

Conflict, Hope, and Mathematics Education Storylines: Pivoting Away From a Pathology-Based Orientation

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Abstract

In this paper, we play with the ideas of conflict and hope in reported storylines from subaltern contexts of mathematics learning. The concept of storyline comes from positioning theory, which suggests that people make choices about communication acts according to known or familiar storylines. By drawing attention to aspects of conflict and hope within storylines, we identify pivot points that permit reorientation. By deconstructing several storylines from the Mathematics Education in Indigenous and Migrational contexts project, we noticed how storylines that feature conflict offer more opportunities to pivot than do storylines that feature appeals to hope. This process of reorientation resists the dominance of pathology-based storylines about mathematics education for students from minoritized groups and draws attention to the impact of orientation on storylines.

Keywords: Storylines, Hope, Mathematics Education, Desire-Based Framework, Positioning

Introduction

This paper focuses on storylines in subaltern contexts of mathematics instruction, where dominant storylines reflect a damage-centered orientation to the learning and teaching of mathematics. The concept of storyline comes from a body of literature called positioning theory, which tries to explain how people navigate social interactions. The three primary concepts in this theory are communication acts, positioning and storylines. Having noticed that much of the previous work in developing positioning theory has tended to focus on the analysis of communication acts to identify positioning, we decided to explore ways of theorizing the concept of storylines.

We begin by situating the story within storylines, highlighting the importance of conflict and hope within a narrative structure. Thinking back to our elementary school experiences, the most basic teaching on story begins with reading and writing narratives. We were taught that narratives can be deconstructed into three parts: beginning, middle, and end. We were also taught that literary features—such as setting, character, plot, theme, and conflict—are woven together to reveal a cohesive story. Each literary element contributes to the development of an effective narrative rooted in conflict. We were taught (with unfortunately gender-exclusive language) that stories feature main characters in conflicts positioning “man against man,” “man against nature,” “man against self,” and “man against society.” In any of these kinds of conflicts, there is a problem that must be confronted and a fundamental desire or hope that motivates the protagonist to overcome it. When confronted with the main conflict, the protagonist does not become stuck; instead, they identify a course of action that leads to some form of resolution. Even when confronted with seemingly insurmountable odds, the protagonist finds a way to reorient themselves towards a desirable outcome.

In this paper, we explore the possibility of re-orientation within storylines by playing with the ideas of conflict and hope. We first situate our play in the literature that theorizes positioning. Our conceptualization of hope draws from Tuck’s (2009) desire-based frameworks to consider storylines in subaltern settings. In the literature identifying storylines in mathematics education, we see potential for more explicit attention to conflict and hope as they underpin action. We are interested in action because it answers the question, “what next?” We want to know what can be done, and what needs doing. Perhaps more importantly, by bringing attention to these aspects of storylines—conflict, and hope—we can identify pivot points for re-orientation. We will work through several storylines identified from mathematics education

research in contexts with Indigenous and/or newly migrated students. In particular, we consider possible conflicts and hopes that may underpin the stories, and we imagine multiple possibilities of reformulating the conflicts and hopes within them.

Story and Positioning

The concept of storyline is central to this paper and comes from theory on positioning. Certain scholars have been active in curating positioning theory (e.g., van Langenhove & Harré, 1999), but the concept of positioning predates this move (e.g., Haraway, 1989) and the theory itself is contested in various ways (e.g., Bjerre, 2021). Seminal work in this theory, particularly the collaboration of Bronwyn Davies and Rom Harré, has shaped our focus on positioning (Davies & Harré, 1990).

