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Original Article

Moments of Critical Self-Reflection of a Transformative Mathematics Teacher

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Abstract

I have been travelling through a transformative research journey since the beginning of my MPhil study. It allows me to understand my past and present strengths and limitations in learning and teaching of mathematics, thereby envisaging alternative practices for futurist education. As my research involved critical self-reflection on my professional praxis, I used a multi-paradigmatic (interpretivism, criticalism, postmodernism) research approach and autoethnography as a research methodology. Thus, the main purpose of the paper is to portray the moments of critical self-reflection on my experiences of doing mathematical activities during my childhood and learning mathematics during my early days of schooling, aiming at improving my practices as a teacher, a practitioner-researcher and an educator. I used Habermasian knowledge constitutive interests (i.e., technical, practical, and emancipatory) and Schubert's curriculum images (i.e., content or subject matter, experiences, cultural reproduction, etc.) to interrogate my experiences of doing and learning mathematics. As a mathematics teacher and practitioner-researcher, reflections on my childhood experiences as well as early days of schooling ultimately opened up somewhat closed box of my personal and professional practices. This paper in/directly indicates the enhancement of the students' engagement in mathematics through context-based activities. Moreover, the selection of the contents should be based on learners' experiences which might be experienced through mathematically rich activities such as games, daily household works, etc.

Keywords: *Mathematics curriculum. Transformative mathematics education. Critical self-reflection. Autoethnography.*

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Introduction

Curriculum, in general, and mathematics curriculum, in particular, is taken as important teaching and learning material. Curriculum is a part of the common phraseology which teachers and students need to encounter regularly (Fraser & Bosanquet, 2006). In the Nepali context, a very small number of mathematics teachers working in public and private schools seem to have implemented the curriculum with certain revisions and modifications because of its prescriptive and desk-based approach of curriculum development which leads towards decontextualization (Luitel, 2018). The modification of the mathematics curriculum done by teachers might be based on the students' experiences, prior-knowledge, and daily activities. In such a curriculum, the pedagogical and evaluation systems are likely to be more flexible and accessible for different students. In this scenario, as a mathematics teacher of a private school, I emphasize making context-based and experienced-based curricula, so that teaching and learning mathematics looks more engaged and student-centred. The majority of mathematics teachers, other subject teachers, and school leaders give more priority to the completion of the recommended course relying on textbooks and guidebooks to prepare them for the summative evaluation. The examination-driven mathematics curriculum in practice by mathematics teachers and other stakeholders in Nepal is likely to demote them from scholars and intellectuals to technicians in service to state (Pinar, 2004). Moreover, Nepali textbooks include unnecessary readymade algorithmic problems that are subject to criticism because of their decontextualized nature (Luitel, 2018). The intention of such an act might be to prepare students for summative evaluation rather than exploring and enhancing their creativity, imagination, communication skills, leadership skills, and real-life problem-solving skills.

In this context, firstly I discuss the theoretical orientation and methodology that I employed in conducting this study. Second, I reflect on my experiences of doing mathematics during my childhood. Thereafter, I reflect critically on my experience of mathematics during my schooling aiming at improving my practices as a teacher, practitioner-researcher, and an educator. Tutak, Bondy, and Admas (2011) argue that "critical reflection can lead to critical consciousness, which enables people to understand their lives in new ways and consider ways to change systems that routinely oppress particular groups" (p. 66). Thus, this article enables me as well as other mathematics teachers, researchers and policymakers to reflect on their existing pedagogy as well as curriculum development process, thereby envisioning alternative practices in pedagogy and mathematics curriculum development.

Theoretical Orientation

During my research, I employed a range of theoretical perspectives to catalyse my critical reflective thinking. Among them, Habermasian theory of knowledge constitutive interests (Grundy, 1987) is one of the theoretical lenses that I employed in this article by combining Schubert's (1986) theory of curriculum images with narrative portrayals of key moments of my autobiographical journey as a student of mathematics. The main orientation of technical interest is to control the environment based on the law-like rules, whereas the orientation towards practical interest is meaning-making and understanding the context, and the emancipatory interest critiques the law-like rules and status-quo governing the society, thereby striving for autonomy and empowerment. Thus, knowledge constitutive interest enabled me to conceptualize my narrative and experiences from the lens of technical as well as practical interest and led me towards emancipatory interest.

