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Evolving myself as a De/contextualized Learner and Teacher of Mathematics

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Abstract

This article explores how the first author (Hem), changed from being a traditional teacher who focused solely on abstract math concepts to becoming a critical and culturally aware mathematics teacher in Nepal. The paper is written from the viewpoint of the author's personal experiences, using the first-person perspective "I". The purpose of this study is to critically discovermy de/contextualized learning and teaching of mathematics to visualize myself as a transformative learner and teacher of mathematics. This study is framed through the research question: How have I been developing myself as a contextualized learner and teacher from traditional learner and teacher of mathematics?During my academic journey, I have tackled many mathematics problems and faced numerous classroom challenges. Over time, I have changed my approach from just solving math problems to teaching in a way that relates to real life. I have spent more than ten years refining how I teach, with the goal of helping students do better in exams. At this moment, I am navigating a critical point and actively searching for more effective alternatives to enhance culturally meaningful learning of mathematics for students through a shift toward transformation.

Keywords: auto/ethnography, culture of inquiry, de/contextualized mathematics

Introduction

This paper is based on a section of the first author's MPhil dissertation in mathematics education with support from the second and the third author. Gita, the second author, provided additional guidance, contributing insights from the initial stages through to the article's completion. The third author, Niroj, played a key role in refining the paper for publication, offering valuable critiques throughout. The article explores both classroom and external practices in teaching and learning mathematics, illustrating how traditional, decontextualized math teaching can evolve into a more culturally responsive approach. Using a narrative inquiry approach, it reflects on the

author's experiences and beliefs about the nature of mathematics, based on work as a mathematics teacher in schools across Surkhet Valley, Nepal.

My Home Education versus Higher Education

Every day, my father used to get up early in the morning, take bath and worship gods and goddesses offering them fresh flowers and fruits. He chanted some slokas from Bhagwad Gita and Chandi in the Sanskrit language. He used to read the Mehi Sagar of God Krishna, Hanumaan Chalisa, and Gayatri Mantra. Gradually, I too learned from my father how to recite Gayatri Mantra. In fact, I was brought up by observing my father's plate of arati for Pooja. Gayatri Mantra is a famous Hindu mantra whose meaning I have included below.

***

"Om Bhur Bhuvah Svah
Tat Savitur Varenyam
Bhargo Devasya Dhimahi
Dhiyo Yo Nah-Prachodayat"

***

Meaning
Oh God, the minder, the foundation of all life,
Who is self-existent, who is free from
all pains and whose connection releases the
soul from all troubles, who permeates the
World and bears all, the creator and
Energizer of the whole world, the contributor
of happiness, who is worthy of taking,
the most excellent, who is pure and the
purifier of entirely, let us embrace that very God,
So that he may direct our intellectual faculties
in the right direction.

I would read the *Chandi* as well as some chapters of the *Gita*. Even now, when I return home during Dashain vacation, I read these sacred texts, one chapter at a time. This ritual is something I learned from my father as well as big brother. My children also show more interest and enjoy listening as I recite the Sanskrit slokas.

As I read through the verses of *Chandi*, I feel joy completing each chapter. Sometimes, I even feel a sense of power, like the Goddess Bhagwati or Durga Mata, who defeated the demons. Once I finish reading, I share flowers and fruits as offerings with everyone present and myself. This practice brings me a unique strength, especially when tackling challenging studies like mathematics. In addition, it has greatly enhanced my ability to concentrate for extended periods.

According to my parents, my study was not good when I was a child. I would not like to engage myself in reading and writing in school as well as while doing homework. Sometimes the teachers would tell my family how I would improve his study. I remember, I love reading 'Chandi' but did not like the course books. Why did not I like my books? Why did not I understand in classroom? What were the factors that affected my learning in the classroom? Sometimes, I feel like I was not motivated to study in the classroom the way I was motivated to do *Chandi and Gita path* at my home. Something was lacking in the methods of teaching the textbooks in the classroom.

