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Children's Recognition of Pride: An Experimental Approach

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An Experimental Approach

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ABSTRACT

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Pride is elicited when a child takes credit for an achievement or exceeds a socially valued standard or expectation. Evidence suggests that pride has a distinct nonverbal expression that is recognized by adults across cultures (Tracy & Robins, 2004). Research examining when children recognize pride has yielded age discrepancies between studies that use forced-choice response formats and those that use spontaneous-response formats. Differences in children's ability to use and comprehend language may account for some of these differences. The purpose of this thesis was to examine the age at which children reliably recognize pride, while minimizing the need for children to rely on their linguistic or verbal abilities. The present experiment used an experimental approach to examine when children reliably recognize pride. One hundred forty-four children between the ages of 2.5- and 6.5-years participated in one of three experimental conditions: *Exceed Standard, Fail Standard or No Standard*. Frequency of pride recognition in the Exceed Standard condition was compared to frequencies of pride recognition in the *Fail Standard* and *No Standard* conditions. Results revealed a developmental progression of pride recognition in which children first begin showing nonverbal pride behaviors at about 2.5- to 3.5-years, acquire the ability to apply a label to the nonverbal pride expression between 3.5- and 4.5-years of age, and come to recognize their own emotional experience as pride in an achievement situation between 4.5- and 5.5-years of age.

Keywords: pride, emotion, self-conscious emotion, achievement, children, recognition, facial expressions, nonverbal expression, preschool, attribution, age differences

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The extent to which emotions are socially learned, universal, or biologically determined, has been, and continues to be, a heated debate (see e.g. L. F. Barrett, 2011; Shariff & Tracy, 2011). One question is whether emotions are differentiated physiological states that are ubiquitous across cultures (Ekman & O'Sullivan, 1988; Izard, 2010; Levenson, 2011), or if they represent a cognitive interpretation learned in a particular social context (Campos, Mumme, Kermoian, & Campos, 1994; Nelson & Russell, 2013; Russell, 1994)? The predominant theoretical explanations differ mainly in the importance they ascribe to the "form" (i.e., observable biological or expressive components) and "function" (i.e., contextual or relational features) of emotions (Holodynski & Friedlmeier, 2010).

Since Darwin's basic claim (1872/1965) that emotions are biological and are a product of evolution that have adaptive significance, scientists have been interested in discovering the components or observable features of various emotions. A number of scholars oriented in evolutionary theory (Ekman & Friesen, 1971; Izard, 1973; Tracy & Robins, 2007b) have expanded upon Darwin's notion that emotion is directly related to observable expressions. For example, Ekman and Friesen (1971) identified six primary or "basic" emotions—happy, fear, disgust, anger, surprise, and sadness—and considered these emotional expressions to be biological, universal, and rooted within our evolutionary history.

Although often overshadowed by primary emotions such as happiness, sadness, and anger, interest in secondary, more complex emotions such as pride, shame, and guilt is growing (Robins & Schriber, 2009; Tangney & Tracy, 2012). The "complexity" often associated with secondary emotions is believed to be due to the self-reflection and self-evaluation required to

experience them (Lewis, 1991; Lewis, Sullivan, Stanger, & Weiss, 1990; Tangney & Fischer, 1995). While some of the self-conscious emotions (e.g. shame and guilt) have received empirical attention (Baldwin, Baldwin, & Ewald, 2006; K. C. Barrett, 2005; Kemeny, Gruenewald, & Dickerson, 2004; Parker & Thomas, 2009; Stuewig, Tangney, Heigel, Harty, & McCloskey, 2009), pride, a positive self-conscious emotion has received more limited empirical attention.

Definition of Pride

Like many empirical descriptions within psychology the definition of what constitutes "pride" continues to evolve in light of new evidence. Pride, for instance, has been documented as a prosocial, moral emotion associated with increases in self-esteem and motivation to achieve (Williams & DeSteno, 2008; Wubben, De Cremer, & van Dijk, 2012). However, pride has also been described/defined as a "dark" hostile emotion associated with narcissism and aggression (Bushman & Baumeister, 1998; Tracy, Cheng, Robins, & Trzesniewski, 2009). Given these definitions, evidence has revealed and supports two different categories of pride—hubristic pride and authentic pride (Tracy & Robins, 2007c). Hubristic pride is often characterized by words like arrogance, presumptuousness and egotistic. Authentic pride is often considered the more "positive" emotion, characterized by words like confident, accomplished, and triumphant (Tracy & Robins, 2007a). Thus one question is whether there are two different categories of pride, or two different facets of the same emotion.

Interestingly, differences between authentic pride and hubristic pride appear to parallel the distinct differences between guilt and shame. Using Weiner's attribution model (Weiner, 1985) Mascolo and Fischer (1995) have demonstrated that children display guilt when they have fallen short of a standard (i.e. behavioral); whereas, they display shame when they make a global

attribution of failure to the self (i.e. dispositional). By the same token, authentic pride is experienced upon exceeding a standard or goal; whereas, hubristic pride is experienced when success is attributed to global self-worth. In other words, a specific behavior ("I did a good job") as opposed to global attribution ("I am an awesome person") may account for some of the differences between hubristic and authentic pride (Tracy & Robins, 2007c; Weiner, Heckhausen, & Meyer, 1972). While there seems to be a theoretical and empirical distinction between achievement pride and hubris pride, to avoid repetition I will simply refer to achievement pride as "pride" going forward within this thesis. In this thesis I examined achievement pride because children were expected to exert effort to achieve success in a task domain.

For the purpose of this thesis, pride is defined as an affective state that is generated by a self-evaluative appraisal that one is responsible for exceeding an expectation (Mascolo & Fischer, 1995, p. 66). Additionally, consistent with appraisal theory (Lazarus, 1991) and the work of Lewis and colleagues (2008) it is also assumed that pride is generated by ongoing self-reflection and self-evaluative appraisals that a person is responsible for exceeding a socially valued standard or expectation.

