The Achievement Pride Scales (APS)

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Abstract

A growing body of research focuses on the self-conscious achievement emotion pride. However, studies investigating the relations of different types of achievement pride with individual antecedents, such as frames of reference, achievement goals, and achievement values, are largely lacking. This work describes a theoretical model designed to extend and clarify the study of achievement pride and introduces the Achievement Pride Scales (APS), which assess two types of pride, namely self-based pride and social comparison-based pride. The results document the reliability and internal validity of the scales. External validity is demonstrated in terms of relations with students' frames of reference, achievement goals, and values. More specifically, whereas self-based pride was positively related to individual frames of reference and individual achievement values, social comparison-based pride was positively related to social frames of reference, performance-approach goals, and social achievement values. Implications for future research on achievement pride are discussed.

Keywords: pride, achievement emotion, frames of reference, achievement goals, achievement values

Pride is a commonly experienced emotion in the achievement context (Goetz, Frenzel, Stoeger, & Hall, 2010) and is important for achievement motivation and performance. In the 1930s, Murray (1938) established the concept of the need for achievement (nAch), an approach-oriented achievement motive that involves anticipating pride upon succeeding (e.g., Atkinson, 1957) and thus orients individuals to desirable possibilities such as success and positive self-evaluation. Thus, pride activates, directs, and motivates efforts toward achieving goals, and accordingly plays a crucial motivational role in achievement settings. The present work describes a conceptual model that refers to two different types of pride: self-based pride and social comparison-based pride, as well as their antecedents in real-world contexts, and it features the construction of two scales measuring these types of pride.

The achievement context, in which competence-related activities or outcomes are evaluated, is one important type of setting for emotions to occur (Pekrun, Goetz, Titz, & Perry, 2002). According to Pekrun's control-value theory of achievement emotions, perceived control over actions and outcomes in an achievement situation and the perceived value of these actions and outcomes instigate emotions in this setting (Pekrun, 2006; Pekrun & Perry, 2014; Pekrun & Stephens, 2012). One prominent emotion in the achievement context is pride (Goetz et al., 2010; Ingleton, 1999). Pride involves specific self-evaluative processes and cognitions and is elicited when attention is focused on the self, the individual appraises an event as relevant to and congruent with their identity goals, and the cause of the event is attributed to internal factors (Graham & Weiner, 1986; Lazarus, 1991; Weiner, 1985). As such, pride is defined as a retrospective, positive outcome emotion that originates from attributing valued success to internal causes (Pekrun, 2006; Weiner, 1985). Accordingly, internal causal attributions, perceived control, and perceived value of an achievement outcome appear to be positive predictors of pride (Goetz et al., 2010; Weiner, 1985). Specifically, pride can be instigated by success perceived as being

due to internal, controllable, and variable causes (e.g., effort) as well as by success due to internal, uncontrollable, and stable causes (e.g., ability; Tracy & Robins, 2007a, 2007b).

Theoretical Framework

Concepts of Self-Based and Social Comparison-Based Pride

We propose to differentiate between two types of pride that are important in the achievement context, namely self-based pride and social comparison-based pride. Self-based pride is an emotional response to intrapersonal improvement in performance over time. That is, self-based pride refers to success in terms of doing well relative to how one has done in the past. Social comparison-based pride is an emotional response to successfully outperforming others. As such, social comparison-based pride refers to success in terms of doing well relative to others.

Differentiating between self-based and social comparison-based pride is important, as these two types of pride can have different effects on subsequent cognition, emotion, motivation, and action. Self-based pride, for example, should lead to achievement strivings towards the attainment of self-improvement and mastery, and can be expected to generally promote energization and invigoration (Elliot et al., 2011; Oettingen et al., 2009). By contrast, social comparison-based pride should facilitate competitive achievement strivings and may strengthen competition-related emotions such as contempt for those who achieve less. Furthermore, the two types of pride could have differential benefits for different types of individuals. Self-based pride may be especially important for promoting motivation in disadvantaged students who are unable to outperform others but can nevertheless improve their individual performance over time. Alternatively, gifted students may well benefit from social comparison-pride in doing better than others. As a consequence, studies dealing with pride in the achievement context should take the distinction between self-based and social comparison-based pride into account and explore their

underlying antecedents. This work examines the role of three critically important groups of antecedents, namely, frames of reference, achievement goals, and achievement values.

Antecedents of Self-Based and Social Comparison-Based Pride

  Frames of reference. As mentioned above, internal causal attributions, perceived control, and perceived value of an achievement outcome (i.e., success) appear to be general antecedents of achievement pride. However, what are the specific antecedents of the two types of pride defined above, self-based and social comparison-based pride? Research suggests that students use individual or social frames of reference for judging their success, in terms of comparing their current performance with either their past performance or other students' performance (Albert, 1977; Festinger, 1954; Marsh, 1986; Rheinberg, 1980; Suls, 1986; Wilson & Ross, 2000). We propose that individual and social frames of reference are important antecedents of self-based and social comparison-based pride, respectively. More precisely, self-based pride is presumed to derive from the evaluation of one's own competence relative to individual frames of reference, whereas social comparison-based pride is likely to derive from the evaluation of one's own competence relative to social frames of reference.

