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Reflect, (re)act and interact: the roles of shame, guilt and social access in adolescent aggression

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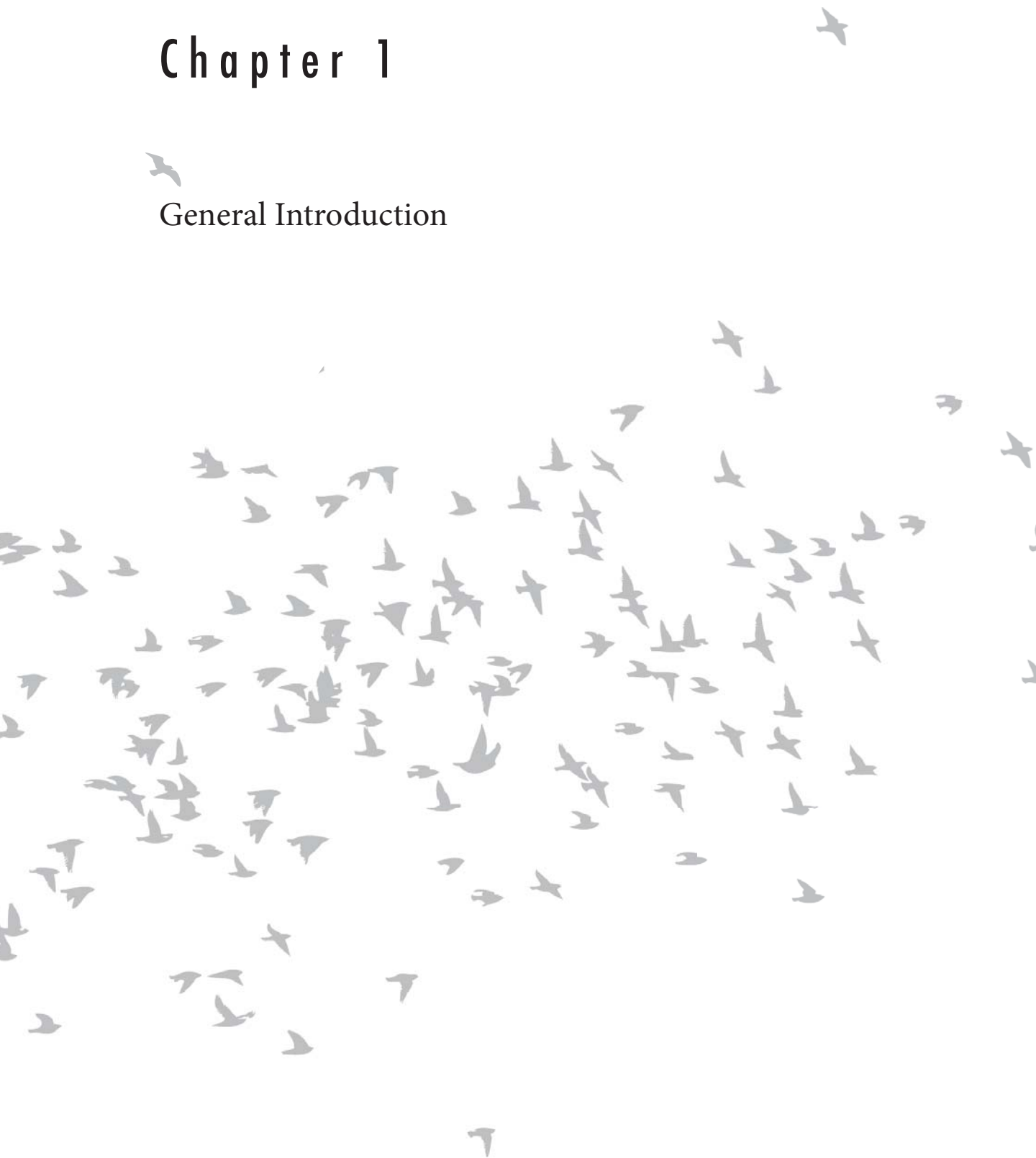
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Chapter 1

General Introduction



“One of my classmates, Jennie, wanted to apply to Art College. For weeks, she had been working on a still life to use in her application. One day, I walked through art class with a jar of dirty water in my hands. While I was absorbed in a conversation with a friend, I tripped over someone’s bag. The jar fell out of my hands, onto Jennie’s painting, which was now completely ruined. To make matters worse, everyone seemed to be watching me while falling on the floor. I got up as fast as I could, and saw Jennie’s reaction. She was staring at her painting, looking horrified. I felt terrible!”

