Mathematics is Like "iron chickpeas": An Upcoming Researcher's Reflexive Storylines

Shanthi Pasanha,
shanthi.g.pasanha@usn.no
University of South-Eastern Norway

Abstract

This paper critically reflects aspects of my positionality, as a PhD student, conducting participatory research. These reflections are from my experiences in the past as a student, a mathematics teacher, and currently as an upcoming researcher. My research focuses on minoritized students' mathematical experiences and storylines. In the process of learning how to identify the storylines, I need to identify my storylines as they impact my research. The data for this research includes transcripts from an interview, feedback from a math teacher with whom I am collaborating for my project, and my experiences and field notes from the introductory mathematics classroom. The concepts of positioning, positions, storylines, and socio-political power relations will be used as a guide to identifying storylines from my experiences. Three storylines will be discussed in depth—namely, Positioning as a mathematics teacher in society is a prestigious thing; Mathematics is tough like an iron chickpea, and one should work hard to become good at mathematics; and Researchers actively taking part in teaching activities would be a great resource for the students and help the researcher get more perspectives from students.

Denne artikkelen reflekterer kritisk aspekter ved min posisjonalitet, som doktorgradsstudent, med deltakende forskning. Disse refleksjonene er fra mine erfaringer tidligere som en student, matematikklærer og for tiden som kommende forsker. Forskningen min fokuserer på minoritet elevers matematiske erfaringer og storylines. I prosessen med å lære å identifisere storylines, må jeg identifisere mine storylines ettersom de påvirker forskningen min. Dataene for denne forskningen inkluderer utskrifter fra et intervju, tilbakemeldinger fra en matematikklærer som jeg samarbeider med for prosjektet mitt, og mine erfaringer og feltnotater fra et introduksjonsklasserommet. Begrepene posisjonering, posisjoner, storylines og sosiopolitiske maktforhold vil bli brukt som en veiledning for å identifisere storylines fra mine erfaringer. Tre storylines vil bli diskutert i dybden, nemlig, Posisjonering som matematikklærer i samfunnet er en prestisjetung ting; Matematikk er tøft som en jernkikert, og man bør jobbe hardt for å bli god i matematikk; og Forskere som aktivt deltar i undervisningsaktiviteter vil være en stor ressurs for studentene og hjelpe forskeren med å få flere perspektiver fra studentene.

Keywords: Self-Reflexivity, Positionality, Storylines, Mathematical Experiences, Culturally Shared

Introduction

This paper aims to explore the researcher's positionality when doing participatory research by identifying storylines from their experiences. Storylines are locally constructed narrative conventions (Harré & Van Langenhove, 2010) or compendiums of the ongoing social episode (Hirvonen, 2016) which tell the essence of the episodes and can be expressed in a single sentence. The storylines influence the questions asked, data gathered, their interpretations, and how one filters

the detail of each piece of information, giving characteristics to a research product (Foote & Bartell, 2011; Simanjorang et al., 2020). Storylines are also compared to myths or stories (Wagner, 2019) which people use to interpret their experiences. Critically reflecting on one's life experiences, especially those related to learning and teaching mathematics, is essential, as they pave the path for the research journey in the mathematics education research field. This is because for mathematics education researchers, as with all researchers, life experiences impact the positionality they bring to their work. The researcher's positionality depends on the insider or outsider status, race, gender, class, personal biography, etc. (Sengupta-Irving, 2021; Young, 2005). Also, Madison (2012) reminds us that we bring our belongings into our field, including researchers' personal experiences and epistemologies of how we belong with others and for others. Paying attention to one's belongings, storylines, epistemologies and their impact is necessary to better understand research outcomes.

A key aspect of reflexive storylines is self-reflexivity. Self-reflexivity is self-understanding. It allows the writers to present their understanding of how they want to be represented (Denzin, 2006) and how they want to represent the participants in a comprehensive, respectful manner that matters in the empirical context (Andersson & le Roux, 2017). For instance, Davies (2008) highlights that "we cannot research something with which we have no contact, and all researchers are to some degree connected to, part of, the object of their research" (p.14). Employing the concept of self-reflexivity enables the understanding of presenting experiences and critically reflecting on them. It also provides an opportunity to utilize the data about the self and its context to understand the connectivity between the self and others within the same context (Knapp, 2017; McIlveen, 2008; Ngunjiri et.al., 2010). Self-examination, in my view, can lead a researcher to look through his/her own experiences, reflect on them and apply those reflections in actions in their research writing in such a way that the participants are not considered just objects but the co-constructors of knowledge in the research process.