  Achievement goals. Achievement goal theorists define goals as "cognitive representations of a future object that the organism is committed to approach or avoid" (Elliot & Fryer, 2008, p. 244) and as the reason for a competence-relevant activity (Maehr, 1989; Nicholls, 1984). According to Schöne and colleagues (2004), along with Wilson and Ross (2000), individuals pursuing mastery-approach goals (i.e., goals to develop competence and master tasks) prefer using individual-temporal frames of reference to evaluate their performance, whereas individuals pursuing performance-approach goals (i.e., goals to demonstrate ability and outperform others) evaluate their performance with respect to social frames of reference[1].

It is important to note that frames of reference are the standards based on which students evaluate their performance, whereas achievement goals represent the motivation that students need to attain these standards. As such, frames of reference and achievement goals are different constructs. Empirical studies have found positive correlations between mastery-approach and performance-approach goals and pride (Pekrun et al., 2006, 2009). Since mastery-approach goals direct attention toward the development and enhancement of competence, while performance-approach goals lead individuals to focus on outperforming others, we expect that these goal orientations are antecedents of individual-related self-based pride and social-related social comparison-based pride, respectively. More precisely, self-based pride is assumed to result from mastery-approach goals, whereas social comparison-based pride should derive from performance-approach goals.

Achievement values. Along with perceived control and internal attributions of success, the perceived value of success has been shown to be an important antecedent of pride and to influence the intensity of this emotion (Goetz et al., 2010; Weiner, 1985). As individuals can distinguish between the importance of individually versus socially referenced achievement, they are assumed to differ with regard to individual achievement values (i.e., importance to improve oneself) and social achievement values (i.e., importance to outperform others). In summary, we expect that self-based pride is linked to appraisals of individual achievement value, whereas social comparison-based pride is expected to be linked to appraisals of social achievement value.

Measures of Pride in Achievement Settings

In addition to providing a conceptual model of self-based and social comparison-based pride, this research aims to construct scales measuring these types of pride. Although a number of pride measures have been developed, they do not distinguish between individual-related and social-related pride, and most of them do not apply to the achievement context.

Some existing measures of pride focus on pride as a global, domain-general construct, whereas others measure pride in a more domain-specific way. Scales measuring pride in a general way include the 10-item Need Achievement Pride Scale (NAPS; Metzler, 2007), the Self-Assurance subscale of the Positive and Negative Affect Schedule - Expanded Form (Watson & Clark, 1994), the Alpha and Beta Pride subscales of the Test of Self-Conscious Affect (Tangney, Dearing, Wagner, & Gramzow, 2000), and the state and trait version of the Two-Facet Measure of Pride (Tracy & Robins, 2007a). However, these scales represent global pride scales that assess pride in a context-unspecific way and are not constructed for achievement contexts. By contrast, the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011; Pekrun, et al., 2002) was designed to assess students' achievement emotions, including pride during class, while studying, and when taking tests and exams. Even though this questionnaire targets pride in the achievement context, it measures pride as a global construct and does not differentiate between achievement-relevant subtypes of pride. In the research presented herein, we developed the Achievement Pride Scales (APS) which consider the distinction between self-based pride and social comparison-based pride.

Aims and Hypotheses of the Present Research

The present research aims to develop two brief, internally consistent scales measuring self-based and social comparison-based pride (Achievement Pride Scales, APS), and to validate these scales by examining their relations with frames of reference, achievement goals, and achievement values. Specifically, we hypothesize that self-based pride is positively related to individual frames of reference, mastery-approach goals, and individual achievement values, and unrelated to social frames of reference, performance-approach goals, and social achievement values. Conversely, we predict that social comparison-based pride is positively related to social frames of reference, performance-approach goals, and social achievement values, and unrelated

to individual frames of reference, mastery-approach goals, and individual achievement values. As previous research has found gender and age differences for achievement emotions (Frenzel, Pekrun, & Goetz, 2007; Grossman & Wood, 1993), we also included gender and age in the analysis.

We conducted three studies to examine the measurement properties of the APS and to explore the two types of achievement pride and their antecedents. In Study 1, we used a sample of university students and confirmatory factor analysis to determine if the APS fits a two-factor model that differentiates between self-based and social comparison-based pride. In Study 2, we investigated the relations of these types of pride with students' frames of reference, achievement goals, and achievement values. Finally, Study 3 sought to investigate whether the results can be generalized to elementary school children.

Study 1

Study 1 served to develop the APS. A pilot study was conducted prior to the research reported herein. The aim of the pilot study was to devise items to form brief, but reliable and valid indexes for each of the two types of pride. Attending to convergent (i.e., high factor loadings on the relevant scale) as well as divergent item validity (i.e., low factor loadings on the other scale), five items were chosen to represent each type of pride (see Appendix for the items). The results of the pilot study indicated that the two pride scales represent empirically separable and internally consistent constructs. Study 1 used the two scales to examine the means and intercorrelations among the pride scales and to validate the independence of the two constructs by examining the fit of the hypothesized two-factor model differentiating between self-based and social comparison-based pride and comparing it to an alternative single-factor model.

