



UiT The Arctic University of Norway

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Are There Gender Differences in Children's Understanding of Hidden Emotions?

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Preface

Going into the master's program, my motivation was to deepen my knowledge in developmental psychology. As I also work in a children's institution, my interest in this field continues to grow. I was thrilled when I was asked to join a research project on children's understanding of hidden emotions with my supervisors Gabriella Óturai and Monika Abels, and their research partners Anett Sundqvist at Linköping University and Paula Döge at the Free University of Bozen-Bolzano. I am grateful that I got to join the research project, as I can see the importance of this topic for children's well-being and mental health.

When I joined the project, they had already started developing materials. However, I made several contributions, including translating materials, narrating videos, recruiting participants, collecting data, and setting up the questionnaire. However, this was a collaborative project, and I think we collaborated well and appreciated each other's input and thoughts. I received helpful supervision from both supervisors during the writing process. Therefore, I want to extend a big thank you to my supervisors, Gabriella and Monika.

I also want to thank the kindergartens who agreed to participate in this study, as well as the children and caregivers who took the time to answer our questions. Without you, this thesis would not have happened. Additionally, I am very grateful for the support and advice from my family, friends, and classmates. This writing process would have been much more difficult without you. Ultimately, I want to thank myself for believing in myself and having the willpower to get out of bed and go to university, even on days when it was the last thing I wanted to do. I am very proud of the work I have accomplished with this thesis.

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Sammendrag

Denne studien undersøkte om det er kjønnsforskjeller i barns forståelse av skjulte følelser. I tillegg undersøkte den om det er kjønnsforskjeller i barns forståelse av skjulte følelser i ulike sosiale sammenhenger (jevnaaldrende vs. familie) og for ulike følelseskategorier (underdanige følelser vs. disharmoniske følelser). Vårt utvalg bestod av 27 barn i alderen fire til seks år og 17 omsorgspersoner. Barna gjennomførte en test laget for å måle deres forståelse av skjulte følelser, mens omsorgspersonene svarte på et spørreskjema. I motsetning til våre hypoteser, basert på eksisterende forskning som har funnet kjønnsforskjeller i «Theory of Mind» egenskaper og i følelsesuttrykk, avslørte ikke våre resultater signifikante kjønnsforskjeller i barns forståelse av skjulte følelser. Dette antyder at kjønn kanskje ikke spiller en vesentlig rolle i utviklingen av forståelsen for skjulte følelser blant førskolebarn. Potensielle forklaringer på resultatene diskuteres, i tillegg presenteres begrensninger, inkludert manglende styrke og generaliserbarhet. Men til syvende og sist bidrar denne studien til det utviklingspsykologiske feltet ved å utfordre antakelser om kjønnsforskjeller i forståelsen av følelser og fremheve områder for fremtidig forskning.

Nøkkelord: Reelle og tilsynelatende følelser, følelsesuttrykk, «Theory of Mind», kjønnsforskjeller, sosial kontekst, underdanige og disharmoniske følelser.

GENDER DIFFERENCES IN HIDDEN EMOTION UNDERSTANDING

Abstract

This study investigated whether there are gender differences in children's understanding of hidden emotions. Additionally, it explored whether there are gender differences in hidden emotion understanding in different social contexts (peer vs. family) and for different emotion categories (submissive emotions vs. disharmonious emotions). Our sample included 27 children aged four to six years and 17 caregivers. The children conducted a test made for measuring hidden emotion understanding, while the caregivers answered a questionnaire. Contrary to our hypotheses, derived from existing research that has found gender differences in Theory of Mind abilities and emotional expression, our results did not reveal significant gender differences in children's understanding of hidden emotions. This suggests that gender may not play a significant role in developing an understanding of hidden emotions among preschool children. Potential explanations for the results are discussed, and limitations are presented, including lack of power and generalizability. However, ultimately, this study contributes to the developmental psychology field by challenging assumptions about gender differences in emotional understanding and highlighting areas for future research.

Keywords: Real and apparent emotions, emotion expression, Theory of Mind, gender differences, social context, submissive and disharmonious emotions.

Are There Gender Differences in Children's' Understanding of Hidden Emotions?

Emotions have been a phenomenon researchers and philosophers have been fascinated by and interested in for many millennia. Some of the most prominent classical philosophers, including Plato, Aristotle, Descartes, Hobbes, Hume, and Locke, all perceived emotions as primitive feelings without distinct components (Scarantino & de Sousa, 2021). William James believed that researchers and philosophers should stop understanding emotions as basic and with no specific elements and instead understand emotions as something we experience because we act (Izard, 1990). In his work, he states that “we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we cry, strike, or tremble because we are sorry, angry, or fearful” (James, 1884, p. 190). Fortunately, research on emotions has come a long way since the 19th century. However, James's beliefs highlighted the importance of behavior, including facial expression, in the attempt to understand emotions. According to him, in the same way we use our actions to understand our own emotions, other people also use our actions, especially our facial expressions, to understand our emotions. What emotions we express on the outside and what emotions we experience on the inside often reflect congruence; however, this is not always the case. Sometimes, it is beneficial not to express the exact emotions we are experiencing.

The ability to express a different emotion than the emotion we are experiencing is often referred to as hiding emotions. The understanding of hidden emotions can be considered a part of the Theory of Mind (ToM). ToM is a set of cognitive abilities that help us understand the attribution and comprehension of others' beliefs, desires, intentions, and emotions (Wellman et al., 2001). Humans are inherently social creatures with a fundamental desire to form relationships with other humans, ToM abilities help us do so by enabling us to understand and interpret the mental states of others (Sundqvist et al., 2018). There are several measures for assessing the different cognitive abilities in ToM, and one of these is the ToM

scale developed by Wellman and Liu (2004). The understanding of hidden emotions is the last part that is assessed in the ToM scale. Hidden emotion understanding is a complex concept as it involves comprehending that a person can feel one thing on the inside but express a different emotion on the outside (Wellman & Liu, 2004). To my knowledge, there are few previous studies on hidden emotion understanding. However, several studies have been conducted regarding ToM abilities, including gender differences in ToM abilities. Some of them have found gender differences and that girls have better ToM abilities compared to boys (Calero et al., 2013; Charman et al., 2002; Walker, 2005).

There is a gap in research on whether there are any gender differences in children's hidden emotion understanding. The present study will address this question by developing a test for measuring children's hidden emotion understanding and conducting this test on children ages four to six. In addition, this study will address whether there are gender differences in hidden emotion understanding for different emotion categories and in different social contexts. The next part of the thesis will provide a detailed review of findings regarding gender differences in emotion expression. In addition, potential explanations for gender differences in emotion expression will be discussed, which could also explain the potential gender difference in children's hidden emotion understanding. However, first, there is a section regarding the concept of emotions and emotion expression.

Emotions and Emotion Expression

As time has passed, we have mostly left behind the classical philosophers, including William James's beliefs regarding emotions, and left them as a chapter in history books. Several modern definitions for emotions have emerged, and one of them is that "emotions are a class of internal states that are expressed by specific behaviors as well as somatic responses and exist across the animal kingdom" (Zych & Gogolla, 2021, p. 57). Emotions promote survival and have emerged through evolution (Zych & Gogolla, 2021). They prompt

responses across multiple channels, including behavior, physiology, and biochemistry (Zych & Gogolla, 2021). For example, if you notice a lion staring at you from behind a bush, you most likely start feeling scared. This fear activates the nervous system to go into fight or flight mode, helping you survive the encounter with the lion. From an evolutionary perspective, other advantages come with emotions, where research shows that it can be an advantage for humans to show others what emotions we are experiencing (Shariff & Tracy, 2011). We can use facial expressions to communicate our emotions (Shariff & Tracy, 2011). By lowering our eyebrows and tightening our lips when we are angry, we communicate to others that they, for example, should be cautious around us. Alternatively, smiling when meeting someone new can make us appear friendly, which could help you develop a new friendship.

Using our facial expressions to communicate our internal emotions to others is a form of emotion expression, which is “what you show externally in the form of facial, vocal, and postural expressions to communicate (or to mask) your internal emotional state to others” (Chaplin, 2015, p. 15). As children mature and develop, they acquire diverse methods for emotion expression. This allows them to communicate their emotions and needs in more detail than when they were infants and navigate social interactions more effectively (Chaplin & Alado, 2013). This increased ability to express their emotions allows them to communicate more nuanced emotions and distinguish between different types of emotions. For example, a baby crying out of frustration in infancy for not reaching their favorite toy develops into a child articulating sadness and requesting help to reach the toy when they get older.

In our study, we differentiate between two distinct categories of emotions: disharmonious emotions and submissive emotions. The reasoning behind this distinction is that different emotions serve different functions and elicit different responses from others to guide social interaction (Wu et al., 2019). When children express submissive emotions they

express a need for comfort, support, and empathy (Wu et al., 2019). Sadness and fear are emotions that often are considered together as submissive emotions (Wu et al., 2019). In contrast, disharmonious emotions are usually associated with achieving personal goals and taking satisfaction in succeeding over others (Chaplin et al., 2005; Wu et al., 2019). Disharmonious emotions often consist of anger and happiness (at the cost of others), for example, laughing at the expense of others (Wu et al., 2019). However, research on disharmonious and submissive emotions is rare in developmental psychology. To my knowledge, there is no research on these emotion categories regarding gender differences in hidden emotion understanding. Making this thesis the first to address the topic and fill the gap in research. As previously mentioned, the expression of submissive versus disharmonious emotions results in different social responses. Boys and girls have experiences with expressing different emotions due to their different social consequences. Therefore, it can be thought that there are gender differences in the understanding of hiding submissive and disharmonious emotions. This will be discussed later in the section on gender differences in emotion expression.

There is a lack of research on how social context affects emotion expression. However, some research has been conducted on emotion display rules, which are culturally defined rules acquired through socialization that determine the appropriateness of expressing emotions in different social contexts (Safdar et al., 2009). Safdar et al. (2009) conducted a study on how social context affects emotional display, where they found differences in display rules when expressing emotions towards different individuals based on perceived closeness. For example, when expressing anger to someone close to you, all the cultures included in the study (Japanese, American, and Canadian) had the same display rules. However, they found differences in display rules when expressing anger to a less close person or stranger. For example, the participants from Japan found it more appropriate to

express anger toward a person they were not that close to than the American participants did. It might be more acceptable for children to express their emotions to their family than their peers due to their perceived closeness to them. Expressing their emotions to their kindergarten peers might be less acceptable than their family since they have known them for a shorter time than their family, whom they have known their whole lives.

Gender Differences in Emotion Expression

There are findings regarding gender differences in emotion expression that could apply to children's hidden emotion understanding. I will elaborate on some of these in this section, including the effect of parental attention, society's beliefs and norms, and traditional gender roles.

Previous research suggests that there are gender differences in emotion expression. A meta-analysis of 166 studies by Chaplin and Alado (2013) found that girls showed greater positive emotion expression and internalizing emotions (e.g., fear, shame, and sadness) than boys. This aligns with what is often categorized as submissive emotions in the literature, which are, as previously mentioned, emotions that express a need for comfort, support, and empathy (Chaplin et al., 2005). In addition, Chaplin and Alado (2013) found that boys expressed greater externalization emotion (anger) than girls. This aligns with what is categorized as disharmonious emotions in the literature, which are, as previously mentioned, emotions often associated with achieving personal goals and taking satisfaction in succeeding over others (Wu et al., 2019).