Conceptualization of Pride as a Self-Conscious Emotion

Pride is commonly described as a "self-conscious" emotion because awareness of the self as a separate entity (i.e. being self-conscious) is required prior to making a self-evaluative appraisal against a goal or standard. Studies using mirror recognition, such as the rouge test, are often used to demonstrate recognition of the self as a separate entity (Lewis, Sullivan, Stanger, & Weiss, 1989), where some degree of self-recognition is considered necessary in order to experience self-conscious emotions. Hence, if an individual understands the self as a separate entity and possesses the cognitive capacity to self-reflect and self-evaluate, then the assumption

is made that they are capable of making a self-evaluative appraisal against some standard, rule or goal (see Lewis, 2008), and therefore able to experience self-conscious emotions such as pride. Primary emotions, by contrast, are thought to require minimal to no cognitive deliberation (Ekman & Cordaro, 2011; Izard, 2011). Thus the core of secondary self-conscious emotions, is the cognitive processing and evaluation of information about the self (Stipek, Recchia, & McClintic, 1992). Thus pride is an emotion that critically involves the self, including the capacity to form stable self-representations and to evaluate oneself relative to standards, rules or goals (Lewis et al., 1989; Stipek et al., 1992).

Standards, Rules, and Goals

Lewis (2008, pp. 742-747) suggests that experiencing pride requires the ability to process complex information about the self and make self-evaluative appraisals against standards, rules, and goals (SRGs). Stipek, Recchia and McClintic (1992) have shown that SRGs are products of culture and the incorporation of SRGs starts rather early in life. This implies that one's culture or early environment may affect the development of self-evaluative processes. Furthermore, because SRGs are products of culture they are likely not the same for everyone. Moreover, even within a culture there may be substantial variation as to the tasks or events that are likely to elicit pride (Stipek, 1995). For example, staying inside the lines while coloring a picture may elicit a great deal of pride for one child but not another. Children's capacity to experience pride is thus likely dependent on how social interactions are perceived, and appraised in relation to the goals and standards they have adopted as their own (Lewis, Alessandri, & Sullivan, 1992).

Context Components that Lead to Internalization of Standards

Multiple contextual components also contribute to the elicitation of pride. Seidner, Stipek, and Fesbach (1988) asked 5-, 7-, 9-, and 11-year-old children as well as 41 adults to

describe events that made them feel proud, embarrassed, happy, and sad. Content analyses within this experiment indicated that 5-year-old children reported situations that invoked personal responsibility (e.g., when I won a trophy) when relating a pride experience. Across all age groups responses indicated that an audience is a central component that evokes pride and embarrassment (e.g., then everyone clapped), but the effect was more pronounced with children. Children also reported that external reinforcement (e.g. praise or tangible rewards) was present when describing an experience that elicited pride. In addition, to the presence of an audience and external reinforcement, Weiner, Heckhausen and Meyer (1972) found that tasks of intermediate difficulty were most likely to elicit effort attributions that in turn produced pride like behaviors compared to relatively easy tasks (see also Lewis et al., 1992). Finally, Belsky and Domitrovich (1997) demonstrated that children expressed more pride related behaviors such as increased smiling, erect posture, pointing at outcome, and positive self-statements (e.g., "I won," "I did it!") when the same task was framed as "difficult" as opposed to being described as "easy." Hence, if one is attempting to elicit pride using achievement tasks these tasks should be challenging, yet doable, so that children may take responsibility for the outcome. On the whole, this research suggests that an audience, reinforcement, moderately challenging tasks, and attributions of personal responsibility for the outcomes have shown to be critical contextual factors related to children's experience and display of pride related behaviors.

In series of behavioral studies, Stipek et al. (1992) found that by about age two, children begin learning that their behavior will elicit approval or disapproval; however, it isn't until after 3-years that children begin to internalize social standards and evaluate their behavior against them (Lewis et al., 1992; Stipek, 1995; Stipek et al., 1992). Because pride necessitates self-evaluation against a benchmark, children's recognition of pride is not likely to emerge until

sometime after children begin internalizing social standards and comparing their behavior to such standards, suggesting emergence of pride recognition happens sometime after 3-years.

Prior Pride Recognition Studies

Research examining children's recognition of pride has yielded discrepancies regarding when this capacity emerges (Davidson, 2006; Kornilaki & Chloverakis, 2004; Stipek et al., 1992; Tracy, Robins, & Lagattuta, 2005). Kornilaki and Chloverakis (2004), for example, examined whether 7-, 9-, and 11-year-olds could identify situations in third person vignettes that would likely elicit pride or happiness. Results revealed that only the 11-year-olds were able to differentiate situations that would elicit pride from those that would elicit happiness.

Tracy and Robins (2004b, 2008) identified a "prototypical" image of pride that adults from different backgrounds and across several cultures recognized as conveying pride. This image portrays an adult with an expanded chest posture; head tilted slightly back, arms raised either above the head or akimbo, and a small smile (see Tracy & Robins, 2008). The expression identified by Tracy, et al., (2008) has shown high recognition rates among adults and also provides a starting point for researchers who wish to study pride recognition in children.

Using the "prototypical" pride expression, Tracy and colleagues (2005) asked children between 3- and 7-years to "point to a photo where Joe [Jan] is feeling proud." They used a forced-choice format with three photos (i.e., happy, surprise, and pride) and each child in the experiment was asked to identify each expression four times. Results revealed that at about 4-years, children correctly identified the adult in the image as feeling proud at greater than chance. A disadvantage of the forced-choice technique, however, is the identification of the emotion largely depends on the child's linguistic understanding of the term "proud." Furthermore, forced-choice formats, as well as repeated trials using the same subject, have both been

documented as methods that often inflate recognition rates (Nelson & Russell, 2011a; Widen, Christy, Hewett, & Russell, 2011).

Nelson and Russell (2012) subsequently examined the developmental course of children's pride recognition by presenting 4- to 11-year-olds with the expressive components of the pride expression (i.e., head-and-face-only, body-posture-only, or the multi-cue) using a spontaneous response format rather than forced choice. Their results indicate that 4- to 6- year-old children could not recognize the specific components of the pride expression or the multi-cue expression. Six- and 7-year-olds only attribute pride to the multi-cue expression whereas the 8- to 11-year olds attributed pride to the multi-cue expression, head-and-face-only and body-posture-only expressions. Nelson and Russell (2012) conclude that research showing pride recognition before the age of 6 (Tracy et al., 2005) may be due to the fact that the children were provided with the label "proud," and/or the results may be a consequence of using a forced choice format. Clearly, more research needs to address children's recognition of pride and the developmental sequence of their conceptual understanding of pride.

