

Maths Anxiety: The Nature and Consequences of Shame in Mathematics Classrooms

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This paper presents an analysis of pre-service teachers' reflections on the consequences of their perceived public humiliation in school mathematics classrooms, based on Torres and Bergner's (2010) model of the stages of humiliation. It analyses two examples of pre-service teachers' critical incident reflections from studies at two Australian universities. This research contributes to the frameworks through which primary pre-service teachers' mathematics anxiety, and its implications for their identity development, might be understood.

Introduction and Context

Humiliation has a potentially devastating effect on people. Torres and Bergner (2010) promote the need to identify its actual or potential occurrence, as they argue that "humiliation tends to be under-recognised, trivialized or insufficiently confronted in many kinds of settings" (p. 203). They make the distinction between embarrassment, which they regard as a minor violation of social decorum or conduct, and humiliation, which leads to loss of status, and subsequent outcomes such as feelings of hopelessness and helplessness, anxiety, powerless rage and possibly even revenge.

The paper investigates humiliation in the context of the development of mathematics anxiety (maths anxiety). Maths anxiety is recognised as important issue in mathematics education nationally and internationally (Wilson, 2012, 2015). Hembree's (1990) definition as "a general fear of contact with mathematics, including classes, homework, and tests" (p. 34) focuses on academic situations and doesn't include the aspect of ordinary life or the stress caused by being required to use mathematics in public (Tobias, 1981), both of which are important to the understanding of maths anxiety as important in terms of lifelong learning.

The theoretical framework gives an analysis of humiliation and the components/elements that make events humiliating for individuals. It presents the model of Torres and Bergner (2010).

The results section presents two examples of pre-service primary teachers (PST) who experienced humiliating events as students in mathematics classrooms.

The discussion details the effects on them as students and the way which humiliation can be so devastating for them, using the model of Torres and Bergner (2010) to examine and elucidate the impact they describe.

Theoretical Framework

Humiliation has been described in civil and legal contexts, by Torres and Bergner (2010). Adshead (2010), from her point of view as a forensic psychiatrist, followed up their article by emphasising the importance of the social context in which such humiliation occurs, and the issue of the normalisation of the behaviours involved. This is important to consider when relating these ideas to the classroom setting. Adshead (2010) views

humiliating and bullying behaviour as a fundamental attack on narrative identity (see Sfard & Prusak, 2005). She explicates, referring to loss of face, that one's psychological face is the narrative that makes up our social identity, and therefore "events that disrupt our narrative identity cause us to lose face in front of others, and it is this disruption that is the cause of shame and humiliation" (p. 207).

One of the areas where humiliation needs to be recognised and addressed is in educational settings, and specifically in mathematics classrooms. In a previous study of narratives of events in mathematics learning that evoked emotions, Ingleton and O'Regan (2002) identified four themes that arose: "the uses of power in the classroom, the threat of exposure from being publicly shamed, the impact on the teacher's judgement on developing identity as a mathematics learner, and the role of emotions in making self-judgements and decisions" (p. 98).

In a consideration of ethical issues, Torres and Bergner (2010) suggest that it can be interpreted as a human right not to be subjected to public humiliation. In educational contests, there is a corresponding need for debate raising awareness of humiliation as an inadvertent consequence of teachers' teaching or assessment strategies in the classroom. The Convention on the Rights of the Child (Unicef, 1990) Article 28(2) holds that discipline in schools should respect children's human dignity and be administered in a manner consistent with the Convention. This has implications for the responsibility for respectful treatment of students in classrooms.

According to Torres and Bergner (2010), "humiliation has been subjected to relatively little conceptual or empirical scrutiny" (p. 195). This paper takes the formulation of humiliation that they have designed based on civil actions and law enforcement cases, and applies it to the analysis of mathematics classroom experiences recalled by PST.

The model of humiliation proposed by Torres and Bergner (2010) comprises four components or elements:

Element 1: The Status Claim

The individual attempts to claim a certain status, meaning that they presented themselves having a certain social position or as a certain kind of person.

Element 2: The Public Failure of the Status Claim

The status claim fails, and individuals failed to gain the status to which they aspired or lost their existing or perceived status. When this happens privately, the result "may be painful self-realization" (Torres & Bergner, 2010, p. 197), but in a public situation, the scenario becomes humiliating.

Element 3: The Status of the Degraded to Degrade

The person who rejects the claim has the status to do so. Their position is legitimated or valid. They may be an expert, respected or held in esteem, or in a position of power. However, in some cases, they may not have any special standing, but people's ordinary presumption is to regard statements by others as genuine until shown otherwise.