Had my teachers taught me the way my father motivated me to do *Chandi path* and *Gita patha* at home, I would have understood better the lessons taught. Although there are many pre-schools at present that have maintained child friendly environment in the school premises and are adopting various child friendly methods for teaching contents to them, they were not available or were limited to urban places only. I vividly remember that theywere never encouraged to learn mathematical skills through singing, dancing and any other methods other than rote learning. We were taught to perform simple calculations like addition and subtraction by using finger-folding method.

Taking cows for grazingand playing simple games like 'Gotta'and 'Dandi-Biyo' *before and after school was my daily activities.* In fact, I learnt addition, subtraction and multiplication skills in my childhood through these simple games. These games were the only means of entertainment for village children. There was neither electricity nor televisions in the village in those days.

Hey Hem! You know, 'Real Analysis' subject is so hard atp Bachelor's, only one or two students passed in the past years. In November 2004, I started my Bachelor's Level study at Tikapur Multiple Campus, Kailai. I had taken mathematics as a major subject. My campus was nine kilometersfar from my house. My friend and I used to go to campus early in the morning by riding bicycle. My father had bought a brand new bicycle for me to go to campus. I had an interest in studying mathematics at this campus. I had in my mind that I would study seriously and get an excellent result. During the time of the examination, we shifted to Kailali market near campus. I rented a room. We were preparing for the board examination of the first year conducted by Tribhuvan University. There was an unexpressed competition between my friend and me. Nowadays, I remember my study improved from the competition with my friend. Hey Hem! You know, real analysis is the most difficult subject at the Bachelor's second-year. Only one or two students passed this subject in the past years. They had a feeling of fear regarding this subject. I replied to them that if the teacher did not understand us then that can be problematic, otherwise we can do better. They tried to encourage me to pass this subject through rote learning of the concepts. In the very first day, the teacher told with a smiling face that many of the students feel this subject a difficult one. So, be careful about this.

The teacher started teaching theorems of real analysis. Each theorem contained definitions. In order to understand theorems, we need to understand definitions. I was doing well. One day, the teacher was discussing a theorem, I could not understand the lesson. I raised my hand in order to ask the steps. However, the teacher shouted, 'How come you don't understand? You don't have good foundation. Study well'. I replied yes to him. After returning home, I tried to understand those steps. However, I could not understand them. So, I recited and memorized them. I decided to transfer to a new campus in the capital city Kathmandu. So, in the third year, I went to Kathmandu and joined ICS Campus, New Baneshwor. In the third year, I transformed my college to Kathmandu. I studied my third-year education at the ICS campus, Baneshower. I remember at that time I would take some home tuition classes for grade VIII and IX at Maitidevi. At that time, I would do self-study for all subjects of the third year. Finally, I passed my bachelor's degree. It was difficult for me to adjust in a new place far away from my hometown. I also went through financial problem. I started taking home tuition classes of mathematics for the students of Grade VIII and IX. I did self-study, took tuition classes of all the subjects of the third year. Despite various challenges, I passed Bachelor's degree.

In November 2010,I joined the Central Campus of Education, Kirtipur for studying a Masters' degree majoring in mathematics. During my study at Kirtipur, I would think that how could the theorem of 'Algebra' be learned developing concept without rote learning. I used to feel so sad when I had to learn mathematics theorems through rote learning instead of developing concepts. Then I raised question myself and tried to learn those theorems through diagrams, pictures, etc.

I joined my M.Phil. study in mathematics education at Nepal Open University (NOU) and got opportunities to learn many ideas about research. My basic knowledge about research in the lower secondary level education helped during this research as well as M.Phil. study. I realized the knowledge of my master's degree in research was good enough and I also realized there were so many things left to be learned. I am hopeful that I will gain a Ph.D. degree from NOU or other foreign universities.

Autoethnography as my Method of Inquiry

I defined autoethnography as a 'self with others' in my teaching learning experiences of my profession life. Here self refers to me (teacher, researcher) and others refer to my students, friends, seniors and other teachers. Hence, I believe that autoethnography is investigation, writing, and method that connects the autobiographical and personal to the cultural and societal context.