As described forced choice formats compared with spontaneous response formats often lead to inflated recognition rates (Russell, 1994; Widen et al., 2011). Given the proclivity for inflated recognition rates some researchers have even questioned universality of emotion recognition altogether (see Nelson & Russell, 2013, for a Review). However, it is also conceivable that a spontaneous response format may not capture children's understanding of the pride expression. Since young children typically have a small pool of emotion related vocabulary, it is possible that they have an accurate conceptualization of the pride expression but are forced to draw a term or label from their somewhat limited vocabulary. Thus, spontaneous response methods may not capture children's conceptual understanding of the emotion or the nonverbal

expression that is believed to accompany it because of young children's limited language capacity.

Taken together, it is unclear whether younger children's inability to recognize complex emotions lies in the semantic or conceptual understanding of the emotion (Camras & Shuster, 2013; Kornilaki & Chloverakis, 2004). Thompson (1989) urged experimenters to be highly sensitive to the problems that can arise when researchers rely on children's verbal understanding of emotion, as children may not understand the emotional term the same way adults do. It is also possible that children may understand complex emotions conceptually and even understand what it is like to experience these emotions, but they may not have acquired the verbal capacity to articulate their emotional experiences (Camras, 1992). The present experiment examines when children reliably recognize pride following a moderately challenging task that reduces children's need to linguistically comprehend the meaning of pride or other emotion related words.

Overview of the Present Experiment

This thesis will focus on children's ability to experience and recognize pride. The majority of emotion recognition studies have relied on two methods of inquiry, either a forced-choice response or a spontaneous response format. Specifically, in nearly all of the pride recognition studies researchers have either asked children to identify affect conveyed in static or dynamic pictures (Nelson & Russell, 2012; Tracy et al., 2005; Widen, 2013) or describe/identify different emotions communicated in third person vignettes (Kornilaki & Chloverakis, 2004; Seidner et al., 1988). Unfortunately, however, no research has investigated when and if children can recognize their own affective experiences of pride.

The aims of this experiment were to 1) attempt to induce pride by having children participate in competitive tasks with clear standards to exceed 2) ask children to identify the

emotion from a series of photographs that depicts how they feel, and 3) independently code the nonverbal bodily and facial expressions the children displayed while participating in the competitive tasks. The extent to which children's affective experience of pride (i.e., induced), ability to recognize pride, and nonverbal displays of pride are convergent has not been investigated. The method used in this experiment synthesized multiple forms of evidence while reducing the need for children to rely on their linguistic knowledge. Specifically, the main purpose of this experiment was to examine when children are able to experience pride and subsequently identify their own affective experience as one of achievement oriented pride.

Method

Participants

One hundred forty-four children (62 females) participated. Participants were divided into four age groups with 36 children in each group. Age groups consisted of 2.5- to 3.5-year-olds (15 females; M = 3 years and 3 days, SD = 78 days, range: 30-41 months), 3.5- to 4.5-year-olds (19 females; M = 4 years and 54 days, SD = 89 days, range: 42-54 months), 4.5- to 5.5-year-olds (15 females; M = 5 years, 1 day, SD 89 days, range: 55-66 months) and 5.5- to 6.5-year-olds (23 females, M = 5 years and 355 days, SD 95 days, range: 67-78 months). Of the participants, 90% were White not of Hispanic origin, 5% were Asian American, 3% were Pacific Islanders, 2% were of Hispanic origin. Most children (n = 98) were recruited from a preschool located on the campus of a midsize western university and the remaining participants (n = 46) were older siblings of infants that participated in a separate study. Parents waited in a separate room during the experiment.

Sixteen participants were excluded from analyses. Fourteen children were excluded (n = 9 at 2.5-3.5 years; n = 2 at 3.5-4.5 years; n = 3 at 4.5-5.5 years) as they failed to comply with

experimental procedures (e.g. refused to build a tower or point to a picture). Two participants (n = 1 at 2.5-3.5 years; n = 1 at 3.5-4.5 years) were excluded because they did not speak English and we lacked the capacity for adequate translation.

Stimuli and Apparatus

Two sets of twenty wooden blocks (3" x 3" x 2") painted red or blue and two medium-sized 10 piece puzzles were used for the tasks with each age group. A video camera was used to record each experiment.

Two sets of photos were created. One set consisted of four photos of a girl conveying a happy, surprise, pride and sad affective expression. The second set of four photos was identical to the first except a boy conveyed each expression. In each set the boy and the girl were between 4- and 5-years of age. Photos captured the child's torso and face, and each child was photographed standing in front of a white background wearing an identical blue t-shirt. To standardize the photos used in this experiment each child was photographed approximately 20 times conveying each expression and was instructed how to convey each of the four affective expressions based on previous research (i.e., Tracy & Robins, 2004). Twenty-five undergraduates rated each of the twenty photos for each expression as conveyed by the male/female actor/actress in terms of how well they exemplified each affect. The highest rated photo for each affective expression was used. The final sets of 8" X 11" color photos were laminated and placed in a 2 x 2 grid on a 24" X 24" posterboard (see Figure 1). The positioning of the photos on the posterboard was counterbalanced between subjects.