(Paul, 15 years old)

You might be able to imagine how Paul was feeling in this situation. Most people have been in situations where they inflicted harm on someone, or felt like everyone was looking at them while they behaved incompetently - especially during the teenage years. When it happened, you immediately (and unconsciously) recognized the unpleasantness of the situation. Whether you were aware of it or not, you experienced an increase in physiological arousal: your heart suddenly began to beat faster and your breathing quickened. Nothing else mattered at that moment, as your attention was fully focused on the arousing situation (this is called *primary appraisal*; see Box 1 for a more detailed description on Appraisal Theory). Your body was prepared for action.

But if you were in Paul’s position, what would your next move be? There are several behavioural options. You could run away, start crying, or apologize to Jennie. People are motivated to select the option with the most favourable outcome (this is called *secondary appraisal*; see Box 1 for a more detailed description on Appraisal Theory) and most of us decide which behaviour is the most favourable by considering the consequences. You could consider the consequences for running away: imagine what would happen if you were to walk away unmoved by the previous events. How do you think Jennie would react? It is plausible that she would become angry about your indifference. Your relationship with Jennie could be damaged. In addition, bystanders would not approve this kind of inconsiderate behaviour.

However, Jennie’s reaction would probably be very different if you were to show that you felt sorry for what you had done, by apologizing, mentioning you did not do it on purpose, or offering help to restore the painting (even though this would probably be impossible). The extent of the damage to the painting would be the same as in the previous behavioural alternative. However, Jennie might be more willing to forgive you, and be less angry at you, if you were to show that you were sorry for the damage you caused than if you were to walk away in an unaffected manner. In addition, showing how sorry you are signals to bystanders that you are aware you have messed up. Others would be less inclined to attribute your transgression to your personality and would judge the chance of you repeating that behaviour as low. Based on these projected

outcomes, you will be likely to prefer the option of making amends, over the option of walking away as if nothing had happened.

The emotions associated with the situation described above are typically labelled as self-conscious emotions. Self-conscious emotions result from an evaluation of one's own behaviour, in light of external social rules and moral standards. To experience self-conscious emotions, individuals must evaluate their behaviour through the eyes of others (Buss, 2001; Tangney & Dearing, 2002). In the example story, Paul behaved imprudently: he was chatting with a friend while walking around in an art class with a jar full of dirty water that could damage others' paintings. Paul violated the moral and societal standard of not causing harm or disadvantage to others. Hours of hard work were lost. Jennie needed to start all over again, perhaps without being able to copy or achieve the quality of the previous result. Paul felt responsible for this harm, while at the same time, he was worried about how bystanders might judge his harmful and clumsy behaviour.

Box 1. Appraisal Theory

Evaluations and interpretations (i.e., appraisals) of events influence whether an emotion will be experienced, which emotion will be experienced, and with what intensity. This is nicely illustrated in *the structural model of appraisal* of Richard Lazarus (Lazarus, 1966, 1991). The model differentiates between two different categories of appraisal: primary appraisal and secondary appraisal.

The **primary appraisal** consists of two appraisal components: *motivational relevance* and *motivational congruence*. *Motivational relevance* concerns the appraisal whether a situation is relevant to one's well-being and personal goals. As Richard Lazarus states: "*we do not become emotional about unimportant things, but about values and goals to which we have made a strong commitment*" (p. 819, Lazarus, 1991). In other words, an emotion is only elicited if one appraises a situation as relevant to one's well-being and personal goals. *Motivational congruence* refers to an appraisal whether the situation is congruent or incongruent with one's personal goals. If one appraises a situation as being congruent with one's personal goals, it will result in positive emotion experiences. Whereas if one appraises a situation as incongruent with one's goal, it will pave the way for negative emotion experiences (Lazarus, 1966, 1991).