Method

Participants and procedure. A total of $N = 270$ (188 females, *mean age* = 23.56 years, $SD = 3.63$) undergraduates at a German university participated in the study. Participants were recruited online via short advertisements including a link to an online questionnaire. They were informed that the study would take approximately five minutes, and as an incentive they were told that a coupon for €20 for a well-known internet shopping site would be raffled off among those students who completed the questionnaire. Students were asked to answer the APS and questions about their demographical background.

Achievement Pride Scales (APS). Self-based and social comparison-based pride were assessed with the Achievement Pride Scales. Participants were informed that they would be shown statements that represent general, typical emotional experiences they may face when attending university. For each item, they indicated how strongly they generally experience each of the two types of achievement pride while studying: (a) self-based pride (5 items; e.g., "I am proud when I can answer more questions correctly than before"; $\alpha = .89$) and (b) social comparison-based pride (5 items; e.g., "I am proud when I can answer more questions correctly than other students"; $\alpha = .92$). Participants responded to each item on a 1 (*little pride*) to 6 (*extreme pride*) scale.

Results and Discussion

Preliminary analysis. The descriptive statistics, reliabilities, and intercorrelations among the study variables are presented in Table 1. The reliabilities document the internal consistency of the two scales. The correlation between the two scales was moderate, indicating that the two pride scales represent empirically separable constructs.. Social comparison-based pride was found to be negatively correlated with age, suggesting that older students experience less social comparison-based pride.

Confirmatory factor analysis (CFA). In this and the following studies, all factor analyses were conducted using *Mplus* Version 6 (Muthen & Muthen, 2004). CFAs were used to examine the fit of the hypothesized dichotomous pride model, in which self-based and social comparison-based pride items were used as indicators of two latent factors, and the alternative single pride model, in which all of the items loaded on a single latent factor. The analyses used maximum-likelihood estimation with robust standard errors (MLR), which is robust to non-normality of the observed variables. The variance of each latent factor was fixed to one to identify the model (Bollen, 1989). Following Hoyle and Panter (1995), we used several indices to evaluate the fit of the model, including the comparative fit index (CFI), the Tucker–Lewis index (TLI), the root-mean-square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). For comparing nested models (i.e., the dichotomous and the single factor model) using the MLR estimator, we applied the Satorra-Bentler scaled chi-square difference test including scaling corrections for nestedness (Satorra, 2000; Bryant & Satorra, 2012). In addition, the Akaike information criterion (AIC; Akaike, 1973) and the sample-size corrected Bayesian information criterion (BIC; Schwarz, 1978) were used (with lower values indicating a better fit).

As displayed in Table 2, results clearly supported the dichotomous pride model. The Satorra-Bentler scaled chi-square difference test (SB $\chi 2$) showed that the dichotomous pride model provided a far better fit to the data than the single pride model, SB $\chi 2$ (1) = 174.60, p < .001. In addition, AIC and BIC were considerably lower for the dichotomous than for the single pride model, which also suggests that the dichotomous pride model is preferable to the single pride model.

In sum, the findings of Study 1 provide support for the distinction of self-based and social comparison-based pride and indicate that the two pride scales show internal consistency.

Study 2

In Study 2, our aim was to replicate the Study 1 findings and to additionally investigate

the relations between the APS and the hypothesized antecedents of achievement pride. We

focused on three important groups of antecedent variables, namely frames of reference,

achievement goals, and achievement values. Again, we examined the means and intercorrelations

among the two pride variables and sought to validate their independence using CFA.

Method

Participants and procedure. A total of $N = 298$ (200 females, *mean age* $= 22.35$ years,

$SD = 3.74$) undergraduates at a German university participated in this study. The procedure was

the same as in Study 1 with the exception that participants additionally had to respond to

questions about their frames of reference, achievement goals, and achievement values.

Measures.

Achievement pride. The same Achievement Pride Scales as used in Study 1 were

employed to assess self-based pride ($\alpha = .90$) and social comparison-based pride ($\alpha = .93$).

Frames of reference. Dickhäuser and Rheinberg's (2003) Frame of Reference Scale was

used to assess each of the two frames of reference: (a) individual frames of reference (4 items;

e.g., "A good performance is a result that is better than previous results"; $\alpha = .81$) and (b) social

frames of reference (4 items; e.g., "A good performance is a result that is above average

compared to my fellow students"; $\alpha = .75$). Participants indicated the extent to which they

thought each item was true for them on a scale from 1 (*not at all true*) to 5 (*very true*).

Achievement goals. Elliot and Murayama's (2008) Achievement Goal Questionnaire-

Revised (AGQ-R) was used to assess each of the two achievement approach goals as defined in

the 2 x 2 achievement goal framework (Elliot & McGregor, 2001): (a) mastery-approach goals (3

items; e.g., "My aim is to completely master the material presented in this class"; $\alpha = .69$) and (b)

performance-approach goals (3 items; e.g., "My aim is to perform well relative to other students";

$\alpha = .89$). Participants indicated the extent to which they thought each item was true for them on a

scale from 1 (*not at all true*) to 5 (*very true*).