These findings are supported by research from Fischer et al. (2004), who found that women report expressing more submissive emotions compared to men. In addition, they found that men report expressing more disharmonious emotions compared to women. In light of this, it can be assumed that girls are better at understanding hiding disharmonious emotions since they express less disharmonious emotions than boys and, therefore, have more

experience with hiding disharmonious emotions. In contrast, it can be assumed that boys are better at understanding hiding submissive emotions as they express less submissive emotions than girls and, therefore, perhaps have more experience with hiding submissive emotions. A potential reason for this gender difference could be a difference in social experience for boys and girls. Where specific emotion expressions are reinforced when more attention, from for example parents, is given to the emotion expression (Chaplin et al., 2005).

A study by Chaplin et al. (2005) observed parents' reactions to children's emotions during an emotionally arousing game. The results showed that mothers gave more attention to boys' disharmonious emotions compared to girls' disharmonious emotions. Additionally, they found that fathers gave more attention to girl's expressions of submissive emotions than boy's expressions of submissive emotions. This difference in parental attention to different emotion types can be seen as a reinforcer. Increasing the expression of disharmonious emotions in boys and reducing the expression of disharmonious emotions in girls since girls are not reinforced with attention the same way boys are. The same logic can be applied to explain the found gender difference in the expression of submissive emotions.

In addition to finding gender differences in parental attention given to emotion expression, Chaplin et al. (2005) also found differences in how parents talk to their children when it comes to the use of vocabulary that describes emotions, for example, "rage", "joy" or "loneliness." They found a difference in parent-child emotion talk, where parents use more anger-related words while talking to boys than girls and refer more to happiness- and sadness-related words while talking to girls than boys. Fivush et al. (2000) have similar findings in their study, looking at how parents talk to children about past emotional situations. They found that mothers and fathers used more emotion words when talking to girls about sad events than with boys. In addition, they found that when parents talked to girls, they placed emotional experiences in a more interpersonal context than with boys. An

example of this can be that when comforting their daughter, parents may emphasize emotional validation, whereas when comforting their son, they may prioritize resilience.

A study by Graham et al. (1981) asked 704 undergraduates to fill out an interpersonal behavioral survey regarding emotion expression. They found that both females and males expected to receive positive reactions from a person if they expressed positive emotions toward that person. However, if they did not express positive emotions, by staying neutral, females expected the other person to respond more negatively compared to what the males thought. Therefore, gender differences in positive emotion expression might be as females, more than males, try to avoid negative social reactions. This could also apply to children since studies suggest that girls are often socialized from a young age to be more relationally aware and sensitive to others' emotional states than boys (Chaplin & Alado, 2013). This could make girls more sensitive to negative social reactions, influencing their emotional expression. For example, to express more positive emotions to avoid negative reactions.

The previous findings regarding gender differences in emotion expression might reflect our society's beliefs about what emotions girls and boys are "allowed" to express. Two commonly heard phrases are "big boys don't cry", while girls might get told "sugar and spice and everything nice". These expressions reflect our society's beliefs and attitudes regarding gender and emotion expression (Chaplin & Alado, 2013). Influence from society, like using those phrases in parenting, may not always be obvious and conscious. They are often subtle and unconscious, and we respond differently to the same emotion expressions from boys and girls. As mentioned, it could encourage the expression of some emotions while discouraging the expression of other emotions (Chaplin et al., 2005). There is an evident difference in how we respond to boys and girls when they, for example, express sadness. When girls express sadness, the typical reaction is often to offer comfort and support.

Conversely, when boys express the same sadness as girls, they are often encouraged to “get it together” and to “act like a big boy”. From a traditional cultural perspective, expressing different emotions might benefit men and women. A study by Fischer et al. (2004) investigated gender roles and gender differences in emotion expression in cultural groups. They found that women in Western societies are more likely than men to have nurturing roles, where caring for others is their task. Meanwhile, men are more likely to have the provider role, where their task is to provide material resources and control the economy. For both genders to carry out their tasks in the best possible way, from a traditional cultural perspective, they express different emotions. Women might express sadness and happiness to convey their sympathy while caring for others. While men may express anger to scare other men away from taking their resources (Fischer et al., 2004).

However, while most studies on gender and emotion expression have found gender differences, at least to my knowledge, it is also worth mentioning that some studies have found the opposite. For example, a study by Deng et al. (2016) had 79 participants watch different video clips made to elicit different emotions. They aimed to investigate gender differences in emotional experience and expressivity. The result showed that there were no gender differences in the emotion expression of surprise and sadness. This finding challenges the results from previous studies outlined in the introduction that have found gender differences in emotion expression—especially the findings regarding gender differences in submissive emotions (Chaplin et al., 2005). Vogel et al. (2006) conducted an observation study where they observed emotion expressions from females and males in two different situations. One while having an intimate conversation with a romantic partner and one between clients and therapist during therapy. Their findings align with the finding from Deng et al. (2016) that there are no gender differences in emotion expression.

In summary, while some studies have found no gender differences in emotion expression, most of the research, at least to my knowledge, has found gender differences in emotion expression. Some factors that are found to be contributing to the gender difference in emotional expression are parental attention, society's beliefs and attitudes, and adherence to traditional gender roles. This lays the foundation for the next part of this thesis, which summarizes findings regarding gender differences in children's ToM abilities. However, primarily there is a section regarding the concept of ToM and hidden emotions.

Theory of Mind and Hidden Emotions

Theory of Mind (ToM) is a set of different cognitive abilities that help us understand other people's mental states (Wellman & Liu, 2004). These abilities encompass attributing and comprehending others' beliefs, desires, intentions, and emotions (Sundqvist et al., 2018). For example, the understanding that someone can smile while they actually feel sad or angry, or the understanding that people can have different preferences regarding favorite TV shows or toys. It is important to remember that when ToM is referred to in this thesis, it is referred to in the broad sense, which includes emotional understanding. The literature on this topic often discusses ToM and emotion understanding as two separate capacities; however, in this thesis, emotion understanding is considered part of ToM.

Wellman and Liu (2004) developed a ToM scale to assess these cognitive abilities. The scale starts with assessing diverse desires (e.g., that different people can have different preferences, for example, when it comes to their choice of snacks) and ends with assessing the ability to understand the difference between real and apparent emotions (e.g., that people don't always express the exact emotion they are experiencing) (Wellman & Liu, 2004). This ability is often referred to as hidden emotion understanding in the literature, which will also be the case as we advance in this thesis.

As discussed, it can, from an evolutionary perspective, be advantageous for us to express our emotions. However, the opposite is also true. For example, it might be beneficial to maintain a composed facial expression during an oral exam despite actually feeling scared and nervous on the inside. Hiding your actual emotions in this situation could be advantageous because it could make you appear more confident and prepared, which may lead to receiving a better exam grade than if you did not hide your emotions. Another example is smiling when receiving a disappointing gift because it would hurt the person gifting it to you if they knew how you really were feeling on the inside. Hidden emotion understanding is considered the most advanced and difficult part of the ToM scale. It is a skill often developed after children have developed other aspects of ToM.

Children acquire different ToM abilities as they grow and develop, and it has been found that two-year-olds talk about their own and others' emotions. Typically, developing three-year-olds show some understanding that situations can provoke emotions, in addition to some understanding of different facial expressions of emotions (Pons et al., 2004). Three and four-year-old children typically start to understand external causes of emotions (Pons et al., 2004), for example, that another person feels happiness when receiving a gift or sadness when they fall and hurt their knee. When children reach around four or five years of age, they typically start to understand hidden emotions, that people's emotion expressions do not always show what emotions people experience internally. However, as previously mentioned, this is a more advanced ability that typically develops after children have acquired a range of other aspects of emotional understanding (Pons et al., 2004; Sundqvist et al., 2018).

A study by Banerjee (1997) found that preschoolers clearly understood the difference between real and apparent emotions, and that age and emotion type (happiness or sadness) played a role in this understanding. Banerjee found that some of the younger children surprisingly showed the same pattern of hidden emotion understanding as the five-year-olds.

In addition, a study by Harris et al. (1986) found that four-year-olds could distinguish between how a person in a story really felt and how their expression would be. However, the four-year-olds struggled to explain why they gave the answers they did. They also found that for negative emotions, the four-, six- and ten-year-old children in their study answered that the real emotion would be more intense than the fake facial expression.

In contrast, they found that only the six- and ten-year-olds could reach the same conclusion as the negative emotions when asked about positive emotions. This concept seemed too complex for the four-year-olds to comprehend. Perhaps it is more logical for children to understand the motivation for why hiding negative emotions compared to hiding positive emotions.

Gender Differences in Theory of Mind Abilities

This section will present findings regarding gender differences in ToM abilities, including differences in levels of empathy, communication skills, and peer influence, starting with findings showing gender differences in the false belief task. The false belief task was developed by Wimmer and Perner (1983), and it is an older test used to measure children's ToM abilities before the ToM scale by Wellman and Liu (2004) was developed. In the false belief test, the children observe a character place an object in a location, and then the character leaves. The researcher then moves the object in the absence of the character. The children then have to assume that the character still would believe that the object is in the same location as it was placed first, since the character did not see the object moving like the child did (Wimmer & Perner, 1983). Many studies have applied the false belief task to measure children's understanding that others can have beliefs that differ from one's own, even if those beliefs are incorrect or false. Additionally, some studies have explored whether there are gender differences in false belief understanding.

A post-hoc analysis was conducted by Charman et al. (2002), who found that gender could have a role in children's understanding of the task of false belief. They examined two big datasets from two laboratories that applied the false belief task. Dataset 1 included data from 375 children, while Dataset 2 contained data from 1093 children; their ages ranged from three to five years. They made four groups for each dataset based on the children's age. They found that when they combined the groups of three-, four-, and four-and-a-half-year-olds in Dataset 1, they saw that gender was a significant predictor of false belief performance. In Dataset 2, gender was only a significant predictor when the data was combined from three- and three-and-a-half-year-olds, but only with young children. However, they found that these gender differences seem to diminish as children age (Charman et al., 2002).

Findings from another study by Walker (2005) support Charman et al. (2002), as they found that girls score better than boys on ToM tasks involving false belief. However, they also found that these gender differences seemed to even out with age. Another study that found gender differences in children's ToM abilities was by Calero et al. (2013). They tested children with an age range from six to eight years, and their results showed that girls performed better than boys on all ToM tasks. These findings could be seen as contrary to the findings from Charman et al. (2002); Walker (2005) who found that gender difference evens out with age, since Calero et al. (2013) found gender differences in a group of older children. Gender differences in empathy levels could be a potential reason for these findings.

A study by Ibanez et al. (2013) with participants in their late teens found that females had better ToM abilities than boys and that the effect was moderated by empathy. Empathy is a factor that has been found to play a role in gender differences in ToM abilities. While ToM refers to an ability to understand others' mental states and relies on specific parts of the brain (temporal lobe and pre-frontal cortex), empathy refers to an ability to share the feelings of others (Singer, 2006). Empathy relies on other parts of the brain than ToM (sensorimotor

cortices and limbic and para-limbic system) (Singer, 2006). Empathy tends to develop earlier than ToM abilities due to the order in which different parts of the brain develop (Singer, 2006). There seem to be gender differences in empathy levels. For example, studies on neonates have shown that newborn girls cry more often and for longer periods than boys in response to hearing another child's cry (Rochat, 2023). When children are between the ages of five and nine, it has been found that girls score higher in empathy levels during self-report scales, showing a greater ability to attribute mental states from pictures of eyes than boys (Rochat, 2023). Girls' empathy levels could be why they often are found to have better ToM abilities compared to boys.

Another possible factor that could explain gender differences in ToM abilities could be a difference in language and communication abilities (Charman et al., 2002). A meta-analysis of 104 studies with a big sample consisting of almost 9000 children found a significant connection between children's false-belief understanding and language abilities (Milligan et al., 2007). One possible explanation for this is that the false-belief task is linguistically demanding, as it is necessary first to understand the stories and then afterward to understand the questions asked regarding the stories (Abbeduto et al., 2004). This might give the children with good language abilities an advantage in how the false-belief test is arranged compared to those with less good language abilities. However, if that is the case, the false belief test is unsuitable for measuring ToM abilities.

