A VOYAGE FROM PAST TO PRESENT IN SEARCH OF PROGRESSIVELY CHILD FRIENDLY TEACHER

A TRANSFORMATIVE AUTOETHNOGRAPHIC JOURNEY

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A Disertation

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DECLARATION

I hereby declare that this dissertation has not been submitted for candidature for any other degree.

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Prashant Rajak January 31, 2014

Degree Candidate

DEDICATION

To my grandfather Late Bal Krishna Rajak, my grandmother Late Santu Maya Rajak my parents, all my family members and all my “Gurus” who have made me attain this height.

AN ABSTRACT OF THE DISSERTATION OF

Prashant Rajak for the degree of *Master of Education in Mathematics* presented on January 31, 2014.

Title: *A Voyage From Past To Present In Search Of Progressively Child Friendly Teacher: A TransformativeAutoethnographic Journey*

Abstract Approved: ……

Mr. Binod Prasad Pant

Dissertation Supervisor

This dissertation portrays my journey from an authoritative teacher towards the progressively child friendly teacher. My necessity to think that transformation is mandatory and being in the process of transforming self from an autocratic teacher to a gradually developing democratic teacher has been shown in this voyage. I had questions in my mind regarding various nature of mathematics which is changeable in the context, punishment in mathematics classroom , situating myself differently in the classroom so that the students loves the mathematics teacher and the mathematics subject and the alternative to corporal punishment. Toportray my research study, I have chosen an autoethnography as a method andmethodology of research. Critical research is selected as a key research paradigm. Autoethnography helped me to produce rich research text of my professional contexts of learning and teaching mathematics. The critical paradigm helped me to question my practice; critically reflect upon my teaching-learning experiences and to transform myself from traditional to a new one. I have taken critical theory and constructivism as my major guides. Verisimilitude (i.e.,

lifelikeness), pedagogical thoughtfulness (i.e., evoking readers) and critical reflexivity (i.e., questioning my subjectivities) are the quality standards of my research.

While I started examining the nature of mathematics, I developed various views on it. I started viewing it from being an absolutist teacher progressively towards constructivist teacher through various terrains. Linking with the nature of mathematics, I tried to link it with the corporal punishment in the class. The teachers having no any other alternatives to corporal punishment as guided by absolutist assumption seems to practice it to a higher level. Viewing the nature of math from different perspective and looking at the classroom practice I have realized to change the way of dealing students with the corporal punishment. I have come to realize that in our context until we develop proper alternative to corporal punishment we may not be able to give complete freedom to the students. Due to the cultural diversity the students have their own perception about the punishment given in the class which leads to some kind of action against them in the class. Due to such environment from which they come they do not consider their responsibility and giving complete freedom may not be fruitful as desired. But this also does not mean that we need to give rise to corporal punishment. So, for mapping with transformation the need of continuum, which excludes corporal punishment, is realized. I hope to have used some ingredients of transformative learning and teaching. As a result, I felt like I could be a teacher researcher through my reflective practice. Furthermore, I have duly realized that reflective practice could be influential in bringing transformation in every one's life and we should lead to help others to emancipate their thought, action and reactions for creating better-civilized citizens.

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Prashant Rajak, Degree Candidate January 31, 2014

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I understand that my dissertation will become part of the permanent collection of Kathmandu University library. My signature below authorizes release of my dissertation to any reader upon request for scholarly purposes.

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CHAPTER I

SETTING THE SCENE

I am writing and deleting it, again writing and erasing it again can't think what to write and how to write. To write may be an easy job but the starting venue to me appeared to be the most difficult one. I am feeling it from my side. I write few lines in paper crush it, throw it. I throw my pen and paper and try to lie down, try to be lost from the world. I can't, I can't do it. My Professor comes and says:

Professor	:	*"Prashant, where is your thesis work?"*
Me	:	*"Sir, I can'. My pen is not moving. My brains are stopped here. I am not doing it".*
Professor	:	*" Even the people who have just got my little words have brought changes in their articles. You can do it, you have got the potential. You have and you have to do it."*

I wake up from my dream and find my teacher really worried for my work even in my dream too. Where in this world can I get such a teacher who is so caring and worried about any student at this level? Even I would not have taken care about the students if they had done such irresponsible act. I feel I have to do it, I will do it, I will, I will, I start and think I am started.