Achievement value. One item from Frenzel, Pekrun, and Goetz's (2007) Achievement

Value Scales was used to assess each of the two achievement values: (a) individual achievement

value (i.e., "It is very important for me to receive better results than before") and (b) social

achievement value (i.e., "It is very important for me to receive better results than other students").

Participants indicated the extent to which they thought each item was true for them on a scale

from 1 (*not at all true*) to 5 (*very true*).

Results and Discussion

Preliminary analyses. The descriptive statistics, reliabilities, and intercorrelations among

the study variables are presented in Table 3. The results confirm that the two pride scales show

internal consistency. The correlation between the two pride scales was moderate, again indicating

that the two scales represent empirically distinct constructs.

Confirmatory factor analysis. CFAs were used to examine the fit of the hypothesized

dichotomous and the alternative single pride model. As displayed in Table 2, results again

supported the dichotomous pride model. The Satorra-Bentler scaled chi-square difference test

showed that the dichotomous pride model provided a far better fit to the data than the single pride

model, SB $\chi2$ (1) = 176.71, $p < .001$. In addition, AIC and BIC were lower for the dichotomous

than for the single pride model, which also suggests that the dichotomous pride model is

preferable to the single pride model.

Overall, the CFAs and reliability analyses clearly confirmed that the two pride scales

represent empirically separable and internally consistent variables.

Relations with frames of reference, achievement goals, and achievement values. We applied structural equation modeling with latent variables to examine the link of the pride scales with their proposed antecedents. More precisely, based on our theoretical framework described earlier, individual and social frames of reference, mastery and performance-approach goals, as well as individual and social achievement values were modeled as jointly influencing self-based pride and social comparison-based pride. We expected that individual frames of reference, mastery-approach goals, and individual achievement values would relate to self-based pride, whereas social frames of reference, performance-approach goals, and social achievement values would relate to social comparison-based pride. We controlled for gender and age within this analysis. The model showed a good fit to the data, $\chi^2(309) = 438.943$, $p < .01$, CFI = .967, TLI = .959, RMSEA = .038, SRMR = .047 (Figure 1; see Table 3 for factor loadings for this model). In line with the study hypotheses, individual frames of reference ($\beta = .22$, $p < .01$) and individual achievement values ($\beta = .27$, $p < .001$) were positively related to self-based pride. However, mastery-approach goals ($\beta = -.02$, $p > .10$) were not positively linked to self-based pride. Furthermore, as expected, social frames of reference ($\beta = -.05$, $p > .10$), performance-approach goals ($\beta = .19$, $p > .10$), and social achievement values ($\beta = .05$, $p > .10$) were unrelated to self-based pride. In line with the hypotheses, performance-approach goals ($\beta = .34$, $p < .01$) and social achievement values ($\beta = .33$, $p < .01$) were positively related to social comparison-based pride. However, social frames of reference ($\beta = .01$, $p > .10$) were not positively linked to social comparison-based pride. Individual frames of reference ($\beta = .01$, $p > .10$), mastery-approach goals ($\beta = -.07$, $p > .10$), and individual achievement values ($\beta = .04$, $p > .10$) were unrelated to social comparison-based pride.

In sum, the results of Study 2 confirmed most of our predictions. Specifically, in line with our hypotheses, individual frames of reference and individual achievement values were positively

related to self-based pride, whereas performance-approach goals and social achievement values

were positively linked to social comparison-based pride. In addition, social comparison-based

pride again was found to be negatively correlated with age, suggesting that older university

students experience less social comparison-based pride.

Study 3

In Study 3, our aim was to replicate the findings of Studies 1 and 2 with younger students

(8-10 years old) and to investigate whether children of this age are already able to distinguish

between different types of pride. As in Studies 1 and 2, we examined the means and

intercorrelations among the two pride variables and sought to validate their independence using

CFA. Concerning the hypothesized antecedents, we only investigated the relation between

achievement pride and frames of references (but not achievement goals and values) due to time

constraints on the assessment. Further, achievement goals and achievement values require

elaborate cognitive evaluations of what is important and relevant in achievement settings, and

children in this age group may not be aware of the subtle distinctions implied by these constructs.

Again, we hypothesized that self-based pride is positively related to individual frames of

reference and that social comparison-based pride is positively related to self-based pride.

Method

Participants and procedure. A total of $N = 95$ (49 females, *mean age* = 9.20 years, *SD*

= .54) primary school students from a German elementary school participated in the study.

Students' achievement pride and frames of reference were assessed. At the end of the

questionnaire, students responded to several demographic questions.

Measures.

Achievement pride. The APS, slightly adapted to meet the cognitive and language ability

levels of elementary school students, were used to assess self-based and social comparison-based

pride. Participants were informed that they would be shown statements that represent general, typical emotional experiences they may face when attending school. For each item, they indicated how strongly they generally experience each of the two types of achievement pride while learning: (a) self-based pride (5 items; e.g., "I am proud when I can answer more questions correctly than before"; α= .88) and (b) social comparison-based pride (5 items; e.g., "I am proud when I can answer more questions correctly than my classmates"; α= .95). The children responded to each item on a 1 (*little pride*) to 6 (*extreme pride*) scale.