A longitudinal study by Astington and Jenkins (1999) found that earlier language abilities predicted later ToM abilities and that earlier ToM abilities did not predict later language development. This supports the idea that language is an important factor in ToM development, which could also be a potential reason for gender differences in ToM abilities. In the first years of life, girls typically demonstrate a quicker acquisition of language skills than boys. For example, by the age of 16 months, girls typically know 95 words, while boys

typically know 25 words (Adani & Cepanec, 2019). The gender differences in ToM abilities, where girls often score better on the ToM scale and girls have better language abilities, could explain the false-belief test than boys. In light of this, a test for measuring communication skills is included in this study to examine its effect on hidden emotion understanding.

In addition to parental influence, which was discussed earlier in this thesis, peer influence could also affect children's ToM abilities (Fabes et al., 2006). Research indicates a link between peer popularity, prosocial behavior, and success in false belief tasks (Slaughter et al., 2002; Walker, 2005). This suggests that peer dynamic plays a role in developing ToM abilities. Walker (2005) found that boys who scored high on a ToM task expressed more aggressive behavior than the boys who scored lower on the ToM task. While girls who scored high on a ToM task expressed more prosocial behavior, than the girls who scored lower on the ToM task. The results suggest that when investigating ToM abilities and peer-related behaviors, it would be beneficial to consider gender-specific behaviors and social norms.

Another study that investigated ToM abilities and peer-related behaviors was Slaughter et al. (2002). They conducted a study where children aged four to six years were asked to rate their peers with "like most" and "like least" in addition to taking a ToM task. The findings showed that children with many "like most" peer nominations scored higher on ToM tasks than those with many "like least" peer nominations. Additionally, Slaughter et al. (2002) found that for children over the age of five years, the best predictor of peer acceptance was ToM abilities. These findings could be because children with high ToM abilities have a more complex understanding of other children's mental states and emotions, making it easier for them to get along with peers. This finding makes different social contexts and ToM abilities an interesting area for research. This is investigated in this thesis, more specifically, whether there are gender differences in children's hidden emotion understanding in different social contexts.

One possible explanation for the connection between ToM abilities and peer acceptance could be the difference in how boys and girls play with their peers. Girls are more likely to play pretend than boys, where they may pretend to be mothers bathing their dolls or organize tea parties with all their teddy bears (Lindsey & Mize, 2001; Semenji, 2019). In contrast, boys are often more likely to engage in rough play with peers than girls (Lindsey & Mize, 2001). The finding from Walker (2005) suggests that boys with high ToM abilities expressed more aggressive behavior, while girls with high ToM abilities expressed more prosocial behavior. Furthermore, Slaughter et al. (2002) found that the best predictor for peer acceptance was ToM abilities.

These findings can be interpreted as the reason ToM abilities are connected to peer acceptance: boys and girls express the type of emotions expected of them regarding gender-specific play. Whereas boys with high ToM abilities express more aggressive behavior, which can be aligned with disharmonious emotions to get included in the rough peer play between boys and, therefore, are perceived as popular among peers. Girls with high ToM abilities express more prosocial behavior, which can be aligned with submissive emotions, to get included in the pretend play between girls and, therefore, are perceived as more popular among peers. In light of this, it can be thought that boys are more used to hiding submissive emotions in a peer context than girls, to be a popular member of the group and get included in the rough play with the boys. Furthermore, it can be thought that girls are more used to hiding disharmonious emotions in a peer context than boys, to be a popular member of the girl's group and get included in pretend play with the girls.

Despite most of the studies, to my knowledge, having found gender differences in ToM abilities, there exist some studies that have not found gender differences in ToM abilities. These null findings are also worth mentioning to emphasize that there are inconsistencies in the literature. A meta-analysis by McDonald and Kanske (2023) found that

gender had no significant effect on ToM abilities. Similarly, Di Tella et al. (2020) used a questionnaire to measure participants' social cognition, including their ToM abilities. Their results revealed no significant gender differences in ToM abilities, supporting the finding from McDonald and Kanske (2023). Additionally, Wellman and Liu (2004), who developed the ToM scale, analyzed the variance of data from the ToM scale, children's age and gender, and the order in which they got asked questions were tested. Their results showed that gender did not affect ToM abilities. These inconsistencies underscore the need for more research to clarify the nature of gender differences in ToM abilities. This study aims to address this by investigating whether there are any gender differences in hidden emotion understanding.

This Present Study

This present study aims to explore whether there are gender differences in children's ability to understand hidden emotions. Additionally, whether there are gender differences in hidden emotion understanding for different emotion categories (submissive emotions vs. disharmonious emotions) and for different social context (peer context vs. family context). Based on the literature review above, four hypotheses about hidden emotion understanding were developed, aimed at filling the research gap on this topic in the literature. Furthermore, no study on gender differences in hidden emotion understanding has been conducted in Norway, making it an interesting area of research. There are several reasons why discovering and acknowledging potential gender differences in children's ability to understand hidden emotions is important.

One of them is gaining insight into children's emotional development, which could help develop tools and interventions to support this development better. Another reason why it is an important area of research is that discovering potential gender differences in hidden emotion understanding could help pinpoint potential challenges for children, thereby helping them by better tailoring interventions or educational approaches. In addition, findings on this

topic could help society challenge gender stereotypes related to emotions and allow us to move towards a more egalitarian society, focusing on developing nurturing environments that foster empathy and understanding for children regardless of gender. As mentioned, four hypotheses were deduced based on previous research; these are presented next.

H1: Gender Difference in Overall Hidden Emotion Understanding

The main purpose of this study is to investigate whether there are any overall gender differences in children's understanding of hidden emotions. Therefore, a test was developed to measure children's understanding of hidden emotions. The main hypothesis (**H1**) is that girls score better overall on the test of hidden emotions than boys. The reasoning behind the main hypothesis is that, as mentioned earlier in this thesis, previous research has found gender differences in both emotion expression and children's ToM abilities (Calero et al., 2013; Chaplin & Alado, 2013; Chaplin et al., 2005; Charman et al., 2002; Fischer et al., 2004; Ibanez et al., 2013; Walker, 2005). Therefore, it would be interesting to investigate gender differences in hidden emotion understanding specifically since it is, as mentioned, the most complex part of the ToM scale. In addition to the main hypothesis, three additional hypotheses (**H2, H3, and H4**) were deduced based on findings from previous research presented earlier in this thesis. However, they will not be the focal point for this study. They are included to give more context to the main hypotheses.

H2: Communication, Gender, and Hidden Emotion Understanding

The second hypothesis (**H2**) is that girls' superior performance on the hidden emotion test (**H1**) may be attributed to their advanced communication abilities, compared to boys, measured in the Children's Communication Checklist 2. The reasoning behind the second hypothesis is that previous studies, as mentioned, have found that earlier language abilities predict later ToM abilities and that girls are quicker at language acquisition than boys (Adani & Capanec, 2019; Astington & Jenkins, 1999).

H3: Gender Differences in Hidden Emotion Understanding for Different Emotions***Categories***

The third hypothesis (**H3**) is divided into two parts. The first part of the third hypothesis (**H3a**) is that girls have a better understanding of hiding disharmonious emotions (anger and happiness) than boys. As previously mentioned, Fischer et al. (2004) found that females express more submissive emotions (sadness and fear) than men. Therefore, it can be thought that girls have more experience with hiding disharmonious emotions than boys, and, therefore, due to their experience, they might have developed a better understanding of the concept of hiding disharmonious emotions than boys.

The second part of the third hypothesis (**H3b**) is that boys have a better understanding of hiding submissive emotions (sadness and fear) than girls. Fischer et al. (2004) found that men express more disharmonious emotions (anger and happiness) than females. Therefore, it can be thought that boys have developed more experience with hiding submissive emotions than girls and, therefore, due to their experience, have a better understanding of the concept of hiding submissive emotions than girls.

H4: Gender Differences in Hidden Emotion Understanding for Different Emotion***Categories in Peer Context***

The fourth hypothesis (**H4**) is also divided into two parts. The first part of the fourth hypothesis (**H4a**) is that boys have a better understanding of hiding submissive emotions in a peer context than girls. The idea is that boys want to appear tough in front of their peers to get included in rough play with the boys (Lindsey & Mize, 2001). Therefore, it can be thought that boys have more experience with hiding submissive emotions in a peer context than girls and, therefore, have a better understanding of the concept.

The second part of the fourth hypothesis (**H4b**) is that girls have a better understanding of hiding disharmonious emotions in a peer context compared to boys. Since it

can be thought that girls want to appear friendly in front of their peers to get included in pretend play with other girls (Lindsey & Mize, 2001; Semenji, 2019). Based on this it can be thought that girls have more experience hiding disharmonious emotions in a peer context than boys and, therefore, have a better understanding of the concept.

Overview Over the Hypothesis for This Study

The hypotheses for this study are as follows:

- **H1** Girls score better overall on the test of hidden emotions than boys.
- **H2** Girls' superior performance on the hidden emotion test (H1) may be attributed to their advanced communication abilities compared to boys.
- **H3 (H3a)** Girls have a better understanding of hiding disharmonious emotions than boys. **(H3b)** Boys have a better understanding of hiding submissive emotions than girls.
- **H4 (H4a)** Boys have a better understanding of hiding submissive emotions in a peer context than girls. **(H4b)** Girls have a better understanding of hiding disharmonious emotions in a peer context than boys.

Method

Participants

A total of 27 participants from three different kindergartens participated in this study; their ages ranged from four to six years ($M = 65.3$ months, $SD = 7.7$). Caregivers of 17 participants answered an online questionnaire; 16 identified as mothers, while only one identified as a father. The caregiver's age ranged from 25 to 46 years ($M = 36.59$, $SD = 4.93$). As mentioned, the ability to understand hidden emotions is a skill that children usually acquire between the ages of four and six years (Sundqvist et al., 2018). Therefore, a criterion

was made to include only children aged four to six years to participate in this study. At the beginning of the project, the aim was to recruit only five-year-olds. However, the criterion was expanded to increase the sample size. Descriptive data, including the number and age of both children and caregivers, are presented in Table 1.

Table 1

Descriptive Data for Both Children and Caregivers

Children	<i>N</i>	Age in months			
		<i>M</i>	<i>SD</i>	Minimum	Maximum
4-year-olds	7	55	2.43	52	58
Girls	6	54	2.34	52	58
Boys	1	58	0	58	58
5-year-olds	15	66	3.12	60	71
Girls	7	65	1.33	60	71
Boys	8	66	2.61	62	70
6-year-olds	5	77	2.23	75	81
Girls	3	78	2.5	75	81
Boys	2	76	0.5	75	76
Age in years					
Caregivers	<i>N</i>	<i>M</i>	<i>SD</i>	Minimum	Maximum
Mother	16	36.69	5.07	25	46
Father	1	35			

Note. This table illustrates the *N* = number, *M* = mean age, and *SD* = standard deviation for children and caregivers. The minimum and maximum ages are also shown for both children and caregivers.

Recruitment

Participants were recruited by emailing kindergartens in Tromsø asking if they wanted to participate in the study. By doing so, it was an opportunity to contact several children and their caregivers simultaneously. Ethics approval was obtained before the

recruitment began. The project was evaluated and approved by SIKT (reference number: 429196); a copy of the approval is attached in Appendix A. In addition, the project was approved by the internal research ethics committee at the Department of Psychology, UiT The Arctic University of Norway.

