ENACTING IDENTITY THROUGH NARRATIVE: INTERRUPTING THE PROCEDURAL DISCOURSE IN MATHEMATICS CLASSROOMS

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This paper emerges from a research project designed to explore the complexities of mathematics teacher identity. Four mathematics teachers were studied in their classrooms during one semester. Notes and transcripts from the class observations were analyzed using a discourse analysis framework. The discourse was treated as cultural data regarding identity in the math classroom. Analysis focused on the use of the narrative register in classroom discourse, and on how this register was contextualized within the dominant procedural discourse.

MATHEMATICS TEACHER IDENTITY

When procedural tasks govern classroom discourse, an “identity of mastery” tends to govern subjectivity. Many mathematics teachers, however, disrupt this seamless identity by performing against mastery in both deliberate and unanticipated ways. Teacher narratives, for instance, often erupt unbidden in classroom discourse, disrupt the procedural sequence of blackboard instruction, and function as embodied performances of socio-historical identity. Personal narratives which are grounded in the embodied experiences of the teacher often constitute teacher identity in terms of vulnerability and contingency.

When teachers shift back and forth between procedural discourse and personal narrative they enact radically different identities. The procedural discourse enacts a mastery identity (“I” as machine) while the personal narrative enacts a vulnerable identity (“I” as embodied self). At the same time, each discourse is inscribed with normative messages about the legitimacy of particular subject positions in the classroom; the procedural discourse positions the teacher as expert (“I” as authority) and the personal narrative positions the teacher according to race, gender, ethnicity and class (“I” as member of the community). This last facet is often conveyed implicitly in the personal narratives that the teacher “chooses” to share. For instance, stories about incidents witnessed as one drove to work that day communicate messages about one’s socio-economic position within the community. If one accepts that these personal narratives “teach” students about socio-cultural positioning while in math classrooms - often without teacher awareness that they are doing so - then the need to study the role of personal narratives in relation to the dominant procedural discourse becomes essential.

In this paper I examine when, how and why mathematics teachers shift between the procedural and the personal narrative registers. The shift between procedural and personal narrative register is almost always awkward because of the radically
different subject positions constituted through the two discourses. Indeed, the two discourses are so radically displaced from each other, it’s difficult to imagine the bridging or blending that might create a cohesive discourse that includes them both. It is this apparent incomprehensibility which is the focus of this paper. My aim is to show how the personal narratives are actually used to enforce the legitimacy of procedural discourse.

Four high school mathematics teachers were studied in their classrooms during one semester. Notes and transcripts from the class observations were analyzed using a discourse analysis framework. The discourse was treated as cultural data regarding identity and community in the math classroom. Analysis focused on the use of the narrative register in classroom discourse, and on how this register was contextualized within the dominant procedural discourse.

PATTERNS OF DISCOURSE

A discourse analysis framework (Fairclough, 2003) was used to examine the transcripts from the classroom observations. The data was first coded for shifts between three kinds of discourse: mathematical (inquiry, procedural, conceptual), administrative (assessment, management, school issues), and contextual (personal narrative, anecdote, metaphor, application). These were then subdivided into eight registers: (1) procedural (2) conceptual (3) inquiry questions (4) personal narrative (5) anecdotal (6) metaphoric (7) classroom management (8) school business. The transcripts were analyzed for occurrences of and transitions between these registers. I use the term register to refer to a subset of the many genres that characterize conventions of spoken language. In this paper, the term register refers to different modes of address in spoken discourse. A register enacts rules or conventionalized practices of language use. Because of my focus on procedure and narrative, I will define only these two registers and leave the others alone.