 Frames of reference. Schöne, Dickhäuser, Spinath, and Stiensmeier-Pelster's (2004) Frame of Reference Scale[2], that has been developed for this age group, was used to assess each of the two frames of reference: (a) individual frames of reference (2 items; e.g., "A good performance is when solving more problems correctly than previously."; $\alpha = .41$) and (b) social frames of reference (3 items; e.g., "A good performance is when you have more items correct than the others"; $\alpha = .89$). The children indicated the extent to which they thought each item was true for them on a scale from 1 (*not at all true*) to 5 (*very true*).

Results and Discussion

 Preliminary analyses. The descriptive statistics, reliabilities, and intercorrelations among the study variables are presented in Table 4. The results confirm that the two pride scales show internal consistency for this age group as well. The correlation between the two scales was moderate, again indicating that the two pride scales represent empirically distinct constructs.

 Confirmatory factor analysis. CFAs were used to examine the fit of the hypothesized dichotomous and the alternative single pride model. The results again strongly supported the dichotomous pride model (see Table 2). The Satorra-Bentler scaled chi-square difference test showed that the dichotomous pride model provided a far better fit to the data than the single pride model, SB $\chi2$ (1) = 14.90, $p < .001$. In addition, AIC and BIC were lower for the dichotomous

than for the single pride model, which also suggests that the dichotomous pride model is

preferable to the single pride model[3].

Overall, the CFAs and reliability data clearly indicate that the two pride scales represent

empirically separable and internally consistent variables for this age group as well.

Relation with frames of reference. Again, we applied structural equation modeling with

latent variables to examine the links between the pride scales with their proposed antecedents

while controlling for gender and age. More specifically, we explored the relations of individual

and social frames of reference with self-based pride and social comparison-based pride. We

expected that individual frames of reference are linked to self-based pride and that social frames

of reference are linked to social comparison-based pride. The model showed a good fit to the

data, $\chi^2(83) = 133.683$, $p = .03$, CFI $= .963$, TLI $= .953$, RMSEA $= .054$, SRMR $= .050$ (Figure 2,

and see Table 4 for factor loadings for this model). As expected, individual reference norms were

positively related to self-based pride ($\beta = .59$, $p < .05$) but not social comparison-based pride ($\beta =$

$-.14$, $p > .10$). In contrast, social reference norms were positively linked to social comparison-

based pride ($\beta = .67$, $p < .01$) but not self-based pride ($\beta = .06$, $p > .10$).

Taken together, the results of Study 3 replicated the findings from Studies 1 and 2 with a

sample of young children. Specifically, CFAs corroborated the proposed structure of the APS for

this age group, showing that children of this age already distinguish between different types of

pride. Moreover, in line with Study 2, individual frames of reference were positively related to

self-based pride, whereas social frames of reference were positively linked to social comparison-

based pride. These findings further support the external validity of the instrument and indicate

that even young children are able to provide valid reports of their pride experiences.

General Discussion

The present research comprised three studies designed to validate the Achievement Pride Scales (APS) and to test the hypothesized dichotomous pride model that refers to self-based and social comparison-based pride and their antecedents. The data from all three studies provided clear support for the reliability, internal validity, and external validity of the scales and for the hypothesized dichotomous pride model.

As for the hypothesized antecedents of achievement pride, individuals differ in terms of performance evaluations relative to an individual or a social standard, mastery or performance goal orientations, and underlying individual or social achievement values. Each of these constructs is assumed to influence the type of pride experienced and hence is worthy of empirical consideration. Consistent with findings from prior research (Schöne et al., 2004; Wilson & Ross, 2000), the results showed significant relations between frames of reference and achievement goals (Study 2, Table 3). This research expands upon these findings by additionally including achievement values and examining the relations of all three constructs with specific types of pride. More specifically, individual frames of reference and individual achievement values appeared to be positively linked to self-based pride, whereas performance-approach goals and social achievement values were positively linked to social comparison-based pride. In addition, social frames of reference were positively related to social comparison-based pride in Study 3.

The present research has the important advantage that it included both university undergraduates and younger students in different evaluative environments. Suls (1986) and Suls and Mullen (1982, 1984) as well as Ruble and colleagues (1980) claimed that temporal comparisons are prevalent in young children (at least until age 7 or 8) and adults over 65, when developmental change is rapid. Also, Nicholls (1990) showed that young children predominantly pursue mastery goals rather than performance goals, because the development of one's own abilities may be more relevant at this age than one's normative standing. As self-based pride also

relates to one's own development, it could be expected that this type of pride is prominent in younger students. In line with this assumption, the data confirmed that primary school students indeed reported more self-based than social comparison-based pride.

Notably, with regard to motivational engagement in an academically competitive environment (i.e., university), outperforming others may be a commonly endorsed type of goal. As social comparison-based pride derives from performance-approach goals, it could be expected that social comparison-based pride prevails in older students. However, our data showed that university students also reported more self-based than social comparison-based pride. Furthermore, for this age group, social comparison-based pride was negatively related to age, indicating that older students in university settings experience lower levels of social comparison-based pride. As this is an unexpected result, it is important that further studies replicate this finding before drawing conclusions.