Box 1 - Continuation

The **secondary appraisal** involves an evaluation of one's options and resources for coping and will guide one's future efforts to cope with the arousing event. The secondary appraisal consists of four components: (1) *Accountability*. Who or what is accountable for the arousing event? This component will identify the target to blame (in case of motivational incongruence) or to give credit (in the case of motivational congruence). (2) *Problem-focused coping potential* refers to whether one has the ability to change or accommodate the situation to make it more congruent with one's personal goals. This judgment is highly influenced by a person's belief about one's own abilities. (3) *Emotion-focus coping potential* refers to the evaluation whether one can adapt emotionally to the arousing situation, by altering one's appraisals (reappraisal), desires or personal goals. (4) *Future expectancy* reflects the belief that changes can occur in the actual or psychological situation, making the arousing event more congruent with one's personal goals (Lazarus, 1966, 1991).

This structural model of appraisal demonstrates how specific patterns of appraisal shape different emotion experiences and reactions. For example, someone who is sad is likely to appraise an event as motivationally relevant and motivationally incongruent, and to judge oneself low in problem-focused coping potential. Whereas someone who is angry, also appraises a situation as motivationally relevant and motivationally incongruent, but focusses more on other-accountability and judges oneself high in problem-focus coping potential (Smith & Lazarus, 1993).

Self-conscious emotions

Self-conscious emotions constitute a special class of emotions as they have unique features that clearly distinguish them from other emotions (Tracy & Robins, 2004, 2007). Foremost, they have a strong self-evaluative component. Self-conscious emotions will only be elicited if attentional focus is addressed to the self and if one appraises a situation as relevant to one's identity goals (*motivational relevance*; see box 1). To illustrate, for self-conscious emotions to occur, one must reflect on one's self-representations. If one holds the self-representation of being a nice person, offending someone might result in emotions of shame and guilt, which are examples of self-

conscious emotions (for differences between shame and guilt, see box 2), whereas, organizing a fund-raising event, might result in pride. Note that basic emotions can also occur due to self-evaluative processes, but self-conscious emotions cannot occur in the absence of self-evaluation. Consequently, self-conscious emotions are cognitively more complex than basic emotions and therefore develop later in childhood (Tracy & Robins, 2004, 2007).

In addition, self-conscious emotions serve an important function in facilitating the attainment of complex social goals (Tracy & Robins, 2004, 2007). Self-conscious emotions promote the maintenance and enhancement of one's social status, and group acceptance. Negative self-conscious emotions indicate that the attainment of these social goals is threatened, whereas positive self-conscious emotions indicate socially valued success. Self-conscious emotions provide immediate punishment and/or reward for certain behaviours and motivate individuals to behave appropriately within the social context. Therefore, shame, guilt and pride are also referred to as social emotions or moral emotions (e.g., Beer, Heerey, Keltner, Scabini, & Knight, 2003; Tangney et al., 2007; Tracy & Robins, 2004, 2007).

Box 2 - Shame and guilt

Negative self-conscious emotions, such as shame and guilt, are only elicited if one appraises a situation as a threat to one's identity goals (*motivational relevance* and *motivational incongruence*). Shame and guilt therefore both typically arise as a consequence of violating a social standard, rule or goal (Tangney, Stuewig, & Mashek, 2007). Both emotions only occur if one holds oneself accountable for the situation (Tracy & Robins, 2004, 2007). However, the causal attributions of the internal cause differentiate between shame and guilt (Tangney & Dearing, 2002). The causal attributions of shame and guilt differ in *stability* (stable/unstable), *controllability* (controllable/incontrollable) and *globality* (global/specific; see Figure 1).

Shame involves the concern with being negatively evaluated by others: one fears being viewed by others in a way one does not want to be viewed (Olthof, 2012). Stable, uncontrollable and global attributions about the cause of a situation lead to shame (e.g., "*I am stupid*"). Because individuals tend to attribute their failure to deficiencies of the global self, shame is a very painful emotion that causes

Box 2 - Continuation

individuals to feel bad about themselves (Tracy & Robins, 2004). Shame is accompanied by the urge to escape from the situation, in order to hide the defective self from the outside world. This is manifested by avoiding eye-contact with others, and a collapsed body posture (Lewis, 1992; Mills, 2005; Tangney & Dearing, 2002).