In my research, I describe my narrative related to my mathematics content as a real-life situation. Also, I express personal experience narratives and self-stories in my research. In addition, I have used three key features of autoethnographic text: performative, dialogic, and pedagogic enablement (Luitel, 2009). The performative feature of my autoethnographic text helped me to construct narratives of my experiences of teaching profession. Also I invited readers for creatively and imaginatively perform my texts in various probable ways. I have not only opened my professional life history. I have used the narrative inquiry approach to touch meaningful my experiences of life, from mathematics student to mathematics teacher as well as mathematics teacher to educator or researcher.

Theoretical Referents

I used some theories as theoretical referents that help me dig out my personal-professional life-worlds, they are: Living Theory Methodology (Whitehead 2008), Vygotsky's Socio-cultural Theory (Vygotsky, 1978), Transformative Learning Theory (Mezirow, 1997).

A living theory is description produced by an individual for their educational inspiration in their learning, in the learning of others and in the learning of the social construction in which they live and work (Whitehead, 2008, p. 104). In my research, I discovered that Living Educational Theory helps me get better at what I do and learn new things by asking myself questions like How? Why? What? According to McNiff (2013), this theory involves political investigation, deciding which stories are allowed and who can share them. In addition, this theory helps to build awareness in me about the question, how do I improve what I am doing? Therefore, I reflect on myself in my narratives, in which direction will go me as an educational researcher.

Moreover, in my study, sociocultural theory delivers a censure to learning theories that are based upon the individual building of knowledge. Valsiner (1988) argues that Vygotsky presents sociocultural theory which is a different epistemological viewpoint from constructivism and to understand the sociocultural theory systemically by providing four key components. First: children construct their knowledge; second: language plays a vital role in mental development; third: zone of proximal development (ZPD); four: scaffolding. It helps me in this research as using knowledge

about how students learn to help them develop their thinking about teaching and learning activities exploring how students learn as different from what they learn through these four components in my narratives.

Transformative Learning Theory was the third theoretical referent I used in my study. According to Mezirow, there are two basic kinds of learning theory: instrumental and communicative learning. Contributory learning emphasises on learning through task-oriented problem-solving and resolve of cause and effect relationships. Communicative learning involves how individuals communicate their feelings, needs, and desires. For me, transformation means to change in person's worldview by integrating different worldviews into his/her own worldview. Moreover, transformative learning is about meaning-making, not just like our everyday learning to acquire knowledge (Shrestha, 2018).

Updating the curriculum regularly is similar to a regular work routine aimed at adjusting the content, as suggested by Luitel (2017). Mathematics teaching methods are mostly focused on the teacher, relying heavily on step-by-step procedures. This makes mathematics seem challenging for many. Despite various cultural activities involving mathematical concepts, there is a common belief that mathematics is only learned through memorization. Unfortunately, formal education in math has not integrated these cultural practices into teaching and learning activities. I have confidence in that only teacher training cannot change the pedagogical approach in mathematics teaching and learning. In addition, through the developing countries, teaching career is not considered as a prestigious one and teachers are not highly motivated towards their profession (Pant, 2017). School curriculum, textbook, pedagogy and examination are not culture friendly (Pradhan, 2019).

In my experience as a teacher for more than a decade, contextually teaching and learning approach could be one of the ways to permanent learning because the learner can be more engaged, creative, and more positive towards mathematics (Dhungana, 2023). Contextual teaching and learning means teaching and learning in a way that makes mathematics real and connected to what students might do in the future for their jobs(Bottge & Cho, 2013). Use of contextually teaching and learning is not sufficiently practiced in mathematics class.

The main purpose of the research study was to critically explore my de/contextualized learning and teaching of mathematics to envision myself as a transformative learner and teacher of mathematics.This purpose will attempt to answer the research question: How have I been developing myself as a de/contextualized learner and teacher of mathematics?

Methods and Procedures

In essence, research methodology encapsulates the perspective of researchers on realities, the methods employed to uncover these truths, and the acknowledgment of whose values are considered (Willis, 2007). Snape and Spencer (2003) also define ontology deals with understanding the nature of the world and what we can learn about it. It is also about how things exist and change over time (Luitel, 2009, 2019; Pant, 2015; Shrestha, 2018). This study's actuality is diverse and depends on the context, shaped by personal stories, anecdotes, poems, and texts about my teaching and learning experiences. As a mathematics teacher and researcher, I acknowledged and embraced various personal viewpoints throughout my research

The epistemology of this study is existing knowledge about teaching and learning. I believe that my knowing process is fallible. In my observation, individuals create their understanding of each phenomenon as the result of their previous practices in the present socio-cultural context.