Following the theory, people make communication choices according to known storylines. At the same time, their choices about what to say shapes the storylines that are readily available to others in the interaction. The seminal positioning theory literature sees three aspects as a triad—communication act¹, positioning, storyline (e.g., van Langenhove & Harré, 1999). For example, when a teacher meets one of their students in their school hallway, they have to decide how to address the student—as a farmer, as a mathematics learner, as an athlete, or any of many possibilities. This choice relates to positioning and to storylines. If the teacher decides to talk about training for distance running, this suggests the teacher chose a storyline related to coaches advising athletes, and is positioning the student as an athlete. The choice of storyline is limited to those known to the people within the interaction, and these decisions often occur without conscious thought. Herbel-Eisenmann et al. (2015) draw the relationship among the

¹ Herbel-Eisenmann et al. (2015) and McVee et al. (2021) extend the seminal positioning theory work to expand speech acts to include any form of communication act.

three core elements as a cycle, with the communication act forming positioning and vice versa, all within a context of storyline. Thus, the teacher talking to the student as an athlete draws on language and gestures from coach–athlete interactions. But this particular interaction also shapes the teacher’s and the students’ idea of what coach–athlete interactions are like.

We note with interest that the identification of storylines in mathematics education tends not to be consistent in describing storylines in terms of action, conflict, or hope. Nasir et al. (2012) write about storylines (not drawing on positioning theory) and describe what seems to us more like identities. They focus on racial storylines, describing how storylines impact students’ racial and learner identities and engagement when learning mathematics. This analysis of storylines highlights conflict and hints at hope, but the storylines are not described as narratives in the sense of story. Instead, the authors point to a history of racial struggle that includes the struggle for access to literacy. “In the absence of available resources within mainstream classrooms to create constructive racial storylines” (Nasir, 2012, p. 298), Nasir et al. (2012) promote giving students “access to alternative spaces or counter-spaces [which] may help combat the negative impact of traditional, dominant racial storylines” (p. 297).

Hand & Gresalfi (2015) gave vignettes of mathematics learning situations to describe storylines, which they situate within the idea of figured worlds (Holland et al., 1998). Though their descriptions of storylines do not suggest conflict or hope, it may be possible to infer these concepts in their accounts of classroom excerpts. They described two related storylines: “received knowing” (p. 192) and “connected knowing” (p. 192). Their “‘achievement gap’ storyline” (p. 199) relates more to education discourses and the actions of researchers and teachers thinking and talking about a so-called achievement gap, which of course impacts their action choices as educators.

Recent studies of public media depictions of mathematics education have also identified storylines. In particular, Herbel-Eisenmann et al. (2016) identified the following storylines, which focus on conflict: “there are two dichotomous ways of teaching mathematics” (p. 104) and “mathematics education research is not trustworthy” (p. 106). They also identified a storyline that focuses on a hope: “the main goal of mathematics education is to produce a STEM workforce” (p. 106).

Hope and Conflict in Story

As noted above, storylines are central to positioning theorization because positioning is understood in terms of story. Davies (2022) described the tension that developed between her and Harré in the theorization of positioning as a tension between static conceptualization and dynamic. For a storyline to be seen as a story we see potential for conceptualizing it in terms of conflict and hope, which enables dynamic possibilities. As early as elementary school we were told that stories have conflicts. The relationship between conflict and stories is established in children’s repertoires through fairy tales, television programming, sibling interactions, and family histories. This relationship is not a modern understanding: the idea that stories are rooted in conflict is often traced back to Aristotle’s *Poetics* (approximately 355 BCE).²

Our chosen approach to conceptualizing stories in terms of hope and conflict is informed by Eve Tuck, a powerful voice in Indigenous research methodologies. Tuck makes the case for desire-based frameworks, positioning this advocacy as a refusal of damage-centered frameworks. Whereas a damage-centered orientation draws attention to deficits in comparison to the imaginary ideal, desire-centered frameworks have an axiology that “is intent on depathologizing

² While the idea that stories are rooted in conflict is dominant, the idea is sometimes challenged (e.g., Allen, 2013). Ironically, the challenges substantiate the dominance of conflict-oriented conceptualizations of story.

the experiences of dispossessed and disenfranchised communities so that people are seen as more than broken and conquered” (Tuck, 2009, p. 416). We recognize Tuck’s move to focus on Indigenous visions for the future, which for us relates to the idea of hope (or desire). Thus we see Tuck’s advocacy as important to our interest in focusing on hope in the consideration of storylines in Indigenous contexts, and, we add, contexts with new immigrants.