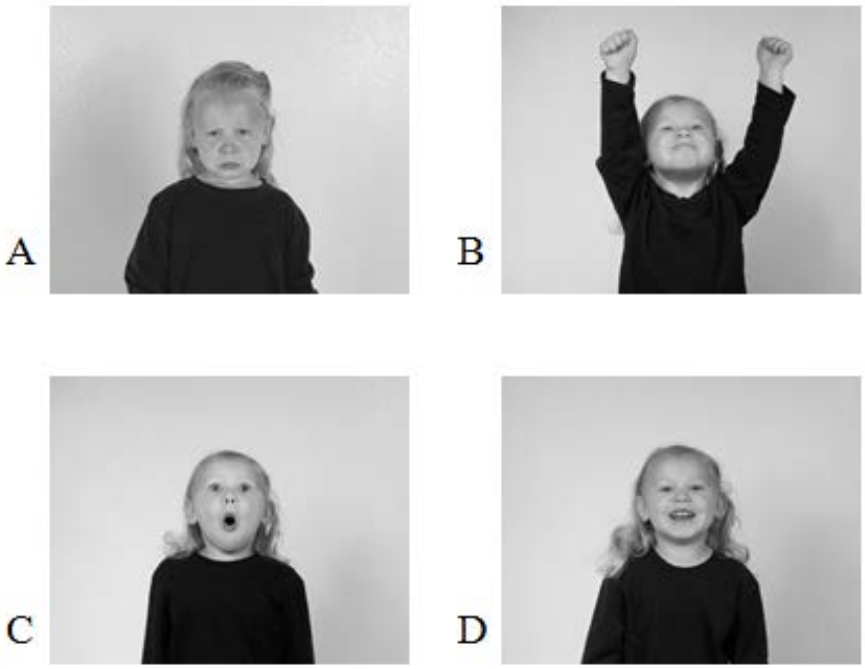

Figure 1. Photographs used as stimuli for female participants. Expression A represents the sad expression. Expression B represents the pride expression. Expression C represents the surprise expression, and Expression D represents the happy expression.

Procedure

Participants were randomly assigned to one of three conditions (i.e., *Exceed Standard, Fail Standard, & No Standard*) described below. Each condition consisted of four trials with two trials per task (2 tower building trials and 2 puzzle completion trials). The order of task was counterbalanced across condition and age.

Each child was shown a set of twenty colored wooden blocks and asked if they knew how to build a tower of blocks and were then given the chance to explore the blocks. Children were then shown a puzzle, where the puzzle pieces were immediately removed and placed on the floor. Participants were asked if they have ever completed a puzzle and were then allowed to look at the puzzle pieces. In no condition was the child allowed to practice building a tower or complete the puzzle. All children reported that they had built towers, or at least used blocks, and had played with puzzles.

Exceed standard condition. Following the familiarization period (1-2 minutes) participants were then introduced to a second experimenter (confederate). Children were then told that: "Ben (or Becca if the confederate was female) is one of the fastest tower builders in the world. Today we brought you here to see if you can build a tower higher than Ben/Becca builds his/her tower before I say stop." Okay?" If the child responded that they understood the task the first experimenter commenced the first task by saying "On your mark, get set, go!" Following this instruction both the child and confederate commenced building their individual tower, i.e., stacking blocks. In the *Exceed Standard* condition the child built his/her tower until it clearly exceeded the height of the confederate's tower by 2-3 blocks, after which the primary experimenter said, "Stop. Wow you did it! You beat Ben/Becca! You are the best tower builder ever! Great job!" This same procedure was repeated for a second trial. On average it took each child 15-20s to build a tower of about 48cm that was about 10-15cm taller than the confederate's. The confederate was instructed to build their tower such that it was always just slightly shorter than the child's.

The puzzle task procedure was identical to the tower task, except the child finished his/her puzzle before the confederate. As in the tower building task, the child was told that Ben/Becca is also the fastest at completing puzzles and told "we want to see if you can beat Ben/Becca at doing this puzzle". The confederate was instructed to make sure that they were 1-2 pieces "behind" the child in completing their puzzle. Immediately after the second trial of each task (i.e., puzzle/tower) the primary experimenter showed the same-sex set of photographs to the child and asked him/her to "point to the picture that shows how you feel." The child pointed to a picture and their response was recorded, and then the second/other task commenced.

Fail standard condition. The *Fail Standard* condition was identical to the *Exceed Standard* condition with the following exceptions. In this condition, the confederate built their tower 2-3 blocks higher than the child's tower and also finished the puzzle 2-3 pieces ahead of the child. After each trial where the child "lost" the primary experimenter said, "Stop, oh no, [child's name] you almost beat Ben/Becca, but you lost." Like the *Exceed Standard* condition after the second trial of each task the child was asked to point to the picture that shows how they feel. After both tasks were completed within the Fail Standard condition the child played one more "game" of the puzzle and tower building exercise where the child won and both the experimenter and the confederate praised the child (e.g., Great job, you did it!). These two additional trails were included to minimize possible feelings of dejection and were not part of experimental analyses.

No standard condition. The *No Standard* condition was identical to the first two conditions with the following exceptions. Children were not told that the confederate (Ben/Becca) is the fastest, and they were not instructed to "beat" the confederate. Moreover, the performance of the child was not evaluated (i.e., "you did it, you beat him/her, and you won!" or "you almost did it, you almost beat him/her, but you lost"). Each child was simply asked to build a tower of blocks alongside the confederate and complete a puzzle with the confederate. Like the previous two conditions, after the second trial in each condition children were asked to point to the picture that showed how they were feeling.

Finally, in an attempt to make our procedure convergent with previous research (Tracy et al., 2005), after the child completed both the tower and puzzle tasks, we presented the same set of age appropriate same-sex photos to the child and simply asked him/her to "point to the picture that shows Jan [Jon] feeling proud." The child again pointed to a picture, and their response was

recorded. This task was always done after the tower-building and puzzle tasks in order to reduce the possibility of priming the children toward a particular response- particularly those children within the exceed condition.

Coding

The primary experimenter recorded the photo selected or pointed to by each child after completing the second trial for each task as well as each child's response to which picture "that shows Jan [Jon] feeling proud."

One hundred and twenty-five of the 144 children (87%) that participated in the experiment were videotaped as they participated in the experiment. The remaining nineteen children (13%) were partially recorded as the child moved too much in-and-out of the video frame. Each participant's video was subsequently edited such that it showed the last 20 seconds of the second trial in each task (puzzle and tower). This was done in order to capture the child's behavioral/facial expressions immediately after completing each task. Prior to rating by undergraduates, each 40s video clip (last 20s of the second block and puzzle trial) was edited so that the experimenter was covered with a solid black box and sound was removed from the video. Thus only the child's behavioral/facial expressions could be observed.