My values, beliefs, and attitude toward mathematics result from my experiences during my student life. Understanding those beliefs, attitudes, and values that influence researcher positionality (Foote & Bartell, 2011) and knowing how they guide my research behavior depends on my ability to reflect or even be aware of my life experiences. Additionally, analyzing my positionality is vital as it forces me to acknowledge my power, privilege, and biases as I address the power structures surrounding my subjects; minoritized students in Norway. This paper aims to recognize and identify storylines from my own experiences that might influence my positioning of my participants and vice versa, and hence help me realize how those storylines impact my interpretations of my participants' storylines and positionings.

The research questions are as follows:

- What storylines can I identify from my experiences as a student, mathematics teacher, and currently a PhD student?
- How might these storylines impact my interpretations of newly migrated immigrants' storylines and positionings?

In the title, I refer to mathematics as "iron chickpeas", which is a metaphor used widely in the Southern part of India. Unprocessed chickpeas are hard to chew, and they need to be soaked in water for at least 24 hours before cooking them in the pressure cooker to be softened. During my childhood days, fried or dry roasted chickpeas were also eaten as savory food. It is also an important protein resource that was easily accessible during that time. Likewise, many people in India consider mathematics a difficult and hard subject, like chickpeas. Imagine the chickpeas that are made of iron! I assume that the metaphor of mathematics referring to chickpeas might be related to their importance and availability during the time of no fast food, and hermetic food. Thus the story relating mathematics to chickpeas goes way long back in time which is shared culturally and still exists. One can hear this metaphor in mathematics classrooms.

Mathematical Power and Positioning in Socio-Political Settings

Mathematics education is social and political in practice (Gutiérrez, 2013; Valero & Zevenbergen, 2004; Valero, 2007). The practice is social because mathematics education is historically constituted in complex systems such as the classroom, the school, the community, the nation, and even the globalized world. In addition, it is an intermesh of multiple mathematical contexts such as mathematics assessment, policy, mathematics teacher development, mathematics education research, etc. (Andersson & le Roux, 2017; Valero, 2007). The act of teaching and learning takes place in socially constructed environments that are embedded in a broad network of practices. These practices influence creating and recreating policies at national and international social and cultural conditions that demand the actions in the field, such as textbook production, teacher education, and the labor market (Valero, 2007), but also the development of different mathematical resources such as artifacts, learning websites, that are used within the classrooms.

Mathematics education research practice is political because there is an exercise of power in social relations (Andersson & le Roux, 2017; Valero & Zevenbergen, 2004; Valero, 2007). According to these authors, the term political refers to power and how it is used in different situations and relations, which can be transformed as we participate in research practices. Andersson and le Roux (2017) call it macro-level in the broader context, for example, at national and institutional levels. These macro-level research practices affect our results and publish writings to the wider network of the mathematics education field. Micro-level power practices include research in mathematics classrooms, including data collection (class observation, interviews, field notes), data analysis, and interpretation of the data by the researcher.

As an educational researcher, I must be aware of the power relations in socio-political practices that position researchers and participants. I need to be mindful of the positionings that happen during the participant–researcher interactions, such as during interviews, class observations, and micro-level discursive events that take place in the classroom (Anderson, 2009), but also during

the analysis and writing stages (Andersson &le Roux, 2017). Thus, as a researcher, I consistently need to address my positionality (Davies, 2008; D'Ambrosio et al., 2013), be aware of the importance of showing what ideologies I bring to the research process and be transparent about my socio-political views (D' Ambrosio et al., 2013, Valero, 2007). Researchers who openly write about their positionality also make it easier for the reader to understand their ethical actions while conducting qualitative research.

Positionings and Storylines

The word positioning is used to describe the patterns of how people experience interactions with others (Herbel-Eisenmann et al., 2015). These interactions could be interpersonal or at a classroom level (Esmonde, 2009) and intrapersonal when one reflects on one's own experiences (e.g., Knapp, 2017; Melid, 2017; McIlveen, 2008), providing meaning to the actual interaction that develops during each interaction (Tirado & Galvez, 2007). There can be interactive positioning in which one person positions another and reflexive positioning in which one positions oneself (Davies & Harré, 1990). There can be a variety of positionings as people interact; however, in this paper, I will focus more on my reflexive positioning as I am focusing on my positionality as a researcher in mathematics classroom settings.