Guilt, on the other hand, involves the concern that one is responsible for harm caused to another by one's actions (Tracy & Robins, 2006). Unstable, controllable and specific attributions about the cause of a situation lead to guilt (e.g., "*I did something stupid*"). Like shame, guilt also entails a negative evaluation, but this evaluation is limited to one's transgression: one feels bad about what one did. Guilt facilitates reparative acts toward the individual who was wronged by the immoral or irresponsible act (Lewis, 1971; Lindsay-Hartz, 1984; Tangney & Dearing, 2002).

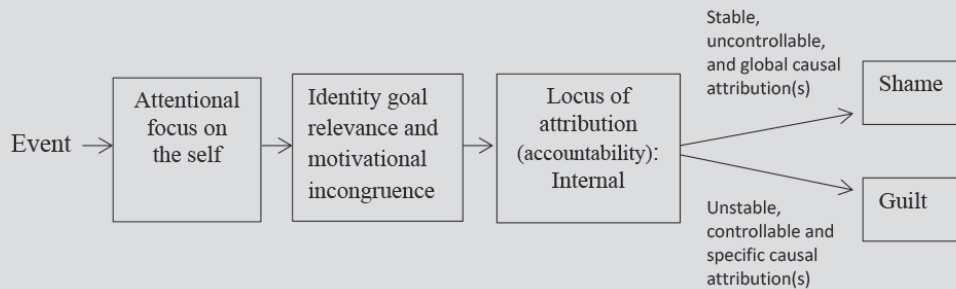


Figure 1. A simplified version of the process model of self-conscious emotions, including shame and guilt, from Tracy and Robins (2004).

The development of self-conscious emotions

The capacity for experiencing self-conscious emotions is not innate; these emotions are cognitively complex and learned within a social context (Tracy & Robins, 2007). Children need to acquire three main cognitive skills before they can experience self-conscious emotions: (1) a sense of self awareness, the formation of stable representations, and the ability to direct attentional focus to the self; (2) knowledge about social rules and social standards and the capacity to evaluate one's own

behaviour against these standards, rules, and goals; and (3) perspective taking abilities to imagine how one is evaluated by others (Muris & Meesters, 2014; Tracy & Robins, 2007). Children around three years of age start to experience shame and guilt at a very basic level. These abilities continue to develop and refine throughout childhood, and this continuous development is largely dependent on verbal input from the social world (Lagattuta & Thompson, 2007).

First, a basic self-awareness develops around two years of age, when children recognize themselves in the mirror and when they start to make verbal self-referential statements (e.g., me, mine; Lewis & Brooks-Gunn, 1979; Thompson, 2006). Second, around the first year of age children start to become aware which behaviours are socially appropriate and which are not. At this age, children start to engage in self-referential behaviours: children look to see the reaction of others, to see how behaviours, objects, persons, and/or situations are evaluated. Others – typically parents, in this stage of life – will display negative affect, use imperative language, and use a negative affective tone when the child engages in unwanted behaviours (e.g., dangerous or aggressive behaviour), and display positive affect and adopt a positive emotional tone when the child achieves a new skill or behaves according to the rules. In this way, children learn at a young age how their behaviour is evaluated by others. This builds a foundation for the understanding of social rules and social standards (Lagattuta & Thompson, 2007; Thompson, Meyer, & McGinsley, 2006). Around the age of three, children are also able to evaluate their behaviour according to these social rules and standards (Kagan, 2005). As children become more proficient in language, they learn to rapidly recognize and understand social rules and social standards, through direct parent-child interactions (e.g., Fivush & Nelson, 2006).