Tuck’s desire-based orientation relates to the concept of hope, which can be conceptualized in multiple ways. Hope is deemed as a necessity in contexts of tragedy and injustice. In this way hope is at once pragmatic and compulsive: pragmatic, because action requires hope, and compulsive, as an automatic response of being human. We make a distinction between active and passive hope (cf., Kim et al., 2021). Passive hope rests in something transcendent, something outside of one’s current interactions, outside one’s control. People have this transcendent hope when they believe that someone or something powerful will make things right—God, a hero (e.g., a president), a discipline (e.g., science), a collective (e.g., “the youth”), a system (e.g., democracy, capitalism), “humanity.”

We see passive hopes as enabling egocentrism, allowing people to pursue their wishes and leave social or environmental problems to others. Such transcendent hope may allow people to live contentedly, and not kill or attack their perceived enemies, but this hope also supports complacency and complicity with systems of oppression—misogyny, racism, unequal wealth distribution, environmental destruction.

Active hope, on the other hand, focuses on the immanent, the people and things present in a situation. We see two kinds of active hope, which we call personal responsibility and collective praxis. Personal responsibility hope is a “roll up your sleeves” hope—one sees a problem and fixes it. The problem with this kind of hope is that it cannot be depended upon for the larger

challenges, such as ecosystem destruction and xenophobia. Perhaps one could reasonably hope to combat xenophobia or ecosystem destruction on a micro-scale in one's community, but the greater problems would persist. The possibility of real change through the actions of many leads us to conceptualize collective praxis hope.

People exercise collective praxis hope when they live responsibly—consuming their fair share, caring for the people around them. One cannot believe that their responsible choices alone will avert climate crisis or the violence of xenophobia expressed in nationalism, sexism and homophobia. However, there is the sense that if enough people act responsibly in this way, this violence may be overcome. People can live with this hope even if they do not believe that enough people will act responsibly. Rorty (1999) described this kind of hope as romantic because it rests on a shared utopian dream. Halpin (2003) also highlights the collective agency that is necessary with hope. Rorty's and Halpin's description of hope aligns with praxis as described by Freire (1994), which we think of as collective praxis. The idea of collective praxis is important for our approach to pivoting storylines away from damage-centered orientations because a hope need not have a high probability of success in its immediate contexts of action. Success may, however, be possible with a widespread re-storying.

We see hope and negative alternatives as being very much the same thing, two sides of the same coin. Hope and fear are often dichotomized, but we see people using the distinction to characterize their approaches as positive and their antagonists as negative, while their antagonists too use the terminology of hope and fear to laud their own approaches. In other words, the words *hope* and *fear* are often interchangeable: one is chosen over the other on the basis of a value judgment.

Another antagonism for hope is despair. Despair connotes negativity and is generally considered an undesirable state of mind (Ali-Khan & White, 2020; Roberts, 2013). But rather than being about the identification of a problem, this pairing is about agency. Active hope refers to a readiness to engage with a problem, and feelings of despair reveal how we orient ourselves towards the unsolvable. When we confront overwhelming or insurmountable odds, we might come to experience what McKnight (2009) described as the “distinctive existential condition of despair” (p. 500). Despair may be motivated by a feeling that a problem is too powerful for our actions to make any impact, and/or by a feeling that our skills and knowledge are not up to the task of impacting the problem.

Like Roberts (2013), we suggest that recognizing, accepting, and working with despair is a feature of becoming educated. We are reminded of Greta Thunberg’s (2019) guidance in the climate crisis: “I don’t want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. And then I want you to act. I want you to act as you would in a crisis. I want you to act as if our house is on fire.” Any hope–despair combination is really about one’s orientation to a problem. It could be like a hope–fear combination with greater urgency, or heavier odds. It could drive one to passive acquiescence or to desperate action.

We identify storylines in these contexts and try to recognize what each one implies to be the conflict (or problem) within the story. We also identify actions which may be seen as embodiments of hope or desire, positioning them as alternatives to damage-centered ways of thinking. Then we consider whether the same actions could be done with a different conceptualization of the underlying problem. In other words, we look for ways that the storyline may be pivoted.