Taylor (2015) claim that interpretivist is concerned with pr3oducing context-based understanding of people's thoughts, beliefs, values, and related social movements. It enables me to make meaning of evidence about my experiences and writing narratives & reflections about evidence teaching-learning activities of my experiences. Interpretive researchers build trustworthy and authentic explanations of the culture. This paradigm enables me to build local understandings of the life-world experiences of teachers and students and of the cultures of classrooms, schools, and the communities they assist. Criticalism was another research paradigm that guides me in this study. Criticalism paradigm concerned with the purpose is to find context and help resolution 'gross power imbalances' in a society which fuel morally questionable profitmaking activities that contribute to systemic inequalities and injustices such as the social and economic exclusion of some areas of society, loss of cultural capital and cultural identity amongst cultural minorities, and anthropocentric weather change and loss of biodiversity. In this type of research, the process of writing as inquiry (shared with the interpretive paradigm) has an added critical dimension and becomes a means of critical analysis and ideology critique of well-known strategy and practice (Taylor& Medina, 2013).

For my research study, I take the support of 'trustworthiness and authenticity' for quality standards and trustworthiness criteria include: *credibility, dependability, transferability and confirmability* (Shrestha, 2011). For more, credibility indicates how my explanation of narratives is believable and appropriate, with particular situation, dependability indicates how I articulate my narratives are consistent and reliability of the research, transferability indicates how narratives shift from one context to another context of narratives and confirmability indicates how would my finding were confirmed by other researcher or educator.Also, I take critical consciousness, pedagogical thoughtfulness, transferability and illuminating as a quality standard for my research study. As an educational researcher, I embraced the critical paradigm before I began writing this research inquiry by taking the social values and transformative action into account. I know that more or less I have transformed myself into a critical teacher and learner.

I encountered various people such as my teachers, students, facilitators, educators, and known/unknown persons from different disciplines and dealt with them directly or indirectly. I have no direct impact on them intentionally hurting their sentiments. In addition, I have situated myself as a critical thinker supported by the practical interest of Habermas (1972)throughout the research inquiry.

Results and Discussion

As an autoethnographer, I have delved into my teaching principles, beliefs, and experiences using storytelling, conversations, letter writing, metaphorical reasoning, and critical self-analysis. Now, I aim to interpret the insights gained from this wealth of information by employing the theoretical perspectives mentioned earlier in the subsequent sections.

Mathematics for Rule-Following: An Intellectual Game

In Chess game
The horse moves some rule
It moves L shape in four square box
Any other character
does not move like a Horse
Therefore, Chess follows some rule
and rule followers

Like a game
Math needs some rule
For simplification of the mathematics
Divide comes first
After that multiply, addition,
and lastly, subtraction comes
Math needs some rule
So math is a game
The game needs some rule
Math needs some rule
So math is a game

It could be any day in April 1999. I remember, when I was so found of playing indoor and outdoor games. I would enjoy playing games too much. I would pay little attention for study due to my very childish nature. I often used to play with my same age and like-minded friends. My teachers, parents, and seniors would complain to me for not paying enough attention to the study. But in reality, those games were supplementary to my study. It, directly and indirectly, engaged me in reasoning and problem-solving. Sometimes I would enjoy looking at games played by other friends in my locality. The interesting experience is that these games had been creating mental images of general mathematical problems like counting, multiplying, dividing, and subtracting. The reflection was that I enhanced the perception of solving the general numerical problems. I remember the game such as *Carom board,* and *Chess* which is so rule-following games that enable the critical thinking.

Regarding the Chess game, various characters such as King, minister, elephant, horse, soldier, and camel have their own set of rules. Each character is not allowed to encroach on the rule of others. They have definite steps and moves for instance the horse always moves in *an L* pattern in four square boxes. Rest of other character does not have permission to move on that style. As we know that there is no such as a game without fixed rules. Likewise, mathematical problem to has set of rules and procedures that are needed to be abided by the practitioner. This concept can be illuminated by the under mentioned mathematical solution.