The procedural register is highly abstract and depersonalized. It contains almost no traces of personal presence. Personal narrative, on the other hand, positions the speaker and explicitly constructs a social identity. My analysis focused on the juxtaposition between procedural and personal narrative registers. This paper examines the relationship between these two registers, focusing on the way that teachers blend or join the registers. Narrative embodiments within the realm of procedural discourse can be seen as an attempt to introduce a sense of self or identity. The personal narrative register presents the speaker as a situated body in a socio-cultural and physical world. The discourse within the narrative is understood to be of a different ontological status than the discourse within the procedural register. Each register seems to interrupt the other because they seem so mutually incomprehensible. I argue, however, that the two function alongside each other in co-constituting the subject position of the teacher. I argue that the process of suturing an identity across these two radically different registers must be read in terms of the dominant procedural discourse.
Shifting registers or frames is a complex linguistic capacity. When a speaker moves abruptly from one form of address to another, they often enact two radically different and sometimes mutually incomprehensible forms of subjectivity. The shift involves more than two specialized sets of vocabulary in two different discourses. Each register has its own social grammar, and each thereby interpellates a distinct subject or identity. Both the speaker and listener are constituted through the form of address. The meaning of an utterance is constructed within the social grammar and the implied power relations of the register. The personal narrative register often enacts power relations of intimacy, exposure and vulnerability. The listener is addressed as a confidant. Refusal to be recognized as personal acquaintance would disrupt the power relation conveyed within the register. The act of personal narrative is one of vulnerability but it is also an act of centering. The story teller offers personal anecdote and seemingly “exposes” a private world, but she or he also demands that the listener recognize (by listening) her status as a person with a life history, and, in some cases, her status as an agent of change or action. The following are a few facets of subjectivity that are constituted through the personal narrative register: (1) vulnerability (2) agency (3) social position/presence, and (4) temporality. In contrast, the procedural register is characterized by rigorous rule following and the imperative mode, and thereby constitutes facets of subjectivity that are radically different. In the procedural register, both speaker and listener are addressed in terms of: (1) proficiency (2) compliance (3) abstraction/absence (4) atemporality.

WHY TELL A STORY?

While it is possible to read registers in terms of purpose, and it seems as though most discourse occurs for a purpose, it is essential that we recognize the difference between overtly purposeful discourse – like that found in the procedural register – and what is often apparently non-instrumental discourse – like that found in personal narrative discourse. Although both registers in the classroom can be read through the lens of strategy, as can the “informal chattiness” of employees in other work environments (Fairclough, 2003, p. 72), the personal narrative can also appear entirely without purpose. Speakers often spontaneously erupt into story, without any premeditation. Although one could argue that stories are told when a speaker deems it fortuitous or appropriate, it’s important to recognize the apparent spontaneity of story in particular instances, and to note that this perceived spontaneity marks the narrative as a kind of psychoanalytic trace. Narratives often erupt unbidden, disrupt our attempts to present ourselves in a professional or other way, and thereby indicate facets of our subject position which we enact without conscious intention. In this project, the narratives were not invited in an interview, but simply emerged spontaneously in the classroom. This research method allowed for a more accurate study of how narrative functioned in the classroom discourse. The approach allowed me to focus on what stories are doing for the participants, and on what stories are designed to do in this context. In contrast to a more deliberate collection of stories
through interviews, this approach examined how narratives function ethnomethodologically.

Recent research in mathematics education calls for further study on how narrative intersects with mathematics learning (Povey & Burton et al., 2004; de Freitas, 2004; Drake, Spillane & Hufferd-Ackles, 2001; Doxiadis, 2003). Doxiadis argues that a new vision of ‘doing mathematics’ might also incorporate the telling of mathematics experiences in a narrative mode, a kind of “paramathematics” that situates mathematics in story (Doxiadis, 2004). Povey & Burton suggest that such narratives are crucial for making sense of why so many “fail in their attempts to learn mathematics and, in particular, why so many of these unsuccessful learners are predominantly found in particular communities.” (Povey & Burton et al., 2004, p. 43). But none of these researchers have examined the role of story in the mathematics classroom as a form of identity enactment, nor the ways that teacher stories disrupt procedural discourse in classroom practice.

THE PARTICIPANTS AND THE STORIES

The four participants were Roy, Janet, Mark and Leslie. They teach in a rural school in Canada. The school population is over 95% white. It is not a high-needs school, but there is significant socio-economic diversity within the student population. Classes are each 80 minutes long, and class size is about 30 students. Each participant was observed on five occasions. In this paper, I focus on Janet and Leslie, each of whom employed narrative in their mathematics classrooms in different ways.

Janet

Janet had been teaching for 13 years. She taught a grade 10 academic class. During the five observations, Janet shared only one personal narrative with the class. She spent more time on classroom management talk than the other participants. She used very unsituated examples in her instruction (emphasis on sign manipulation), but she did try on occasion to give motivating contexts for the mathematical material (“Suppose you want to build a roof”). Her lessons were delivered using overhead projector, digital projector and blackboard. The students copied notes as she revealed them on the screen. She spoke to the whole class as she disclosed the written material and diagrams. Whole class instruction was followed by individual work. Below is the only personal narrative that Janet shared while she was observed. I have included the procedural discourse that contextualizes the narrative, so that the reader can see the way that Janet shifted back and forth between the registers.