Third, to experience self-conscious emotions, children also must learn to imagine how others might evaluate them and their behaviour by taking others' perspectives. Shame involves the fear of being negatively evaluated by others, and guilt involves the feeling that one is responsible for harm or disadvantage caused to someone else as a result of one's actions. Thus, the experience of both shame and guilt require perspective taking abilities (Cutting & Dunn, 2002; Lagattuta & Thompson, 2007). Perspective taking abilities are often referred to as Theory of Mind (ToM). ToM understanding starts in the first year of life, when children start to acknowledge that others' actions are driven by their intentions. Later on, children around three- to four years of age develop a basic understanding of others' desires and beliefs (Peterson, Wellman, & Liu, 2005; Wellman, 1990). In line with this development, children of five years of age express more guilt than children of three years of age (Bafunno & Camodeca, 2013); and children with more advanced ToM knowledge are more sensitive to others' judgements (Cutting & Dunn, 2002). ToM development is highly reliant on input from

the social world. Parents foster children's ToM development by naming others' mental states ("*he likes carrots*"), providing verbal explanations about mental states, and also by stimulating perspective taking by the children themselves ("*how would you like it if someone did that to you?*"). Thus, the quality and quantity of parent-child conversations and children's level of language are closely associated with ToM development (e.g., de Villiers & de Villiers, 2014).

Even though five-year-olds have acquired the three main cognitive skills, other necessary cognitive abilities are still refined throughout middle childhood. During middle childhood, the experience of self-conscious emotions becomes more closely related to appraisals of accountability (*accountability*; box 1). This is nicely demonstrated in studies in which children were asked to imagine being the protagonist of a short story. The stories varied in the extent to which the protagonist was accountable for an achievement. Children were asked to report how proud the protagonist would feel in the described situation. While five-year-olds attribute the same degree of pride to an achievement due to an external factor (e.g., a good grade because the teacher is an easy grader) as to an achievement due to an internal factor (e.g., a good grade because I am smart; I studied hard), eight-year-olds attribute more pride to achievements due to internal factors than external factors (Graham & Weiner, 1991; Kornilaki & Chlouverakis, 2004.) During middle childhood, children also learn to more accurately describe situations that elicit self-conscious emotions. While five-year-olds are not able to do this, seven-year-olds get more skilful in describing these situations (Harris, Olthof, Terwogt, & Hardman, 1987), and also show the ability to differentiate between shame and guilt. They attribute shame primarily to situations in which one behaves incompetently without causing harm to another, and they attribute both guilt and shame to situations in which harm is inflicted to another (see box 2 for differences between shame and guilt). The knowledge of nine-year-olds about shame and guilt approximates that of adults; they associate shame with escape related action tendencies and blushing, whereas they associate guilt with remorse and the desire to make amends (Ferguson, Stegge, & Damhuis, 1991; Olthof, Schouten, Kuiper, Stegge, & Jennekens-Schinkel, 2000).

The experience of self-conscious emotions in adolescence is shaped by an elevated need for social acceptance. Adolescence is a developmental phase marked by tremendous social, emotional, and cognitive changes. Adolescents make a shift in social focus, as they start to seek and gain independence from their parents, while spending more of their leisure time with their peers, as compared to childhood. A strong desire to be accepted by their peers and to establish close and meaningful friendships emerges (Brown, 2004). Therefore, most adolescents attach great value to evaluations their peers make about them (Blakemore & Mills, 2014; Somerville, 2013). Proneness to self-

conscious emotions might be more pronounced in this phase, as adolescents are highly motivated to evaluate their own behaviour through the eyes of their peers (Reimer, 1996; van Hoorn, van Dijk, Meuwese, Rieffe, & Crone, 2016).

SOCIAL ACCESS AND SOCIAL LEARNING

Participation in the social world is of crucial importance for the development of self-conscious emotions. The ways in which children acquire knowledge about social standards, social rules and ToM are highly social processes. Children are dependent on language and communication with others for learning in their social environment (e.g., Eisenberg, Cumberland, & Spinrad, 1998). Difficulties in participating in communication could therefore interfere considerably with the development of self-conscious emotions.

Both adolescents with an autism spectrum disorder (ASD) and adolescents with hearing loss have less access to the social world compared to their typically developing peers. Adolescents with ASD have more difficulty with social language and experience more communication difficulties. Adolescents with hearing loss face challenges in communication due to their diminished access to sound. With hearing devices, adolescents with hearing loss can hear what is said in one-on-one conversations and in quiet environments. However, hearing what is said is challenging in environments with background noise (e.g., classrooms), in group settings, or when it is not directed towards them (Eisenberg, 2007; Finitzo-Hieber & Tillman, 1978; McCreery et al., 2015). In both adolescents with ASD and adolescents with hearing loss, the diminished access to social interactions could reduce the opportunity to learn from social experiences. In both groups, various emotional difficulties have been identified, including higher levels of anxiety and depression (Ambler, Fidels, & Gregory, 2015; DeFilippis, 2018; Theunissen et al., 2012; Theunissen et al., 2011). Yet studies examining the development of self-conscious emotions are scarce. **The first aim of this thesis is to examine the level of self-conscious emotions in adolescents with ASD and adolescents with hearing loss, as compared to levels of self-conscious emotions in typically developing adolescents.**