$Simplify: 36 - [18 - \{14 - (15 - 4 \div 2 \times 2)\}]$

Now,

$$36 - [18 - \{14 - (15 - 4 \div 2 \times 2)\}]$$
$$= 36 - [18 - \{14 - (15 - 2 \times 2)\}]$$
$$= 36 - [18 - \{14 - (15 - 4)\}]$$
$$= 36 - [18 - \{14 - 11\}]$$
$$= 36 - [18 - 3] = 36 - 15 = 21$$

BODMAS Rule
B =Bracket Open
O = Open Bracket
D = Divide
M = Multiply
A = Addition
S = Subtraction

I used the BODMAS rule to solve the aforementioned mathematic problem, which justifies that the rules used in mathematic are a backbone without which it is paralyzed. The absence of rules in mathematics is lifeless like a body without a soul. The rule provides life to mathematics

which can be substantiated in the following subsequent elaboration. The student unknown about rules used in mathematics is alien in that domain. It prepares the person to take the test of math and enjoy it. The poem mentioned here substantiates the essence of rule in mathematics. It approves that as rules played in games; the math is also paled joyfully applying the rules in a fairway.

The use of games in teaching mathematics is indeed considered a best practice that is recognized by students as making mathematics more meaningful. In my teaching experience, I found that games encourage logic-mathematical thinking, facilitate the development of mathematical knowledge while having a positive influence on the affective component of learning situations, and have a positive effect on students' interest and motivation (Cody et al., 2015: 1485). Games include opportunities for variation and modification, which provides multiple entry points so all students regardless of their mathematical proficiency can participate in strategy development and the problem-solving process. Even with rules, games are flexible and embody multiple variations to accommodate students' individual needs and interests, especially when integrated with discussion questions that encourage reflection and representation (Buchheister et al., 2015; Dockett & Perry, 2010; Jackson et al., 2013, quoted in Buchheister et al., 2017:10). I strongly believe that the game provides opportunities for students to engage in reasoning and problem solving through modeling problems, explaining patterns and relationships, and discussing the reasonableness of various solutions and strategies (Buchheister et al., 2017, p.10).

I critically questioned myself, will a person play any game without knowing their rules? He will not play for sure. Similarly, mathematics like a game that includes some rules, some operations, some property. And without rules, operations, and properties, mathematics cannot learn perfectly. Rules, operations, and properties must understand before solving mathematics problems. The incorporation of cultural games of the learners helps to create an open environment to think and act to build knowledge. Here cultural games indicate a game that is connected with a real-life situation. Now again I questioned myself that, Is I learning and teaching mathematical contents connected with the real-life situation?

In my above discussion, I found that mathematics problem-solving as a rule following like a game. There is various rule in any game such that football, volleyball, Kabaddi, Chess. Teaching with just rule following in mathematics problem-solving is traditional method. It not indicates connection of mathematics problem with culture or real life situation, which is decontextualized teaching and learning.

Mathematics in Shopping

It could be any day of April 1995. At that time, I was in grade nine. I remember that my father started a small business of vegetables and fruits. He purchased some potatoes, onion, chili, rice, etc. And he sells it with some rupees profit. I would help him in the evening time. Mainly I would help him with the accounting process of that business. Sometimes I also help him with the purchase and selling on Saturday and during my vacation time like Dashain-Tihar and any other time. I remember a day when I was a shopkeeper, a lady customer came to my shop and wanted to purchase five Kg potatoes.

Lady Customer: Hello brother.....how much for a kilogram of potatoes?
Me: Potatoes?
Lady Customer: Yes!
Me: Rupees 15 per kg.

Women: Woo…...how expensive?

: I want to purchase 5 kg…. does it considerable or not?

Hem: Ok….it is for 12 per kg.

Women: ……. ok, give me. (After thinking some moment)

Hem: Take your potato…. (After balancing 5 kg potato)

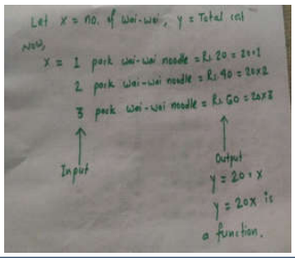
Women: How much in total?