[After 4 minutes of requests for “hats off” and “put your calculators away”, and 3 minutes of announcements about the day’s agenda, she asks the students to complete two calculations on the blackboard. The first calculation is 231 x 25. The second calculation is 42360/20. She prepares her slides while they settle down and attempt the calculations.]
Janet: Alright, has everybody finished the first problem? Ok. Let’s just take a look at number 1. Because it’s not necessarily easier but a little less mess than that other one. Alright. Is it a fair assumption that by the time you’ve hit grade 10 academic math you should be able to multiply those out.

Students: Yes.

Janet: Ok. Perfect, so what do you do? Where do you start?

Students: The bottom right.

Janet: The bottom right? Times each of the top. Right, you’re going to get zero there. And then you go down to your next row. You put a place holder for that one and you start the next one and so on. Is that what everybody did? Used placeholders and worked it all out? What did we get for an answer?

[Most of the class responds]

Janet: 7350? How many got it? Excellent. Ok. That is encouraging. Alright, now there’s a method to my madness in having you do this today. Ah, twofold. Obviously you should be able to multiply and divide in grade 10. But you would be surprised at how many people can’t. I remember, I think I may have told this story before, I went to get gas. This happened last summer. And I gave the person like, I don’t know, it cost 35 dollars to fill my car and I gave them 50 and they couldn’t figure it out. And it was weird, because like within a 2 week span every time I went to buy something somewhere, groceries, I kind of ran into the same problem. People, if the machine wasn’t working right or you gave them like, say it came to 20 dollars and 46 cents and you gave them $25.46, it threw them off. They didn’t know what to do. That sort of thing. So it was kind of enlightening to me that, you know, not everybody is getting these basic math skills. So I’m glad and impressed that you guys can multiply. So, that’s a good thing. The real reason I had you do this is, because how long did it take you just to do problem number 1?"

Student: A long time.

Janet: A while. If I said now that you can use your calculators, how long would it take you?

Students: seconds

Janet: Or less, right? So, if you do not bring a calculator every day for trigonometry, you’ll be doing that all class. I’m serious. So, the method to my madness is, you will bring a calculator every day after seeing how much torture it is trying to multiply and divide those numbers out.

Janet’s story is explicitly functional. First, the story is the explanation as to why she is asking them to perform calculations “long hand”. It functions as an explanation for the mathematical task. Her story recounts an experience that has made her worry
about basic numeracy skills in the local population. She says, “I think I may have told this story before”, pointing to its ritual status as a story of moral significance. Stories are repeated in this way when they function as parables or moral lessons. By pointing out the repetition, she reminds the students that this story is essentially a lesson about life. The story also functions implicitly as a lesson about numeracy and socio-economic positioning. As a moral lesson, the story warns the students that, without numeracy skills, they are no better than the unskilled gas attendants and grocery cashiers whom she encounters. Her grade ten class will be divided the following year into university track students (to be found in Roy’s class) and college or other bound students. The story is a way of reminding them of the material consequences of their performance in school mathematics.

Janet shifts between the narrative discourse and the procedural by saying “The real reason I had you do this ….” thereby bracketing the narrative into a separate enclave of less value (as it turns out, the story is a red herring, because she actually wants them to rely on calculators during trigonometry). But her emphasis on procedure is mirrored in the story she chooses to present to the class, a story about procedural mastery of multiplication. Note that she is concerned that her encounters at the gas station and elsewhere point to others’ inability to perform mental math calculations, and yet she asks the students to perform longhand calculations. The disconnect between the story and the task is compounded when she states that her “real” purpose is to help them see the value of calculators, since the story admonishes those who become too reliant on calculating machines. The contradictions regarding her stated purpose underscore the many different functions of the story.

