test-R in these people questionable. Future research should indicate if a more non-verbal instrument can measure TOM-skills in these individuals. The recommendations will elaborate on what such an instrument should look like.

Furthermore, ambiguous pictures (i.e. illustration of rain with the sun in a thought cloud) led to association, but when the images were covered participants were able to give the right answer. Meaning for the TOM-test-R to be suitable, pictures should contain less ambiguous information. In addition, the participants say images 'should be less childish'. Argumentative as the TOM-test-R is made for children and participants were adults. Finally, it is recommended to use the observation scheme in Appendix II, while administering the TOM-test-R. This can help to detect answering biases, the misunderstanding of questions and reflection abilities, and helps to give a broader impression on TOM.

When turning back to the primary concern of this research to describe the feasibility and relevance of studying social skills in individuals with DS who participate in a drama training, a final conclusion can be drawn. Based on the present study it is the author's opinion that it is feasible to investigate the social skills of the DS-population who participate in a drama training if certain conditions are met. From the variability in TOM-skills in the present study, it is expected that research on a larger scale might result in significant findings, endorsing the relevance of future research. However, only when a controlled study is executed it will become clear whether a drama training indeed has the potential expected from this research.

Just as in previous research (Goldstein, 2010) the question can be raised on how to determine which mechanism could be responsible for increasing TOM skills in individuals participating in drama training. In this study, this question is particularly relevant because the expert states that TOM is only trained to a small extent in drama training for individuals with DS. The hypothesis that acting involves playing a character which demands the understanding of character's internal life world and requires the recreation and representation of another individual (Ligthelm & Louw, 2014), does not apply in this population, according to the expert. A possible explanation for the positive results is that behavioral patterns (e.g. taking

perspective, emotion expression) learned during drama training initiate cognitive changes, as individuals learn to connect logical consequences to certain behaviors. This could mean that although there is no explicit training in cognitive abilities, they do improve. An alternative explanation is that individuals with DS who do not participate in drama training could also reach the understanding of second-order-beliefs. Another alternative is that the expert is so strongly focused on the emotional antennae of the participant that TOM skills leave unnoticed. Further research is needed to determine and declare the mechanisms of the influence of drama training on TOM in individuals with DS.

For now, some remarks must be made reviewing the results. Firstly, regarding the internal validity of this research. The highly linguistic character of the TOM-test-R might have led to false negatives and false positives. The various results on the second and third stage of the TOM-test-R seemed to be best explained by a distinction in verbal abilities among participants. Lower verbal abilities were related to lower TOM scores and higher verbal abilities related to higher TOM scores. This would support the hypothesis that TOM abilities are subject to verbal capacity (Giaouri, Alevriadou, & Tsakiridou, 2010). However, the various results could also be due to the highly linguistic character of the TOM-test-R, which could have led to false negatives. Meaning some individuals might have better TOM abilities than presented in this research. In addition, the present study used portrayal to clarify questions which might have led to false positives. Portrayal seemed to compensate for a lack of verbal abilities, as it was seen in most cases, that after portrayal was used, individuals were able to answer questions correctly. However, portrayal could have interfered with the measurement pretension of the TOM-test-R, with the result that individuals were assigned higher TOM skills than their actual capacity. In future research, a non-verbal instrument could be used to control for false and positive negatives.

The fact that the TOM-test-R does not provide any cut-off scores or norm tables for the DS-population could also have compromised the validity as raw scores had to be interpreted. With the consequence that there was no certainty whether an individual reached one of the specific stages (e.g. TOM 1). This meant the scores were evaluated in relation to the test's maximum score, which is rather subjective and therefore could also have led to false or positive negatives. In addition, the scores of participants were, in retrospect, compared to the average score from different age groups. If the developmental-age of the individuals was taken into account, their scores could be compared to their general level of functioning, which would have given a better indication of TOM skills. This data was, however, unknown. In addition, the psychometric qualities of the TOM-test-R were evaluated as insufficient by the COTAN, meaning results should be interpreted with caution because they might not fully reflect the construct of TOM.