Fraser and Bosanquet (2006) argue that technical interest focuses on structuring and managing objects and environment, whereas practical interest aims to analyse and clarify human experiences, uncovering meanings, prejudices, and presuppositions. Moreover, the

essence of emancipatory interest is to struggle towards emancipation, challenge normal understandings and practices, and enable teachers to change the constraint of the environment. More specifically, the images of curriculum as content, programme of planned activities, intended learning outcomes, discrete task and concepts, and cultural reproduction as discussed by Schubert (1986) are likely to align with the technical interest, whereas curriculum as experience, agenda for social reconstruction, and currere, also discussed by Schubert (1986), are likely to align with the practical and emancipatory interests.

Methodological Orientation

Arriving at this stage, as a mathematics teacher and teacher educator, I came to realise that I need to reflect critically on my learning experiences thus far, not only to reveal and conceptualize my experiences of learning, but also to empower my agency as a school mathematics teacher (Rahmawati & Taylor, 2015), thereby enabling me to rethink during the selection of the content and pedagogy. In addition, I thought that my unpacking of narratives and stories would be a milestone for improving my professional practice and that the verisimilitude of these narratives might make my readers thoughtful about their own teaching approaches by reflecting on their perceptions and practices of mathematics and its pedagogy (Pant, 2019). I found autoethnography as the most suitable methodology that enabled me to unpack my past and present experiences of mathematics curriculum, pedagogy, and assessment in my MPhil dissertation (Luitel, 2020).

As an autoethnographer, I wanted to explore the work of a researcher (i.e., myself) and to focus on my experiences of the other (Ellis, 2017). This paper critically reflects on my experiences of mathematically rich activities during my childhood and learning mathematics during the early years of my schooling. I interacted critically with my 'self' as well as others' practices and described and analysed systematically (i.e., graphy*)* my personal learning experiences (i.e., auto*)* in order to understand cultural practices (i.e., ethno*)* (Adams, Jones, & Ellis, 2015). Indeed, autobiographical self-reflection is a powerful way of re/thinking and re/envisioning my present and future pedagogical as well as curricular practices (Taylor, 2008; Taylor & Settlemaier, 2003), which may be equally important to others to re/envision their curricular and pedagogical practices.

My Childhood: Enjoyed Mathematics Without Official Curriculum

Let me narrate my journey by unfolding my passion for mathematics since my childhood days. The place where I was born and grew up is in the eastern part of Nepal. Diversity of people and their culture with mathematical rich activities were one of the attractions of the village. Unknowingly, those mathematically rich cultural activities helped people to develop mathematical skills day by day. Very few people were educated through formal education but had a good sense of numbers, and were forward in estimation, guessing, and calculation. When I was about four years old, my elder sisters taught me mathematics beginning with counting the numbers. As I grew up with a single parent, they had the main challenge to teach me and prepare me for school education. However, I felt lucky to get siblings as friends with similar age groups. We enjoyed games and activities (discussed below). Before getting formal education, I learned about the counting of numbers, simple addition, subtraction, etc. during the interaction with my relatives, friends, and other known and unknown persons. Those who came to my home, they frequently asked about my schooling and asked some questions related to the multiplication table of the specific number, simple addition, subtraction as well as divisions, such as $2 + 2 = ?, 3 \times 5 = ?, etc.$ They would be happy when

I could tell them the correct answer and they would suggest that I should memorize in case of giving the wrong answer.

Arriving at this stage, my queries are like these: why was their focus only on numbers? Why not questions from other subjects like Social Studies, Nepali, and Science? Why did they not tell me the real-life application of the basic operation of mathematics? Every evening, before going to bed and every morning after having food, I did something related to mathematics which was assigned by my parents. Sometimes, they gave me the mathematics textbooks used by my sisters during their schooling and sometimes they prepared some mathematical problems and assigned me to solve them.

After the completion of the studies for bachelor's degree, I became a mathematics teacher in 2014 and at the same time, I got enrolled in a University for higher studies. Since the beginning of my master's study, I started to observe the teaching not only from the perspective of the teacher, but also from the researcher. So, as a teacher-researcher, I came to realize that people often think mathematics is represented through the routine problems and needs to reproduce same routine problems to the next generation, which might lead to the images of mathematics curriculum as cultural reproduction as discussed by Schubert (1986). The role of mathematics teacher guided by such a notion of curriculum is to control and manage the classroom environment by assigning the routine algorithmic problems, which is aligned with technical interest. In addition to this, both the teachers and students give importance to mathematics textbooks and the readymade problems mentioned in them. Though curriculum reforms have been taking place in Nepal, mathematics has not yet been able to integrate the cultural capital of the students (Shrestha, 2019). Thus, my questions here are, why did they not create their own mathematical problems related to their daily activities? Why did they not promote creativity as well as imaginative thinking in mathematics? Why were they so much interested in or focused on readymade problem-solving? Was there any hidden interest or necessity of giving such kinds of mathematical problems?