Storylines are the ongoing repertoires (stock of stories or narratives) that are already shared culturally or invented as participants interact (Herbel- Eisenmann et al., 2015, p.188), locally constructed (Harré & Van Langenhove, 2010) or culturally shared common-sense narratives that function as backdrops for any communication (Andersson et al., 2022). Storylines in my opinion are the essence of the episodes or narratives, that can be captured in a single sentence. A sentence that can tell a culturally shared or locally invented story of a whole discussion or an episode that leads the communication. The sentence you call a storyline might lead you to take certain actions in life. On the other hand, by identifying the actions from your life you might be able to identify those narratives or stories that have impacted or are impacting regularly, making you take different

positions. There could be multiple storylines in one discursive practice and numerous positions and positioning (Herbel- Eisenmann et al., 2015) that could also happen in a single episode.

Reflexivity

Reflexivity in research includes multiple meanings but primarily concerns research methodology and ethics issues. According to Whitaker and Atkinson (2021), methodological reflexivity is the relationship between the methods and the phenomena they describe.

> Reflexivity refers to the inescapably reactive nature of any research intervention. The research methods used will reflexively shape the kinds of phenomena that are identified, classified, and measured… It is not just the property of some methods rather than others and not a matter of reflecting on those methods and their application. It is the actors' reflexive consciousness, being aware of themselves as subjects and as objects of others' awareness, in other words, actors' capacity to experience both the self and the other (Whitaker & Atkinson, 2021, pp.37-43).

Some researchers like Reed-Danahay (2017) present Bourdieu's ideas about reflexivity saying, "a reflexivity is a methodological approach in which one critically examines one's own position within the field of academic production—not in order to be more objective and less subjective, but rather to understand the false distinction between these two categories" (p.147). Whereas, Davies (2008) mentions reflexivity as a means of turning back on oneself, a process of self-reference. In addition to that, Milner (2007) provides a framework for the researchers to guide them in working through seen, unseen and unforeseen dangers in the research practice of their inquiry. The framework includes guidelines for researchers namely, researching the self, researching the self in relation to others, engaged reflection and representation, and shifting from self to system.

Reflexivity, in my view, is looking back at my own experiences and reflecting on how these experiences affect research writing. Along with the reflections it also includes how I am differentiating my voice from my participant's voices and bringing forth their knowledge in my research writing. Thus, avoiding any dangers that occur due to not paying attention to participants' cultural and racial systems of knowledge.

Data for This Paper

The data collected comprises three parts. The first (described below in section 4.1) is from the interview conducted by two researchers from the project "Mathematics education in Indigenous and Migrational context" (MIM), who are not my supervisors. Since my PhD is part of the same project and I am an immigrant to Norway and a mathematics teacher, I was asked to be interviewed by the researchers in the MIM project. The interview was conducted to know my mathematical experiences and I was permitted to use the transcribed interview as a part of the data. The second part of the data (section 4.2) is from the self-written narratives I experienced as a student. The third part of the data (section 4.3) is from my PhD research project, where I performed participatory research. The data presented is the feedback obtained from the teacher I am collaborating with on the project and my field notes from the observation.

Identification of Storylines

To identify storylines from my experiences I use the definition of storylines as mentioned above. I focus on what is *culturally shared* and *locally constructed* (Herbel-Eisenmann et al., 2015) and what is *invented* as I unfold my experiences. I will focus on certain forms of actions (Andersson et al., 2022), the verbs that describe the actions in my narratives. The *actions that have taken plac*e and *those still take place in my life* are due to these culturally shared or locally constructed narratives, which I call storylines. I will critically reflect on these narratives to see how the sentence I name as a *storyline* reveals the stories of my life's episodes and makes me take different positions while I was a student, a teacher, and now a researcher, as Andersson et al., (2022) highlight the concept storylines radically focuses on the experiences of and available choices for individuals in particular contexts.