A second remark must be made about the external validity of this study. All participants were part of the same drama training and were required to have different basic skills. This raises the question of whether the current sample is representative for the whole DS-population. For example, it could be expected that this sample was able to reach the precursors of TOM because the understanding of pretense is one of the prerequisite basic skills required to participate in drama training. The question remains whether this applies to all individuals with DS or if there are certain characteristics in this sample interacting with the results. If the latter is the case, the results cannot be generalized.

Lastly, there is an ethical issue that should be addressed. As can be read in the findings, participant 3, did not seem motivated to participate in the study and kept on asking when she would be allowed to go back to the training. This raises the question of whether it was ethically justified to continue with the test. Although all participants were adults, they are also vulnerable because of their intellectual disability and are, just like children, less able to protect their own interests (Cuskelly, 2005; Graham, Taylor, Anderson, & Fitzgerald, 2013). In addition, consent should be seen as an ongoing process in which you continuously have to renew and re-establish the participant's agreement (National Disability Authority, 2009). According to various reports on ethics it is important to pay close attention to boredom, distraction and unengagement in children and individuals with an intellectual disability because this can be their way to withdraw their consent (Graham, Taylor, Anderson, & Fitzgerald, 2013; Wiles, Charles, Crow, & Heath, 2004). Wiles et al. (2004) suggest asking the participant, in this case, if they want to stop or postpone the interview or ask them if they want to withdraw their consent. In the case of participant 3, she was encouraged by both the mentor and researcher to go on when she asked to do something else instead. This meant she was not offered to stop, postpone or withdraw her consent. Although both the mentor and the researcher are under the impression that the participant was not harmed by this approach, in future research attention must be paid to these behavioral signs. To ensure this the suggestion of Wiles et. al. (2004) can be used: to provide individuals with colored cards they can use to indicate if they want to stop or pass on a question or topic by picking up the appropriate colored card.

#### Recommendations

At last, recommendations can be made regarding future research and the instruments for datacollection in a future study. In the first place, it is strongly recommended to further research

the social skills of individuals with DS who participate in drama training. It is suggested that a longitudinal study be undertaken to examine how social skills are stimulated and how they progress during a training. In this research individuals with DS participating in a drama, training should be observed for a longer period of time. This observation can lead to a better understanding of the development of the individuals and the changes that occur in social skills. In addition, it should provide information on how these changes can be interpreted. Furthermore, TOM, empathy and emotion regulation should be measured at fixed moments in order to determine if the abilities progress over time. In particular, empathy should be studied, because this construct has remained underexposed so far, while it is considered one of the main strengths in individuals with DS. This could be done with the use of the various instruments mentioned below. The study should be seen as a second step in investigating social skills in individuals with DS who participate in drama training, before conducting a controlled study. A longitudinal study can lead to findings that are yet unknown and are missed when executing comparative research.

To make this research proposal feasible a few recommendations can be done regarding the instruments for data collection. First, it was found that TOM-test-R used in the DS-population was not completely suited to the target group. As said some modifications, regarding the text and pictures, should make it more accurate for DS studies. In addition, those subjects who have a higher level of verbal skills need a more extensive explanation of the test in order to extract their full potential from the test. However, it is recommended that verbal items interact with non-verbal items to prevent false negatives and detect whether verbal skills or TOM is measured. A more non-verbal instrument should be used in individuals with lower verbal abilities. Based on the present study it is proposed that this instrument makes use of portrayal because this seemed to compensate for a lack of verbal abilities in most cases. To make it completely non-verbal, individuals must be offered to answer non-verbally as well. This means there are quite some challenges to overcome when constructing such an instrument, but it doesn't seem impossible. One example is given: The story is: Look at this dog, he is called Max, Max has a bone, he buries it in the ground. Max suddenly sees a cat and he runs after it, then another dog comes, his name is Olaf, Olaf digs the bone out of the pit and fills the pit with sand again, so you don't see anything anymore. Olaf hides the bone in the garbage bin and runs away. Then Max comes back, he wants his bone, where does Max look for his bone? When this is illustrated in a video, a thinking cloud above max his head can display a bone, individuals should then be able to point out where Max will find his bone. As seen in former research (Kasari, Freeman, & Bass, 2003) portrayal can also be used when examining empathy in individuals with DS. They empathy measure

entails the exposure of individuals to a variety of different affective situations. For example, the exposure to happiness is depicted in a person who wins a vacation, while the exposure to fear is when a big dog is chasing an individual. Afterward, participants are asked how they feel. In addition, they are observed on gaze, affect and social behavior.