Culture is an important concept in my research. It seems that the culture is shaped in such a way that it promotes the idea that mathematics is created by the Westerners and prescribed to us. In this context, I agree with Wagle, Luitel, and Krogh (2019) that contextualized teaching and learning has not been a priority of school education in Nepal and the use of locally available resources for teaching and learning has continuously lost position in the education circle. Indeed, the effect has been seen in teaching and learning mathematics, too. In that situation, there was no other option than to become habitual to use books, notebook, and solve mathematical routine problems given in the books. Besides, I still remember my happiness when I got chocolate after telling the correct answer or properly solving the problems and memorizing the multiplication table from one to ten. This was what motivated me to engage in such types of mathematical problems. I liked to solve problems given in the book rather than the work given in the exercise book. Likewise, I loved to gather and play mathematically rich activities, such as games, shopping, negotiation, etc. which are narrated below.

My Daily Routine: Engaged in Mathematically Rich Activities

Let me share my daily work when I was a child – even before I started going to school. The activities each day and every minute and hour that I had done during my childhood with my siblings and friends were precious and made my life valuable and mathematical. They taught me different senses of mathematics (e.g., the sense of four operations, estimation and guessing, etc.) and mathematical skills (e.g., measurement, drawing and colouring, etc.), which are relevant to my personal and professional life in helping to envisage better pedagogy in mathematics. I have presented those experiences through a narrative below.

I wake up early in the morning. I would take milk and biscuits and sometimes beaten rice. Once my elder sister gave me a mathematical problem on the paper as well as giving a mathematics book of grade one too, I enjoyed looking at the picture and doing the mathematical problem given in it. I took lunch. I looked around and started to cry when I realized that my young sisters (uncle's daughters) are not around. This is like the daily routine that I follow. Most of the time, I played with them as their ages were similar to mine. We played games together. It was one of our traditional games known as Ghati Katte. At least, two players were needed to play, and we played it turn by turn. For this, we drew eight rectangular boxes on the ground and a small piece of stone was needed, in which two of the rectangles were big and divided into two equal rectangles. We just estimated the area of a rectangle to make it equal. To play this game, the players (we) threw a piece of stone into one rectangle and the player had to jump into different boxes trying to get the stone, go through the end and come back again. The player had to start throwing the stone number by number. Similarly, sometimes in my childhood, my uncle took me to the traditional domestic animals' market; my mother took me to the shop for my clothes and shoes. I observed the way they shopped. They bargained the prices all the time with the shopkeepers. I loved to accompany them to spend our family's limited money, and I was happy when we went back home with nice clothes, domestic animals (goat, cow, etc.). It seemed that we had successfully done our shopping.

I came to realize that mathematics played an important role during my childhood. Unconsciously, I learned mathematical skills such as measurement, the concept of near and far, more or less, short or long, estimation and guessing without any official and structured mathematics curriculum. I applied those concepts informally whilst playing and shopping. Informally, I learned mathematical symbols and operations with the guidance of my family, relatives, and friends. However, I did not realize that mathematical symbols and operations were related to my playing and shopping. Also, I could not disclaim that my habit of practising traditional games assembled my understanding of mathematics. I learned these as "the embodiment of local wisdom" (Pranoto & Hong, 2014, p. 71 as cited in Mariana, 2017), such as freedom of expression, a sense of friendship and togetherness whilst dealing with important conceptual issues (Mariana, 2017). Besides these, the game I played depicted the process of hard work and shopping with my parents represented different mathematical operations in a real situation.