Background of the study

I started my schooling at the age of four in the nearby school called Sita English School. The environment of the school was quite good. Now at this moment, if I were to remember those past events than I would say that the school was interactive and cooperative and full of social interactions (Panthi, 2009) at that time

too. Love and care was spread among us by the Principal Basu Dev Munal[1]. Pandey (2011) also says "Teaching is more than disseminating skills; it is a living act and it involves preference and value, obligation and choice, trust and care, commitment and justification; and teaching is primarily a matter of expanding love". Now, I realize that I liked that school because we were focused by student-centered method that time. Even having a faint memory regarding mathematics learning of those days, I still remember that I knew the numbers quite well. I could read all the numbers as in the calendar, which I was made to be read by my father. The reason behind I was made to reproduce the numbers was not to make me sharp in mathematics or practice it but there was a special reason behind it. The reason was my father had an eye disease from his early childhood. It was night blindness according to him but after a long series of investigation it is found to be a disease called retinitis pimentos. So, he was always afraid that it would be carried to me too as a hereditary character, so I was made to read those numbers from a distant place and I became quite familiar with numbers. I started to love numbers knowingly unknowingly. I loved them and was happy to play with them.

When I was small, I still remember that we had very little access with television. We used to go to other neighbors' house to see some special serials like Ramayan[2], which I found very interesting. I was not able to learn the moral behind the epic but learnt something different. The art of bow and arrows and trying it to make more and more accurate helped me to learn the theory of accuracy or probability as we used to make a sort of dartboard and get our target which helped me to gain some knowledge of mathematical accuracy.

[1] A well- known program host of Radio Nepal
[2] Hindu epic

It was a day in mid-March 2010. I was invigilating the exam. All the students were taking their exams. The class was quiet; a perfect pin dropped silence was there. Suddenly I saw a student's eraser fell down. The moment I saw it falling in the floor gave me a flash back of my childhood where I remembered of *Sakuni*[3] throwing his *Pasa*[4]. It made me remember *Mahabharat*[5] towards which I was addicted totally. I here am trying to link my childhood with another theory of mathematics. By that time, we had already bought television in our house and could see on our own. Many interpretations used to come from my father as the episodes begin and ends and I used to have a keen interest in that. He was a student of political science, so his interpretation would be of the same type. My grandfather would be giving his interpretation based on his life experiences. Now, regarding my theories I illustrated it with my own logic. I was quite fond with the game there especially *Pasa*. I not only enjoyed it but also tried to make same kind with wooden blocks and always thought if I could make it out of slate pieces as shown in the epic. I practiced those things in my home and unknowingly I was into the world of math. I was not so good student in doing math but my culture within math was always alive and I used to owe math outside the school than what I have to reproduce in the school.

Reflecting oneself critically is very important. I now realize that I was quite mischievous. Every one used to tell me the same. I remember in the course of making *Dhanus bard*[6]. I practiced it by using a kite's curve stick with thread on the ends and used the brooms inner stick as an arrow. I used to get scolding from my mother saying that the broom is getting thinner and thinner every day. I again had to tie up the broom as all used to come out as it becomes loose as the number of sticks decrease s due to

[3]One of the main villains in the Hindu Epic Mahabharat.
[4] A sort of dice which is cuboids in structure
[5] Hindu Epic
[6] Bows and arrows

my pull out for my arrows that I had to practice every day. I also have a bad memory with such playing tools. Once my neighbor was passing by, she never used to like me and always irritate me saying that you are not nice, *kale*[7] etc. I also used to be very angry and thought if I could do something in protest. Once I was practicing my bow and arrow in the road as just outside my house is the main road she told me something to tease me, I became very arrogant and all of a sudden I told "*jay ram jee*[8]*"* and bowed down my head to the bow and arrow and left the arrow which straight went to her eye lids. Thanks to god, she closed her eyelids and it could not pierce it and just hit her eyelids otherwise I would have gone that day. I got a good beating from my parents for the mischievous act I performed. I felt guilty for what I did later but what to do I did not have had the time machine to sit and rewind the time to the future on one hand but as I was always irritated I thought it was ok from the other. Now, I realize I was a perfectionist in those things, which I never knew before I wrote this to myself also. I would like to join one more incident, which I don't remember but as it was always told to me as my useless deed. It was Holi[9] once when I was about 5-6 years old. I fell a Lola[10] with color in it and threw it to a lady in white clothes. Unfortunately, she happened to be a nurse and her cloth turned red as soon as the balloon busted. She turned back and saw me and she called a police standing nearby and came to me. My parents apologized for my useless event one more time and lastly I was freed.