To conclude, in the opinion of the author, the present study made a substantial contribution to former research and literature in exploring the social skills in individuals with DS and how they can be studied. Until now the possibilities of a drama training for the DS-population was unexplored and this study made the first step in acknowledging its possibilities. In the author's view, a drama training for individuals with DS is a unique initiative which serves attention on a broader level. This research is the first step to provide a scientific basis for the social contribution that this training can have for the DS population.

#### References

- Alevriadou, A., & Giaouri, S. (2011). Second-order Mental State Attribution in Children with Intellectual Disability: Cognitive Functioning and Some Educational Planning Challenges . *Journal of Educational and Developmental Psychology*, 1(1), 146-153.
- Amado, A., Benejam, B., Mezuca, J., Serrat, E., & Vallès-Majoral, E. (2011). Socio-cognitive abilities in children with Down's syndrome: results of a preliminary study. *International medical review on down's syndrome, 16*(3), 34-39.
- Barati, H., Tajrishi, M., & Sajedi, F. (2012). The effect of Social skills training on Socialization skills in children with Down syndrome. *Iranian Rehabilitation Journal*, 15(10), 35-38.
- Baron-Cohen, S., Leslie, A. M., & Firth, U. (1985). Does the autistic child have a "theory of mind?" Cognition, 21, 37-46.
- Bates, N., & DeMaio, T. (1989). Using cognitive research methods to improve the design of the deccenial census form. *Proceedings of the US Bureau of the Census, Fifth Annual Research Conference*, 267-277.
- Batson, C. D. (2009). These things called empathy: eight related by distinct phenomena. *The Social Neuroscience of Empathy*, 3-15.
- Bosacki, S., & Astington, J. W. (1999). Theory of Mind in Preadolescence: RelationsBetween Social Understanding and SocialCompetence. *Social development*, 8(2), 237-255.
- Bowen, D. J., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., . . . Fernandez, M. (2009). How We Design Feasibility Studies. *American Journal of Preventive Medicine*, 452-457.
- Bull, M. J. (2011). Health Supervision for Children With Down Syndrome. *Pediatrics*, 393-406.
- Carpendale, M., & Chandler, M. J. (1996). On the distinction between false belief understanding and subscribing to an interpretive theory of mind. . *Child development*, 67(4), 1686-1706.
- Charmaz, K. (2011). A constructivist grounded theory analysis of losing and regaining a valued self. In F. Wertz, K. Charmaz, L. McCullen, R. Josselson, R. Anderson, & E. McSpadden, *Five Ways of Doing Qualitative Analysis Phenomenological Psychology, Grounded Theory, Discourse Analysis, Narrative Research, and Intuitive Inquiry* (pp. 165-207). New York: The Guilford Press.
- COTAN documentatie. (2013). THEORY OF MIND TEST-R, ToM test-R COTAN beoordeling 2013.

