# “I PROUDLY SHOWED IT TO MY SEATMATE“ – PRE-SERVICE PRIMARY TEACHERS’ AUTHENTIC AND HUBRISTIC PRIDE

Sarah Falke[1], Bettina Roesken-Winter[1], Lars Meyer-Jenßen[2]

[1]University of Münster, [2]HMU Health and Medical University Erfurt

*Emotions play a significant role in professional teacher competence. Pride is one of the most common emotions experienced by primary pre-service teachers (PSTs) during their university mathematics education. However, this emotion has only been marginally investigated. This study examined the pride experiences of 67 primary PSTs, classifying situations that evoke either authentic or hubristic pride. Overall, the participants reported moderately high levels of authentic pride and low levels of hubristic pride; the two facets showed no significant correlation. Situations that evoke authentic pride fall into two categories: evaluative situations and demonstrating content knowledge situations. Hubristic pride situations fall into to the second category only, focusing on social comparison.*

## INTRODUCTION

“[…] Emotions influence the formation and development of mathematics-related motivation, attitudes, and beliefs” (Hannula, 2015, p. 282). Therefore, emotions are closely related to teachers’ identities (Timoštšuk & Ugaste, 2012) and play a significant role in educational processes (Jenßen, 2021). They influence competence development and are considered an integral component of professional teacher competence (Blömeke et al., 2015). Consequently, teachers’ emotions have an impact on their instructional practice, which in turn affects their students’ performance (Frenzel et al., 2021). Achievement emotions are those experienced in learning and achievement situations. One such emotion, frequently experienced in conjunction with success, is *pride* (Pekrun, 2024). According to Anttila et al. (2016), pride is one of the most common emotions among PSTs and occurs frequently in various situations in mathematics education. Despite its critical role in psychological functioning (Tracy & Robins, 2007), research into the emotion of pride and its influencing factors in mathematics education is limited (Jenßen, 2021). This study aims to address the lack of research on this topic by examining primary PSTs’ experiences with pride during their university-level mathematics education and detailing the situations that trigger it.

## THEORETICAL BACKGROUND

Pride is an emotional response to success. In educational settings, pride is associated with desired outcomes and is closely linked to the self (Oades-Sese et al., 2014). It has been shown to enhance performance by increasing motivation in achievement situations (Williams & DeSteno, 2008). Tracy and Robins (2007) argue that pride is “too broad a concept to be considered a single, unified construct” (p. 506). Thus, they



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proposed two distinct facets of pride that are fairly independent of each other and show only small positive correlations (e. g. Tracy & Robins, 2014; Liu et al., 2016): *Authentic* and *hubristic pride*.

"I'm proud of what I did" (Tracy & Robins, 2007, p. 507). This type of statement suggests *authentic pride*, resulting from attributions to unstable, controllable, internal causes, such as personal effort ("I won because I practiced") (Tracy & Robins, 2007). Therefore, taking personal responsibility in self-evaluation is critical to experiencing authentic pride, such as focusing on the specific behavior that led to success (Oades-Sese et al., 2014). Tracy and Robins (2007) emphasized that authentic pride is based on specific academic or social accomplishments and is typically accompanied by feelings of self-worth. It is associated with terms such as "accomplished", "achieving" and "successful" (Tracy & Robins, 2007). Authentic pride is a socially desirable emotion, in contrast to hubristic pride (Liu et al., 2016).

"I'm proud of who I am" (Tracy & Robins, 2007, p. 507). *Hubristic pride* stems from attributions to stable, uncontrollable, internal causes ("I won because I'm always great"). Success is attributed to one's global self or ability (Tracy & Robins, 2007; Oades-Sese et al., 2014). Hubristic pride can be addictive and is unrelated to any specific action. It emphasizes performance goals and depends on the evaluation of one's performance by others (Oades-Sese et al., 2014). Hubristic pride is associated with adjectives such as "arrogant", "stuck-up", "egotistical" and "conceited" (Tracy & Robins, 2007), and, in extreme cases, it may be associated with narcissism (Oades-Sese et al., 2014). Although it is experienced as pleasurable as authentic pride, it is a socially undesirable emotion (Jenßen, 2021). Therefore, expressing it is not considered appropriate and self-ratings of hubristic pride are likely to be distorted by self-serving biases (Liu et al., 2016).