Self-conscious emotions in adolescents with ASD

ASD is a neurobiological developmental disorder with pervasive consequences for several areas of functioning. Individuals with ASD experience persistent difficulties in social interaction and communication skills. These social deficits involve deficits in the use and understanding of nonverbal communication (e.g., gestures and eye-

contact), problems in developing and maintaining age-appropriate peer relationships (Petrina, Carter, & Stephenson, 2014), and a lower level of social reciprocity (van Ommeren, Begeer, Scheeren, & Koot, 2012). In addition, a repetitive repertoire of behaviour and restricted activities and interests are part of the diagnostic characteristics (DSM 5; American Psychiatric Association, 2013). ASD is a lifelong disorder and symptoms become apparent in an early developmental period. Children with ASD around two years of age already show delays in early language and communication compared to their peers without ASD. Due to these social deficits and communication problems, participating in the social world is more challenging for children and adolescents with ASD.

How do self-conscious emotions develop in this group of children with severe social difficulties? To answer this question, we first need to consider an indispensable building block for the development of self-conscious emotions: ToM. Children with ASD have clear difficulties in the development of ToM, indicating that adolescents with ASD could be at risk for difficulties in the development of self-conscious emotions. A few studies have indeed indicated that adolescents with ASD experience less shame and guilt (Capps, Yirmiya, & Sigman, 1992; Heerey, Keltner, & Capps, 2003; Hobson, Chidambi, Lee, & Meyer, 2006).

Self-conscious emotions in adolescents with hearing loss

Adolescents with hearing loss (i.e., > 40 dB loss in the best ear) experience challenges in engaging in social interactions with their hearing environment, since they cannot overhear speech even at close distances. Even after they receive hearing amplification or are implanted with sophisticated devices such as a cochlear implant¹, difficulties with spoken communication remain (Eisenberg, 2007; Finitzo-Hieber & Tillman, 1978; McCreery et al., 2015). In addition, more than 90% of children with a hearing loss are born to hearing parents, who rely on spoken language for communication (Mitchell & Karchmer, 2004). Thus, these offspring with hearing loss are part of a social world where communication is dominated by sound, to which they have reduced access. It is fair to assume children with hearing loss also have less access to this social world, and therefore to social learning.

Less access to the social world due to hearing loss creates fewer opportunities for social and emotional learning. Hearing children learn a lot just by overhearing and observing their social environment, such as how emotions are labelled (emotion

1 A cochlear implant is a device that bypasses the damaged part of the ear by converting sounds into electronic pulses, and these electronic pulses stimulate the auditory nerve.

recognition), which behaviours are praised, and which are corrected (moral standards and social rules), and how one person evaluates the other (perspective taking). This so-called incidental learning (i.e., spontaneous learning that lacks the direct intent to learn) occurs less frequently in children with hearing loss as they cannot overhear others' conversations (Rieffe, Netten, Broekhof, & Veiga, 2015).

Not surprisingly, children and adolescents with hearing loss have many social and emotional difficulties, including difficulties in ToM comprehension (e.g., Ketelaar, Rieffe, Wiefferink, & Frijns, 2012). For one, the development of self-conscious emotions is heavily reliant on ToM understanding, so adolescents with hearing loss are at risk for difficulties in the development of self-conscious emotions. The level of self-conscious emotions in children with hearing loss has recently been given more attention in the academic world. One study observed expressions of shame and guilt in young children with hearing loss, after making them believe that they violated a moral rule. Children with hearing loss expressed less shame and less guilt following the eliciting event compared to their hearing peers (Ketelaar, Wiefferink, Frijns, Broekhof, & Rieffe, 2015). Another study showed that children with hearing loss failed to recognize that negative feelings, such as guilt, can be elicited by misbehaviours or immoral actions (Mancini et al., 2016). However, the question remains whether adolescents with hearing loss experience self-conscious emotions to a lesser extent than their typically hearing peers.