- Cuskelly, M. (2005). Ethical inclusion of children with disabilities in research. In A. Farrell, *Ethical Research With Children* (pp. 97-100). Maidenhead: McGraw-Hill Education (UK).
- Dolan, M., & Fullam, R. (2004). Theory of mind and mentalizing ability in antisocial personality disorders with and without psychopathy. *Psychological medicine*, 1093-1102.
- Fishler, K., & Koch, R. (1991). Mental development in Down syndrome mosaicism. *American journal of mental retardation*(96), 345-351.
- Gallagher, S., & Gallagher, J. (2019). Acting Oneself as Another: An Actor's Empathy for her Character . *Topoi: an International Review of Philosophy*, 1-13.
- Giaouri, S., Alevriadou, A., & Tsakiridou, E. (2010). Theory of mind abilities in children with Down syndrome and non-specific intellectual disabilities: An empirical study with some educational implications. *Procedia Social and Behavioral Sciences*, 3883-3887.
- Goldstein, T. R. (2010). The Effects of Acting Training on Theory of Mind, Empathy, and Emotion Regulation. 1-307.
- Goldstein, T. R., & Winner, E. (2011). Engagement in role play, pretense, and acting classes predict advanced theory of mind skill in middle childhood. *Imagination, cognition and personality*, *30*(2), 249-258.
- Graham, A., Taylor, N., Anderson , D., & Fitzgerald, R. (2013). *Ethical research involving children*. Florence: UNICEF Office of Research Innocenti.
- Gross, J. (1998). The Emerging Field of Emotion Regulation: An Integrative Review. *Review* of general psychology, 2(3), 271-299.
- Inoue, Y., Tonooka, Y., Yamada, K., & Kanba, S. (2004). Deficiency of theory of mind in patients with remitted mood disorder. *Journal of Affective Disorders*(82), 403-409.
- Jahromi, J. B., Gulsrud, A., & Kasari, C. (2008). Emotional competence in children with Down syndrome: negativity and regulation. *American journal of mental retardation*, 113(1), 32-43.
- Jain, R., Thomsma, D. C., & Ragas, R. (2002). Down syndrome: still a social stigma. *American Journal of Perinatology*, 99-108.
- Kasari, C., & Sigman, M. (1996). Expression and understanding of emotion in atypical development: Autism and Down syndrome. In M. Lewis, & M. W. Sullivan, *Emotional development in atypical children* (pp. 109-130). Hillsdale: Lawrence Erlbaum Associates, Inc.
- Kasari, C., Freeman, S. F., & Bass, W. (2003). Empathy and response to distress in children with Down syndrome. *Journal of Child Psychology and Psychiatry*, 44(3), 424-431.

- Keenan, T., & Evans, S. (2009). In T. Keenan, & S. Evans, *Introduction to child development* (1e editie ed.). London: Sage publications ltd.
- Kimbi, Y. (2014). Theory of Mind Abilities and Deficits in Autism Spectrum Disorders. *Topics in Language Disorders*, 329-343.
- Knieps, L. J., Walden, T. A., & Baxter, A. (1994). Affective expressions of toddlers with and without down syndrome in a social referencing context. *American journal on mental retardation*, 99(3), 301-312.
- Liddle, B., & Nettle, D. (2006). Higher-order theory of mind and social competence in school-age children. *Journal of Cultural and Evolutionary Psychology*, 4(4), 231-246.
- Lieblich, A. (1998). The holistic-content perspective. In A. Lieblich, R. Tuval-Mashiach, & T. Zilber, *Narrative research: reading, analysis, and interpretation* (pp. 62-87). Thousand oaks: Sage.
- Ligthelm, E., & Louw, J. (2014). Acting Training, Theory of Mind, and Empathy: Is There a Relationship?
- Muris, P., Steerneman, P., Meesters, C., Merckelbach, H., Horselenberg, R., van den Hogen, T., & van Dongen, L. (1999). The TOM test: a new instrument for assessing theory of mind in normal children and children with pervasive developmental disorders. *Journal of autism and developmental disorders*(27), 67-80.
- Naess, K. B., Nygaard, E., Ostad, J., Dolva, A. S., & Lyster, S. H. (2017). The profile of social functioning in children with Down syndrome. *Disability and Rehabilitation*, 1320-1331.
- National Disability Authority. (2009). *Ethical Guidance for Research with People with Disabilities*. National Disability Authority.
- Neumann, D. L., Chan, R. C., Boyle, G. J., Wang, Y., & Westbury, H. R. (2015). Measures of Empathy: Self-Report, Behavioral, and Neuroscientific Approaches. *Measures of Personality and Social Psychological Constructs*, 257-291.
- Ochsner, K. N., & Gross, J. (2005). The cognitive control of emotion. *TRENDS in Cognitive Sciences*, 9(5), 242-251.
- Perner, J., & Wimmer, H. (1985). "John thinks that Mary thinks that.." Attribution of secondorder beliefs by 5- tot 10-year-old children. *Journal of experimental child psychology*, 39(3), 437-471.
- Sabbagh, M. A., & Seamans, E. L. (2008). Intergenerational transmission of theory-of-mind. *Developmental science*, 11(3), 354-360.
- Shakoor, S., Jaffe, S. R., Bowes, L., Oullet-Mourin, I., Andreou, P., Happé, F., . . . Arseneault, L. (2012). A prospective longitudinal study of children's theory of mind

and adolescent involvement in bullying. *Journal of Child Psychology and Psychiatry*, 53(3), 254-261.