Hem: ….12 multiply 5 is equal to 60. In total 60 rupees for 5 kg. (After calculating)

Women: Take it….it is 50 and 10…in total 60 rupees.

In the evening of that day, I remember that moment as a shopkeeper when I sold to a woman 5 kg of potato. And I remember the definition of function which is to teach my teacher a day before. My teacher teaches us about function and its types. He added in the definition of *function as function is an input-output process a*nd I think that 5 kg as an input and Rs. 60 as an output in the process of function.

Fig: 1, Source: Self



Similarly, I remember the initial days of my teaching career. I started the teaching profession right after the completion of my bachelor's degree in education. I used to take a class in grade nine also where I got a chance to use *Person-Birthday* relation in teaching function. It could be December 2014. I remember that day, in the very first class of a chapter: *'Function*', in nine class. I define the function as "*Function is defined as Input and Output relation"* with examples, also I emphasize my class by an example of Wai-Wai noodles as given below:

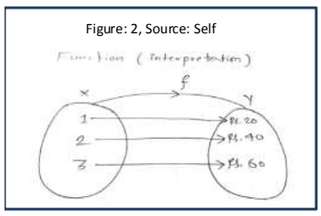
Let us consider X = No. of Wai-Wai and Y = Total Cost, after that I teach as given below of purchase Wai-Wai noodles. After then, I told to my students that, "the process of purchase 'Wai-Wai' is an example of function".

From the above example, we found a function:

$Y = 20X \rightarrow f(x) = 20X$

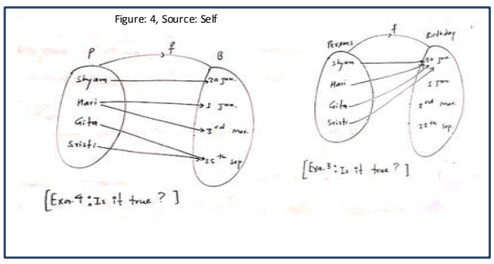
And I define a function as A function is a relation between two sets A and B, in which the elements of first set associates with a unique element

Figure: 2, Source: Self



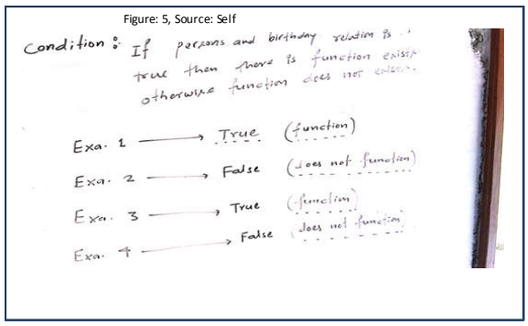
In the second set. But, one student (Sangita) asked me, Sir, I do not understand again, what is the unique association? Then I explained by taking some other examples related to function. But he did not satisfy with my view.

Figure: 4, Source: Self



This day evening, I think about how I can teach him for a better understanding of function. Yes, I think an idea about person and birthday relation for function and I can teach him.
The next day, I started my class by telling the name and birthday of some students: Shyam, Hari, Gita and Sristi and I write their name and birthday respectively in the whiteboard. And I draw arrow-diagram of their name and birthday respectively. Some examples are I attach here which is given below picture.

Figure: 5, Source: Self



In addition, if a person and birthday relation will satisfy then function exists otherwise does not exists.

I replied, "Yes, I understand, sir. I can distinguish what is a function and what isn't." Then I thanked him. Later that evening, as I reflected on my answer, I realized I was aiming to teach in a way that promotes lasting understanding.

I argue that students understand easily by teaching skills with direct reference to real-world events and practices (Berns & Erickson, 2001). In my view, the teaching will be effective if we teach including some examples which are related to real-world events. Also, my other experience was added by myself as given below.