A study by Brigido et al. (2010) demonstrated that pride is a frequently experienced positive emotion of primary PSTs. The PSTs' sense of pride grew from their time as students to when they began teaching themselves. However, it should be noted that this study was conducted in the context of physics and chemistry, rather than mathematics. Although pride is considered a particularly relevant emotion in the context of learning, little research has been conducted on it. One preliminary step would be to investigate signature characteristics, such as situational conditions, as has been done with emotions such as shame (Jenßen et al., 2022) and anxiety (Bekdemir, 2010).

## PRESENT STUDY AND RESEARCH QUESTIONS

Due to the significance of teachers' emotions, particularly pride, in educational processes, this study examines primary PSTs' experiences with pride during their university-level mathematics education. Particularly, the objective of the study is to identify and categorize situations that elicit authentic or hubristic pride. To gain a comprehensive insight into primary PSTs' experiences with pride, the following research questions guided the study:

RQ1a: To what extent did primary PSTs experience authentic and hubristic pride during their university-level mathematics education?

RQ1b: Is there a correlation between the extent to which authentic and hubristic pride were experienced?

RQ2: In what situations did pre-service primary teachers experience pride, and how did their experiences of authentic and hubristic pride differ?

## METHODOLOGY

### Participants, context, and data collection

This study was conducted in October 2025 as part of a tutorial to a master's degree lecture in mathematics education at a German university. A total of 67 primary PSTs participated in the study. Since it was a master's-level course, all participants had at least three years of experience with mathematics seminars and lectures. The majority of the PSTs were female (94%), with an average age of $M$ = 23.78 years ($SD$ = 1.69).

In order to assess the extent to which the PSTs have experienced authentic and hubristic pride in mathematics, two subscales of the *Pride in Mathematics Questionnaire (PriMa-Q)* (Jenßen, 2021) were used. Participants were presented with five items for each subscale and asked to rate them based on their own experiences. An example of an item measuring authentic pride was, "When I have mastered a challenge in math, I am proud of it". An item for hubristic pride was "I am proud that I seem to have special mathematical abilities". Participants rated all items on a 5-point Likert scale ranging from 0 (*does not apply)* to 4 (*fully applies)*. These scales demonstrated sufficient reliability (Cronbach's Alpha = .84 for authentic pride, Cronbach's Alpha = .86 for hubristic pride).

Furthermore, the PSTs were questioned about their experiences with the two types of pride during their mathematics education at university, following the procedure of Bekdemir (2010) and Jenßen et al. (2022). First, they were asked if they recalled a situation in which they had experienced pride. Second, they were required to specify whether they had experienced pride themselves or had observed it in others. Finally, using an open-response approach, they were invited to describe at least one instance in which they encountered or witnessed pride. Both types of pride were addressed separately. At the beginning of the study, the participants were briefly introduced to the concepts of authentic and hubristic pride.

### Data analysis

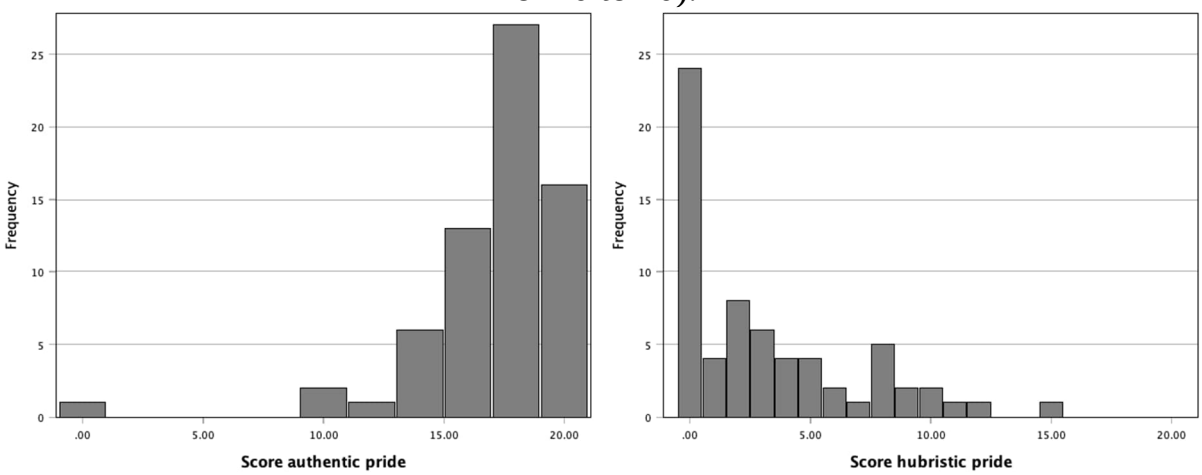
The total score for each scale was calculated by adding together the points for each item. This method ensured that each participant received a score reflecting their level of authentic and hubristic pride. Scores ranged from 0 to 20 (with 20 representing a high level of authentic/hubristic pride). Since the requirements for a Pearson correlation were not met, Spearman's rho was used to determine if there were any significant correlations between the two types of pride.