- Sherman, S. L., Allen, E. G., Bean, L. H., & Freeman, S. B. (2007). Epidemiology of Down Syndrome. *Mental retardation and developmental disabilities*(13), 221-227.
- Smith, M. C., & Walden, T. A. (1998). Emotion Regulation in Children with Down Syndrome. Paper presented at the American Psychological Association Annual Convention, 1-11.
- Smith, P. (2017). Bullying and Theory of Mind: A Review. *Current Psychiatry Reviews*(30), 1-1.
- Steerneman, P., & Meesters, C. (2009). ToM test-R; Handleiding. Antwerpen: Garant.
- Tourangeau, R. (1984). Cognitive science and survey methods: a cognitive perspective. In T.
  Jabine, M. Straf, J. Tanur, & R. Tourangeau, *Cognitive aspects of survey design: builiding a bridge between disciplines*. Washington DC: National Academies Press.
- Wellman, H., Cross, D., & Watson, J. (2001). Meta-Analysis of Theory-of-MindDevelopment: The Truth about False Belief. *Child development*, 72(3), 655-684.
- Wiles , R., Charles, V., Crow, G., & Heath, S. (2004). Informed consent and the research process. Paper presented at the ESRC Research Methods Festival, University of Oxford, 2 July. .
- Willis, G. B. (2015). Theory and disciplinary orientation of the cognitive interview. In G. B.Willis, *Analysis of the cognitive interview in questionnaire design* (pp. 15-34). Oxford: Oxford university press.
- Wong, P. M., & Leung, S. O. (2010). The development of theory of mind ability in autistic childeren. *Psychologia*, 53, 151-162.
- Yirmiya, N., & Shulman, C. (1996). Seriation, Conservation, and Theory of Mind Abilities in Individuals with Autism, Individuals with Mental Retardation, and Normally Developing Children. *Child development*, 67(5), 2045-2059.
- Zaki, J., Bolger, N., & Ochsner, K. (2008). It takes two: the interpersonal nature of empathic accuracy. *Psychological science*, *19*(4), 399-404.

#### **Appendix I**

#### Interview Oscar (Director KamaK)

Please note that the following interview was done in Dutch and therefore contains the Dutch information. On request the information can be provided in English.

*Doel*: Het expliciteren van impliciete kennis over het trainen van acteervaardigheden bij mensen met een verstandelijke beperking. Wat zijn volgens jou de voorwaarden om tot acteren te komen en wat is het resultaat van de training.

Duur: 60-90 minuten.

*Gespreksthema's*: Het interview zal gaan over de inhoud van de acteertraining (dat is de term die ik gebruik binnen mijn onderzoek), dus: wat houdt de acteertraining in? Waarin worden de acteurs ondersteund/waarin kunnen ze groeien? Welke vaardigheden worden gestimuleerd? Daarnaast zal het gaan over de randvoorwaarden voor een dergelijke training. *Gebruik informatie/Toestemming*: Dit interview is onderdeel van een *Gebruik* 