During that time, I was unaware and unknown about the use of cultural heritage in mathematics class. I used such examples in the course of teaching-learning which I had learned in my college. If I was aware of ethnomathematics and culturally responsive pedagogy, I could find any other cultural objects instead of the readymade weights and the packets of rice. Now I realize that the use of locally available materials is essential for learning mathematics as given examples above. The daily exchanged goods and materials have several implications in teaching mathematics

contextually. There have been interactions with different types of materials and objects in our daily life. For the effective teaching of mathematics, the teacher has to explore the concept of the mathematics inherent in these interactions. Our school culture is found apart from this innovative type of learning. There is a need of introducing this sort of practice to overcome learning difficulties in mathematics.

Connecting School Mathematics with Real-world: Becoming a Contextual Teacher

How is possible sir, the result of the scalar product is also scalar.

It is interesting, dear!

It could be any day of March, 2021. I remember a day when I was teaching optional mathematics on the Scalar product of the vector chapter. I just entered for teaching in a topic 'scalar product' of vectors in class 10 of Eager bridge secondary boarding school of Birendranagar, Surkhet.

Firstly, I define scalar product and its operation one to one. After that, I focus my teaching o that the result of the scalar product is also scalar.

Then a student rise a question that,

Student: How is possible sir, the result of the scalar product is also scalar.

Me: It is interesting, dear!

Me: At first, do you understand the difference between vector and scalar?

Student: No sir, I did not understand.

Me: Liston carefully,

Definition (Vector): The quantity with direction is called vector but scalar is quantity without direction, which is only quantity. For example,

Vector: The length from Bangesimal to Mangalgadhi is 4 km.

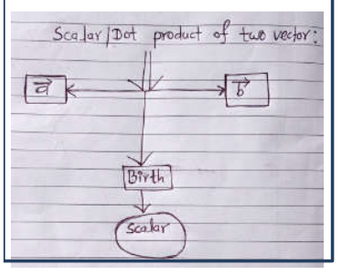
Scalar: The length is 4 km.

Mathematically, $\overrightarrow{BM} = (1,4)$ is vector and $BM = 4$ is scalar.

After that, let $\vec{a} = (1,2)$ and $\vec{b} = (2,5)$ then

$\vec{a}.\vec{b} = (1,2).(2,5) = 1.2 + 2.5 = 12$, is scalar.

Fig: 6, Source: Self



After that, let and then

After that I asked to them: Do you understand that the result of dot product of two vector is again a scalar?

A poor student answer: Sir, I did not clear …… so do you clear about it.

Then, I shared an idea about the scalar product of two vectors, using a real-life example:

Me: Think of the dot product like a marriage. When vector **a** and vector **b** come together (like a marriage), the result—the "baby" of their union—is not a vector but a scalar, because the dot product of two vectors produces a scalar, not a vector.

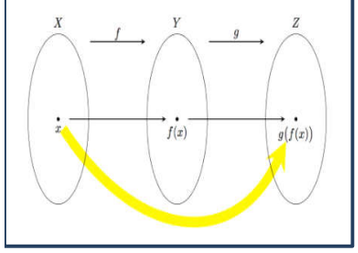
While I taught this whole process to the students they appeared to be more interested and one of the students asked me that: Sir it would be fantastic it you would link the content of the mathematics with real life situation.

He noticed my smile and saw that I was pleased. I, too, felt happy seeing the student's smiling face. I believe that when introducing new math concepts, teachers should connect them to real-life situations, making abstract ideas more engaging and encouraging students' enthusiasm for learning. Students' responses to these real-world connections are positive and impactful; they feel energized and engaged in class rather than bored or disinterested

It was a day of November 2020. At that time, I was an engaged some period of mathematics of grade ten in Birendranagar, Surkhet. I remember that day when I was teaching first chapter of optional mathematics. After someday I finished chapter first: Relation and Function.And I told to all of them that,

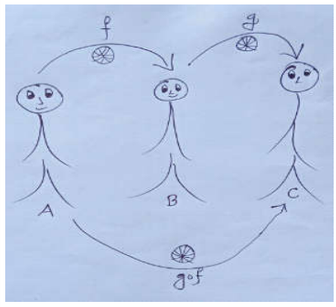
Yes! Today we were finished this chapter, what about your side? A student raises his hand and told me,