The participants' open responses were sorted into categories to classify and compare the situations involving experiences of pride. These categories were derived using an inductive approach. The responses were coded based on whether they described an *evaluative situation* or a *demonstrating content knowledge situation*. The two main categories were further differentiated based on the characteristics of the situations described. For *evaluative situations* the following subcategories were identified: *exam passed*, *exam successfully passed* and *positive feedback*. *Demonstrating content knowledge situations* were subdivided into seven subcategories (*task-solving*, *task-solving with social comparison*, *understanding content*, *understanding content with social comparison*, *explaining content*, *self-enhancement*, *creating material*). Furthermore, a distinction was made between situations that were *personally experienced* and situations that were *observed*. The intercoder reliability for coding according to this category system is $\kappa$ = .93, indicating a high reliability of the categories due to a low inference coding system. The intercoder reliability was calculated categorizing a sample of 46.2% of all text segments.

## RESULTS

With regard to RQ1a, we elaborate on the extent to which primary PSTs have experienced authentic and hubristic pride. Analysis of the results from the Authentic Pride Scale revealed an average participant score of $M$ = 16.73 ($SD$ = 3.18). This indicates a moderately high level of authentic pride, experienced during their mathematics education in primary teacher programs. In contrast, the participants scored an average of $M$ = 3.22 ($SD$ = 3.69) on the Hubristic Pride Scale, corresponding to a low level of hubristic pride (Figure 1). Regarding RQ1b, no significant correlation was found between the extent of experiencing authentic and hubristic pride ($p$ = .89), indicating that these are two distinct concepts.

Figure 1: Absolute frequencies of primary PSTs' scores for authentic and hubristic pride, experienced during their university-level mathematics education (score ranges from 0 to 20).




With regard to RQ2, we analyzed the situations indicative of experiences of pride. Of the 67 participants, 56 (83.6%) reported having experienced authentic pride in a

tangible situation during their mathematics education, either personally or additionally through observation. Of these, 39 provided a specific description of a particular instance. In contrast, only 15 participants (22.4%) reported experiencing hubristic pride, of which seven said they were only observing (5 self-experienced, 3 both). A total of five participants described specific situations. The data demonstrates a clear predominance of *personally experienced* pride among the PSTs, whether authentic or hubristic. Specifically, all 39 participants described personally experienced situations associated with authentic pride, while 4 out of 5 participants described personally experienced situations linked to hubristic pride. Of the cases examined, only three instances of *observed* experience of pride were reported: two of which were authentic pride, and one of which was hubristic pride.

Further analysis revealed that the PSTs' open responses fall into two main categories: *evaluative situations* and *demonstrating content knowledge situations*. Table 1 provides an overview of the subcategories characterizing these two main situations relevant in the context of pride, as reported by the PSTs.

Table 1: Subcategories used by the PSTs describing situations of pride and their frequencies.

| Categories | Subcategories | Absolute frequencies Authentic Pride | Absolute frequencies Hubristic Pride |
|---|---|---|---|
| *evaluative situations* | *exam passed* | 14 | / |
| | *exam successfully passed* | 6 | / |
| | *positive feedback* | 1 | / |
| *demonstrating content knowledge situations* | *task-solving* | 15 | / |
| | *task-solving with social comparison* | / | 2 |
| | *understanding content* | 7 | 1 |
| | *understanding content with social comparison* | 1 | 2 |
| | *explaining content* | 1 | 2 |
| | *self-enhancement* | 3 | 1 |
| | *creating material* | 1 | / |

*Note.* The frequencies presented in this table are based on the open responses of 39 participants (authentic pride) and 5 participants (hubristic pride). The responses can be double-coded.