informatie/Toestemming: Dit interview is onderdeel van een haalbaarheidsonderzoek met als doel het onderzoeken van de mogelijkheden en onmogelijkheden voor effectonderzoek bij een acteertraining bij mensen met het syndroom van down. Hierbij is het belangrijk om duidelijk in beeld te brengen welke werkwijze er gehanteerd wordt bij een acteertraining voor mensen met het syndroom van down en welke expertise hiervoor nodig is. Hierover heb jij, Oscar, veel kennis vergaard door de jaren heen en hier zal ik vragen over stellen. Het gaat om vrijwillige deelname aan het interview en hiervoor heb ik jouw toestemming nodig. Het interview behelsd een opname middels een voice-recorder, dit bestand zal alleen afgeluisterd worden door de onderzoeker. De schriftelijke uitwerking van vraag en antwoord zullen, met jouw toestemming, echter wel zichtbaar worden in het onderzoeksrapport. Het onderzoeksrapport wordt gebruikt voor studiedoeleinden en zal daarmee opgenomen worden in een database van de universiteit, hiermee is het toegankelijk voor toekomstig onderzoek. Jouw kennis kan daarmee overgedragen worden aan initiatiefnemers of onderzoekers. Wees je bewust dat er vragen bij zijn waar je geen pasklaar antwoord op hebt of waarop je achteraf toch een andere visie hebt. Je hebt hierbij ten alle tijden het recht om antwoorden in te trekken of te veranderen. Daarnaast staat het je vrij het antwoorden van vragen te weigeren. Bovendien behoud je ten alle tijden het recht om af te zien van deelname aan het onderzoek en/of de uitwerking van het interview niet op te laten nemen in het onderzoeksrapport. Je kan hiervoor contact op nemen met mij, Pauline Schuffelen.

#### Gespreksonderwerpen/interview vragen:

#### Aanmelding/inclusie- en exclusiecriteria:

- Hoe komt iemand terecht bij KamaK?
- Zijn er voorwaarden voor de instroom bij KamaK? Zo ja, welke? Zo nee, wat maakt dat het voor iedereen geschikt is?
- Hoe toets je de bovenstaande voorwaarden?
- Blijkt het weleens dat iemand achteraf toch niet geschikt is? Hoe lossen jullie dit dan op?

#### Acteertraining

- Hoe definieer jij acteren?
- Hoe zou jij de acteertraining omschrijven? (Hoe zien de dagen eruit?)
- Op welke vaardigheden steek je in bij de acteurs? Waarom juist deze vaardigheden?
- Hoe ga je te werk in de voorbereiding van een voorstelling? Welke stappen moet je hiervoor ondernemen? (Op basis van welke informatie deel jij een rol toe aan de acteurs)
- Ik heb hier uiteraard eerder geobserveerd, er zijn veel verschillende niveaus, hoe stem je binnen een trainingssessie af op deze verschillende niveaus?
- Welke veranderingen zie jij bij de acteurs door de tijd heen? (Hoeveel tijd en welke lessen zitten er tussen veranderingen?)
- Welke randvoorwaarden zijn er nodig om deze training te kunnen geven? (Denk hierbij bijvoorbeeld ook aan begeleiding)
- Wat heb je nodig als regisseur om de acteurs te trainen? Hoe ervaar jij je rol als regisseur?
- Hoe heb jij dit vak geleerd? Hoe zou je dit overdragen aan andere initiatiefnemers/regisseurs?
- Wat denk jij dat de succesfactor is van de training?

*Inlevingsvermogen:* een kleine introductie op de komende vragen. Binnen mijn onderzoek kijk ik eigenlijk naar verschillende vaardigheden waar je beter in kan worden als je acteert. Overkoepelend gaat dit over inlevingsvermogen. Uit de literatuur blijkt namelijk iemands inlevingsvermogen groter wordt door acteren, je moet immers altijd in een karakter verplaatsen. Nou ben ik benieuwd wat jij hiervan terugziet bij de acteurs.