Analysis

Positioning as a Mathematics Teacher in the Society

As mentioned in the "Data for This Paper" section, I was interviewed for the MIM project I am a member of. The researchers interviewing me asked, *why did I choose to become a mathematics teacher*? Why actually did I decide to become a mathematics teacher and not anything else? This question provoked my thinking. While in India, I was a mathematics and science teacher. However, I had to work my way for eight years in Norway to become one. When this interview was conducted, there was no plan to write a paper on my mathematical experiences, and the purpose of the interview was to use this data for the MIM research project. The question that provoked my thinking, made me use the interview data for this paper. Here I present my answer to the question:

> If I go back to my younger age when I finished my bachelor's, first I wished to become a nurse, but because of my economical background, I needed to get a job as fast as possible. The teacher education was for a shorter duration. It was a one-year course after my bachelor's education. and I didn't have a father and my elder brother suggested that maybe I should go to the teacher education (…). You would get a job easily and because there are a lot of requirements in the school so... that's how I started the journey. But then I didn't think about going to be a math or science teacher, but my education background was from a science background where I had major subjects in physics, chemistry, and mathematics. So, physics and mathematics became my major subjects afterward. (MIM interview, October, 2021)

There was a culturally shared story that said *there is a great demand for mathematics teachers in society* while I was studying in college. According to my family, working as a teacher was the safest thing for women. I agree that I needed a job to be an independent woman. But as a woman, when I was economically dependent, I had to adapt to the positions the family and society had already set for me, which is to follow the suggestions given by the elders. Also, women having a degree in mathematics was prestigious when I was young, and it was easier to get a husband if you are a teacher, especially a mathematics teacher. I considered that status representing myself as a mathematics teacher, thinking it would be easier to get a well-established educated husband.

Thirteen years ago, when I came to Norway, I tried to continue my job as a teacher, but it was not an easy task due to the language barrier. Now I ponder why I didn't give up on becoming a mathematics teacher. I learned the Norwegian language and took higher education to fulfill the credits, but I still failed to get a job. Even though it was depressing, I later managed to become a teacher in Norway. Reflecting on my struggles when trying to become a mathematics teacher in Norway, I heard similar stories from my Norwegian friends, saying Norway needs mathematics and science teachers. When searching for a job through NAV (Norwegian Labour and Welfare agency), I was told that Norway needs mathematics teachers, and I just had to learn the Norwegian language.

Both in India and Norway, I heard similar stories stating that there is a demand for mathematics teachers in society. Maybe I have liked these stories saying mathematics teachers are important for society. I felt good being represented as a mathematics teacher, and I continue to do so. I see that it is a culturally shared story both in India and Norway, and I assume it is a global story too. Maybe the status and prestige of being a mathematics teacher still impact me. However, when I critically think and recall my teaching experiences, I admire and appreciate my old students' positive comments, stating they enjoyed learning mathematics with me. Remarks such as these are what I presume keeps me motivated. So, the story that motivates me is the position of being a mathematics teacher in society and the privilege and prestige that comes with it. It is a globally known but locally constructed implicit story; therefore, I call it a storyline. Hence, I name the storyline as follows: *Positioning as a mathematics teacher in society is a prestigious thing.*

Mathematics is Like an Iron Chickpea

In this episode, I reflect on my self-written narrative about how I perceived my mathematics teachers as a student in primary, secondary, and upper secondary schools. I write about the teachers because their attitudes, teaching methods, and behaviors might have influenced me to develop an interest in the subject as I was growing up to become a teenager.

> I remember my mathematics teachers appeared strict and disciplined or orderly during the mathematics lessons. They were demanding when it came to homework and related mathematical tasks. As a student, I greatly respected them, especially those who were strict, competent, and had a good reputation in the school, but I was also afraid of them. I do not remember asking them any questions about the lessons. I was scared they would tease me and scold me for not knowing or making mistakes. I remember them mentioning mathematics is like "iron chickpeas" and one needs to work hard to digest it (to understand and apply it to other contexts). Today, when I look back, I feel that those impressions have also made me one of such kind, a disciplined, structured, and strict teacher who is trying to be good at teaching mathematics (Self-written narrative, March 2022).

I must agree that I have become a disciplined, strict, and dedicated teacher in mathematics. I approve of my claims because many students have identified me as that. They told me that I looked serious and strict in the classroom. Those claims were also approved by one of my teacher guides when I was doing my teaching practice in Norway. I often ask myself why did I become like that? What has made me like that? In my opinion, the fear of others considering me inadequate or suboptimal at mathematics or making mistakes scares me, which might make me look serious in the classroom.