Element 4: Rejection of the Status to Claim a Status

The bid or claim for status is rejected. Humiliation results from the manner with which this is done. When not only the bid is rejected, but also the legitimate status of the person to be able to even make the bid, the result is humiliation. The humiliation is even deeper

because in rejecting the person's status to make the bid, the person is held up as a pretender and denied the potential to counter claim or make subsequent claims. If their reading of reality is dismissed or invalidated the person has no voice to make any counter claims. They are powerless to claim what is important to them. This leads to the perpetration of a profound sense of powerlessness to make any claims. The denunciation without the person having the recourse to defend means that the person is deprived of their status of being one entitled to make a counterclaim

Torres and Bergner (2010) suggest that there are people that are prone to feeling humiliated. This may be a consideration in peer-to-peer interactions in educational settings. However, in extending this to the educational context, it is important to consider the power differential between children and adolescents and adults, and between students and teachers. The research question is: How might applying the Torres and Bergner (2010) model of humiliation to the classroom experiences recalled by pre-service primary teachers inform our understanding of the development of maths anxiety?

Methodology

The study is based on the understanding that people create and associate their own meanings of their interactions with the world. The research study participants were pre-service teachers from the Bachelor of Education (Primary) course at two Australian universities.

Methods

Ethics approval, based on accepted informed consent procedures, was received from the university's ethics committee. The researcher used Critical Incident Technique (Flanagan, 1954; Wilson, 2015) to investigate how PST felt about themselves as learners and future teachers of mathematics, by asking them to recall a critical incident from their school mathematics classrooms that impacted on these feelings. The two responses below were from PSTs studying initial teacher education courses at two Australian universities.

Findings

The findings from the critical experience reflections from two participants are presented below.

Cathy

Cathy was a mature-age female. She attended a traditional country primary school. She had enjoyed good experiences with her previous teachers and her reports praised her quiet and polite behaviour. In Cathy's classroom, the teacher's desk was placed diagonally in one corner of the room. The floors were wooden, noises from the corridor were easily transmitted into the room and the room was visible from outside. Cathy was very impressed by her new teacher, who was new to the school, young and attractive, and dressed fashionably. In the class, there was a focus on rote learning of times tables which Cathy was never good at, as there was never a clear explanation that she understood. The teacher commented on her tendency to daydream and lose concentration.

This new teacher liked to set a competition before letting the students go out to lunch. The class had to line up between the front groups of desks and the board. The space was not wide enough for only one line so there were usually two lines one behind the other,

facing the front. Cathy often would be in the front line, which she found very uncomfortable as the students behind would be standing very close and she was very close to the teacher. Then the teacher would give times-tables questions, which the students had to answer correctly before they could go to lunch. If students answered wrongly or took too long to respond they would have to wait and be given a second or third question. This was repeated until the question was answered correctly. The students who answered their questions correctly would be very happy, and could leave the room. On one occasion, Cathy was not able to respond fast enough or not at all because she relied heavily on counting with her fingers. After she had failed to give the right answer a number of times the teacher's facial expression changed and Cathy found it unbearable to look at her.

Cathy felt the students who were leaving as they answered correctly, were looking at her and thinking she was stupid. Students outside in the playground could see those students who were still lined up, through the window. Cathy "put up a wall", avoiding the teacher's looks, but still tried to get the right answer in the right time. The teacher eventually became cross and impatient, with negative facial expressions, body language and tone of voice. Cathy shut down. She did not make eye contact. She did not react. She could feel her wall sliding up and closing her mind so that she could not respond. In this way, she tried to protect herself. Her confidence and belief in herself were shattered, and she felt like a failure from that day

Maths came to mean confusion and failure to Cathy. The incident remained with Cathy and coloured her attitude to maths. She accepted that she couldn't do maths, and assumed that she was part of the natural attrition in the mathematics classroom

John

John was a male pre-service teacher who associated maths with "being smart and successful and having advantages."

In his critical incident reflection, he wrote: "I found maths a difficult subject. When I was in year 8 I was told I had to sit permanently at the back of the classroom. I was very shy and mild mannered, I had trouble seeing the white board and understanding every single maths lesson. The room was very bare, no colourful pictures or posters on the wall. The room had a whiteboard at the front and the teacher's desk was located in front of the whiteboard. The teacher would have been in his late 40's and I believe it was his only job and he had been teaching for a very long time and I think he may have only ever taught at the one school."

The teacher often explained a problem on the whiteboard and then instructed the class to work on various activities set from a textbook. The teacher often sat at his desk after he ran through the problem on the whiteboard, on vary rare occasions would he ever walk around the room to check on work. The class was generally well behaved as the teacher was quite strict and did not allow talking. From memory, there may have been between 25 students all males. The desks were set up in a U shape with two rows in the middle of the U shape.