Arriving at this stage as a mathematics teacher and researcher, remembering the above discussion or looking retrospectively at my childhood, I want to construct the images of mathematics as a (language) game in which unknowingly I learned mathematical skills through using mathematical language. In this context, I remember the paper by Lerman (1990) entitled "Alternative Perspectives of the Nature of Mathematics and Their Influence on the Teaching of Mathematics." Actually, I came to know that fallibilism or the fallibilist nature of mathematics leads teachers and students or other stakeholders to move beyond the algorithm, routine problem, and rote memorization, whereas the absolutist nature of mathematics talks about mathematics as particular, fixed, certain, value-free, and abstract subject. Lerman (1990) highlighted that the mathematician and philosopher Wittgenstein's philosophy of mathematics as a "language game" might be the source of fallibilism. I have realized that whichever games I played during my childhood, whatever dialogues and communication I heard during social activities (i.e., during shopping) were mathematically rich and played and have been playing an important role in my life. Were they depict the nature of mathematics as fallibilistic subject matter?

As there was no prescribed curriculum and structured plan or routine to do those activities, we ourselves generated some rules and regulations based on our experiences, which made us comfortable to play and run the activities. As the notion of practical interest is towards understanding and meaning-making, rules were based on the context and set based on mutual understanding. It is likely to serve the essence of images of the curriculum as an experience and our interest was to experience the mathematical senses that ensue from the dialogue between each other (Schubert, 1986). Moreover, the bargaining upon price during buying and shopping the things in the market ended with a mutual understanding of the customer and shopkeeper. I came to realize that people who were often involved in mathematically rich activities challenged the technical rationality, thereby guided by practical interest. Practical interest is an interest in understanding the environment so that everyone can adjust and interact with each other (Grundy, 1987). Thus, we tried to make the environment comfortable to enhance our goal. Moreover, we used the practical interest to generate communicative knowledge constructed from inner heart amongst myself, others, and the social norms of the community where I lived to understand and share each other's practice that could be more mathematically rich.

My Early Days of Schooling: Feeling Disconnected

I started my formal education when I was five years old, from a private school near my home. I was so happy to join the school because I got the opportunity to interact with teachers and make new friends. The skills I learned at my home, such as communication, collaboration, etc. became helpful to interact in school. Experiencing many ups and downs, I did not know how fast I adapted in the changing world and grew in school. However, I felt as Luitel (2003) in that the school was not as beautiful as the outside, not only because of the uneven floors, old wooden benches and desks, wooden blackboards, dust of the chalk and mud, broken window, a roof with cracks, but because of the number-crammed mathematics. During my initial years of schooling, I never got an opportunity to learn mathematics through games as I mentioned above, I never experienced the way of communication which could solve the everyday mathematics problems that usually occurred in the shops and the market. I had to follow the mathematical problems given in the textbooks, remember the numbers, multiplication tables, and perform simple mathematical operations in the book itself and the exercise copy. The following short narrative depicts my experience of learning mathematics properly in my early days of schooling.

It was a day in April 2002. It was around 8:30 am. I packed my school bag, kept the books, copy, pencil, etc. and finally, got ready for school with a weight of four/five kilogram in my bag. It takes around ten-minute walk to reach school. It is my second day of grade four. Most of the time, I spent introducing myself to my new friends and new teachers. Suddenly, the bell rang. We lined up for the assembly in front of the school. After completing the assembly, all of us moved to our respective classes. Our class was nearby the staff room so we quietly took our places and started talking to each other in a whispering voice. Some of my friends were roaming around the class and some were doing homework. Suddenly, the teacher came to teach us Nepali. She was also our class teacher, so she maintained our records of every work of all the subjects, events and would frequently talk to our parents. We spent our Nepali class by reciting a poem, telling a story, etc. However, the teacher told us to write one page of handwriting related to Nepali literature. In the first period, we enjoyed a lot. Our second period was mathematics. As per the teacher's instructions the day before, everybody was getting ready with a book and exercise book as well as a pencil, eraser, and sharpener. The teacher came with a mathematics book in his one hand and few pieces of chalk, a stick and a duster in his next hand. He would be happy to see the mathematics

textbooks on the table in front of each student. Some of us were still searching for something in the bag. He was angry because we three did not have mathematics textbooks. Unfortunately, we forgot the mathematics book at home. Because of this, we were punished and kept outside the classroom.