Materials and Procedure

This study used an experimental quantitative design to gather data from both children and caregivers. The study consisted of a test that measured the children's hidden emotion understanding and an online questionnaire for the caregivers. I will go into detail for each component of the study; however, the focus will be on the components of the materials that are relevant to this study. Since this is a research design developed for a more extensive research project than only this one thesis, there are different components of the materials that will not be applied in the analysis of this study. However, these components will still be explained to provide full transparency regarding what was done in this study. The components that will be applied in the analysis of this thesis will be stated explicitly while each component is explained.

As mentioned, recruitment consisted of contacting kindergartens in Tromsø and asking if they wanted to participate in this study. If the kindergarten wanted to participate, we delivered information letters to the kindergartens, and then the kindergarten teachers handed out the information letters to the children's caregivers. The information letter included information regarding the study, a QR code leading to the online questionnaire, and a consent sheet. The caregivers had to fill out the consent sheet and send it back to the kindergarten if they wanted to give their child consent to participate in the study. The information letter also included an information sheet for the children so the parents could talk and prepare their children for the study. The information letter to the caregivers is attached in Appendix B, while the information sheet to the children is attached in Appendix C. When we received

feedback from the kindergartens on how many children had received consent to participate, we scheduled a time to visit the kindergartens and test the children.

Test of Children's Hidden Emotion Understanding

A test was developed to test the children's understanding of hidden emotions. My supervisors and our research partners constructed six of the eight stories in the hidden emotion test. One of the stories was from Sundqvist et al. (2018), while another story was from Wellman and Liu (2004). As mentioned in the introduction, Harris et al. (1986) found a difference in hidden emotion understanding for positive and negative emotions. Additionally, Chaplin and Alado (2013) found that gender differences in the expression of positive emotions were less pronounced when children were with their parents. Also, the expression of externalizing emotions was less pronounced when children were with their peers. Based on this, it is thought that different contexts and different emotions can influence the understanding of hidden emotions. Therefore, the stories were constructed to measure the children's understanding of hidden emotions in different contexts and for different emotions.

Half of the stories took place in a peer context, a kindergarten. While the other half of the stories took place in a family context, where the children in the stories were with their families. In addition, my supervisors and research partners wanted to check how different emotions affect children's understanding of hidden emotions. They, therefore, constructed stories regarding four different emotions (sadness, anger, happiness, and fear). Each emotion had one story in both contexts (peer or family). So, for example, for fear, there was one story regarding fear with a child in a peer context, and one story regarding fear in a family context.

A video was constructed with narration of the hidden emotion stories and questions, so the children were told the stories and asked the questions similarly. The script used for narrating the video is attached in Appendix D. For translating the video script from English to Norwegian, three different individuals translated, and afterward, the best translation was

chosen to ensure that the Norwegian version correctly reflected what the test was made to measure. Next, the test video was implemented on a tablet to test the children. Before starting the test of hidden emotion understanding, the children were shown a sheet with different faces, which they could use to answer the test, as they did in the original test from Wellman and Liu (2004). The sheet from the original test only had three faces (happy, neutral, and sad), but our sheet included two more faces (angry and scared), derived from Sundqvist and Rönnerberg (2010). The response sheet is presented in Figure 1.

Figure 1

Response Sheet for The Five Faces with Different Emotions



Note. This response scale is from Sundqvist and Rönnerberg (2010) and illustrates faces with different emotions (happy, neutral, sad, angry, and scared).

The children were tested individually in a room in their kindergarten that we borrowed. Each test lasted between 15 and 25 minutes, depending on how quickly the child understood the stories and answered the questions. If the child did not understand the story or hear the questions, we repeated the story or questions. Before starting the test, we ensured the children understood the different faces' emotions on the sheet by asking them if they could point to the different emotions. The children could use the sheet to answer the hidden emotion questions later. Therefore, we needed to know that they understood the emotion the faces expressed to understand their answer correctly. Therefore, the first part of the test was that the children had to point to the different emotions. Next, the stories and questions regarding hidden emotions were presented. The children first listened to the stories; then, they were asked two check-in questions and two hidden emotion questions for each story.

The check-in questions were included to ensure that the children understood the stories before moving on to the questions about hidden emotions. The check-in questions could, for example, be “What did the kindergarten teacher ask Lucas to do?” or “What did the giraffe do when Nora walked towards it?”. The hidden emotion questions were aimed at assessing the children’s understanding of hidden emotion and were the same for every story. The first hidden emotion question was about how the child in the story was feeling on the inside. The second hidden emotion question was about how the child in the story tried to look on their face. All the questions are presented in Appendix D.

The children answered either using the sheet in Figure 1 or their words. The children got a point if they answered both check-in questions correctly and then answered the two hidden emotion questions with two different emotions. For example, if they answered that the child in the story was feeling happy on the inside but looked just fine on their face, or for example, the child in the story was feeling angry on the inside but looked happy on their face. This was determined to indicate that they understood the concept of hidden emotions. They could, therefore, receive a maximum of eight points, one for each story, for the whole hidden emotion test. When the children completed the test, they got a diploma they took home to their caregivers. The diploma is attached in Appendix E. On the back of the diploma there was a message reminding the caregivers to answer the online questionnaire.

Online Questionnaire for Caregivers

As mentioned did the caregivers receive information regarding the online questionnaire on the information sheet. They could scan a QR code or use a link to take them to the online questionnaire. When accessing the questionnaire, the caregiver received information about the study before moving on to the questions. The questions consisted of four main parts: starting with demographics questions, then questions regarding familiarity with the situations and the appropriateness of hiding emotions, following questions regarding

child-rearing values, and lastly questions from the Children's Communication Checklist 2. A copy of the questionnaire is attached in Appendix F. As mentioned, this study is part of a bigger research project, and some components of the online questionnaire will not be applied to this study. For the analysis of this study, data from the demographic questions and information from the Children's Communication Checklist 2 will be applied.

Demographical Questions. The first part of the online questionnaire consisted of demographical questions regarding the caregiver and their child. Questions were asked about the caregiver's gender and age, whether the child has siblings, the caregiver's education level, their current work situation, and the number of hours the child spends in daycare a week, in addition to other questions, which are presented in Appendix F. For this study, I will use data on children's and caregivers' gender and age from the demographical questions.

Familiarity of Situations and Appropriateness of Hiding Emotions Questions. To test for the possible effect of prior experiences on children's hidden emotion understanding, we asked the caregivers how often their child has been in similar situations as the children in the hidden emotion test stories. They answered using multiple choice (never – rarely – sometimes – often). After they had answered how often their child has been in a similar situation, they were asked about their thoughts on how appropriate they think it is to hide emotions in the different situations in the hidden emotion stories. They answered using multiple choice (never appropriate – rarely appropriate – sometimes appropriate – often appropriate).

Child-Rearing Values Questions. The caregivers were asked questions regarding their emotion-related child-rearing values. The questions were constructed based on the socialization goals questionnaire from Abels (2020). 15 pairs of items were included, each consisting of two statements about what parents want their child to learn. For each pair of items, the parent must either rate one of the statements as “more important” than their child

learns or rate them as “equally important”. An example was whether it is more important for your child to learn “not to give up” or “to wait” or if you rate them equally important.

Children’s Communication Checklist 2. The last part of the online questionnaire consisted of the Children’s Communication Checklist (CCC-2). We bought access to use it in this study. The CCC-2 assesses children’s communication skills and detects possible language disabilities (Bishop, 2003). The checklist consisted of 70 statements that caregivers were asked to evaluate based on how frequently their child exhibits the behavior described. They answered on a scale from 0 (less than once a week or never), 1 (at least once a week, but not every day), 2 (once or twice a day), or 3 (more than twice a day or always) (Bishop, 2003). Since it is unpublished, we do not have permission to share the items of the CCC-2 test. Therefore, it was excluded from Appendix F, which contains a copy of the online questionnaire. I will apply the data from the CCC-2 in the analysis for this study.

Analysis

IBM SPSS 29 was used to conduct the statistical tests. Before starting the analysis, the data from the online questionnaire and the hidden emotion test were cleaned and transformed to numerical values.

Results

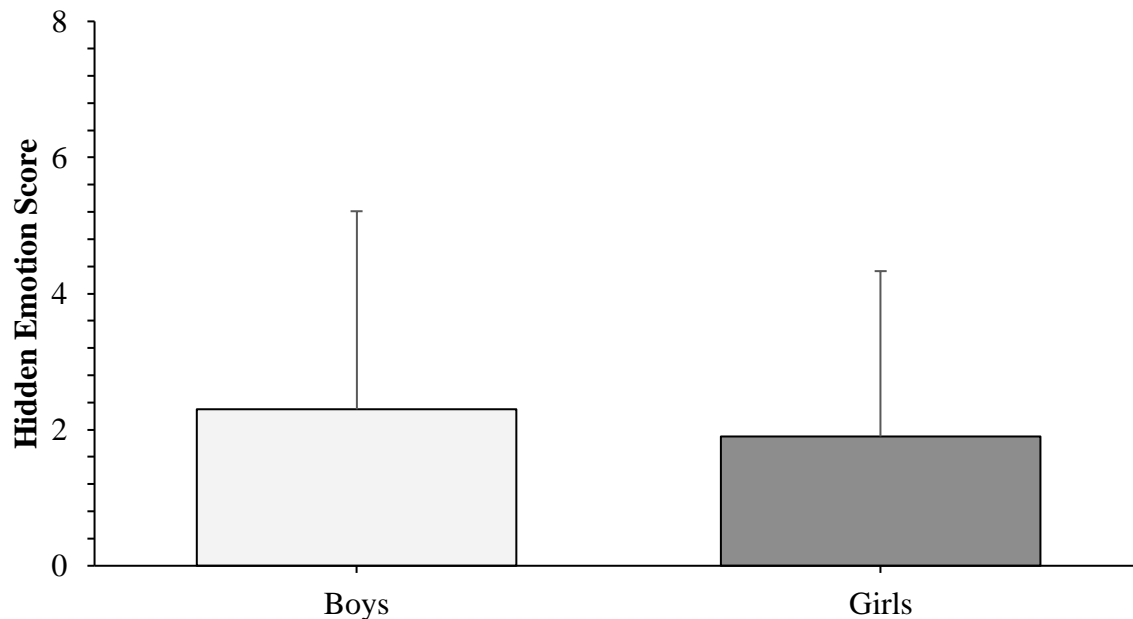
H1: Gender Difference in Overall Hidden Emotion Understanding

A Shapiro-Wilk test was conducted to check for the normality of the overall hidden emotion score and determine the proper statistical test. The test showed that the distribution of the hidden emotion score departed from normality for boys ($W = .771, p = .006$) and girls ($W = .785, p = .002$). Therefore, the assumptions for a parametric test were not met, and a non-parametric test was used to test for H1, that girls score better overall on the test of hidden emotions than boys. A Mann-Whitney U test was conducted, and it revealed no significant gender differences in the children’s understanding of hidden emotions between boys ($Mdn =$

13.9, $n = 10$) and girls ($Mdn = 12.4$, $n = 15$), $U = 66$, $p = .604$. Figure 2 illustrates the mean overall scores for boys and girls on the hidden emotion test.

Figure 2

Mean Overall Scores on the Hidden Emotion Test for Boys and Girls



Note. The error bars represent standard deviations. The maximum hidden emotion score is 8.

The calculation method for the hidden emotion score is detailed in the materials and procedures section.