Pivoting

For us, the ultimate goal of storyline work is to redeem pathology-based storylines and thus provide bases for alternative ways to deem/identify the people at play in them. We suggest this can be achieved by identifying opportunities to pivot within a given storyline. The metaphor of the pivot connects us to basketball, which has specific rules about movement when in possession of the ball. As long as you continue dribbling the ball, you are free to move within the boundaries of the court. But the moment you stop dribbling, you must keep one foot planted on the ground. The grounded foot anchors the body to a fixed point, but the other foot is free to orient your body towards any direction. While a beginner to the game might feel stuck after they stop dribbling the ball, an experienced player knows how to pivot their body to face a more desirable path.

When we think about the possibility of pivoting in this way, we are careful to acknowledge the power and pervasiveness of storylines. Some storylines make us feel uncomfortable: the racism that underwrites the storylines about learners in Indigenous and migrational contexts is deeply rooted. We wish to re-story storylines, deem them differently than they may have been deemed before. But to do this, we must recognize the limits of our power to change them. This is where the dynamic conceptualization of storylines is important, as it draws attention to the influence of the actors within a given exchange. The choice of storyline is like the grounded foot of the basketball player who has stopped dribbling. While each person is now working within this storyline, they are not chained to a single orientation; instead, they can choose to pivot their bodies toward a new, desirable orientation.

We have rejected the idea of replacing old storylines with new, improved storylines because storylines are pervasive in society. People will use these storylines whether we reject them or not, so our preference is to pivot them.

Working with Storylines

Our analysis focuses on storylines identified to date from the Mathematics Education in Indigenous and Migrational Contexts project, which investigates educational possibilities and challenges within mathematics education in times of societal changes and movements. It documents the experiences of minoritized youth in Norway, with special attention to storylines. The first set of storylines were identified in a study of public news media (Andersson et al., 2022b). We use two of the seven identified storylines to illustrate our approach to deconstruction. The second set of storylines comes from interviews with school leaders (Andersson et al., 2022a): two dominant storylines were identified. We deconstruct storylines from each context to include ones that we found relatively inviting to pivot and ones that we found difficult to pivot.

Storyline: “extraordinary measures are needed to teach students from minoritized groups mathematics”

The first storyline we consider is identified in the media study as “extraordinary measures are needed to teach students from minoritized groups mathematics.” It identifies a problem: ordinary measures are not teaching students from minoritized groups mathematics. It also implies action: in order to teach students from minoritized groups mathematics, we need a novel approach. A damage-based orientation in this storyline positions students as a problem, where there is something missing in them that makes ordinary measures ineffective. We see this as the default orientation as it assigns blame to the powerless.

Pivoting invites us to re-think the problem identified in this storyline. Instead of assigning blame, we might instead ask questions about what is defined as an ordinary measure. Anytime someone refers to something as ordinary or normal, it raises questions about assumptions and dominant cultures. By positioning approaches as ordinary vs. extraordinary, we recognize the implicit conflict in this storyline pointing to tensions amongst culturally-embedded value systems. The problem is not that minoritized students cannot be taught mathematics, but that current teaching is not serving their learning needs.

A possibility for reorienting this storyline might be to question the use and meaning of *extraordinary*. By positioning students from minoritized groups as in need of extraordinary measures, they are positioned outside the ordinary. And while the intent of this storyline may be to reject appeals to universal measures for the teaching of mathematics, its effect might be to further stigmatize these students. We might promote the invocation of this storyline to highlight the importance of context, shared experiences, and cultural knowledge when teaching students mathematics.

Both types of active hope appear in this storyline, as it appeals to the possibility of adapting the current ways of teaching mathematics to minoritized students. While extraordinary measures might be achievable on an individual level, collective hope is needed for widespread change. In this we see the potential for despair, as an inability to transfer extraordinary measures from the personal level to collective praxis would result in a failure in mathematics teaching (recognized in students' failure to learn).

Storyline: “mathematics is language- and culture-neutral”

The second storyline we consider is identified in the media study as “mathematics is language- and culture-neutral.” This storyline does not identify a problem; instead, it suggests

passivity. If mathematics is indeed language- and culture-neutral, then we might infer that the teaching and learning of mathematics is similarly neutral. When someone invokes the neutrality of mathematics storyline, their action should be seen as an intervention that mitigates the power of something else. Someone may introduce mathematics into a problem situation to silence the power of culture or linguistic particularities, either to explicitly silence them or to do so implicitly.