Limitations and Directions for Future Research

Several limitations should be considered when interpreting the present work. We have proceeded under the assumption that the relationships observed were causal in nature. However, due to the correlational design of the present studies (i.e., the variables were assessed at one point in time only), it is not possible to infer conclusions regarding causality. Longitudinal research with repeated assessments is needed to draw such conclusions. More specifically, achievement pride and antecedents such as students' frames of reference, achievement goals, and achievement values would need to be assessed at several points in time in order to examine the reciprocal links between these variables.

As the present work was conducted within an academic context, the extent to which the findings can be generalized to other contexts, such as organizational settings or sports, remains open to question. Also, previous research has highlighted the importance of domain specificity

(i.e., academic domains such as math and language) for tests of the links between constructs (Goetz, Frenzel, Pekrun, Hall, & Lüdtke, 2007). As such, an important avenue for future research is to examine the dichotomous pride model within specific domains.

Furthermore, to make claims about cross-cultural generalizability, it is necessary to extend the research beyond Western to Eastern cultures that can foster different motivational tendencies (Elliot, Chirkov, Sheldon, & Kim, 2001; Maehr & Nicholls, 1980) and self-construals (Neumann, Steinhäuser, & Roeder, 2009), and can differ in terms of the adequacy of pride experiences and self-reports about pride (e.g., Eid & Diener, 2001; Mesquita & Polanco, 2009).

Finally, as the data were collected by self-report measures, no objective assessments of participants' achievement pride and its antecedents were available to validate their responses. To address this limitation, future studies would benefit from including behavioral (e.g., Butler, 1993, 1999) or implicit measures of these variables that are less subject to self-report biases. Experimental studies could meet this objective by manipulating the two types of pride. In addition, as many factors besides emotions can exert an important influence on achievement-relevant processes and outcomes (see Dweck, 1999), it is important to acquire a more precise understanding of how the two types of achievement pride function in concert with other achievement-relevant variables. Relate to this, future studies should explore the effect of the two types of pride on outcomes, such as cognition, motivation, and attention.

Implications for Educational Practice

By referring to the antecedents of achievement pride, the present findings make the applied utility of the dichotomous achievement pride model salient. More specifically, the focus on frames of reference, achievement goals, and values as antecedents of pride in this model maps nicely onto different types of competence assessment as used by teachers, that is, use of individual versus social comparison standards to evaluate achievement. Specifically, the findings

suggest that teachers could influence the elicitation of one of the two types of pride in their students by using individual versus social comparison standards.

As disadvantaged students often fail in terms of social comparison-based performance but still can improve their individual performance over time, only self-based pride is expected to be aroused in these students and can help to enhance their motivation. In contrast, for gifted students who perform well anyway, social comparison-based pride should have an additional beneficial effect. Considering the two different types of pride would thus help to understand why pride is elicited in one but not another person within the same situation. In addition, as focusing on an intrapersonal standard facilitates energization and invigoration (Elliot at al., 2011; Oettingen et al., 2009), self-based pride could also predict energy. As such, further research on achievement pride should consider the distinction between self-based and social comparison-based pride to further enrich our knowledge about affective processes in achievement settings.

In closing, it is important to highlight that achievement settings are complex and that self-based and social comparison-based pride are just two of several types of operative variables to be considered. It is our hope that the dichotomous framework established here will serve as a useful theoretical and empirical tool in future research on achievement-related pride.

References

Akaike, H. (1973). Information theory as an extension of the maximum likelihood principle. In

    B. N. Petrov & F. Csaki (Eds.), *Second International Symposium on Information Theory*

    (pp. 267–281). Budapest: Akademiai Kiado.

Albert, S. (1977). Temporal comparison theory. *Psychological Review, 84*, 485-503.

Ames, C., & Archer, J. (1987). Mothers' beliefs about the role of ability and effort in school

    learning. *Journal of Educational Psychology, 79*, 409-414.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological*

    Review, 64, 359-372.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: Wiley.

Bryant, F. B., & Satorra, A. (2012). Principles and practice of scaled difference chi-square

    testing. *Structural Equation Modeling: A Multidisciplinary Journal, 19,* 372-398.

Butler, R. (1993). Effects of task- and ego-achievement goals on information seeking during

    task engagement. *Journal of Personality and Social Psychology, 65*, 18-31.

Butler, R. (1999). Information seeking and achievement motivation in middle childhood and

    adolescence: The role of conceptions of ability. *Developmental Psychology, 35*, 146-

    163.

Dickhäuser, O., & Rheinberg, F. (2003). Bezugsnormorientierung: Erfassung, Probleme,

    Perspektiven. In J. Stiensmeier-Pelster & F. Rheinberg (Hrsg.), *Diagnostik von*

    Motivation und Selbstkonzept (S. 41-55). Göttingen: Hogrefe.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*,

    1040-1048.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development.*

    Philadelphia, PA: Psychology Press.