SELF-CONSCIOUS EMOTIONS AND AGGRESSION

Self-conscious emotions make it possible for the vast majority of people to avoid indulging in aggressive behaviours. They contribute substantially to a harmonious society, a society in which individuals adhere to social norms and standards set by society (Tangney et al., 2007). Most people will not hit another person, even when the other behaves obnoxiously. Even though hitting might be tempting, because it has benefits in the short term (e.g., showing the obnoxious person who is in charge), self-conscious emotions restrain selfish and aggressive impulses. Because one knows that if one feels responsible for harming someone else, one will feel bad about one's previous actions. This negative guilty feeling prevents us from engaging in aggressive behaviour (Tangney et al., 2007). Thus, shame and guilt may be considered the emotional brakes on transgressing behaviours that make a society with "good citizens" possible (Breggin, 2015).

Aggression

“Aggression is behaviour directed toward another individual with the proximate intent to cause harm. In addition, the perpetrator must believe that the behaviour will harm the target and the target is motivated to avoid the behaviour” (p. 274, Bushman & Anderson, 2001).

Aggression can take on different forms, including overt aggression (e.g., physical: hitting, kicking, pushing; verbal: insulting, name-calling) and relational aggression (e.g., malicious gossiping, ignoring). Moreover, many studies have advocated for making a distinction between two different functions of aggression: proactive aggression and reactive aggression. Proactive aggression refers to “cold-blooded” and purposeful behaviour, as it is motivated by the desire to achieve a certain goal, such as social dominance or material gain (Bandura, 1973; Cima, Raine, Meesters, & Popma, 2013). In contrast, reactive aggression refers to “hot-blooded” behaviour, as it is a response to perceived threat or provocation. It is accompanied by emotional arousal, such as anger and frustration (Dodge & Coie, 1987; Dollard, Doob, Miller, Mowrer, & Sears, 1939).

Even though high levels of proactive and reactive aggression typically co-occur, they lead to different behavioural outcomes, and are driven by different social-cognitive and emotional processes. Proactive aggression is uniquely associated with delinquency, psychopathy, and the expectation that aggressive behaviour will have predominantly positive consequences (Arsenio, Gold, & Adams, 2006; Raine et al., 2006; Vitaro, Brendgen, & Tremblay, 2002), while reactive aggression is uniquely associated with negative emotionality and the tendency to attribute hostile intentions to others (Brendgen, Vitaro, Tremblay, & Lavoie, 2001; Nas, Orobio de Castro, & Koops, 2005; Orobio de Castro, Merk, Koops, Veerman, & Bosch, 2005; Orobio de Castro, Veerman, Koops, Bosch, & Monshouwer, 2002).

Bullying is a particular form of aggression that peaks from middle childhood to late adolescence and cannot be classified as either proactive or reactive aggression (Brown, Birch, & Kancherla, 2005; Finkelhor, Turner, Shattuck, & Hamby, 2015). Being a victim of bullying is detrimental to adolescents’ well-being: adolescents highly value evaluations made about themselves by their peers and being bullied is a clear sign that others do not accept you as you are. Aggressive behaviour that is executed repeatedly, over time and directed against an individual who is in a weaker position is considered bullying (Olweus, 1997). The power imbalance and repetitive nature indicates that bullying occurs within a longer-lasting (but presumably negative) social relationship, while general aggression can also take place in a one-time encounter with a stranger or repeatedly with a familiar individual of similar power.

Bullying occurs most often in a peer context such as a school environment (U.S. department of education, 2011). Bullying is often motivated by the desire to obtain

social dominance, and by a fear of becoming the victim of bullying oneself (Houghton, Nathan, & Taylor, 2012; Olthof & Goossens, 2008; Olthof, Goossens, Vermande, Aleva, & van der Meulen, 2011).