How many times might I have told my students that mathematics is similar to "iron chickpeas" and they had to work hard to become good at it? Positioning mathematics as a difficult subject is already set in my mind from my early student life. I might unknowingly imply these ideas into my student's minds, making their learning even more difficult. So, the culturally shared concept of mathematics being similar to iron chickpeas is implicitly and explicitly influencing me. Therefore, I always feel that I must prepare well and know everything that I am teaching during the lessons. The actions I identify here are preparing well, getting scared, looking serious, and getting tense due to culturally shared stories influencing me. Therefore, I name the storyline: *mathematics is tough like an iron chickpea, and one should work hard to become good at it.*

Researchers Actively Taking Part in Teaching Activities

This is the feedback obtained from one of the mathematics teachers (A) with whom I am collaborating in an introductory program in a secondary school. (My English translations appear in parentheses.) I asked the teacher:

01 Shanthi: Kan du fortelle litt om hvordan du følger om min deltakelse i timene dine? (Can you tell me how you feel about my participation in your mathematics classes?
02 LærerA : Vil du ha det nå? (Do you want it now?)
03 Shanthi: Ikke akkurat nå, men når du har tid til det (Not now, but whenever you have time)
04 LærerA: Ja, jeg kan gjøre det i neste uke (Yes, I can do it in the next week)

> Shanthi (a week after sent an email to the teachers): Jeg skriver dette for å be hjelp fra dere. Jeg skriver en artikkel om meg selv for å reflektere over min deltakelse i mattetimene. Jeg trenger tilbakemelding fra dere om min tilstedeværelse i mottak og spesielt i mattetimene.
>
> (I am writing this to ask for help from you. I am writing an article about myself to reflect on my participation in mathematics lessons. I need feedback from you about my presence in the introductory program, especially during mathematics lessons.)
>
> Lærer A: Du har variert litt mellom å observere "på avstand", samtale med enkeltelever eller gruppe av elever, og delta mer aktivt i undervisningen med kommentarer eller forklaringer i plenum. Jeg synes det er bra at du varierer på denne måten, og ikke låser deg til en rolle. Da tror jeg du vil få flere inntrykk og flere perspektiver. Fra mitt perspektiv er det likevel mest nyttig når du tar en mer aktiv del i undervisningen, slik at du i praksis fungerer nesten som en støttelærer. Det kunne jeg tenke meg at du gjør mer av, fordi det er en stor ressurs for eleven. (19.March 2022)
>
> (You have varied a bit between observing “at a distance”, talking to individual students or groups of students, and participating more actively in the teaching with comments or explanations in plenary. I think it’s good that you vary in this way and do not lock yourself into a role. Then I think you will get more impressions and more perspectives. From my perspective, however, it is most useful when you take a more active part in the teaching so that you act almost like a support teacher in practice. I would like you to do more of that because it is a great resource for the students.)

This is one of the teacher’s opinions on what she wants me to do during the participatory research. I understand the teachers’ needs, which I also felt when working with the same group. The mathematical competencies of these students vary from first-time school-going to having eight to ten years of schooling background. From teacher (A)’s comments, I can highlight the need for action, i.e., the researcher being an active participant like a supportive teacher. This is the locally constructed storyline as both the teacher (A) and I have experienced the same when working with newly arrived migrant students.

Also, I think that mathematics education research should collaborate with teachers, and they need to be included actively in our research process. Researchers, rather than being passive

observant in the classroom, must actively participate in classroom activities that might help both the teacher and the students. I call it a storyline because it is a locally constructed story that arises from the participants, and it may be the research culture that has paved the way for this storyline. Therefore, I name the storyline*: researchers actively taking part in teaching activities would be a great resource for the students and help the researcher get more student perspectives.*

The above transcript made me think about how I should position myself in the classroom. In participatory research, it is important for the researcher not to become a "fly on the wall' but actively participate in classroom activities in collaboration with the actors in the classroom if the teacher and school leaders want this. However, I am also wondering what would happen if I completely accepted the support teacher position! Will the students consider me as one of their insiders, or will I forget my own identity as a researcher and miss those moments I would have captured as an outsider observer? This is important for me to reflect on as I negotiate my multiple positions in research and how that will shape my research outcome.