I remember my childhood when we used to get two months of holiday in the winter after our final exams. It used to be quite logical that the children could rest and do whatever they like in the vacation. No worries, no studies, no tensions. Everyone

[7] Black in complexion
[8] Prayer to Lord Ram
[9] A festival of water and colours
[10] A balloon filled with water and colour

could be relaxed after giving their exams and plan for something new, something creative for the new session. Later the government planned to make it similar to the SAARC[11] countries. The students are pressurized allround the year and have no time for recreation. They are taxed by saying there will be having exam before the Dashain[12] vacation, exam after the winter vacation and all. All these exams may have hidden interests within them but I still disagree with the system. I remember the cold winter days. Winters used to be cold in Kathmandu 15 years ago due to small population and no global warming. I was a student of grade 4 or 5 perhaps. I used to play marbles a lot. Playing *khal ki baad*[13]*, hwakrang,kachi,tappu, teen dharke*[14]etc used to my childhood favorite marble games. I liked *khal ki baad* the most. It totally resembles gambling. It is a game which is played with 5 marbles taken by a person and thrown into a circular hole. He takes either even or odd numbers side and starts to play and the opposing team or players bet in the either way i.e. if I take odd then take even and vice versa. I find myself in a different position at that time as we all used to roam around big streets like Royal Palace road now Narayanhiti Museum[15] and nearby places to search for those cigarette covers. We used to play those things for money, marbles or *kitta*[16]. We never found our self shy as almost people of all our generation used to do the same. I still remember that there were no street children by that time otherwise we would feel some sort of awkwardness. I would like to relate my mathematical knowledge inside and outside school now.

[11] South Asian Association for Regional Cooperation
[12] The biggest festivals of Nepalese
[13] A game played using 5 marbles where if the even marbles remain inside wins else loses
[14] Games played with marbles
[15] Royal Palace Museum
[16] Cover of cigarette especially cigarette covers of expensive cigarette which could be folded in a special design and their value was determined as per its availability, lesser the availability more would be its value e.g. Dunhill cigarette and Camel cigarette covers would be those most expensive as they were very rare

I was a good player of *khal ki baad*, the odd even game. But I failed in mathematics in grade 5 getting 40 marks in second term exam. I went through the paper and we were asked 10 marks question to classify odd and even number which I made exactly opposite i.e. add was made even and even the odds. I was so champion in the game but the same became irrelevant in my classroom practice. I think I was never made to realize mathematics outside the school, never got the concept of ethnomathematics (D' Ambrosio, 2006) which I just knew after I joined Kathmandu University in a formal sense which I practiced after I began to teach.

We when were child used to be very playful in nature. Cycling usually from big cycle's Kaichi[17] was famous among us. Killing the birds for fun using Guleli[18] also cannot be forgotten as we were to make the matrangras[19] before killing them. These were some of the games that we played during our childhood which later became foundations for different educational theories.

Mathematics to me from the Perspective of a Student

Mathematics was sometimes related with a subject dealing with numbers and symbols. It changed a little when I grew a little big and started thinking it to be subject which would fail most of the students. Later when I was in grade 10 found it to be a marks scoring subject. In class 11 and 12 it was a quite interesting subject where we could find new theories supported by new logics. The view towards mathematics changed a little when I started to be in the bachelors' level. The theorems and its implications as they say could not go inside my head and the mathematics started being a foreign mathematics (Luitel, 2003). The analyses of the problems were never understood so mathematics became a subject that had to be just learnt to pass the exam. Having no alternatives left, I joined the masters' level in

[17] a triangular place in between the sit and pedals
[18] a homemade catapult
[19] a circular ball made of drying the clay

mathematics as a major subject. With many difficulties, I passed the level with/out understanding the whole curriculum. So mathematics to me also became a subject of great terror in the later levels which were to be read only for passing the level not for understanding the core concept of mathematics.