Each child was rated 20 times by separate and independent undergraduate judges. Eighty undergraduate judges each coded 20-35 video clips for a total of 2,480 ratings of children across all ages and conditions. After viewing each 40s video clip, undergraduate judges were asked to "indicate which emotion mostly closely resembles the emotion the child is displaying" (i.e., happy, sad, surprise, pride, or "don't see it"). Specifically we were interested in whether undergraduates, blind to condition and purposes of the study, reliably rated children as displaying a particular affect.

Results

The primary dependent variable is children's frequency of selecting the photo conveying pride. Overall, children's frequency of selecting pride did not differ by gender across all three conditions combined (X^2 (1, N = 144) = .24, p = .63) or within the *Exceed Standard* condition alone (X^2 (1, N = 48) = .071, p = .79). Thus, gender differences will not be discussed further. Pride recognition did, however, vary as a function of task. Within the puzzle task, children at all ages and in all conditions showed no reliable preference (p > .10) for any photo [happy, pride, surprise, sad]. Therefore, the puzzle task will also not be included in any additional analyses and will not be described further until the Discussion.

Pride Recognition after Participating in Tower Task

Figure 2 shows frequency of selecting pride for all age groups (i.e., 2.5- to 6.5-year-old children) for the tower building task. To determine when pride recognition first emerges, we computed binomial tests at each age. Chance was set at 33% rather than 25%, excluding the sad photo and only including the positive emotions (i.e., pride, surprise, happy). Sad was not included because children in the *Exceed Standard* condition did not pick sad after "beating" the confederate in any age group except for in the 2.5- to 3.5-year age group. The results of a two-tailed binomial test revealed that the 2.5- to 3.5-year-olds as well the 3.5- to 4.5-year-olds failed to reliably select any emotion at a rate greater than chance (i.e., 33%) in any of the three conditions (p > .05). However, in both the 4.5- to 5.5-year age group, as well as the 5.5- to 6.5-year age group, 8 of 12 children within the *Exceed Standard* condition selected pride, which exceeded chance using a two-tailed binomial test (both ps = .018). Of the four 4.5- to 5.5-year-old children in the *Exceed Standard* condition who did not select pride three children selected happy and one child selected surprise. All four of the 5.5- to 6.5-year-olds who did not select

pride in the *Exceed Standard* condition selected happy. A chi-square test for independence was also conducted and revealed a significant relationship between condition (*Exceed Standard, Fail Standard, No Standard*) and frequency of selecting pride in the 4.5- to 5.5-year age group, X^2 (2, N = 36) = 7.47, p = .024, V = .46, and in the 5.5- 6.5-year age group, X^2 (2, N = 36) = 9.00, p = .011, V = .50 (see Table 1). Together, the results of the chi-square test of independence and the two-tailed binomial are convergent as they demonstrate that 4.5- to 5.5-year-olds as well as 5.5- to 6.5-year-olds within the *Exceed Standard* condition reliably selected or pointed toward the pride photo at a frequency greater than chance. In addition, the 4.5- to 5.5-year-olds as well as 5.5- to 6.5-year-olds frequency of selecting pride in the *Exceed Standard* condition was greater than the *No Standard* and *Fail Standard* conditions.

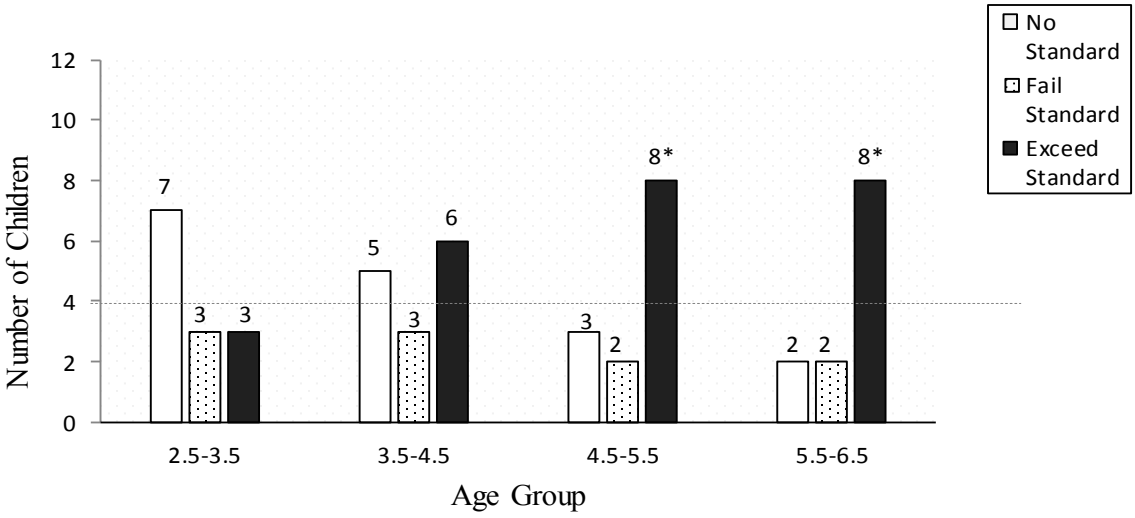

Figure 2. Frequency of selecting pride by condition (n = 12) for each age group after completing the tower task. The dashed line represents the recognition rate that would occur by chance, which was set at 33%.
* $p < .05$.

Point to Jan/Jon Feeling Proud

Finally, at the end of the experiment, and after completing both tasks, children were simply asked to "point to the picture that shows Jan/Jon feeling proud." In this task chance was again set at 33% (excluding the sad photo) and children's frequency of selecting pride was assessed using a two-tailed binomial test. Results revealed between 3.5- to 4.5-years of age children reliably selected the photo that adults coded as conveying pride ($p = .011$). Similarly, 4.5- to 5.5-year-olds as well as 5.5- to 6.5-year-olds reliably pointed to the picture that shows pride (both $ps < .01$). See Figure 3.