H2: Communication, Gender, and Hidden Emotion Understanding

Since no support for H1 was found, no further analyses were conducted to check for H2 whether communication skills mediate the gender effect (H1). Instead, a correlation analysis was conducted to investigate whether there were any significant correlations between communication skills and hidden emotion understanding. The Spearman correlation analysis revealed no significant correlation between the hidden emotion score and the CCC-2 score, $r = .052$, $p = .860$ (two-tailed). A descriptive analysis was conducted for boys' and girls' scores on the CCC-2 test, revealing that boys had a higher mean score ($M = 66.67$, $SD = 10.13$) than girls ($M = 51.1$, $SD = 14$). These results suggest that although the boys had

higher communication skills than the girls, this did not affect their hidden emotion understanding.

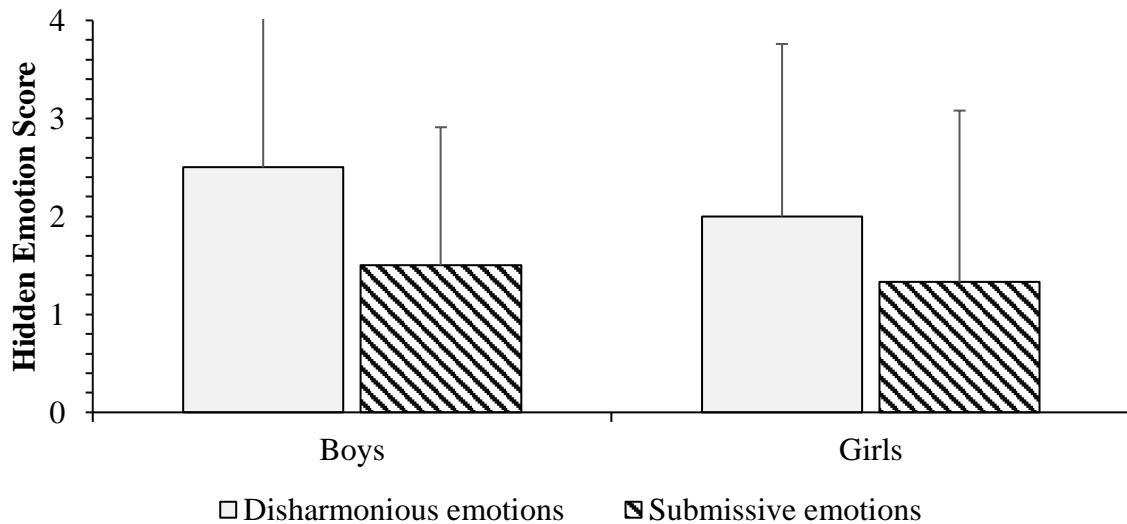
H3: Gender Differences in Hidden Emotion Understanding for Different Emotion Categories

Since the assumptions for normal distribution were not met for the data, a Mann-Whitney U test was conducted to test for H3a and H3b. H3a was that girls better understand hiding disharmonious emotions (anger and happiness) than boys. H3b was that boys have a better understanding of hiding submissive emotions (sadness and fear) than girls. First, the children's scores on the hidden emotion test of hiding anger and hiding happiness were combined into a new variable called disharmonious emotions. Here, the child would score four if they answered both hidden emotion questions right for anger and happiness in both contexts. In addition, the same thing was done for the children's scores on the hidden emotion test for hiding sadness and hiding fear; they were combined into a new variable called submissive emotions.

The Mann-Whitney U test revealed no significant difference between boys ($Mdn = 12.8$, $n = 9$) and girls ($Mdn = 10.58$, $n = 13$) for understanding submissive emotions ($W = 46.5$, $p = .386$). Similarly, no significant difference was found between boys ($Mdn = 13.3$, $n = 9$) and girls ($Mdn = 10.27$, $n = 13$) for understanding hiding disharmonious emotions ($W = 42.5$, $p = .267$). The results suggest that, within the variables examined, there is no evidence to support the presence of gender differences in either the understanding of hiding submissive or disharmonious emotions. Figure 3 illustrates the mean overall score for understanding hiding submissive and disharmonious emotions for boys and girls.

Figure 3

Mean Overall Scores on the Hidden Emotion Test for Boys and Girls for Disharmonious Emotions and Submissive Emotions



Note. Disharmonious emotion = anger score plus happiness score. Submissive emotions = sadness score plus fear score. The error bars represent standard deviations. The calculation method for the hidden emotion score is detailed in the materials and procedures section. The maximum hidden emotion score is four.

H4: Gender Differences in Hidden Emotion Understanding for Different Emotion

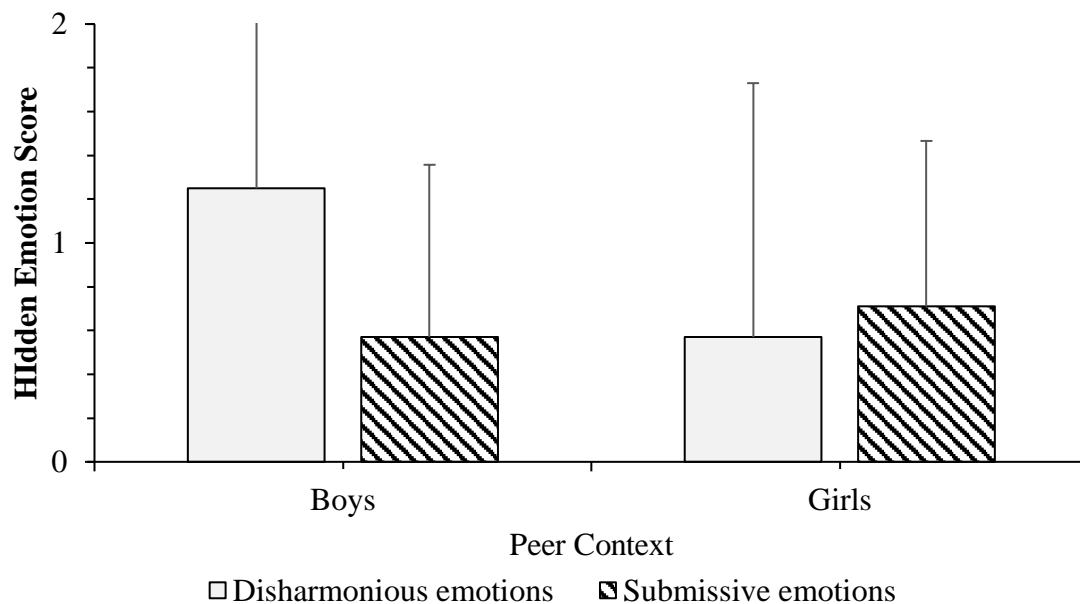
Categories in Peer Context

Since the assumptions for normal distribution were not met, a Mann-Whitney U test was conducted to test for H4a and H4b. H4a was that boys have a better understanding of hiding submissive emotions in a peer context compared to girls. H4b was that girls have a better understanding of hiding disharmonious emotions in a peer context compared to boys. Two new variables were conducted: one for understanding hiding submissive emotions in a peer context and one for understanding hiding disharmonious emotions in a peer context. Here, the children could have a maximum of two points in each variable since there were two stories for each emotion category in a peer context. The Mann-Whitney U test revealed no significant difference between girls ($Mdn = 12.7$, $n = 15$) and boys ($Mdn = 14.6$, $n = 11$)

understanding of hiding submissive emotions in a peer context ($W = 70.5$, $p = .491$). In addition, it revealed no significant difference between girls' ($Mdn = 11.9$, $n = 14$) and boys' ($Mdn = 13.4$, $n = 10$) understanding of hiding disharmonious emotions in a peer context ($W = 61$, $p = .652$). Figure 4 illustrates the mean overall score for boys and girls on their understanding of hiding disharmonious and submissive emotions in a peer context.

Figure 4

Mean Overall Scores on the Hidden Emotion Test for Boys and Girls for Disharmonious Emotions and Submissive Emotions in Peer Context



Note. Disharmonious emotion = anger score plus happiness score. Submissive emotions = sadness score plus fear score. The error bars represent standard deviations. The maximum hidden emotion score is two.

Discussion

The main purpose of this study was to investigate whether there are gender differences in children's understanding of hidden emotions. Furthermore, the study aimed to compare boys' and girls' hidden emotion understanding for two different emotion categories (submissive and disharmonious emotions). Additionally, to compare hidden emotion

understanding for the two different emotions in peer context. In light of previous research presented in the introduction that has found gender differences in ToM abilities and emotion expression, we expected to see similar gender differences in children's hidden emotion understanding. Building on the findings from the literature, we deduced four different hypotheses. However, contrary to the hypotheses, the results did not reveal significant gender differences in children's overall hidden emotion understanding. No gender differences were found for hidden emotion understanding for different emotion categories, nor different emotion categories in peer context. In this discussion section, potential explanations for the findings will be presented and discussed, in addition to the study's limitations and directions for future studies on the topic of hidden emotion understanding. However, first, an overview of the four different hypotheses will be presented, including a summary of the results for each, starting with the main hypothesis.

The main hypothesis (H1) was that girls score better overall on the test of hidden emotion understanding than boys. The hypothesis was deduced in light of previous research suggesting gender differences in emotion expression and ToM abilities (Calero et al., 2013; Chaplin & Alado, 2013; Charman et al., 2002; Walker, 2005). Given that hidden emotion understanding can be considered a part of ToM, we expected to find gender differences in the children's ability to understand hidden emotions. The present study found no significant gender differences in children's understanding of hidden emotions. There was no evidence implicating that girls scored better overall on the hidden emotion test than boys. The results are, therefore, contrary to the main hypothesis, suggesting that there are no gender differences in children's ability to understand hidden emotions.

The second hypothesis (H2) was that girls' superior performance in hidden emotion understanding (H1) may be attributed to their superior communication abilities, measured in the Children's Communication Checklist 2. This hypothesis was deduced based on previous

research suggesting that language abilities and ToM abilities are connected and, in addition, that girls acquire language faster than boys (Adani & Capanec, 2019; Astington & Jenkins, 1999). However, due to the lack of support for H1, no further analysis was conducted to test for H2. Instead, a correlation analysis was conducted between communication skills and hidden emotion understanding. However, it did not reveal any significant correlation. This suggests that there exists no link between communication skills and hidden emotion understanding. The findings from this study could then contradict previous research that suggests that communication skills are connected to ToM abilities and, therefore, to hidden emotion understanding since it can be considered a part of ToM.

The first part of the third hypothesis was that (H3a) girls have a better understanding of hiding disharmonious emotions (anger and happiness) than boys. In addition, the second part of the third hypothesis (H3b) was that boys have a better understanding of hiding submissive emotions (sadness and fear) than girls. These hypotheses were deduced based on research that has found gender differences in children's understanding of hiding emotions (Chaplin et al., 2005; Fischer et al., 2004). The results revealed no gender differences in children's understanding of hiding emotions for different emotion categories. There was no support for H3a that girls have a better understanding of hiding disharmonious emotions than boys. Neither for H3b that boys have a better understanding of hiding submissive emotions than girls. This suggests that neither gender has an advantage in understanding hidden emotions based on emotion categories.

The first part of the fourth hypothesis (H4a) was that boys have a better understanding of hiding submissive emotions in a peer context compared to girls. In addition, the second part of the fourth hypothesis (H4b) was that girls have a better understanding of hiding disharmonious emotions in a peer context compared to boys. These hypotheses were deduced based on the possible effect traditional gender roles and expectations from society,

parents and peers could have on children's hidden emotion understanding (Chaplin & Alado, 2013; Lindsey & Mize, 2001). The results showed no gender differences in children's ability to understand hidden emotions for different emotion categories in a peer context. There was no support for H4a, that boys have a better understanding of hiding submissive emotions in a peer context compared to girls. Neither for H4b, that girls have a better understanding of hiding disharmonious emotions in peer context than boys. This suggests that neither of the genders has an advantage in understanding hidden emotions based on emotion categories in peer context. There could be several reasons for the findings, these will be discussed next.