Now I have come to realize that teachers' perceptions of the textbook as the mathematics curriculum continue to encourage the splitting view of the value of the mathematics curriculum. In our context, teachers in general and mathematics teachers in particular still have the misconception that textbook serves as a framework that helps teachers think about what is to be taught and how it will be taught. Macintyre and Hamilton (2010) mentioned that, in some countries, reliance on a main scheme or textbook can lead to an acceptance that the scheme is the curriculum. For instance, American statistics cited by Haggarty and Pepin (2002) suggested that about 50 per cent of teachers are textbook bound (as cited in Macintyre & Hamilton, 2010). In our context, the textbook which is full of algorithmic problems, dominates the early years of schooling even today. There were very few story problems or word problems in each chapter.

Unfortunately, the given world problems were from a foreign context and were valueless for me, similar to what Mariana (2017) said about her mathematics textbooks. The mathematical world in my primary school was different from my playground and games, my traditional market, and my daily life. I felt disconnected from my society, relatives, and the activities that I used to do with my parents and relatives. It is almost the same in the present practice. The curriculum revision practices of Nepal might not serve the interest of the students as well as society. School mathematics curricula of Nepal are being updated in terms of content knowledge which is transmitted in a closed monotonous environment for many years, much like animals are trained in a circus (Shrestha, 2019). It seems to be taken as a vehicle for enhancing rote memorisation by subscribing to a narrowly convinced notion of reform as simply adding more content areas (Luitel, 2013). Besides these, I have some queries: was it impossible to prepare the worksheet instead of following the bookish problem? Was it not possible to create a story, poem, like in the Nepali class? Was it problematic to conduct the mathematical quizzes and group works? Why were the games that I played during my childhood isolated from the curriculum even though they were likely to become mathematically rich?

I experienced that, as I narrated above, the situation of most of the mathematics classes was that whatever was inside the textbook was true and needed to be followed through. So, I was used to learn mathematics by copying the questions in my exercise book from a textbook. The punishment that I got on the very second day always forced me to keep my mathematics book in my bag the whole year while going to school. I memorized numbers from zero to hundred as well as the multiplication tables up to 12 clearly. I did not experience using any kind of concrete materials such as base ten blocks, Cuisenaire rods, tangram or any other local materials to learn about the numbers as well as geometrical shapes. It seemed that the classroom was totally guided by the technical interest as discussed by Habermas (1992). The purpose of the technical interest is to reproduce the law-like patterns of mathematical knowledge focusing on memorizing facts and formulas (Pant, 2019). The role of the teacher is like a technician who focuses on control and manages the environment to focus exclusively on transmission as well as to reproduce approach in mathematics teaching as vital facts. But I remember the marbles that I used to play at home, which were useful for developing the concept of multiplication, addition, division, and subtraction.

This is how I completed around six months of grade four from a private school. Because of political instability, the private schools were closed. Thus, I got enrolled in grade four in a government school which was nearer my house than my previous school. The number of students in a government school was more than in the private school. The

infrastructures were better in private schools than in the government school. The mathematics teacher in the government school was from the same village and used to talk in the Nepali language, whereas the private school's teacher was from Darjeeling and used to speak in English. Besides those differences that I experienced in the very first stage of my schooling, the way of mathematics teachers entering the classroom was almost the same. Also, the teacher would come up with a mathematics textbook and a bamboo stick. The purpose of teaching looked like depositing the facts in our mind from a book that is similar to the 'banking' concept of pedagogy as discussed by Freire (1993). Thus, the curriculum seemed like a collection of content or subject matter (Schubert, 1986) guided by the technical interest.

After completing my primary education, I got enrolled in grade six at the same school. Initially, I was amazed to see the number of students in grade six. There were almost 70 students who were about 5 times more than those in grade five. Actually, there were nine wards in my Village Development Committee (VDC), one primary school in each ward and there was only one secondary school. Only one secondary school served all the students who completed primary education from nine primary schools. I became happy to see many students because I thought the mathematics teacher might not be able to check or it would be difficult for him or her to identify the students who did not bring the mathematics textbook. We might save ourselves from the punishment like in my previous grades. While I was at the end of the lower secondary level that was in grade eight, I was forced to practice more mathematical routine problems. In grade six and grade seven, I had just one mathematics textbook to practice, but in grade eight I had more curriculum materials to practice, such as a guidebook, guess paper, and textbooks of different authors and publications. I came to realize that the importance of the contents and subject matter given in the textbook increased as I got upgraded in the higher grades. Parents, teachers, and everybody was worried about the District Level Examination (DLE), which was taken in grade eight, for which question paper was brought from the district headquarters. My teacher and my relatives who experienced DLE told me that the question would not be asked from outside the 'exercise' and 'example' so that I was forced to practise the readymade routine problems, and memorize the formulas and theorems. The adage 'practice makes a man perfect' was embedded in thinking and actions, thereby giving rise to the idea that mathematical knowledge can be achieved best through blind practice (Luitel & Pant, 2019) and this belief system is still dominant in our society. I frequently revisited the table of contents and syllabus and kept on practising accordingly. In such a way, I completed grade eight and nine. In grade ten, the teacher used to give more emphasis on the textbook and oriented me to solve the mathematical problems from the textbook as much as other resources related to the textbook, such as 'guess paper', 'solution set', 'guidebook', etc. One of the reasons to promote the value of a textbook was the School Leaving Certificate (SLC) exam. They used to say: *All the questions of mathematics in the exam are asked from the mathematics textbooks, solution sets, and question banks. So your score in mathematics depends on your blind practice to solve the mathematical problems from those sources.*