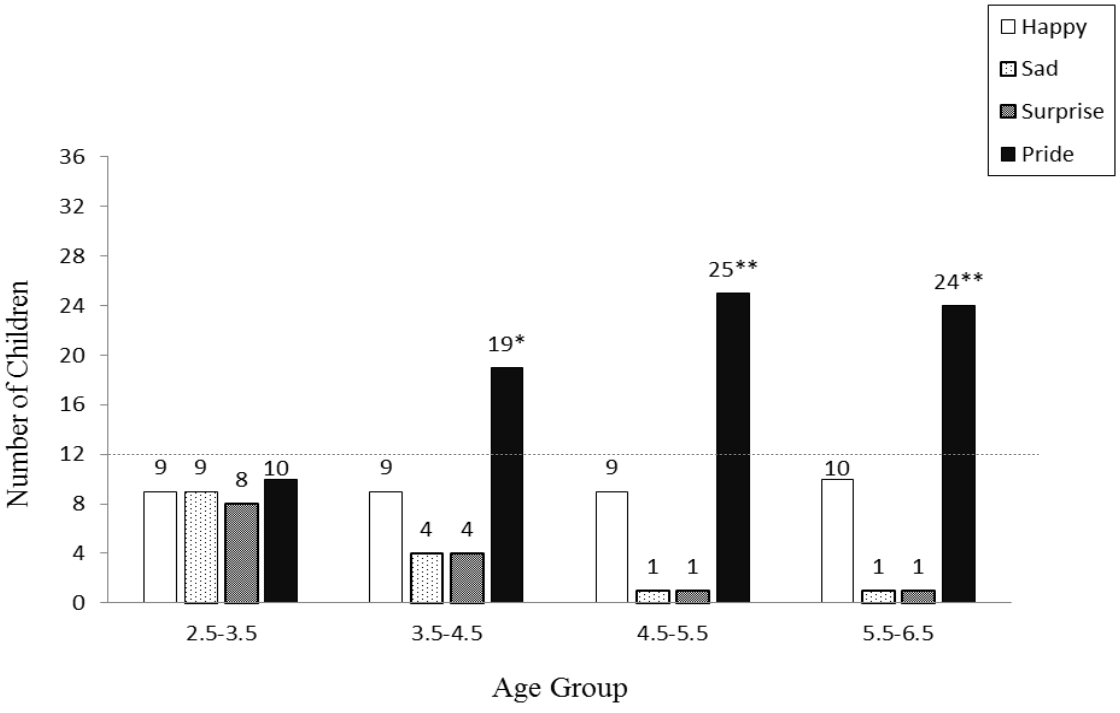

Figure 3. Frequency of pride selection for each age group ($n = 36$) when children were simply asked to point to the picture that shows Jan/Jon feeling proud. The dashed line represents the recognition rate that would occur by chance, which was set at 33%.
*p < .05. **p < .01.

This result demonstrates that 3.5- to 4.5-year-olds reliably pointed to the picture that shows another child of about the same age and of the same gender conveying pride, however

children of this same age range did not reliably point to the picture conveying pride when their performance beat the performance of the adult experimenter (i.e., after participating in the *Exceed Standard* condition).

Video Coding

Based on videotape records we first scored whether the primary experimenter made any coding errors in recording which photo was selected by the child. Results failed to reveal any coding errors. Thus we proceeded to analyze the undergraduate ratings of the children's conveyed emotions.

Undergraduate emotion ratings across all ages. A chi-square test of independence was performed to examine whether there is a relationship between condition (*Exceed Standard, Fail Standard, No Standard*) and undergraduate ratings of the child's conveyed emotion (happy, sad, pride, surprise, and "don't see it"). Across all conditions and across all ages, the relationship between condition and emotion ratings was significant, X^2 (8, N = 2,480) = 479.29, $p < .001$, V = .31, indicating that emotion ratings are dependent on condition. Within the *Exceed Standard* condition pride was the only emotion that had an observed frequency (n = 529) greater than the expected frequency (n = 322). Happy was the next highest rated emotion (n = 232) in the *Exceed Standard* condition, but was still rated at a frequency lower than the expected frequency of 261. Across all ages, children who participated in the *Exceed Standard* condition were coded as displaying pride 59% of the time and coded as happy 26% of the time. Not surprisingly, undergraduate ratings of pride, across all ages, for children who participated in the *Fail Standard* (n = 187) and *No Standard* (n = 171) conditions were below the expected frequencies of 279 and 286, respectively. As expected, these results indicate across all ages, children within in the *Exceed Standard* condition were coded by naïve undergraduates as displaying pride at a level

greater than chance. In contrast, naïve undergraduates coded children within the *Fail Standard* and *No Standard* conditions as displaying pride, as well as all other emotions, less than chance.

Undergraduate emotion ratings within each age group. We also examined the relationship between condition (*Exceed Standard, Fail Standard, No Standard*) and emotion ratings (happy, sad, pride, surprise, and don't see it) for all four age groups separately. Undergraduates' ratings of children's conveyed emotions are presented in Table 1 as a crosstabulation of condition and emotion ratings for each of the four age groups. Separate Chi-square tests indicated there was a significant relationship between condition and emotion ratings for all for four age groups (*ps* < .001). As depicted in Table 1, within the *Exceed Standard* condition, all four age groups independently were rated as displaying pride at a frequency greater than chance. Happy was the next highest rated emotion in all four age groups, however, undergraduates' frequency of identifying happy exceeded chance only for 2.5- to 3.5-year-olds.

In sum, the results from video coding analyses indicate that undergraduate emotion ratings of the children were dependent on condition, where children within the *Exceed Standard* condition were rated as conveying pride at greater than chance for all four age groups, however for the youngest age group (i.e., 2.5- to 3.5-year-olds) children were rated as displaying both pride and happy at levels greater than chance. According to undergraduate ratings across all age groups, it appears that the tasks we devised (puzzle completion and tower building) were successful at inducing pride within the *Exceed Standard* condition for all four age groups examined in this study.