Although most of the research, at least to my knowledge, on gender and ToM abilities have found gender differences, some studies have found the opposite, as mentioned in the introduction. McDonald and Kanske (2023) analyzed data from previous research on ToM and found that gender had no significant effect on ToM abilities. In addition, another study by Di Tella et al. (2020) also found no significant gender differences in ToM abilities. Wellman and Liu (2004), who developed the ToM scale, analyzed the variance of data from the ToM scale, children's age and gender, and the order in which they got asked questions were tested. Their results showed that there was no effect of gender, which supports that there are no gender differences in hidden emotion understanding. These null findings support our findings, that there are no gender differences.

The literature presented in this study has found conflicting results regarding whether there are gender differences in ToM abilities, which complicates the interpretation of results. For example, some research, such as the research from Di Tella et al. (2020); McDonald and Kanske (2023); Wellman and Liu (2004), reports finding no gender differences, which is consistent with the findings from this study. Contrary, other studies, like the research by Calero et al. (2013); Charman et al. (2002); Ibanez et al. (2013); Walker (2005), have reported finding gender differences in children's ToM abilities. This inconsistency in the

literature may explain why this study found no gender differences in hidden emotion understanding since it can be considered a part of ToM.

The same applies to research on gender differences in emotion expression, where there are inconsistencies in the literature findings. Unlike the studies presented in the introduction by, Chaplin et al. (2005), Fischer et al. (2004) that found gender differences in emotion expression. There also exist studies that have found the opposite, that there are no gender differences. A study by Deng et al. (2016) explored the emotion expression of adults watching a video clip meant to elicit different emotions. They found that there were no gender differences in the emotion expression of surprise and sadness. This finding contradicts the studies presented in the introduction that have found gender differences in emotion expression. More specifically, the study by Fischer et al. (2004) found that girls express more submissive emotions than boys.

However, the finding from Deng et al. (2016) can be interpreted as consistent with the results from this study since it did not find gender differences in children's understanding of hiding submissive emotions. In addition, another study that supports our findings is a study by Fidalgo et al. (2018). They analyzed data from a test used for measuring children's emotion comprehension called the Test of Emotion Comprehension. The test consists of nine components, with recognition of facial expressions and understanding of hidden emotions as two of them. Their test data analysis indicates minimal gender differences in children's understanding of emotions amongst eight of the nine components of the Test of Emotion Comprehension. This suggests no gender differences in how emotions are comprehended among data from the analyzed children.

The results from Fidalgo et al. (2018) revealed no gender differences in hidden emotion understanding, which aligns with the results of this study. This can be thought to be due to the children's experience with expressing submissive emotions, which could affect

their understanding of the concept of hiding them. Whereas children who have experience with not expressing their submissive emotions can be thought to have hidden their submissive emotions before. Unlike children who express their submissive emotions and, therefore, might not have hidden their submissive emotions before. Even though this thesis does not explore children actually hiding their emotions, but their understanding of the concept. It can be thought that their understanding of the concept originates from their actual experience with hiding their emotions. However, this would be a hard concept to investigate. Therefore, we chose to explore their understanding and not their experiences with hiding emotions.

Another potential explanation for the lack of support for the hypothesis could be the increasing modernization of society. We may distance ourselves from traditional gender roles and associated expectations concerning emotion expression. In the introduction, some cultural factors that could explain gender differences in emotion expression were presented. One of them was that it is beneficial for men and women to express different emotions to carry out their tasks and roles in the best way possible based on traditional gender roles (Fischer et al., 2004). However, this article was published 20 years ago, which may make it outdated to our contemporary society today, where it is becoming increasingly common for males to have more nurturing roles and for females to have the provider role. Today, it is not uncommon to see males working as nurses, males who are stay-at-home dads, females who work within the construction industry, or females who provide for their families.

Many of the studies used to deduce our hypothesis are from elder studies; in addition to that, none of them were from Norway. One explanation for the findings from this study is that Norway is more gender equalitarian than the countries where most of the previous research on hidden emotion understanding was from. A report published by the World Economic Forum in 2021, reported that Norway was the top three country in the world regarding gender equality according to the GGGI (global gender gap index) (World

Economic Forum, 2021). Based on the difference between countries, in light of how gender egalitarian they are, the types of emotions that are beneficial for males and females to express might be different. This might affect children's understanding of hidden emotions. This highlights the importance of this study, which is the first, at least to my knowledge, to investigate gender differences in hidden emotion understanding in Norway. In addition to the potential change in what type of emotions that are beneficial for men and females to express due to a change in society, there also might be a change where men develop empathy on the levels that females do. This could be because men might need empathy in their nurturing roles as women do.

In the introduction, a study by Ibanez et al. (2013) found that females had better ToM abilities than boys and that the effect was moderated by empathy. Thomas and Maio (2008) conducted a study where they found that when men were asked to exhibit traits typically associated with the traditional female gender role during a ToM task, like increased empathy, they demonstrated improved ToM abilities comparable to women's ToM abilities. Perhaps men taking more nurturing roles in our contemporary society that contradict traditional gender roles increases men's levels of empathy since it is beneficial for them to have high levels of empathy. This could explain why we did not find gender differences in children's ability to understand hidden emotions. Simply due to that, boys are becoming better at ToM and, therefore, also better at understanding hidden emotions.

However, it is not certain that this is the case. It could be speculated that the reason for not being able to detect any gender differences in children's hidden emotion understanding is because girls are becoming worse at hidden emotion understanding, not because boys are becoming better at hidden emotion understanding. This is only speculation, but the question regarding whether it is because boys are becoming better or because girls are becoming worse at hidden emotion understanding is an interesting question. To my

knowledge, there are no studies on this topic. However, it can be speculated that perhaps a possible reason could be that girls are becoming worse at understanding hidden emotions due to spending an increasing amount of time on social media from a young age. This may also be due to parents spending more time on social media than before and, therefore, spending less time playing and interacting with their children. However, this is purely speculation and is not supported by any research. Though an interesting thought worth mentioning.

Even though our findings are not how we expected them to be, they could be looked at in a positive light since it would be a good thing if they accurately represent reality. And that there actually are no gender differences in children's understanding of hidden emotions. There are several reasons why this would be a good thing. It could illustrate that we have a more inclusive and accepting environment with fewer stereotypes and stigmatization of individuals based on gender. An environment where both boys and girls feel equally safe to express the emotions they are experiencing.

Moving away from the phrases "big boys don't cry" and "sugar and spice and everything nice" would be a good thing as it would be a correct step against a society where we acknowledge every child's emotion, regardless of their gender and what type of emotion they are expressing. Research indicates that suppressing the expression of particular emotions has been connected to worse well-being and psychopathology in adults (Gross & John, 2003). It could, therefore, be a negative thing if this study were to find gender differences. This emphasizes the importance of having a society where children can express their emotions instead of suppressing and hiding them.

Strengths, Limitations, and Future Directions

This thesis contributes to the developmental field of psychology by raising new questions regarding gender differences in hidden emotion understanding. It also provides a new method for measuring children's hidden emotion understanding while considering social

context and emotion type. Still, this study has limitations that will be discussed next, followed by its strengths and proposals for further research.

One potential limitation was that since we visited the kindergartens and tested the children there, there was some variation in the rooms the children were tested in. The rooms we were lucky to borrow from the kindergartens to test the children differed in layout. Two of the rooms were quiet and suitable for testing the children. However, one of the rooms was right next to the main room where the other children played. The door also had a window, which meant that the children tested in that room could easily be disturbed during the test by children making noise and looking into the window from the main room; this could have distracted the children that were tested there. However, a post-hoc independent-sample median test was conducted, revealing no significant effect of which kindergarten the children were tested. However, it could be taken into consideration for further research.

In addition, the testing of children in kindergarten could be a limitation as it might not fully capture children's natural responses if the test had been asked in a natural environment. Since the two contexts in the hidden emotion stories were peer context and family context, it might have been easier for the children to consider the four stories that took place in kindergarten since they were tested there. However, after conducting a post-hoc analysis comparing the mean hidden emotion scores from stories in a peer context vs. stories in a family context, it revealed no support that it might be easier to answer the kindergarten questions. The findings actually reveal that the children answered more hidden emotion questions correctly when the questions were in a family context ($M = 3.27$, $SD = 1.2$) than when the questions were in a kindergarten context ($M = 2.25$, $SD = 1.29$). This was not significant; however, it could be a factor to consider since the children have more experience in their relationships with their family than with peers in their kindergarten. As mentioned in the introduction Safdar et al. (2009) found differences in emotion expression towards

different people based on perceived closeness. Perhaps this factor affected the children's answers on the hidden emotion test.

Another limitation of this study is the small sample size of 27 participants from three different kindergartens. Recruiting participants from kindergartens was an effective way to get in contact with several children at the same time, however, it is often a challenge to find children to participate in studies. Therefore, our small sample size is a limitation of this study because of its low power, making it hard to detect actual effects even though they might exist. We also had fewer four-year-olds and six-year-olds than five-year-olds, making it impossible to compare the different age groups, which might have been interesting to investigate concerning gender differences in hidden emotion understanding. For further directions, we would prioritize recruiting enough participants in each age group (four-, five- and six-year-olds) to test for gender differences in hidden emotion understanding within each age group.

Another limitation is the lack of generalizability because all the participants were from Tromsø. This makes it challenging to apply the results from this study to a broader context, for example, other settings or regions. Another limitation of this study is that we see a floor effect in the data, where the children's scores on the hidden emotion test were overall very low ($M = 2.08$, $SD = 2.58$). This floor effect can make it impossible to detect differences between subgroups, such as gender differences. The floor effect can, for example, take place when a test is too difficult for the participants; perhaps the hidden emotion test was too hard for the children—causing us not to detect any gender differences even though they might be present in the sample.

The distribution of mothers and fathers who answered the online questionnaire could be both a limitation and a strength. There were 16 mothers but only one father. This could be a limitation as it could affect the results since we primarily have one perspective on the online questionnaire. However, this distribution could also be considered an advantage because

having the same perspective for almost every participant makes the CCC-2 scores more comparable than if half had been filled out by fathers and half by mothers.

Although this study has several limitations, there are also several strengths worth mentioning. One strength is that this study highlights an important area of research that needs more knowledge. In addition, is the methodology for this study a strength, especially the test of hidden emotion understanding, as it is the first test, to my knowledge, constructed to measure hidden emotion understanding, with variables for both the social context (family vs. peer) and for different emotion categories (submissive emotions vs. disharmonious emotions). This focus on context could make it more common to include different contexts in research on psychological concepts. This would be a good thing as it would broaden our knowledge of concepts and lead to new questions for future research to answer.

Conclusion

The present study has investigated whether there are gender differences in children's ability to understand hidden emotions. The results exhibited no support for our hypothesis that there is an overall gender difference in children's understanding of hidden emotions. Furthermore, the results revealed no support for gender differences in children's understanding of hidden emotions for different emotion categories (submissive vs. disharmonious) or social contexts (peer vs. family). The study contributes to the field of research by proposing a new way of measuring hidden emotion understanding that includes a focus on social context and different emotion categories. The findings can be seen as contradicting previous research that has found gender differences in children's ToM abilities and emotion expressions. This study contributes to the field of developmental psychology by shedding light on hidden emotion understanding, challenging assumptions about gender differences in emotional understanding, and raising new questions that future research should attempt to answer.