Eid, M., & Diener, E. (2001). Norms for experiencing emotions in different cultures: Inter- and intranational differences. *Journal of Personality and Social Psychology, 81*, 869-885.

Elliot, A. J., Chirkov, V. I., Sheldon, K. M., & Kim, Y. (2001). A cross-cultural analysis of avoidance (relative to approach) personal goals. *Psychological Science, 12*, 505-510.

Elliot, A. J., & Fryer, J. W. (2008). The Goal Construct. In J. Shah & W. Gardner (Eds.), *Handbook of Motivation Science* (pp. 235-250). New York, NY: The Guilford Press.

Elliot, A. J., & McGregor, H. A. (2001). A 2 × 2 achievement goal framework. *Journal of Personality and Social Psychology*, *80*, 501-519.

Elliot, A. J., & Murayama, K. (2008). On the measurement of achievement goals: Critique, illustration, and application. *Journal of Educational Psychology, 100*, 613-628.

Elliot, A. J., Murayama, K., & Pekrun, R. (2011). A 3 x 2 Achievement Goal Model. *Journal of Educational Psychology*, *103*, 632-648.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.

Frenzel, A. C., Pekrun, R., & Goetz, T. (2007). Girls and mathematics - A "hopeless" issue? A control-value approach to gender differences in emotions towards mathematics. *European Journal of Psychology of Education, 22*, 497-514.

Goetz, T., Frenzel, A. C., Pekrun, R., Hall, N. C., & Lüdtke, O. (2007). Between- and within-domain relations of students' academic emotions. *Journal of Educational Psychology, 99*, 715-733.

Goetz, T., Frenzel, A. C., Stoeger, H., & Hall, N. C. (2010). Antecedents of everyday positive emotions: An experience sampling analysis. *Motivation & Emotion, 34*, 49-62.

Graham, S., & Weiner, B. (1986). From an attributional theory of emotion to developmental psychology: A round-trip ticket? *Social Cognition, 4*, 152-179.

Grossman, M., & Wood, W. (1993). Gender differences in intensity of emotional experience: A social role interpretation. *Journal of Personality and Social Psychology, 65*, 1010-1022.

Hart, D., & Matsuba, M. K. (2007). The development of pride and moral life. In J. L. Tracy, R. W. Robins, & J. P. Tangney (Eds.), *The self-conscious emotions: Theory and research* (pp. 114-133). New York, NY: Guilford Press.

Harter, S. (1985). Competence as a Dimension of Self-evaluation: Towards a Comprehensive Model of Self-worth. In R. L. Leahy (Ed.), *The Development of the Self* (pp. 22-121). New York, NY: Academic Press.

Hoyle, R., & Panter, A. (1995). Writing about structural equation models. In R. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 100-119). Thousand Oaks, CA: Sage.

Ingleton, C. (1999). *Emotion in Learning: a neglected dynamic*. Paper presented at HERDSA Annual International Conference. Melbourne.

Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.

Lewis, M., & Sullivan, M. W. (2005). The development of self-conscious emotions. In A. J. Elliot & C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 185-201). New York, NY: Guilford Press.

Maehr, M. L. (1989). Thoughts about motivation. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Goals and cognitions* (pp. 299-315). New York, NY: Academic Press.

Maehr, M. L., & Nicholls, J. G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in cross-cultural psychology* (pp. 221-267). New York, NY: Academic Press.

Marsh, H. W. (1986). Verbal and math self-concepts: an internal/external frame of reference model. *American Educational Research Journal, 23*, 129-149.

Mesquita, B., & Polanco, S. (2009). Pride. In D. Sander & K. R. Scherer (Eds.), *The Oxford Companion to Emotion and the Affective Sciences* (pp. 313-314). Oxford: Oxford University Press.

Metzler, J. N. (2007). The significance of locus-of-esteem enhancement in pride-based assessment of the need for achievement (Unpublished doctoral dissertation). Pennsylvania State University, University Park, PA.

Murray, H. A. (1938). Explorations in Personality. New York, NY: Oxford University Press.

Muthen, L. K., & Muthen, B. O. (2004). *Mplus user's guide*. Los Angeles, CA: Author.

Neumann, R., Steinhäuser, N., & Roeder, U. R. (2009). How self-construal shapes emotion: Cultural differences in the feeling of pride. *Social Cognition, 27*, 327-337.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328-346.

Nicholls, J. (1990). What is ability and why are we mindful of it? A developmental perspective. In R. Sternberg & J. Kolligian (Eds.), *Competence considered* (pp. 11-40). New Haven, CT: Yale Univ. Press.

Oettingen, G., Mayer, D., Sevincer, A., Stephens, E., Pak, H., & Hagenah, M. (2009). Mental contrasting and goal commitment: The mediating role of energization. *Personality and Social Psychology Bulletin, 35,* 608–622.

Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions: Assumptions, Corollaries, and Implications for Educational Research and Practice. *Educational Psychology Review*, *18*, 315-341.