Discussions

In the above section, I have identified three storylines from my experiences as a teacher, student, and finally as a researcher. They are:

1. *Positioning as a mathematics teacher in society is a prestigious thing.*
2. *Mathematics is tough like an iron chickpea, and one should work hard to become good at mathematics.*
3. *Researchers actively taking part in teaching activities would be a great resource for the students and help the researcher get more perspectives from students.*

The storylines I identified above derive from my cultural background and experiences. Herbel-Eisenmann et al., (2015) highlight that "when we analyze data, we can only interpret what we see through our cultural background and experiences" (p.200). If I push myself to identify more storylines, I can find multiple positionings and storylines in my experiences, but for this paper, I will focus only on these three.

Positioning *Mathematics* as a Superpower

The position of *mathematics* (emphasis added) as an important and dominant subject places it as a superpower (Valero & Zevenbergen, 2004). I think positioning mathematics as a privileged subject is also a worldwide phenomenon. Comparing mathematics to *iron chickpeas* (*kabbinada kadale* in the Kannada language) is a common saying, at least in the Southern part of India where I lived and worked before moving to Norway. The practices of placing mathematics as an important and powerful subject in society are constantly created through a broad network of history in social, cultural, and political conditions (Valero, 2007) because they are implicated by the distribution of power in society. This is the circulation of power, as Andersson and le Roux (2017) highlight, at the macro level, i.e., at the social level, and at the micro level in the school and personal settings level, which occurs on a regular basis.

My storyline of *positioning a mathematics teacher in society as a prestigious thing* may have benefited me as it motivated me to continue as a teacher. However, I might impose the idea of *mathematics as a powerful and prestigious subject* on my students, indirectly putting them in danger. The unseen danger (Milner, 2007) which is hidden, covert, implicit, and invisible, puts pressure on students to work extra hard to do better in mathematics to secure a good job opportunity in the future. The idea that mathematics is an important subject, and prestigious subject could cause anxiety, and mathematical trauma (Lange & Meany, 2011) making students more vulnerable in the subject. There is no doubt that mathematics is an important subject for the day to day life and it brings honor and value to the life. However, the unforeseen dangers (Milner, 2007) could be that the culturally shared storylines such as *mathematics is like iron chickpeas,* and *positioning mathematics as a powerful subject in society* could invite the parents to think and do the same, and eventually pressure their children to work hard and to achieve that power and prestige in life.

Insider/Outsider Researcher Role

I am an insider when I was a mathematics teacher in the same school as teacher (A) before I started my research. Also, I have a migrant background; I learned the Norwegian language like migrant students in the classrooms and talked like a migrant. This is an advantage in my research but needs to be acknowledged and written about reflexively. The 'insiderness' (Young, 2005) experience will help me to see the problems from an insider view. For example, when the teacher asks the student to solve a problem and asks "har dere noen forslag for Hvordan å løse denne oppgaven?" (Do you have any suggestions on how to solve this problem?). I hear at the back, students asking each other, hva betyr *forslag*? (what is 'a suggestion'?). For a mathematics teacher, the focus is on teaching and learning mathematics; however, I hear in the small discussion of students struggling to understand the meaning of the word *forslag*. So being an insider is a positive thing as their experiences of learning language and mathematics hand in hand resonates with my own experiences.

At the same time, I am also an outsider because I do not know many of the students' mother tongues, cultures, and backgrounds. I have to talk to them in Norwegian or English, which also is a foreign language for me. Also, I am no longer working in the school, and students see me only once a week and not as their mathematics teacher. My overlapping personae (Young, 2005), as both a researcher and a migrant teacher, sometimes make it challenging to understand where I position myself.

I recall one episode when a mother tongue assistant teacher was present in the classroom. I was explaining to one of the students how to solve a problem about finding the area and perimeter of a combined figure of a square and a triangle. Next, the assistant also explained the same problem in the student's mother tongue. After some time, when I went back to check on the student to see if he had finished the problem, I realized that the student did it differently, missing some aspects. When I asked the reason, the student replied that it was how the assistant explained it. So, I had to

explain why it was not correctly solved and what the problem asked. This episode made me think carefully about the power circulation of being a 'researcher' and 'support teacher' and the power of having access to a student's mother tongue and mathematics simultaneously. I am still wondering: did I position the assistant mother tongue teacher as not knowing mathematics? What impression might a student have got about the assistant? Did I try to become a good and competent math teacher in that situation? Or did the storyline of positioning myself as a good mathematics teacher still influence me? I keep thinking about these questions every time I enter the classroom, to avoid a similar situation.