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Appendix A

Approval from the Norwegian Centre for Research Data (NSD)

Meldeskjema for behandling av personopplysninger

18.04.2024, 14:31



Vurdering av behandling av personopplysninger

Referansenummer
429196

Vurderingstype
Standard

Dato
28.02.2024

Tittel

Children's understanding of hidden emotions

Behandlingsansvarlig institusjon

UiT Norges Arktiske Universitet / Det helsevitenskapelige fakultet / Institutt for psykologi

Prosjektansvarlig

Monika Abels

Prosjektperiode

20.03.2023 - 31.12.2024

Kategorier personopplysninger

Alminnelige

Særlige

Lovlig grunnlag

Samtykke (Personvernforordningen art. 6 nr. 1 bokstav a)

Uttrykkelig samtykke (Personvernforordningen art. 9 nr. 2 bokstav a)

Behandlingen av personopplysningene er lovlig så fremt den gjennomføres som oppgitt i meldeskjemaet. Det lovlige grunnlaget gjelder til 02.02.2025.

[Meldeskjema](#)

Kommentar

Data Protection Services has assessed the change to the duration of the project.

The period for processing personal data has been extended until 02.02.2025.

If the duration of processing personal data is further extended, it may be necessary to inform your participants.

We will follow up the progress of the project at the new planned end date to determine whether the processing of personal data has been concluded.

Good luck with the rest of the project!

Appendix B

Information Sheet for the Caregivers

Vil dere delta i forskningsprosjektet “Barns forståelse av skjulte emosjoner”?

Dette er et spørsmål til deg og ditt barn om å delta i et forskningsprosjekt hvor formålet er å undersøke barns forståelse av skjulte emosjoner. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for dere.

Formål

Dette forskningsprosjektet er et samarbeidsprosjekt med forskere fra Sverige og Italia. Prosjektets formål er å undersøke barns forståelse av skjulte følelser. Vi ønsker å undersøke om ulike faktorer påvirker barns forståelse av skjulte emosjoner. Faktorer vi er interesserte i å undersøke er blant annet kontekst, ulike emosjoner, land, kultur og språkutvikling. Data fra dette forskningsprosjektet vil også bli brukt som grunnlaget for en masteroppgave ved UiT Norges Arktiske Universitet.

Hvem er ansvarlig for forskningsprosjektet?

UiT Norges Arktiske Universitet er ansvarlig for prosjektet. Som nevnt er dette forskningsprosjektet et samarbeidsprosjekt med Linköpings Universitet og University of Bozen-Balzano. Dine personopplysninger vil bare bli bearbeidet ved UiT Norges Arktiske Universitet. Data som vil bli delt med samarbeidspartnere vil ikke inneholde personopplysninger.

Hvorfor får du spørsmål om å delta?

Du blir spurt om å delta i dette forskningsprosjektet da du har et barn som er 5 år gammel. Du har kanskje blitt kontaktet med denne forespørselen gjennom ditt barns barnehage.

Hva innebærer det for deg å delta?

Dersom dere ønsker å delta i forskningsprosjektet, innebærer det at du som forelder svarer på et spørreskjema. Dette spørreskjemaet inneholder ulike spørsmål om deg og barnet, barnets opplevelser med skjulte følelser, barnets språkutvikling og dine holdninger. Hele spørreskjemaet er anslått å ta rundt 20 minutter å fullføre.

Barnet vil høre noen historier om skjulte følelser på et nettbrett og bli spurt noen spørsmål angående historiene. Barnets svar på spørsmålene vil bli notert ned på papir av forskeren. Dette er antatt å ta rundt 10 minutter.

Dersom du har spørsmål angående barnets eller ditt bidrag til forskningsprosjektet blir vi glade dersom du tar kontakt med oss!

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg. Dette prosjektet er ikke relatert til aktiviteter eller tilbud gitt av barnets barnehage, det er uavhengig av barnehagen.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Forskningsgruppen “Barns utvikling” ved UiT Norges Arktiske Universitet vil ha tilgang til opplysningene du oppgir.

Navnene deres vil bli erstattet med en kode som lagres adskilt fra øvrige data, slik at det ikke vil være mulig å koble dette sammen. Samtrykkerklæringen på dette arket vil bli oppbevart ved UiT til slutten av 2023, før det blir ødelagt. Da vil det ikke være mulig å endre eller slette data. Data dere bidrar med vil være lagret innelåst på en forskningsserver.

Databehandler som skal samle inn, bearbeide og lagre data er Qualtrics. Som nevnt kommer noe av data til å bli delt med samarbeidspartnere ved Linköpings Universitet og University of Bozen-Balzano, men dine personopplysninger vil ikke bli delt. Ved publikasjon av eventuelle artikler og forskningsfunn vil det ikke være mulig å gjenkjenne individer.

Hva skjer med personopplysningene dine når forskningsprosjektet avsluttes?

Prosjektet vil etter planen avsluttes rundt slutten av 2023. Etter da vil signatur og personvernopplysninger bli ødelagt.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra UiT Norges Arktiske Universitet har Sikt – Kunnskapssektorens tjenesteleverandør vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Hvis du har spørsmål til studien, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

- Monika Abels, førsteamanuensis ved UiT. Epost: m.abels@uit.no eller telefon: 77 64 53 43

- Gabriella Öturai, førsteamanuensis ved UiT. Epost: gabriella.oturai@uit.no eller telefon: 77 64 68 18

- Nora Kolve, masterstudent i psykologi ved UiT. Epost: nko024@uit.no

Hvis du har spørsmål knyttet til vurderingen som er gjort av personverntjenestene fra Sikt, kan du ta kontakt via:

- Epost: personverntjenester@sikt.no eller telefon: 73 98 40 40.

Med vennlig hilsen

Forskningsgruppen “Barns utvikling” ved UiT Norges Arktiske Universitet

Samtykkeerklæring (denne siden skal du beholde)

Personlig kode: (blir tilfeldig generert)

Jeg har mottatt og forstått informasjon om prosjektet "Barns forståelse av skjulte emosjoner" og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i spørreskjema (oppgi personlig kode_____)
- at mitt barn (oppgi navn_____) får delta i studien

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)

QR-kode for å komme til spørreskjemaet:



<https://cutt.ly/A6hrwOL>

Samtykkeerklæring (denne siden leveres tilbake til barnehagen)

Personlig kode:

Jeg har mottatt og forstått informasjon om prosjektet "Barns forståelse av skjulte emosjoner" og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i spørreskjema (oppgi personlig kode
- at mitt barn (oppgi navn _____) får delta i studien

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)

QR-kode for å komme til spørreskjemaet:



<https://cutt.ly/A6hrwOL>

Appendix C
Information Sheet to the Children



Hei, vi er forskere som jobber på universitetet. Vi ønsker gjerne å besøke deg i barnehagen din for at du skal være med i vår studie.

Hva skal vi gjøre? Vi kommer til å høre på flere korte historier. Etter historiene kommer vi til å stille deg noen spørsmål, spørsmålene handler om noe vi alle mennesker har, nemlig følelser. Dersom du har lyst å være med så sees vi om noen uker!

1. HØRE PÅ HISTORIER



2. SVARE PÅ SPØRSMÅL



Appendix D

Hidden Emotions Test

De generelle introduksjonene og historiene kommer til å bli spilt av på et nettbrett av en forsker med bruk av PowerPoint. Barns personlige kode (fra samtykkeskjema) og svar vil bli dokumentert på papir som i ettertid vil bli destruert.

Introduksjon av forsker

Hei, jeg heter _____. Du skal få høre noen korte historier om forskjellige barn fra nettbrettet. Etter hver historie kommer jeg til å spørre deg noen spørsmål om historiene og skrive ned svarene dine, er det greit?

Generell introduksjon (fortalt av en forteller mens en «skuespiller» blir vist i videoen og visualiserer konseptene, f.eks. ved å peke på hennes ansikt)

Jeg kommer til å fortelle deg noen historier om noen barn nå. I historiene kan barnet (trykk på det grå området når fortelleren sier “barnet” for å starte animasjonen) føle seg trist eller det kan føle seg glad. Eller så føler barnet seg verken glad eller trist, men bare helt grei. Barnet kan også føle seg sint eller så kan barnet føle seg redd.

Nå lurer jeg på

Kan du peke på den som er

Trist? Glad? Helt grei? Sint? Redd?

BRA!



Okei, la oss snakke om historiene: Etter jeg har lest historien kommer jeg til å spørre deg om hvordan barnet føler seg på innsiden (klapp på ditt eget bryst). OG hvordan barnet så ut på deres ansikt (klapp mot ditt eget ansikt). Hvordan barnet egentlig føler seg på innsiden (klapp mot ditt eget bryst) kan være det samme som hvordan de ser ut på sitt ansikt (klapp på ditt kinn), men det kan også være forskjellig.

Denne historien er om en gutt/jente. Jeg skal spørre deg om hvordan gutten/jenta egentlig følte seg på innsiden og hvordan han/hun så ut på hans/hennes ansikt. Han/hun føler seg kanskje på en måte på innsiden, men ser annerledes ut på hans/hennes ansikt. Eller, så følte kanskje han/hun det samme på innsiden som han/hun så ut som på hans/hennes ansikt. Jeg vil

at du forteller meg hvordan han/hun egentlig føler seg på innsiden og hvordan han/hun så ut på hans/hennes ansikt.

Vi skal begynne med historier om barn i barnehagen, fordi vi er i barnehagen akkurat nå. Er du klar? Da starter vi!

Påminner; Husk at hvordan barnet egentlig føler seg på innsiden (trykk mot ditt eget bryst) kan være det samme som de ser ut på ansiktet (klapp mot ditt eget ansikt), men det kan også være ulikt

[Etter første blokk]: Nå kommer det noen nye historier og nå er barna sammen med sin familie. La oss høre om hva som skjer der!

	Item story	Memory checks	Target-feel question	Target-look question
Happiness / family	Denne historien handler om Oliver. Oliver fikk akkurat det han ønsket seg i julegave, en lekedinosaur. Oliver sin søster ønsket seg også en leke, men hun fikk en strikket genser. Oliver må gjemme hvordan han føler seg, fordi hvis hans søster vet hans egentlige følelser, så vil hun ikke dele hennes julegodter med han.	Hva fikk Oliver sin søster i julegave? Hva hadde Oliver sin søster gjort hvis hun fant ut om hans ekte følelser?	Så, hva følte Oliver egentlig når han fikk en lekedinosaur og hans søster fikk en genser? Glad, trist, sint, redd eller helt grei?	Hvordan prøvde Oliver å se ut på hans ansikt når han fikk lekedinosaur og hans søster fikk en genser? Glad, trist, sint, redd eller helt grei?
Happiness / peers	Denne historien handler om Sofie. Sofie spilte et brettspill med hennes venner i barnehagen, og Sofie vant. Hun liker veldig godt å vinne, men Sofie må gjemme hvordan hun egentlig føler seg fordi hvis hennes venner vet hennes egentlige følelser, så vil de ikke spille med henne lengre.	Hva gjorde Sofie og hennes venner i barnehagen? Hva hadde Sofie sine venner gjort hvis de fant ut om hennes egentlige følelser?	Så, hva følte Sofie egentlig når hun vant i brettspillet? Glad, trist, sint, redd eller helt grei?	Hvordan prøvde Sofie å se ut på hennes ansikt når hun vant brettspillet? Glad, trist, sint, redd eller helt grei?