Table 1

Crosstabulation of Condition by Emotion Ratings

	Emotion								
Condition	Happy	Sad	Pride	Surprise	Don't See It	Total	X^2	d	*p*
2.5- to 3.5-year-olds									
Exceed Standard	**76**	7	**83**	12	22	200 (10)	68.60	8	<.001
Fail Standard	39	37	40	34	30	180 (09)			
No Standard	79	19	50	19	33	200 (10)			
Total	194	63	173	65	80	580 (29)			
3.5- to 4.5-year-olds									
Exceed Standard	75	4	**132**	16	13	240 (12)	144.16	8	<.001
Fail Standard	63	41	40	23	13	180 (09)			
No Standard	72	50	33	18	47	220 (11)			
Total	210	95	205	57	73	640 (32)			
4.5- to 5.5-year-olds									
Exceed Standard	38	19	**164**	6	13	240 (12)	260.68	8	<.001
Fail Standard	49	88	51	30	22	240 (12)			
No Standard	79	32	25	9	55	200 (10)			
Total	166	139	240	45	90	680 (34)			
5.5- to 6.5-year-olds									
Exceed Standard	43	11	**150**	5	11	220 (11)	100.57	8	<.001
Fail Standard	41	45	56	11	27	180 (09)			
No Standard	67	15	63	9	26	180 (09)			
Total	151	71	269	25	64	580 (29)			

Note. $N = 80$. The frequencies presented in this table show the number of times independent judges identified children participating in the experiment as displaying each emotion. Frequencies are separated by age group. A chi-square test of independence is presented for each age group.

[a] Values in parentheses show the number of children that were rated by 20 independent judges.

[b] Bolded values represent frequencies in the Exceed Standard condition that exceeded the expected count.

Discussion

The purpose of this thesis was to examine the age at which children reliably recognize pride, without reliance on the term "pride" or "proud." Results demonstrate that after exceeding a socially valued standard both the 4.5- to 5.5-year-olds as well as 5.5- to 6.5-year-olds recognize pride as the emotion indicative of how they feel. Consistent with Tracy et al. (2005), these results also indicate that 3.5- to 4.5-year-olds accurately label the pride expression when simply asked to point to the picture that conveys "pride", however, in contrast to the two older age groups, 3.5- to 4.5-year-olds fail to recognize their emotional feelings as pride after exceeding a socially valued standard. Finally, although the results of this experiment failed to demonstrate any reliable pattern of pride recognition in 2.5- to 3.5-year-old children, undergraduate ratings of videotaped experiments revealed that across all ages (i.e., 2.5- and 6.5-years of age) children's nonverbal behavioral expressions were reliably rated as showing pride when they exceed a socially valued standard.

A conceptual question raised by Tracy et al. (2005) is whether 4-year-olds understand the meaning behind the labels they attribute to the pride expression. That is, Tracy et al. (2005) showed that 4-year-olds apply the correct label to the pride expression, i.e., point to the picture that shows pride, but do 4-year-olds conceptually understand the feelings that go with the label they apply to the pride expression? This is an important question because it is often assumed that if children apply the correct label to a nonverbal expression then they understand the feelings that accompany a particular expression. However, very little empirical research has investigated this critical assumption. While some research has assessed when children are able to infer feelings of pride in third person vignettes, until now the question of whether children are able to connect their own affective feelings to the pride expression has not been examined. The

present experiment extended Tracy et al. (2005) by experimentally inducing pride in children and subsequently asking them to identify their own emotional experience rather than simply asking them to identify the pride expression in a set photos. This study provides the first evidence that children are able to connect their own affective experience in an achievement situation to the nonverbal pride expression that has been identified by adults across cultures (Tracy & Robins, 2004, 2008).

Another goal of the present study was to examine whether the results of Tracy et al. (2005) could be replicated, as their experiment was the first to show pride recognition at 4-years of age. The fact that I was able to replicate the overall pattern of results of Tracy et al. (2005) using a different set of photos that depicted children of approximately the same age and gender provides corroborating evidence that around 4-years of age children are able to label the nonverbal pride expression. Moreover, in addition to replicating the results of previous findings, the present study attempted to address some of the methodological limitations of previous research.

It has been documented that within subjects designs with small sample sizes and several test trials often lead to inflated recognition rates (e.g., Nelson & Russell, 2013; Russell, 1994). For example, Ekman, O'Sullivan, and Matsumoto (1991) note "…we have found that subjects better understand what is expected of them after trying it a few times" (p. 294). Tracy et al. (2005) demonstrated that 4-year-old children recognize pride when provided with four test trials; however, their first experiment included only ten 4-year-olds and the second experiment reported only nine 4-year-olds. Finally, it is worth noting that the age range of the participants in Tracy et al. (2005) was between 4.1- and 4.9-years. This is significant because using a small sample size and several test trials raises the possibility that children at the upper end of the age range may

have driven their results, meaning that the age children recognize pride in reality may be closer to 5-years of age. In contrast, the present study attempted to deal with this limitation by including a larger and broader sample of 36 children in each age group, and defining age groups a priori, where the age range begins and ends at mid-year (e.g., 3.5- to 4.5-years). This was done in order to get as close as possible to the mean age at which children recognize pride. It is worth noting that the mean age in 3 of 4 age groups examined in the current study was within 10 days of the annual age and the mean of the fourth group was within 2 months of the annual age, suggesting that the results of the present experiment may provide a clearer understanding of age differences than has been shown previously. Importantly, although we extended some of the limitations of Tracy et al. (2005), our results still follow the same general developmental pattern and suggest that children first apply the word "proud" to the nonverbal pride expression at about 4-years of age.

Another possible methodological concern in this - and other related studies - is whether a forced-choice measure may lead to inflated recognition rates. Using a spontaneous-response format, Nelson and Russell (2011b) found that 6- and 7-year-olds attribute pride to the nonverbal pride expression but 4- and 5-year-olds only attributed pride to the nonverbal pride expression about 4% of the time. They call into question the results of Tracy et al. (2005) citing the forced-choice format itself or the fact that researchers cued the participants with the word "proud" as possible explanations for why Tracy et al. (2005) found pride recognition at 4-years of age. One problem inherent with a forced-choice format is the possibility that children are able to eliminate the choices that don't match the word provided by the experimenter; even when a "don't see it" option is included researchers cannot exclude the possibility that the children eliminated choices based their linguistic understanding of the term "proud".