Conclusion

Davies (2008) refers to reflexivity as "the ways in which the products of research are affected by the personnel and process of doing research. These effects are to be found in all phases of the research process from the initial topic selection to final reporting of results" (p.15). In this paper, I tried to reflect on my narratives and on the participant teacher's narratives to identify the storylines. I identified three storylines from my experiences. As I reflect on the storyline *Positioning as a mathematics teacher in society is a prestigious thing*, I see that this storyline is not just mine, but is influenced by the social and political mathematics education practices (Valero, 2007). Positioning mathematics as a dominant subject in society automatically positions mathematics teachers and educators in that privileged position which can eventually be reflected in our actions in the classroom damaging learning opportunities for many students.

As I introspected the storyline, *Mathematics is tough like an iron chickpea, and one should work hard to become good at mathematics;* I am encouraging readers to reflect on how they think about mathematics, and many may agree with this storyline. However, I should be mindful of using the words *difficult*, *hard*, *iron chickpea*, etc. which might cause deficit meanings in readers' minds. Andersson and le Roux (2017) remind us that the wording we use in our writings to present our results might reproduce the existing stereotypes and do harm in the field of mathematics education.

As I reflect on the storyline of the *researcher's actively participating in the teaching activity*, I realised that listening to participant teachers' and students' feedback is vital for the research. I learned that a researcher can do more than sit and observe the participants. The researcher can help in co-constructing the mathematics knowledge. I see that I have evolved in my thoughts, beliefs, and in my attitudes as I unfold my mathematical experiences. I see myself changing positions accordingly to adapt to new ways of thinking and I must continue doing it during the entire research process.

Implications

This paper helped me perceive how storylines affect me and how they might influence my research writing outcomes. I realized how I contributed and continue to contribute to positioning mathematics as a powerful subject through my teachings and my research writings. If every researcher in the mathematics education field can think about their own mathematical experiences and try to identify the storylines that influence their research, it will help them not to position mathematics as a powerful subject but as a subject that every student can learn and enjoy. The other thing is that the concept of the storyline is still under development. As I started unfolding storylines from my experiences, I realized that I had to zoom out from my experiences and look at the broader picture of what was affecting my life and again zoom in to see what the storyline was. So, my actions helped me identify what story was causing those actions, which I named storylines. These positionings and reflections warrant further investigations as part of the MIM project.

Acknowledgment: I would like to thank my supervisors Annica Andersson and Beth Herbel-Eisenmann for guiding me in writing this paper and Sneha Pinto for helping me with the language.

References

Anderson, K. T. (2009). Applying positioning theory to the analysis of classroom interactions: Mediating micro-identities, macro-kinds, and ideologies of knowing. *Linguistics and Education*, *20*(4), 291-310. https://doi.org/10.1016/j.linged.2009.08.001

Andersson, A., & le Roux, K. (2017). Troubling writing about and with the other in mathematics education research: developing an ethical writing attitude. *Journal of Urban Mathematics Education*. *10*(1), 74-94.

Andersson, A., Ryan, U. Herbel-Eisenmann, B., Huru, H. L., & Wagner, D. (2022). Norwegian news media texts addressing mathematics education and minoritized groups. *Educational Studies in Mathematics*, *111*(2), 323-343.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). Routledge.

Davies, C. A. (2008). *Reflexive ethnography: A guide to researching selves and others* (2nd ed.). Routledge.

Davies, B., & Harré, R. (1990). Positioning: The discursive production of selves. *Journal for the Theory of Social Behaviour 20*(1), 43–63. https://doi.org/10.1111/j.1468-5914.1990.tb00174.x

D'Ambrosio, B., Frankenstein, M., Gutiérrez, R., Kastberg, S., Martin, D. B., Moschkovich, J., Taylor, E., & Barnes, D. (2013). Positioning oneself in mathematics education research. *Journal for Research in Mathematics Education*, *44*(1), 11-22. https://doi.org/10.5951/jresematheduc.44.1.0011

Denzin, N. K. (2006). Analytic Autoethnography, or deja Vu all over again. *Journal of Contemporary Ethnography*, *35*(4), 419-428. https://doi.org/10.1177/0891241606286985