Fear / family	Denne historien handler om Nora. Nora var i dyreparken med hennes familie. Plutselig stakk en giraff hodet sitt veldig nært Nora, dette fikk henne til å hoppe. Men Nora må gjemme hvordan hun egentlig føler seg fordi hvis hennes lillebror vet hennes egentlige følelser så vil han tenke at hun er en pyse.	Hva gjorde giraffen når Nora og hennes familie gikk forbi? Hva hadde Nora sin bror gjort hvis han fant ut om hennes egentlige følelser?	Så, hva følte Nora egentlig når giraffen stakk frem hodet nært henne? Glad, trist, sint, redd eller helt grei?	Hvordan prøvde Nora å se ut på hennes ansikt når giraffen stakk frem hodet nært henne? Glad, trist, sint, redd eller helt grei?
Fear / peers	Denne historien handler om Lucas. Lucas var i barnehagen. Barnehagelæreren spurte han om å hente tegneblyantene fra lageret. Lucas liker ikke å gå inn i lageret. Det er mørkt og skummelt. Men Lucas må gjemme hvordan han egentlig føler seg, fordi hvis de andre barna vet hans egentlige følelser så kommer de til å le av han.	Hva spurte barnehagelæreren Lucas om å gjøre? Hva ville de andre barna gjort hvis de fant ut om Lucas egentlige følelser?	Så, hva følte Lucas egentlig når han måtte gå inn i lageret? Glad, trist, sint, redd eller helt grei?	Hvordan prøvde Lucas å se ut på ansiktet når han måtte gå inn i lageret? Glad, trist, sint, redd eller helt helt grei?
Sadness / family (Sundquist et al., 2018)	Denne historien handler om Mattias. Mattias sin tante kom akkurat tilbake fra en reise. Hun lovt at hun skulle kjøpe han en lekebil. Men, hun hadde i stedet kjøpt han en bok. Mattias liker ikke bøker. Det han egentlig ville ha var en lekebil. Men Mattias må gjemme hvordan han egentlig føler seg, fordi hvis hans tante vet om hans ekte følelser kommer hun aldri til å kjøpe han noe igjen.	Hva kjøpte Mathias sin tante han? Hva ville hans tante gjort hvis hun fant ut om Mathias egentlige følelser?	Så, hva følte Mathias egentlig når hans tante ga han boken? Glad, trist, sint, redd eller helt grei?	Hvordan prøvde Mathias å se ut på ansiktet når hans tante ga han boken? Glad, trist, sint, redd eller helt grei?
Anger / peers	Denne historien handler om Ella. Ella lekte med vennen sin i barnehagen. Vennen hennes tok leken Ella lekte	Hva gjorde vennen til Ella når de lekte sammen?	Så, hva følte Ella egentlig når vennen hennes tok	Hvordan prøvde Ella å se ut på ansiktet når vennen hennes tok

	med. Vennen hennes ville ikke gi den tilbake til henne. Ella vil veldig gjerne ha leken tilbake. Men Ella må gjemme hvordan hun egentlig følelser seg. Fordi om vennen finner ut hva Ella egentlig føler, vil hun ikke være hennes venn lengre.	Hva ville vennen hennes gjort hvis hun fant ut om Ellas egentlige følelser?	leken Ella lekte med og ikke ville gi den tilbake? Glad, trist, sint, redd eller helt greit?	leken Ella lekte med og ikke ville gi den tilbake? Glad, trist, sint, redd eller helt greit?
Anger / family	Denne historien handler om Astrid. Astrid passet på lillebroren hennes, og de hadde fått beskjed om å leke pent av deres foreldre. Men lillebroren ødela tegningen til Astrid. Astrid må gjemme hva hun egentlig føler. Fordi om lillebroren hennes finner ut hva hun egentlig føler vil han si til foreldrene deres at hun er slem.	Hva gjorde lillebroren til Astrid? Hva ville lillebroren gjort om han fant ut av Astrid sine egentlige følelser?	Så, hva følte Astrid egentlig når lillebroren ødela tegningen hennes? Glad, trist, sint, redd, eller helt greit?	Hvordan prøvde Astrid å se ut på ansiktet når lillebroren ødela tegningen hennes? Glad, trist, sint, redd eller helt greit?
Sadness / peers (Wellman & Liu, 2004)	Denne historien handler om Oskar. Oskar og vennene hans lekte sammen og fortalte hverandre vitser. En av de eldre barna fortalte en slem vits om Oskar og alle lo. Alle synes vitsen var veldig morsom, men det syntes ikke Oskar. Oskar må gjemme hva han egentlig føler. Fordi om vennene vet Oskars egentlige følelser vil de kalle han en baby.	Hva gjorde vennene til Oskar da det eldre barnet fortalte en slem vits om Oskar? Hva ville vennene gjort om de fant ut av Oskar sine egentlige følelser?	Så, hva følte Oskar egentlig når alle lo av den slemme vitsen som handlet om han? Glad, trist, sint, redd eller helt greit?	Hvordan prøvde Oskar å se ut på ansiktet når alle lo av den slemme vitsen som handlet om han? Glad, trist, sint, redd eller helt greit?

Appendix E

Diploma to Children and Information to Caregivers

**Til deg som er foresatt**

Diş barn var med i vår studie om «barns forståelse av skjulte følelser» i dag. **Tusen takk** igjen for at du lot diş barn være med, vi setter stor pris på det. Vi ønsker også med dette å minne deg på å fylle ut den **digitale spørreundersøkelsen**. QR-kode for å komme til spørreskjemaet er:



Din personlige kode er: _____

(Dersom QR-koden ikke fungerer er linken til spørreundersøkelsen: [h9ps://cu9.ly/A6hrwOL](https://cu9.ly/A6hrwOL))

Dersom du allerede har svart på spørreundersøkelsen vil vi igjen si tusen takk for at dere har deltatt i vår viktige forskning som er med på å utvide kunnskapsfeltet om barns utvikling.

Appendix F

Copy of the Questionnaire to the Caregivers

Demografi om barnet

Hei, **tusen takk** for at du er med i vårt forskningsprosjekt om barns forståelse av skjulte følelser! Den første delen av denne spørreundersøkelsen handler om barnet ditt og om deg som foresatt.



Dersom du har spørsmål til studien vennligst ta kontakt med:

Monika Abels, førsteamanuensis ved UiT. Epost: m.abels@uit.no

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UiT Norges
arktiske universitet

Vær så snill å fyll inn din personlige kode som står på informasjonsarket:

Hvor mange år er barnet?

- 4 år
- 5 år
- 6 år

... og hvor mange måneder?

- 0 måneder
- 1 måned
- 2 måneder
- 3 måneder
- 4 måneder
- 5 måneder
- 6 måneder
- 7 måneder
- 8 måneder
- 9 måneder
- 10 måneder
- 11 måneder

Hva er barnet sitt kjønn?

- Gutt
- Jente
- Annet
- Ønsker ikke å oppgi

Hva er barnets morsmål?

- Norsk
- Annet (gjerne spesifiser under)

Hvor mange søsken bor barnet sammen med, inkludert halv - og stesøsken?

- 0
- 1
- 2
- 3
- 4
- 5

Hvor mange timer vil du anslå at barnet tilbringer i barnehagen gjennomsnittlig hver uke?

0 5 10 15 20 25 30 35 40 45 50

Timer

Informasjon om forelder

Hvor gammel er du?

Hva er din rolle for barnet?

- Pappa
- Mamma
- Annet

Hva er din høyeste fullførte utdanning?

- Mindre enn grunnskole
- Grunnskole
- Videregående skole
- Høgskole/universitet (tilsvarende bachelorgrad)
- Høgskole/universitet (tilsvarende mastergrad)
- Høyere enn mastergrad
- Annet

Hva er din nåværende arbeidssituasjon?

- Heltidsansatt
- Deltidsansatt
- Arbeidsufør
- Pensjonert
- Student
- Arbeidsledig på jakt etter arbeid
- Arbeidsledig søker ikke etter arbeid
- Annet

Hva er jobben din?

Spørreskjema til foreldrene angående kjennskap til situasjonene

Når vi besøker barnet ditt i barnehagen kommer vi til å fortelle korte historier, og i hver historie har noen prøvd å skjule sine egentlige følelser. Vi kommer til å stille noen spørsmål angående hver situasjon, som vurderer hvor godt ditt barn forstår de ulike situasjonene.

Ettersom erfaring fra det virkelige liv kan ha en effekt på barns forståelse av forestilte situasjoner, vil vi gjerne at du vurderer hvor mye erfaring barnet ditt har med situasjonene som er avbildet i de korte historiene eller med lignende situasjoner.

Vi ønsker også å vite hva du synes om å gjemme sine egentlige følelser i disse situasjonene.



En av historiene handler om en gutt som fikk akkurat det han hadde ønsket seg i julegave, men hans søster som fikk noe hun ikke likte.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en jente som var veldig glad i å vinne, og hun vant et brettspill hun spilt med sine venner.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en jente som dro til dyreparken med sin familie, plutselig stakk en giraff ut sitt hode nært henne, noe som gjorde at hun skvatt.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en gutt som ble spurt om å hente tegnestiftene fra det mørke og skumle lagerrommet i barnehagen.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en gutt som hadde blitt lovet en lekebil av sin tante, men hun tok med en bok i stedet for.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en jente som lekte med sine venner, og en av vennene tok hennes leke fra henne og ikke ville gi den tilbake.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

En annen historie handlet om en jente som passet på sin lillebror en stund, og hennes lillebror ødela hennes tegning.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

Siste historie handlet om en gutt som hørte at noen av de andre barna i barnehagen fortalte en slem vits om han.

Har barnet ditt noen gang vært i en slik situasjon?

- Aldri
- Sjeldent
- Noen ganger
- Ofte

Hvor passende synes du at det er å skjule sine følelser i en slik situasjon?

- Aldri passende
- Sjeldent passende
- Noen ganger passende
- Ofte passende

Foreldreverdier spørreundersøkelse

Denne delen av spørreundersøkelsen handler om hva du vektlegger i oppdragelse av ditt barn.

På neste side står det flere utsagn. Kan du gå gjennom utsagnene og indikere hvilke du finner mer viktig for ditt barn å lære, selv om det bare er en liten preferanse.



Mitt barn burde lære å... (klikk på utsagnet som du mener er viktigst)

	←	=	→	
vite at egne følelser er viktige	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	utrykke/vise egne følelser
passer inn med andres følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	være hensynsfull overfor andres følelser
ikke gi opp	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	kunne vente
være hensynsfull overfor andres følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	vite at egne følelser er viktige
kunne vente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	passer inn med andres følelser
ikke gi opp	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	utrykke/vise egne følelser
passer inn med andres følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	ikke gi opp
vite at egne følelser er viktige	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	passer inn med andres følelser
utrykke/vise egne følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	kunne vente
være hensynsfull overfor andres følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	ikke gi opp
kunne vente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	vite at egne følelser er viktige
utrykke/vise egne følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	passer inn med andres følelser
kunne vente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	være hensynsfull overfor andres følelser
vite at egne følelser er viktige	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	ikke gi opp
være hensynsfull overfor andres følelser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	utrykke/vise egne følelser

ccc-2

Dette er siste del av spørreundersøkelsen og handler om **barnets kommunikasjon**. Sjekklisten inneholder en rekke utsagn som sier noe om hvordan barnet kommuniserer. For hvert utsagn blir du bedt om å gi opplysninger om det aktuelle barnet.

Du blir bedt om å avgjøre om du har observert den aktuelle atferden:

0 = Sjeldnere enn en gang i uken (eller aldri)

1 = Minst en gang i uken, men ikke hver dag

2 = En eller to ganger om dagen

3 = Flere (mer enn to) ganger om dagen (eller aldri)

Kryss av for det tallet du synes beskriver barnets kommunikasjon best i ruten bak hvert utsagn. Hvis du synes det er vanskelig å avgjøre dette, så forsøk å huske hvor ofte i løpet av den siste uken du har observert den atferden som beskrives i utsagnet.

Les nøye gjennom hvert utsagn og vennligst ikke hopp over noen, med mindre det er et utsagn du absolutt ikke kan ta stilling til.



Kryss av for det tallet du synes beskriver barnets kommunikasjon best