On the other hand, however, spontaneous-response formats are not exempt from the potential artifacts associated with language either. For example, it is possible that the 4- and 5-year-olds that participated in Nelson and Russell (2011) may have had an accurate understanding of the pride expression but simply did not have the verbal capacity to use the term. Thus a disadvantage of both of the traditional response methods is that children's ability to recognize pride, or any emotion for that matter, is largely dependent on their linguistic understanding of the term "pride" or "proud." Research examining when children recognize pride has yielded age discrepancies between studies that use forced-choice response formats (e.g., Tracy et al., 2005) and those that use spontaneous-response formats (e.g., Nelson & Russell, 2011). It is possible, and even likely, that children's ability to use and comprehend language accounts for some of the inconsistencies across these studies.

The approach used in this experiment has several benefits over previous experiments that have used the traditional response formats. First, minimizing the need for children to rely on their verbal capacity to identify pride likely provides a more direct examination of the children's ability to recognize pride. Second, contextual components found to elicit pride in previous research such as an audience, verbal praise of children's performance, and allowing the child to exceed a socially valued standard were integrated in this experiment in order to maximize the possibility that children would experience pride within the *Exceed Standard* condition. Finally, the fact that undergraduates rated children's behavioral expressions within the *Exceed Standard* condition as showing pride at levels greater than chance, as well as at levels greater than the other two conditions, and at all age groups independently suggests that children experienced pride when they exceed a socially valued standard.

When taken together the results of this experiment provide evidence of a developmental progression of pride recognition that has not been shown in previous research. For example, 2.5- to 3.5-year-olds in the *Exceed Standard* condition displayed nonverbal behaviors resembling pride and happy emotion compared to the 2.5- to 3.5-year-olds that participated in the *Fail Standard* and *No Standard* conditions. These results are consistent with previous research demonstrating that by 3-years of age children display behaviors that resemble pride (e.g., Belsky & Domitrovich, 1997; Jennings, 2004; Stipek, 1995). In addition and consistent with Tracy et al. (2005) our results showed that between 2.5- and 3.5-years of age children did not select the pride expression when asked to "point to the picture that shows Jan/Jon feeling proud." One possible explanation is they simply do not comprehend the word "proud"; however if this is a simple case of not comprehending the word "proud", then we would expect the 2.5- to 3.5-year-olds to point to the pride expression after they defeat the confederate in the *Exceed Standard* condition. Since they showed evidence of nonverbal pride behaviors but were unable to recognize their emotional experience of pride, comprehension of the word "proud" is not likely a key factor in their inability to recognize pride at this age. Anecdotally, many of the 2.5-to 3.5-year-olds seemed oblivious to the fact that they were competing, which suggests that they likely did not internalize the standard and/or were not able to cognitively integrate all the context components of the achievement situation. This finding is interpreted as evidence that 2.5- to 3.5-year-olds experience a degree of social approval when they elicit praise, but are not capable of internalizing standards or making a cognitive appraisal of their performance against such standards.

Based on the undergraduate ratings, the 3.5- to 4.5-year-old children that participated in the *Exceed Standard* condition demonstrated nonverbal expressions of pride more often than the

3.5- to 4.5-year-olds in the *Fail Standard* and *No Standard* conditions. Consistent with Tracy and colleagues (2005), 3.5- to 4.5-year-olds were also able to identify the pride expression when asked to "point to the picture that shows Jan/Jon feeling proud." However, after 3.5- to 4.5- year-olds defeated the confederate in the *Exceed Standard* condition they did not identify pride as the emotion indicative of how they felt. The fact that children between 3.5- and 4.5-years are able to experience pride and point to the picture that shows pride but do not recognize the pride expression after exceeding a socially valued standard suggests that attributing the word "proud" to the nonverbal expression of pride may emerge before the ability to associate an emotional experience of pride with the nonverbal expression of pride. In other words, children in this age group may be capable of cognitively internalizing standards but their emotional experience may not be differentiated to the point where they connect their emotional experience of pride to its nonverbal expression (i.e., as shown in a photograph).

Finally, the results of this experiment document that both the 4.5- to 5.5-year-olds and 5.5- to 6.5-year-olds not only express nonverbal pride behaviors after they exceed a socially valued standard, but also recognize pride as the emotion indicative of how they feel. Additionally, the 4.5- to 5.5-year-olds as well as the 5.5- to 6.5-year-olds applied the correct label to the nonverbal pride expression as has been shown in Tracy et al. (2005). Thus it appears that between 4.5- and 6.5-years children conceptually understand the feelings that go with the label they apply to the pride expression.

One question raised by the results of this experiment is why children did not show pride recognition within the puzzle task. Evidence suggests that children experience more pride when they succeed on tasks of intermediate difficulty than easy tasks (e.g. Lewis et al., 1992). Thus the most likely explanation for this finding is the puzzle task did not elicit pride because the task

was simply not challenging enough. Since pride recognition was based on the child's appraisal of their own emotional experience, if the puzzle task did not elicit pride then children would not recognize pride as the emotion they experienced. Future research that aims to experimentally induce pride in children should consider using tasks that are age appropriate rather than using the same task for all ages.

Taken together, these findings suggest a developmental progression in which children first begin showing nonverbal pride behaviors at about 2.5- to 3.5-years, acquire the ability to apply a label to a nonverbal pride expression between 3.5- and 4.5-years of age, and come to recognize their own feelings of pride in achievement situations between 4.5- and 5.5-years of age These results demonstrate that children between 4.5- and 6.5- years of age display pride in an achievement situations where they exceed a socially valued standard, are able to recognize their emotional experience as pride when they exceed a socially valued standard, and they successfully label to the pride expression. These finding provide convergent evidence that recognition of pride is beginning to emerge between 4.5- and 6.5-years of age.

This research is the first to demonstrate that between 4.5- and 5.5-years of age children begin to attribute their own emotional experience of pride in achievement situations to a nonverbal pride expression identified by Tracy and Robins (2008). One implication of this research is it raises the possibility of using experimental conditions with carefully considered context components to more fully examine children's recognition of other emotions that have historically been difficult to study. As this study is one of the first to successfully minimize the language component in emotion recognition research, the method used in this experiment provides a viable alternative to the traditional response formats and may hold promise for researchers aiming to ameliorate the problem of language in future emotion recognition research.

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