It is more difficult to identify a dominant, damage-centered orientation in this storyline. The invocation of neutrality suppresses the urgency for action. But with any inaction, its significance lies in its context: a silent walk in the forest is different from choosing silence when something needs to be said. And so rather than identifying a problem that requires reorientation, this storyline raises questions about actions. By accepting the premise that mathematics is neutral, we may be predisposed to make assumptions about the neutrality of our pedagogical choices.

We see an opportunity for pivoting when we think about the ways our assumptions affect our actions. Mathematics could speak truth to power and support resistance against hegemonies, or it could be a weapon against already marginalized groups. Is mathematics used to transcend, to overcome, or to draw connections between language and culture? Each of these orientations could position mathematics as language- and culture-neutral, but the implications for action are distinct. Using mathematics to transcend or to overcome language and culture reflect a damage-centered orientation in this storyline. Transcending language and culture means to ignore it, and ignoring it may support existing hegemonies. Overcoming language and culture positions them as obstacles to overcome, evoking a deficit-based perspective to their relationship with mathematics. A desire-centered orientation might instead draw connections between

mathematics with languages and culture. This orientation acknowledges the potential power of mathematics to serve as a mediator in tensions among cultures and their values.

As we view this storyline as a choice amongst possibilities for action, we suggest that the storyline locates hope in mathematics. There are transcendent/passive aspects to this hope, as the discipline and its objectivity are trusted. As we have discussed, this type of hope can be dangerous. It removes personal responsibility and permits passive inaction. On the other hand, there are also immanent/active aspects of hope in this storyline. There is space for teachers to explore their assumptions about teaching mathematics and how this affects their choices in the classroom.

Storyline: “mother tongue teachers are important resources”

The third storyline we consider is identified in the study of interviews with school leaders as “mother tongue teachers are important resources.” This storyline description does not focus on a problem and is superficially suggestive of a more hopeful orientation. There is an acknowledgement of what is needed to strengthen the teaching of mathematics to students from minoritized groups without positioning the language repertoires of students as problematic. However, we characterize the initial orientation as damage-based because of its extractive undertones. The hope within this storyline is a passive hope. It seems that we must place hope in mother tongue teachers, abdicating personal and collective notions of responsibility.

But what is it that we expect mother tongue teachers to do? It might be that we hope for them to bridge the communication gap between students from minoritized groups and the ordinary or conventional ways of teaching mathematics. Similarly, it might be that we hope for them to undertake culturally-relevant approaches to the teaching of mathematics. It might be a hope that they will share their wisdom with teachers who do not speak the mother tongue(s) of

their students. But these passive hopes shift responsibility from one minoritized group, the students, to another, the mother tongue teachers.

Like the previous example that did not focus on a problem, this storyline is difficult to pivot. We need to go deeper to identify the problem that underpins this storyline. The problem might be that there are too few mother tongue teachers in schools, or perhaps there is insufficient collaboration between mother tongue teachers and their colleagues who do not speak the language. By identifying a problem, we can better think about our orientation towards it. In this case, we might pivot towards a collaborative approach to meeting the language needs of all students. It is important to resist the implicit shift of responsibility onto minoritized teachers and instead consider ways that everyone can contribute to a better solution.

Storyline: “students don’t (yet) have the basic language skills to build their mathematics language”

The fourth storyline we consider is identified in the study of interviews with school leaders as “students don’t (yet) have the basic language skills to build their mathematics language.” This storyline points to a deficit, and thus focuses on a problem. As with some of the storylines above, this storyline identifies skills that are apparently needed in order to learn mathematics. Related to the language and culture storylines, we expect that some of these skills are related to language, which raises questions about which languages, and what aspects/registers of the language: reading, speaking, listening, using mathematics registers, or using a particular language. Cultural skills may also be seen in deficit, though these may be harder to define: just about any skill could be seen as a cultural skill.