Janet’s personal narrative is highly disembodied. Her story conveys no intimacy and no vulnerability on her part, but rather functions as a lesson about social position and subjectification. As such, it breaks with one of the usual aspects of personal narrative – to convey the vulnerable “I”. She is the authority in the room and uses the story to communicate both her power as moral judge and the power of school mathematics to determine socio-economic status. The paradox of her own subject status is in her disembodiment. She enacts or performs an identity of mastery which she uses to control the students. Her personal narrative functions to enforce her control, by pointing to the ramifications for students if they do not submit to the rules of the discourse. Thus, her desire to control the students is implicated and given larger cultural significance through the narrative performance.

Leslie

Leslie had been teaching for 7 years. She taught a grade 11 “Life mathematics” course. Poor attendance was an issue. During the five observations, Leslie taught from the front of the classroom, writing examples on the blackboard and asking the students for answers. Her questions shifted back and forth between personal questions about student experiences (both related and unrelated to “Life Mathematics”) and questions about factual or procedural issues in the content. She
struggled to keep student attention. She frequently introduced personal anecdotes into her talk, often about her family. The following is one paradigmatic story in Leslie’s classroom discourse.

[After 7 minutes of administrative discourse (exam schedule), Leslie asks “Ok! How many go to the races in the summer? You know the races?”]

Student: What races?

Leslie: Horse races. When you’re looking at the horse race, what do you see on the board? When they have the horses all …

[An announcement interrupts the class]

[Students walk in late]

Leslie: Guys, class starts at 8:50. If you’re gonna be late, you’d better bring a note. You missed my speech about how there’s 11 days left and to make sure you’re here on time and all the rest.

Student: I didn’t even think I was going to, like, make it. I was ready to go back to sleep.

Leslie: We don’t need all the stories. Ok, um, Brad, you were saying that the horse races, again. I’m not 100% accurate on this because I don’t go to the horse races but I have been there a time or two. Ok, what would this mean?

[Leslie writes on the board 1:100. She continues to question the students about the ways in which odds in favour of a horse winning is calculated. Then she talks about odds in favour and against in the abstract case. Twice more she refers to horse racing and mentions that she doesn’t know much about them: “I don’t know, anybody, who goes to the races a lot? Mike? What are the numbers usually like?” and then “Oh. Anybody a horse person? I’m not so I can’t really say I’ve seen those numbers on there when I go to the exhibition, to walk through there, the horse races.” A few students speculate about the numbers (no use of hands to mark the right to speak).]

Leslie: Yeah. Anyway, like I say. I ‘m not up on horse racing to tell you, but I do know that those numbers are telling what are the odds, and the greater the odds, the higher the payout. I do know that much. My husband has a good friend who’s big into horse racing. They went away to school one year, they went down to the states where it’s cool and they went to the horse races one night, and there was a horse there who the guy remembered being back [in his hometown], years ago, and what a good horse it was. So, they had like 20 bucks each and decided to throw it on to see what happens and the odds were very high that he would not win. And, so anyway, they won. They won like 250 bucks each or something like that. When you’re students away somewhere that’s a lot of money.
An individual student near the front says something to her and they talk while the rest of the class cannot hear. Leslie then begins writing on the board. The students then begin recording what she is writing.

Student: What is the word right after …?

Leslie proceeds to talk to the entire class about the procedure for calculating and recognizing odds and probability. Her description of the rules for representing probability and odds are somewhat confused as she speaks: “When we’re looking at probability, it was always a fraction. It was always like 1 out of 10 or 2 out of 6 … ok each of them would be a number between zero and 1 and they would be written as a ratio…”

Leslie tells stories about her family. She presents herself as a mother and wife. Her anecdotes convey her preferences and her knowledge about everyday matters. A number of utterances communicate her unfamiliarity or lack of knowledge with the rules of horse racing. These anecdotes set up her vulnerability as someone who is willing to learn from her students. The course she teaches lends itself to the personal narrative register, because of the curriculum resources, but nonetheless she might have used stories about others instead of her own family. In this example, when she shifts to the personal narrative register, her confidence about what she knows increases. She is demonstrating that knowledge gained from personal experience is more reliable than other kinds of knowledge. Unfortunately, she fails to say “odds against” in the utterance: “… the greater the odds, the higher the payout,” and thereby suggests the opposite and incorrect correlation between odds and pay-out. But it may be that the actual mathematics embedded in the story is less important than the other messages embedded in the story. Leslie shifts to the personal narrative register in order to present herself as socially and physically positioned.