- Zijn de acteurs volgens jou in staat zicht te verplaatsen in de belevingswereld van het karakter wat zij spelen? Zo ja, waarin zie je dit terug? Welke karakter heeft dit inlevingsvermogen? (*Cognitief/gevoelsmatig/imitatie, afchecken of ik dit weet na antwoord*)
- Wisselt de mate van inlevingsvermogen onder de acteurs? Zo ja, waar denk jij dat dit van afhangt? (*Sociaal-emotionele ontwikkeling, cognitieve ontwikkeling, leeftijd etc.*).
- Zijn de acteurs in staat om verschillende emoties te laten zien in hun spel? Kan je hier voorbeelden van geven?
- Denk je dat de acteurs begrijpen waarom hun karakter dit voelt? Koppelen ze het aan een gebeurtenis of is het de volgende actie die e uit moeten voeren? (Wellicht wat lastig, maar ik probeer na te gaan of er een soort narratief bij hen ontstaat of dat het meer hak op de tak gedragingen zijn)
- Zijn de acteurs volgens jou in staat te voelen wat hun karakter voelt? Zo ja, waaraan merk je dit? (Ik denk bijvoorbeeld aan een acteur die ook echt verdrietig wordt van zijn rol of boos of blij, zie je overlap in de emoties van de acteurs en die van hun rol)
- Wat doe jij om dit inlevingsvermogen in de rol te stimuleren? Welke interventies pas je toe?
- Hoe zorg jij ervoor dat de acteurs in staat zijn emoties op te roepen en te presenteren in het spel?
- Uit de literatuur blijkt dat het stimuleren van dit inlevingsvermogen bestaat uit het stellen van vragen als: 'wat zou dit karakter willen?' of 'hoe staat dit karakter in de wereld?'. Dat lijken mij moeilijke vragen voor mensen met een verstandelijke beperking, maar stel jij soortgelijke vragen, zijn dit thema's die aan bod komen?
- Loop je ook weleens tegen een muur op als het gaat om inlevingsvermogen van de acteurs? (Hiermee bedoel ik iemand die zijn karakter stom vindt en zich er bijvoorbeeld tegen verzet) Wat doe je hier dan aan?
- Zie je verandering in het inlevingsvermogen van de acteurs over de tijd heen? Bijvoorbeeld tussen mensen die al lang bij KamaK acteren en mensen die er past kort bij zijn? Kan je hier voorbeelden van geven? (*Meer verschillende emoties/sneller begrip van de rol/sneller emoties oproepen/meer begrip naar mede acteurs/meer sociaal wenselijkheid/beter begrip van humor*)

### Appendix II

<b>Observation category</b>	Construct	Description	Examples
Verbal abilities	Prosodic aspects of speech	The form of communication. Fluency, articulation and voice.	Mumbling, talking loudly, talking softly, hissing.
	Language	The way language is used to communicate. Content (e.g. vocabulary) and Form (e.g. singular/plural)	Content: The use of more abstract words. Form: 'woman crying' instead of 'the woman is said, I think she will cry.'
	Association	Connecting one thought with another thought.	Talking about own pets when hearing the word dog. Talking about sickness when hearing about a child having a cold.
	Perseveration	Repeatedly giving the same response regardless of what the stimulus	Repeating the word 'okay' on for example the question: where will Olaf find his bone?
Behaviour	Motivation	The will to complete the given tasks.	Sighing, the tendency of quickly saying 'I don't know', or straightforward telling they don't to do the test.
	Social desirability	Answering questions in which they think that will be viewed favorably by the researcher.	Saying everything is fun and easy. Denying answers were a guess. Reading facial expressions to estimate which answer they should give.

	Body language not attributed to another category	Physical behaviour such as facial expressions, gestures and eye movement.	Rocking, making eye contact, looking away, staring, clapping, the use of hand gestures.
	Contact	The nature of the interaction between participant and researcher.	Reciprocity, use of eye- contact, direction towards the researcher, jokes. Looking away, focused on things outside the research setting.
	Concentration	The ability to focus on tasks without letting something else interfere.	Distracted with longer stories, looking around, distracted by noises. Focus on pictures and stories
	Fatigue	Tiredness, before, during or after the interview.	Sighing, easily distracted, shorter answers when the test progresses.
	Affect	Emotions displayed during the interview.	Tears, nervousness shown by plucking cuticles or sweatiness, fear of answering questions shown by e.g. the hesitation to answer questions. Laughing, showing gratitude, telling themselves they did good.
Cognitive insight	Question comprehension	The understanding of the content of a question and what kind of answer is expected.	As a researcher you continuously have to repeat questions, explain questions in multiple manners, answers unrelated to questions.

Picture comprehension	The understanding of the meaning of a picture.	Pointing at a picture of the rain, in which a thinking cloud displays the sun, being convinced the sun shines.
Insight own performances	The participant is aware of his own abilities and herewith his performance on the test.	The acknowledgement that some questions were hard and that he/she did not know all answers.
Reflection time	Time used to come up with an answer.	Long answers, quick answers, a changing pattern in which an individual sometimes answers really slow and at other moments really quick, a steady pattern in which reflection time stays the same throughout the entire interview.