Shame, guilt and aggression

The link between guilt and aggression is rather consistent and straightforward; more experienced and anticipated guilt is linked to less antisocial behaviours such as delinquency, psychopathy, and bullying. Adolescents with higher levels of guilt display less aggressive behaviours (Furukawa, Tangney, & Higashibara, 2012; Stuewig, Tangney, Heigel, Hart, & McCloskey, 2010; Tangney, 1996), including bullying (Menesini & Camodeca, 2008). In contrast, the link between shame and aggression has yielded conflicting findings. Some researchers have emphasized that shame, like guilt, has an adaptive function and prevents adolescents from behaving aggressively (Harter, 1999; Olthof, 2012). Shame signals that others might evaluate you negatively, while all humans have the intrinsic desire to belong, be approved, and be accepted by our social environment. As such, shame could motivate us to conform and behave according to the social standards. As aggression is condemned by (most) others, anticipated shame could therefore serve as an inhibitor of aggressive behaviour (Harter, 1999; Olthof, 2012). In contrast, some researchers argue that shame is mostly a maladaptive emotion because it composes a severe threat for the self as individuals perceive themselves as flawed. The negative self-evaluation that accompanies shame is undeniably painful and needs immediate amelioration, therefore individuals are observed to act hostile and externalize the blame in order to diminish the feelings of self-blame (Bennett, Sullivan, & Lewis, 2005; Tangney & Dearing, 2002). This so-called shame-rage is evidenced by studies showing that high levels of shame in adolescents are related to higher levels of aggression (Stuewig et al., 2010; Tangney, 1996). However, although cross-sectional studies have examined the link between self-conscious emotions and aggression, the longitudinal contribution of self-conscious emotions to the development of aggression in adolescence is still unknown. **The second main aim of this dissertation is to investigate the contribution of self-conscious emotions to the development of aggression.**

Longitudinal research

So far, our knowledge on the relation between self-conscious emotions and aggression is mainly derived from cross-sectional studies. An important next step is to take development into account. Cross-sectional studies can only conclude that, for example, lower levels of guilt are related to higher levels of aggression. However, no statements can be made whether self-conscious emotions contribute to changes in aggression over

the course of adolescence. Using longitudinal research, it is possible to examine whether adolescents with increasing levels of aggression differ from adolescents with stable or decreasing levels of aggression in their levels of self-conscious emotions. In addition, longitudinal research enables studies on bidirectional relationship between self-conscious emotions and the development of aggression. For example, will adolescents bully more often due to lower levels of guilt? Or, do bullying adolescents become less prone to guilt? Thus, longitudinal research can provide important new insights in the importance of self-conscious emotions for the development of aggression.

OUTLINE OF THE CHAPTERS

This dissertation investigates the longitudinal contribution of self-conscious emotions to the development of aggression during adolescence, in both typically developing adolescents, and two groups of adolescents with less access to the social world: adolescents with ASD and adolescents with hearing loss. The first half (chapters 2 and 3) of this dissertation focusses on adolescents with ASD, and the second half focusses on self-conscious emotions and aggression in adolescents with hearing loss (chapters 4, 5 and 6). Chapters 3, 5 and 6 also include an age-matched control group without restricted access to the social world, to unravel the longitudinal contribution of self-conscious emotions to the development of aggression in typically developing adolescents.

In **Chapter 2**, we test whether an important requirement for the experience of self-conscious emotions is present in children with ASD: ToM. Several tasks were administered to assess three key aspects of ToM comprehension (intentions, desires, and beliefs) in children between two and six years old. In **Chapter 3** we assess to what extent shame and guilt contribute to the development of bullying behaviours in adolescents with and without ASD. **Chapter 4** presents the validation of a self-report questionnaire to measure shame and guilt in adolescents with and without hearing loss. This chapter discusses several challenges in measuring shame and guilt, and in administering self-reports in adolescents with hearing loss. The validated questionnaire is used in chapter 5 and chapter 6 to measure shame and guilt in adolescents with and without hearing loss. In **Chapter 5** we examine to what extent shame and guilt contribute to the development of bullying behaviours in adolescents with and without hearing loss. In **Chapter 6** we examine how shame and guilt contribute to the development of aggression in adolescents with and without hearing loss. We distinguish between reactive and proactive aggression, to study their unique longitudinal contributions. **Chapter 7** summarizes key findings, discusses considerations, and makes suggestions for future research.

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