The story recounted in this excerpt is about her husband’s experience “away” (in another country) as a student without money, making a bet on a long shot because of the connection between the horse and his home town. It’s not clear why she decides to tell the story, except to entertain the students or perhaps reveal a “real life” situation where evaluating odds matters in terms of money. The narrative, like the many anecdotes about burgers and other local items, presents her as an individual with a particular life history. It is also a story about going away to school, which is an experience associated with academic success, particularly in this rural community, and even more so in the “Life Mathematics” class. Much of the talk in this course pertains to making, saving and judiciously spending money. There are chapters in the textbook about balancing a cheque book, assessing bank loans, and how to raise money to buy a car. And yet the story seems to convey the very opposite of a moral lesson about frugality and sound money sense. In the story, her husband and his friend enjoy the privilege of a post-secondary education and the accompanying pleasures of making high-risk and playful gestures with their money. She closes the story for the class with an evaluation of the value of the winnings. When she shifts back to the procedural register she prefices it with “And these are definitely not
based on fact, these are just examples,” thereby highlighting the radical disjuncture between the two registers. The classroom examples are inauthentic, whereas the story of her husband’s successful gambling represents “the real”.

Leslie enacts the vulnerable “I” to create a relationship of trust with her students. Her story also positions her as the wife of someone who is from the community (an important issue of membership in rural contexts) and whose husband is sufficiently privileged to pursue post-secondary education in another country. The story about gambling on the horses represents a disruption of the dominant cultural message of frugality and balance found throughout the “Life Mathematics” course. Because the students in this course have low socio-economic status, relative to the rest of the school and the surrounding area, the story addresses them in terms of class structure and privilege. When this story is told within this context, it tacitly conveys normative messages about access and opportunity denied to these students. The “real” of this story, in the context of apparently “real” life mathematics, communicates to the students the inequity of their own subject position. Obviously this is only one possible reading, and there are a multitude of others - as is the nature of interpretation - but it seems crucial that we recognize this possible reading and begin to grapple with the ways in which these students might internalize the messages within these kinds of stories.

CLOSING REMARKS

Narrative research is both descriptive and explanatory, attending to the “storied” nature of participants’ lives (Clandinin & Connelly, 2000). Teachers’ stories are “stories to live by”, and teacher identity is mapped onto school culture through the telling and re-telling of these stories (Clandinin & Connelly, 1995). Teachers modify and multiply these life stories as they negotiate their position on the professional teaching landscape. Narrative is therefore a personal site for identity construction. My focus here has been on the function of these stories in the mathematics classroom – on what these stories do when used in context.

Janet and Leslie use personal narrative differently in their classroom discourse. Janet uses only one dispassionate and disembodied narrative to impart a moral lesson about socio-economic status and schools, and to entrench an “identity of mastery” in school mathematics. While Leslie presents an embodied presence throughout the procedural discourse, and offers family stories that implicitly contradict the cultural messages of the curriculum. By employing a close textual analysis, I have tried to show how different forms of identity are enacted in these personal narratives, and that these stories often function to enforce the legitimacy of the dominant procedural discourse.

I have argued that teacher identity is enacted in the classroom through various discursive registers. The mastery identity is enacted through procedural discourse and represents the dominant identity in this study. When teachers shift back and forth between procedural discourse and personal narrative they perform radically different
identities. The “I” of machine talk is suddenly juxtaposed with the vulnerable “I” of the embodied self. At the same time, each enactment conveys normative messages about the legitimacy of particular subject positions in the classroom. In particular, the personal narrative positions the teacher according to race, gender, ethnicity and class (the “I” as member of the community) and thereby addresses the students in these terms. This embodied aspect of narrative is what makes narrative such a powerful form of pedagogy. Teacher personal narratives “teach” students about socio-cultural positioning within math classrooms. I have shown that one possible reading of these narratives reveals their role in communicating messages about socio-economic status in relation to school mathematics. In each case, the personal narratives functioned to enforce the legitimacy of the dominant procedural discourse. I am not suggesting that we discourage teachers form telling these stories, but rather that we attend to the nuanced meanings that are embedded in them, and examine their relation to other discursive registers. If school mathematics is often less about understanding and more about habit (Tate & Rousseau, 2002), then we need to interrogate the classroom practices by which those habits are inscribed onto identity.

REFERENCES