Pekrun, R., Elliot, A. J., & Maier, M. A. (2006). Achievement Goals and Discrete Achievement Emotions: A Theoretical Model and Prospective Test. *Journal of Educational Psychology*, *98*, 583-597.

Pekrun, R., Elliot, A. J., & Maier, M. A. (2009). Achievement Goals and Achievement Emotions: Testing a Model of Their Joint Relations With Academic Performance. *Journal of Educational Psychology*, *101*, 115-135.

Pekrun, R., & Perry, R. P. (2014). Control-value theory of achievement emotions. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (pp. 120-141). New York: Taylor & Francis.

Pekrun, R., Goetz, T., Frenzel, A. C., Barchfeld, P., & Perry, R. P. (2011). Measuring emotions in students' learning and performance: The Achievement Emotions Questionnaire (AEQ). *Contemporary Educational Psychology, 36,* 36-48.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of quantitative and qualitative research. *Educational Psychologist, 37*, 91-106.

Pekrun, R., & Stephens, E. J. (2010). Achievement Emotions: A Control-Value Approach. *Social and Personality Psychology Compass*, *3*, 1-18.

Rheinberg, F. (1980). *Leistungsbewertung und Leistungsmotivation*. Göttingen: Hogrefe.

Ruble, D. N., Boggiano, A. K., Feldman, N. S., & Loebl, J. H. (1980). A developmental analysis of the role of social comparison in self-evaluation. *Developmental Psychology, 16*, 105-15.

Satorra, A. (2000). Scaled and adjusted restricted tests in multi-sample analysis of moment structures. In R. D. Heijmans, D. S. Pollock, & A. Satorra (Eds.), Innovations in

multivariate statistical analysis. A Festschrift for Heinz Neudecker (pp. 233-247). London: Kluwer Academic Publishers.

Schöne, C., Dickhäuser, O., Spinath, B., & Stiensmeier-Pelster, J. (2004). Zielorientierung und Bezugsnormorientierung: Zum Zusammenhang zweier Konzepte. *Zeitschrift für Pädagogische Psychologie*, *18*, 93-99.

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics, 6,* 461-464.

Stipek, D. J. (1983). A developmental analysis of pride and shame. *Human Development 26*, 42-54.

Suls, J. (1986). Social processes in relative deprivation: A life-span analysis. In J. M. Olson, C. P. Herman, & M. P. Zanna (Eds.), *Relative deprivation and social comparison: The Ontario Symposium,* (pp. 95-116). Hillsdale, NJ: Erlbaum.

Suls, J., & Mullen, B. (1982). From the cradle to the grave: Comparison and self-evaluation across the life-span. In J. Suls (Ed.), *Psychological perspectives on the self* (pp. 97-125). Hillsdale, NJ: Erlbaum.

Suls, J., & Mullen, B. (1984). Social and temporal bases of self-evaluation in the elderly. *International Journal of Aging and Human Development, 18*, 111-120.

Tangney, J. P., Dearing, R. L., Wagner, P. E., & Gramzow, R. (2000). *The Test of Self-Conscious Affect-3 (TOSCA-3).* Fairfax, VA: George Mason University.

Tangney, J. P., & Fischer, K. W. (1995). *Self-Conscious Emotions. The Psychology of Shame, Guilt, Embarrassment, and Pride*. New York, NY: Guilford Press.

Tracy, J. L., Cheng, J. T., Robins, R. W., & Trzesniewski, K. H. (2009). Authentic and Hubristic Pride: The Affective Core of Self-esteem and Narcissism. *Self and Identity*, *8*, 196-213.

Tracy, J. L., & Robins, R. W. (2007a). The psychological structure of pride: A tale of two types. *Journal of Personality and Social Psychology*, *92*, 506-525.

Tracy, J. L., & Robins, R. W. (2007b). Emerging insights into the nature and function of pride. *Current Directions in Psychological Science*, *16*, 147-150.

Watson, D., & Clark, L. A. (1994). *The PANAS-X: Manual for the Positive and Negative Affect Schedule - Expanded Form*. Ames: The University of Iowa.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548-573.

Wilson, A. E., & Ross, M. (2000). The frequency of temporal-self and social comparisons in people's personal appraisals. *Journal of Personality and Social Psychology*, *78*, 928-942.

The authors confirm that all data underlying the findings are fully available without restriction on Figshare:

http://dx.doi.org/10.6084/m9.figshare.1237102

http://dx.doi.org/10.6084/m9.figshare.1237101

http://dx.doi.org/10.6084/m9.figshare.1237100

Footnotes

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[1] Recently, Elliot, Murayama, and Pekrun (2011) separated the mastery component into a task-based and a self-based goal component, rendering a 3 x 2 achievement goal model. However, the present work focuses on the 2 x 2 achievement goal model (Elliot & Murayama, 2008; see more details later in this discussion).

[2] The 3-item individual frames of reference scale was reduced to 2 items as item 1 ("A good performance is a performance that is better than previous performance") did not meet the language ability levels of elementary school students.

[3] The uniquenesses of item 1 and item 3 in the self-based pride scale were allowed to correlate. This correlation is based on the fact that both items include the terms "better" and "before" and appear to be very similar.