My perception towards mathematics changed after I entered the Kathmandu University where I found mathematics being a little different than that I had been learning in the other university. Actually, the course that I joined in K.U was also a pedagogical course when became very useful to me in my teaching practice and lastly helped me to be me knowing one self.

Mathematics to me from the perspective of a teacher

I started to teach since I passed grade 10. Teaching was in my body and soul. I always liked to share my ideas among my friends. I used to learn more when I shared my concepts with them. Sharing of each other's ideas was always a part of learning. Going among the best friends' home and staying whole night discussing about the exam was a continuous process. We learnt by sharing what we knew in a collaborative way.

I started to teach in the schools formally after I passed class 12. The teaching at that time was for time pass as well as to earn a small amount of money that could fulfill my expenses. Teaching in the school for time pass after few years back became a good job for me. I could swim in the lake where I thought I am good at. Teaching became a job for me and I could perform quite well. I was passionate towards teaching and it became my profession so I could really do good in that I felt and was happy for it.

In my earlier days of teaching, I was a student as well as a teacher. I was teaching as well as doing my bachelor's degree side by side. As a student of science, I

never understood the norms and values of education what and how it has to be taught. I assumed that the textbook that has been by the school is the thing that has to be completed by hook or crook within one year. “My grandfather got beating when he was a student, so did my father, same was the case with me and the process will repeat till my child’s time. So, the students deserve punishment as they are used to it”. This “philosophy” was guiding me when I first entered the teaching profession at the age of 18, ten years ago from now. Getting the punishment for the mischievous activities they do is the relative award the students gets was the “philosophy” I was carrying by that time as a baggage. Student and punishment are relative terms. They both go hands on hands. Students and punishment are complementary; one is incomplete without the other was what I felt. I always felt that it is very genuine punishing the student for the mischievous act, the egoistic attitude towards the teachers and disobeying the rules and regulation. I always thought that was the only method to get them in proper discipline. I thought beating the students will surely bring positive changes in the student. I tried that I and was successful for that instance. Lack of proper knowledge and guidance I would say I didn’t had any other alternative way outs than that. I practiced it even if I was told not to do so by my friends and parents as it would be a problem in the coming days. Beating other’s child is not good, they are sent to school to learn not to be beaten was the statement of my father usually. “Don’t beat them, let they read or not it’s not your headache, teach them if they want to learn, they will learn or not it’s their life. Leave them on their own don’t take any risk”. Despite of several warnings by my guardians I told it’s my responsibility to teach them. So by hook or crook, I have to make them perfect. I wanted them to do best and for that I used all my tricks and techniques. I practiced it for a long time. I must I was lucky enough, I never got complaints from the side of

children. However, this activity couldn't go along with me. As a proverb "Necessity is the mother of invention", I wanted to try new methods in teaching learning activity, which made me think on my past activities, and made me feel that I was wrong. Is beating the child the last alternative? Can't we have any other way outs so that the child is not punished but improved? The final alternative is beating but if the child still doesn't improve that what will be my next strategy after that. Doesn't the child have the right to study? If the child has, what should I do to retain the child and make the child good citizen for tomorrow without punishment?

What I always used to feel when I was a novice teacher in the beginning to what I have been at the moment really matters in the journey of a person. I really when I look back at my life I feel really strange. A teacher a really strict teacher who always felt that beating the students, giving them from left to right will only bring positive attitudes towards their theories and working have been changed to the person who have been arguing that the corporal punishment is really not good and is the optimum and has no any other alternatives after it. Were there no any other alternatives that I had so that I had to apply my hands to the students? When I rethink this I really feel very upset and try to recall my past and ask to myself didn't I had any other way outs?

Finding out the alternatives as I have mentioned is not as easy as we say. For us to open a simple way out a lot of search and research is required. The same amount of learning is essential. A person owns interest is required for the change.