Examining the frequencies of authentic pride revealed that *exam (successfully) passed*, *task-solving* and *understanding content* are the most frequently described situations ("I failed the arithmetic exam several times, but eventually I passed […]", "As part of an arithmetic exercise, I solved a problem that was difficult for me", "It's more that I feel proud when I have grasped and understood a technical mathematical concept"). Subcategories, where the focus lies on others, through *social comparison* or *explaining content* are rarely mentioned. The only subcategory that stands out is *self-enhancement*. This includes situations in which the individual perceives themselves as more competent than the expert: "I didn't understand the lecturer's solution, so I asked for clarification, and the lecturer admitted that I was right". Three participants described such an instance for *personally experienced* authentic pride, whereas only one participant *observed* such a situation and labelled it as hubristic pride.

Regarding the frequencies of hubristic pride, it is notable that the *evaluative situations* category did not appear at all. In terms of *demonstrating content knowledge situations*, however, the distribution of frequencies in the subcategories aligns with those of authentic pride. Thus, the same situation may be classified as authentic by one participant, while another describes it as experiencing hubristic pride. For instance, the statement "At the next meeting, I taught this to my fellow student […]" was mentioned as a situation of authentic pride, while "If I can explain a problem and its solution to others" was used to denote hubristic pride. However, a tendency towards subcategories of situations of social comparison is apparent (e. g., *task-solving with social comparison*, *understanding content with social comparison*, *explaining content*). This tendency is indicated by the frequent use of phrases such as "better as" or "faster as", which were used less frequently when describing situations involving authentic pride. For instance, phrases like "As part of an arithmetic exercise, I solved a problem that was difficult *for me*" (authentic pride) and "If I am *better* at solving problems *than most others* […]" (hubristic pride) exemplify the shift towards social comparison.

## DISCUSSION AND CONCLUSION

The results showed that the PSTs experienced moderately high levels of authentic pride and low levels of hubristic pride during their mathematics education studies. The situations that evoke authentic pride fell into two main categories: *evaluative situations* and *demonstrating content knowledge situations*. These categories align with previous literature (e. g., Oades-Sese et al., 2014). Situations that evoke hubristic pride can be assigned to the second category, with a focus on *social comparison*.

As the responses were self-reported, the results regarding RQ1a are likely to have been influenced by social desirability bias (Liu et al., 2016). Therefore, it is possible that the extent of hubristic pride is actually higher. Nevertheless, the results imply a positive outcome, since high levels of authentic pride are beneficial hence to the high impact of emotions (e. g., Blömeke et al., 2015). Regarding RQ1b, the absence of a significant correlation between the two scales suggests that the two facets of pride are independent concepts. This finding is also consistent with the results of previous studies (e. g., Liu

et al., 2016). The existence of two independent types of pride necessitates an examination of the communalities and differences in their characteristics, such as the situations that evoke them. Despite their independence, the results regarding RQ2 show that the same situational characteristics can trigger both facets of pride, since there is some overlap in the category *demonstrating content knowledge situations*. This phenomenon may not be attributable to the situation itself, but rather to attributions made to its causes, such as effort or one's own ability (Tracy & Robins, 2007), which influence the emotional response.

The high frequency of subcategories involving social comparison in relation to hubristic pride aligns with existing literature and indicates that hubristic pride is dependent on the evaluation of others (Oades-Sese et al., 2014). Examining whether a larger sample would also yield more cases of the category *evaluative situations* for hubristic pride would be interesting, since these situations explicitly include evaluation by others and should therefore be particularly suitable for hubristic pride. The strikingly low number of responses regarding hubristic pride once again highlights the social desirability bias surrounding this topic. However, it is notable that the PSTs predominantly chose situations they had personally experienced, even though they could have described situations they had observed. This phenomenon, which is particularly unexpected in the context of less desirable hubristic pride, can be attributed to the positive perception of pride within the individual (Jenßen, 2021), which may encourage sharing their own experiences of pride with others.

Taken together, the results of this study provided a comprehensive overview of the experiences with pride that primary PSTs had during their university-level mathematics education. The study identified and classified situations that evoke either authentic or hubristic pride, comparing and defining the two types within the context of mathematics education. In particular, the characteristics revealed in *evaluative situations* and *demonstrating content knowledge situations* will allow learning opportunities to be better aligned with PSTs' emotions. This study was the first to examine the situational characteristics of the experience of pride in mathematics education, distinguishing between authentic and hubristic pride. Therefore, it paved the way for further research into this topic.

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