Fig: 7, Source: Google



Yes Sir! I have one quire that, i did not understand about composite function clearly".
Good job! I am happy with you because of your question…….
Shite down. I said andafter that I wrote the definition of composite function with diagram and I explain taking with some examples, one of them is given below:

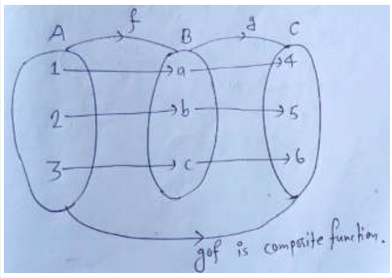
Fig: 8, Source: Self



Definition of composite function: If $f(x):A \rightarrow B$ *and* $g(x):B \rightarrow C$ be to function then the new function defined from A to C is called composite function of f and g. It is denoted by gof or g(f(x)) . Also I could explain composite function with a story: (I articulate that story with drawing in white board). In a village, there are three boys A, B and C respectively. One day, they want to play volleyball between them. If A throw ball to B and B throw to C. In this process, if we let 'A throw to B' as f and 'B throw to C' as g then 'A throw directly to C' is called composite function from A to C and it is denoted by . They saw all story in whiteboard of three boys. Then they surprised and saw me by smiling. And that student said that, how fantastic and easy to learn by this story. And I smile and said, Mathematics is so easy, did you understand? After that he smile with his friends. In addition, I explain it with example also.

Example: Let$A = \{1, 2, 3\}$, $B = \{a, b, c\}$ and$C = \{4, 5, 6\}$. Also let $f = \{(1, a), (2, b), (3, c)\}$ and $g = \{(a, 4), (b, 5), (c, 6)\}$ then the composite function is $gof = \{(1, 4), (2, 5), (3, 6)\}$.

Fig: 9, Source: Self



In this interactions all of the students were satisfy for these discussions of teaching. I think my personal memories and experiences connect to the context with mathematical contents which shows meaningful learning. In addition I realized my above mention transforming stories and experiences from content into context that produce meaningful learning.

Conclusion

In this study, I explained how I express my beliefs about what math is all about. As both a learner and a teacher across different educational levels, from homeschooling to university, I have examined and reshaped my views on what math is, adapting from my teaching methods accordingly. It shows that a system of beliefs about the nature of mathematics can function to facilitate or impede mathematical learning, depending on the belief, the object of belief. As a researcher, I am studying my own and contemporary teachers' beliefs related to mathematics teaching and learning.

In addition, contextualization raises the issues on teaching of mathematics problems that highlight real-life situations.For more, in my early teaching days, I used to focus solely on the content and encouraged students to practice extensively, but this approach did not yield satisfactory results. When I recognized the importance of connecting the content to real-life situations, I began illustrating concepts on the whiteboard, like drawing a triangle as mentioned below. This shift significantly improved learning practices. Students began to grasp the concepts more accurately and were prepared to tackle various mathematical problems confidently. I have reflected on my

research journey and presented my experience of unpacking the research questions via my biography as a student, teacher, teacher educator, and researcher that I have learned after steering this research study. In addition, I have also explored the possible use of those cultural activities in a mathematics class in terms of making school mathematics more contextualized.

In the end, I realized that reductionist approaches to mathematics pedagogy are still prevalent in classrooms, shaping how contextualized methods are used in teaching and learning mathematics in Nepal. As a result, students remain constrained by traditional methods of learning mathematics.

While applying the contextualized methods in my learning and teaching, I came to realize that it is possible to implement in Mathematics classroom teaching for various levels. Also, it could be provided that the culturally decontextualized mathematics curriculum should be revised and reformed gradually to reduce its hegemony in the field of Mathematics education in Nepal. Furthermore, by embracing a contextualized curriculum for teaching mathematics, a teacher can become pedagogically prepared to foster empowering, inclusive, and genuine learning experiences in the classroom. This approach enables educators to lead a more holistic professional life within transformative education. I have also outlined potential implications for others, including teachers, teacher educators, and researchers. Within my study, numerous personal experiences serve as examples, inspiring teachers on how to teach mathematical concepts contextually to enhance understanding.

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