I had absolutely no idea what I was doing and did work on the activities however, completely had no understanding of what I was doing. On one occasion, the teacher made me complete problem in front of the entire class on the whiteboard. I had absolutely no idea what I was doing and yet the teacher still made me complete the task. I tried to attempt the problem and it made me a joke in front of all the other students. It was a humiliating and degrading experience."

As a result of this experience, when John was trying to do a maths problem during his initial teacher education course, he said that he became anxious because he thought “everyone else is finished and I should be able to do it faster”, and stated, “I wouldn’t be like this in another subject”.

Discussion

In studying pre-service teachers’ views of themselves as learners of mathematics and the critical incidents in mathematics classrooms that they recall as having an impact on these views, the author identified humiliation as an important element in the situations that these two PSTs described. The impact of this shame is evidenced not only by the language that Cathy used but also by the minute detail of her recount. The emotive language used by John emphasises the continuing impact of the incident he described.

As students, these PSTs described their sense that others were judging and deriding them and this had a negative impact on them. Hence, as students, these PST experienced what Bibby (2002) describes as a strong sense of shame. According to Munroe (2009), “a shamed child might feel that he or she is the cause of the teacher’s negative attitude” (p. 65). There is no intention to claim that this is a deliberate intention on the part of the teacher. It may be that the student interprets a possibly inadvertent and accidental dismissal on the part of the teacher as criticism and rejection and is therefore humiliated. However, despite the intentions of the teacher, this may set up an association in students’ minds between mathematics and public embarrassment, leading to humiliation and to a future block or choke (Beilock, 2011) and further humiliation. In turn, this can lead to a cycle of fear, failure and avoidance, as previously discussed in Wilson (2015).

According to Giddens (1991), “shame bears directly on self-identity because it is essentially anxiety about the adequacy of the narrative by means of which the individual sustains a coherent biography” (p. 65). For the individual PST who experienced situations above the result can be a sense of worthlessness, a sense of inadequacy, feel of being an imposter and not entitled to make a contribution to the discourse of the mathematics classroom. This led to emotions of anger, sadness or fear and feelings of frustration and incompetence, which were recalled vividly in their descriptions.

Table 1 shows the application of the Torres and Bergner (2010) model to studies of classroom experiences

Table 1
Applying the Torres and Bergner Model to the Classroom

Torres and Bergner (2010)	Related to pre-service teachers’ critical incidents
Humiliation element	
Person claims status	As students in the classroom, the pre-service teachers presented themselves as a person able to do mathematics (part of their identity as a mathematics learner).
Public failure	The PST recalled that as the students they were held up in public as having experienced failure

Status of the degrader to denounce	As students, they did not question their power relationship with the teacher, and the teacher's right to make a judgement of their mathematics ability or potential
Bid for status rejected	The students were rejected as a person able to do mathematics successfully. They were emotionally involved in their experience and began or continued to reject their self-identity as a person who could do mathematics
Rejection of the individual to claim status	The teacher's interpretation or evaluation was accepted and the student has little recourse to make a counterclaim against the teacher's academic judgement and what this could mean for themselves as learners of maths

The PSTs both described situations in which they were called upon to demonstrate competency in mathematics in the classroom. In the terms of the model, this was a public demonstration, both of their claim and of their subsequent failure.

Cathy felt the students who were leaving as they answered correctly, were looking at her and thinking she was stupid, and for John, the experience "made me a joke in front of all the other students". According to Torres and Bergner (2010), "branding" such as reading out marks in public or publicly setting a student up in a remedial group, exposes the student to judgements of their peers, without any recourse. In the model, this lack of recourse is explained by the status of the degrader, and the power differential. Furthermore, the effect of the rejection of the individual's attempt on their self-identity as a learner of mathematics, in the model, makes sense of their subsequent experiences of maths anxiety. As well as the public humiliation, there is the private effects as the students degrade themselves. The story relates to an inner dialogue (Sfard & Prusak, 2005) that each low grade or confusion confirms they cannot do and should avoid mathematics.

Conclusions

This paper applies Torres and Bergner's (2010) model of the stages of humiliation, to the analysis of experiences that PSTs identified as humiliating situations that they recalled in their school mathematics classrooms. This structure of humiliation, presents the factors that make a situation shameful and humiliating for a student and some of the long-term consequences of these in terms of the development or exacerbation of their maths anxiety.

This paper raises the issue of the ongoing perceptions of students of their position in the classroom. In the light of Adshhead's (2010) questioning of the ethos or organisations that tacitly support bullying behaviour by "indirectly blaming the victim for being sensitive and weak" (p. 206), and excluding them, there is potential for using the Torres and Bergner's (2010) model for further research examining school and classroom cultures.

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