Pivoting invites us to re-think the problem within this storyline. Rather than viewing the students in deficit, we instead wonder how to build upon their existing skills. When we shift the focus from what students cannot do to instead explore the things that they can do, we resist the

pervasive pathologizing view of minority languages. A pivot asks us to think about which direction we face, and we can choose to orient ourselves towards what students *can* do. This orientation helps us to explore ways languages can be viewed as resources rather than obstacles. The problem in this storyline reflects the tensions between dominant and minority, where we ask whose mathematics is privileged, which skills are preferred and by whom.

We see the potential for active hope in this storyline. Language and culture are located as potential sources for hope, as supports for learning mathematics. However, here we caution that hope and fear go together. Certain language and languages can be a support and other language and languages could be pathologized. Certain cultural practices may be positioned as positive and thus positioning other cultures and their practices as negative. The damage-based portrayal of language and culture may consider the current knowledge and practices of students and also the regions and cultures they come from. Thus, the questions this storyline raises direct us to significant concerns about potential negative stereotyping.

Discussion

As we worked through identifying pivot points within these storylines, our conceptualization of the pivot shifted. We began with our heads down, focusing on where we grounded our planted foot within each storyline. As we questioned whether we were grounding a pivot in hope, action, or conflict, we moved further away from dynamic possibility. It was only once we began embodying the pivoting movement while holding an imaginary basketball that we discovered the importance of keeping our heads up. Pivoting is not about focusing on the placement of one's feet; instead, it is about shifting your body towards the basketball net, an open teammate, or empty space that offers a moment to pause and think. Whether in sport or in

theorizing, a pivot helps us to resist feeling stuck. It opens up new possibilities as we imagine and enact our next steps.

We recognize that our deconstruction of the storylines in this paper depends very much on how they were depicted in the research reporting. This raises questions about how researchers might characterize storylines most constructively. We see an opportunity for researchers to consider how storylines are at once dynamic and stable, universally recognizable but individually experienced. When we adopt a relatively static or fixed conceptualization of storylines, we risk engaging in a process of dehumanization. Storylines are about people, dynamic, flawed, and hopeful people. Within these storylines are potential pivot points that reveal multiple possibilities for action. We think that storyline depiction should both recognize the dominant orientation of the storyline while also making possible a pivot from damage-based to desire-based action.

Identifying elements within storylines that invite reorientation may not come as naturally as seeking ways to “fix” the problem. We do not propose reconfiguring or rejecting the above storylines. Instead, we invite a re-examination of lived storylines to construct alternatives within them. We need to resist the temptation to slip into familiar and damaging narratives “that fit so comfortably they may even conceal possibilities of choice” (Moghaddam, 1999, p. 78), and framing storylines so that pivot points are available can help. When we work within storylines, we may not be able to rewrite them; however, we do have the power to reshape, redefine, and reimagine them.

There are challenges with thinking about pivoting within storylines. A question that emerged in our deconstructions is which storylines are the most ripe for pivoting. As we worked through deconstructing the storylines and identifying pivot points, we noticed how storylines that point towards problems are the ripest for pivoting. It is easier to think of our orientation towards

a problem than it is to recognize our orientation towards a seemingly neutral observation. The storylines rooted in conflict allow for multiple ways of engaging with or resolving the conflict, and thus diverse orientations. Storylines rooted in hope make pivots in orientation more difficult. They do, however, allow for various orientations in the specificity of the action: trust in mathematics doesn't say which mathematics. For scholarship that aims to *identify* storylines, the question is most problematic because we see the choices on how to describe the story as already orienting the story, and thus political. We would recommend acknowledgment of the political values that motivate the identification of storylines as the research describes the pathologization that may be possible with the storyline and also the possibilities for redemption.

Finally, with our theorization of the romantic hope of collective praxis, we recognize that one cannot solve problems on one's own (Rorty, 1999). For the questions and hopes raised in our deconstruction of storylines, we ask what else needs to be in place for the hope to be realized. And we consider what mathematics educators may do to support these hopes. We see some hope in pivoting with and reorienting storylines, but we also want to think about other actions that are necessary to accompany such redemption of the stories. What battery of actions is needed for supporting the desires and hopes of subaltern students, and making the necessary changes stick?

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