Esmonde, I. (2009). Mathematics learning in groups: Analyzing equity in two cooperative activity structures. *Journal of the Learning Sciences*, *18*(2), 247-284. https://doi.org/10.1080/10508400902797958

Foote, M. Q., & Bartell, T. G. (2011). Pathways to equity in mathematics education: How life experiences impact researcher positionality. *Educational Studies in Mathematics*, *78*(1), 45-68. https://doi.org/10.1007/s10649-011-9309-2

Gutiérrez, R. (2013). The Sociopolitical turn in mathematics education. *Journal for Research in Mathematics Education*, *44*(1), 37-68. https://doi.org/10.5951/jresematheduc.44.1.0037

Harré, R., & Van Langenhove, L. (Eds) (2010). Varieties of positioning. In *People and Societies: Rom Harré and Designing the Social sciences* (pp. 106-120). Routledge.

Herbel-Eisenmann, B. A., Wagner, D., Johnson, K. R., Suh, H., & Figueras, H. (2015). Positioning in mathematics education: Revelations on an imported theory. *Educational Studies in Mathematics*, *89*(2), 185-204.

Hirvonen, P. (2016). Positioning Theory and Small-Group Interaction: Social and Task Positioning in the Context of Joint Decision-Making. *Sage open*, 1-16.

Knapp, M. C. (2017). An autoethnography of a (reluctant) teacher leader. *The Journal of Mathematical Behavior*, *46*, 251-266. https://doi.org/10.1016/j.jmathb.2017.02.004

Lange, T., & Meaney, T. (2011). I actually started to scream: Emotional and mathematical trauma from doing school mathematics homework. *Educational Studies in Mathematics*, *77*(1), 35–51. https://doi.org/10.1007/s10649-011-9298-1

Madison, D. S. (2012). *Critical ethnography: Method, ethics, and performance* (2nd ed.). SAGE.

Milner, H. R. (2007). Race, culture, and researcher Positionality: Working through dangers seen, unseen, and unforeseen. *Educational Researcher*, *36*(7), 388-400. https://doi.org/10.3102/0013189x07309471

McIlveen, P. (2008). Autoethnography as a method for reflexive research and practice in vocational psychology. *Australian Journal of Career Development*, *17*(2), 13-20. https://doi.org/10.1177/103841620801700204

Ngunjiri, F. W., Hernandez, K. C., & Chang, H. (2010). Living autoethnography: Connecting life and research. *Journal of research practice*, *6*(1), 1-17.

Reed-Danahay, D. (2017). Bourdieu and critical Autoethnography: Implications for research, writing, and teaching. *International Journal of Multicultural Education*, *19*(1), 144-154. https://doi.org/10.18251/ijme.v19i1.1368

Sengupta-Irving, T. (2021). Positioning and positioned apart: Mathematics learning as becoming undesirable. *Anthropology & Education Quarterly*, *52*(2), 187-208. https://doi.org/10.1111/aeq.12378

Simanjorang, M., Taylor, P. C., & Ledger, S. (2020). Learning to teach from the student's point of view: An ethical call from transformative learning. *Reflective Practice, 22*(1), 47-59. https://doi.org/10.1080/14623943.2020.1821628

Tirado, F. & Galvez, A. (2007). Positioning theory and discourse analysis: Some tools for social interaction analysis. *Forum: qualitative social research 8*(2), 31.

Valero, P., & Zevenbergen, R. (2004). Socio-political perspectives on mathematics education. In *Researching the socio-political dimensions of mathematics education: Issues of power in theory and methodology* (pp. 5-23). Kluwer academic publishers.

Valero, P. (2007). A socio-political look at equity in the school organization of mathematics education. *ZDM*, *39*(3), 225-233. https://doi.org/10.1007/s11858-007-0027-2

Whitaker, E. M., & Atkinson, P. (2021). *Reflexivity in social research*. Palgrave Macmillan.

Wagner, D. (2019). Changing storylines in public perceptions of mathematics education. *Canadian Journal of Science, Mathematics and Technology Education*, *19*(1), 61-72. https://doi.org/10.1007/s42330-018-00039-1

Young, J. (2005). On insiders (Emic) and outsiders (Etic): Views of self, and Othering. *Systemic Practice and Action Research*, *18*(2), 151-162. https://doi.org/10.1007/s11213-005-4155-8