Implications

My research suggests that being critical is not synonymous with being negative. Rather, critically reflective teachers, teacher educators, academic researchers, as well as education policymakers are committed to democratic principles of equality, equity, and justice (Tutak, Bondy, & Adams, 2011). In this scenario, transformative learning involves critical reflection of assumptions, status quo or taken-for-granted ideas that may occur either in group interaction or independently (Mezirow, 2003). It requires for teachers, teacher educator as well as education policymakers to participate in critical reflection on their own practices

aiming to improve themselves, which is one of the purposes of transformative education research like this. The key elements for critical dialogue are having an open mind and listening empathically with genuine respect for the perspective of the others (Brown, 2013), whereas critical self-reflection may involve observation and evaluation of own practices, including asking critical question ourselves, challenging the status quo as well as taken-for-granted ideas aiming to improve ourselves and other practices. Van Manen (1997) identifies three levels of reflection - technical, practical and critical (as cited in Liu, 2013). Knowledge construction guided by the practical as well as emancipatory interest may enable teachers, academic researchers, teacher educators and education policymakers to know their own practices, thereby motivating towards meaning-making, and understanding through questioning towards existing practices, status quo, and taken-for-granted ideas.

Furthermore, a teacher educator needs to bring teachers in critical discourses rather than simply delivering the ideas. As mentioned by Hua (2015), teacher education is historical-hermeneutic science, which takes teacher education back to its histories, traditions, and practices aiming at understanding and interpreting practices. Thus, teacher educators need to think beyond the positivist epistemology and should plan to nurture teachers' ability to improve their practices through critical research or inquiry. In addition to this, practical interest cannot ensure human freedom because it lacks critical consciousness through self-reflection (Hua, 2013). Therefore, teachers or teacher educators need to enhance critical literacy which enables them to engage themselves in questioning such as: why am I a teacher or teacher educator? What can I mean to be a teacher or teacher educator? This might lead teachers as well as teacher educators to become transformative learners.

Closing Remarks

Indeed, the journey I covered during my research was meaningful and effectual in terms of realizing empowering (i.e., meaningful, inclusive, and culturally contextualised) learning and teaching approaches in mathematics. Also, I believe that reflection on my experiences may become insightful to other researchers who have been carrying out similar studies in their fields. Furthermore, critical self-reflection on my childhood and my teenage years enabled me to realize the role of the family and the community in my decision making. Indeed, the role of the family is very important to develop a transformative learner. However, as a teacher-researcher, this reflective paper enabled me to understand the dominant structural and hidden forces of the society governing the nature of formal teaching. In addition, reflecting upon the issues on pedagogy and curriculum helped me to envisage alternative approaches in mathematics teaching and curriculum development in Nepal. At this point, I argue that one of the important factors is to emancipate every student, teacher, and school from the rigidity of a top-down centralized system, which would help to break the present hegemonic way of developing mathematics curriculum.

As a teacher, researcher and educator working towards creating transformative educational processes, this reflective article enabled me to question myself in terms of how I can work to solve the issues related to the technical interest-driven mathematics curriculum, pedagogy, assessment, thereby transforming the landscape of mathematics education for meaningful and engaged learning. I came to realize that we always need to remember the everyday mathematical practices, and communication to make mathematics classroom more effective and contextual. It is necessary to incorporate those practices into the mathematics curriculum instead of adding routine problems in the name of curriculum revision.

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