Purpose of the study

The purpose of this study is to uncover my beliefs and practices regarding corporal punishment in mathematics classroom. I have looked at mathematics in various ways from various angles. I have been a student of mathematics for more than

20 years, a teacher of mathematics for more than 10 years and a critical thinker since past few years. I have found mathematics and its nature in different ways. The feelings that I had when I was a student for a quite long time continued by teacher who followed chalk and talk method (Pandey, 2010) varies a lot when I observe from the eye sight of a critical thinker. Mathematics was not same to me in all the levels. I here want to view why and how my feeling towards mathematics changed from a value free subject to a value laden subject, from a culture free subject to a culture laden subject, from politics free subject to a political subject. I have presented various narratives of my professional life as a student, as a teacher and as a novice researcher. My main aim is to reflect my own practices critically and show my changes that I occurred in my professional career. I hereby also would like to see why the transformation within me arose and what the circumstances that made me get those transformations were.

The research questions

I have not been same me. The surrounding nearby me is also not the same. Nothing can remain same or as it is because this is a dynamic world and we are all in momentum. Even the nature of mathematics and my perception towards mathematics and towards the students has also changed. My feeling that students will learn after punishment came to a dead end. My view towards mathematics as only was only learning theorems and making others learn it. But my perspective and view changed towards everything. So I have developed some research questions though which I can see transformation within me.

- Why and how did I find views of the nature of mathematics different in various educative stages of my life? How did it guide me to and fro of corporal punishment?

- How and why corporal punishment is is practiced in mathematics classroom?
- How a possible shift against corporal punishment came in my thinking to existence and why did I start to practice it? How am I practicing it at the moment?

Rationale of the study

The research that I did here will not just be beneficial for me for getting a degree but will be helpful for other people too. Its significance will follow the students for knowing different aspects of mathematics and where they can be really good at. It will also be helpful to teachers to know that mathematics is not only a pure value free subject but also a subject which is embedded with values. It will help them to know that mathematics is not only a one-dimensional subject but a subject which is related with socio-political and cultural aspect. So, knowing something differently as nature of mathematics will bring some sort of new vision in the teachers. It will also be useful to teacher educators who are working in the same field as well as useful to the curriculum developers who are replicating a euro centric curriculum who will feel that the local curriculum is unnecessary will also be made to think that it is also quite important. The study will also useful for policy makers in determining the new policy in the school.

Scope of this study

I here in my research will not claim my finding as “scientific truth” rather I shall make my study verisimilitude in nature. It shall give the sense of truthfulness. I am not writing for representing an objective reality, rather I am unpacking the journey of my becoming of a teacher. I am writing by giving particular view of my constructed reality. I shall show how I have gained my pedagogy as a critical teacher and the transformative approach in being so.

CHAPTERII

LITERATURE REVIEW

Chapter overview

Legitimating is the most important part of any write up. Only by presenting ones idea may not suffice the “proof”. So for that the voices of others along with ones thought counts. This section of literature review will be a support for its validity. I will here use autoethnographic flavors to present my entire dissertation. This auto ethnography will provide an identity of me being a teacher through critical reflective eyes. Self questioning about the work, change in self from an authoritative teacher to a child friendly teacher and the use of pedagogies in the mathematics classroom will be answered. In this chapter, I have chosen to review the literature in the areas that will best support my study. I will articulate the power of reflective writing. I will also clarify on the power of reflective teaching in changing my teaching practices as a result of which an authoritative teacher with cruel voice changed to a child friendly, child centered teacher. In this section, I will review the literature related to reflective practice; critical pedagogy; transformation i.e. change of every necessary aspect; issues and problems in mathematics teaching and previous researches done in the same field.

Reflective practice

A personal perspective of reflection will guide my study. The personal aspect of reflection is evident in the work of Dewey (1933), who is credited with its inception. Dewey (1933) posited that reflective teachers should consider the physical environment of the classroom in conjunction with the differences in the students’ motivation, intelligences and orientation. Dewey (1933) further states that for a

teacher to accomplish this, the teacher must be a well-educated professional who is actively drawing upon the tacit knowledge of the experiences and make decisions so students can learn and make their meaning. As I will investigate my practices, I should be open to improve in those areas for which the actions taken during instruction do not produce the desired outcome in student learning. The reflection will become personal as I struggle to construct my identity and improve my practices and still not being successful for a visible shift in being a progressively child friendly teacher in teaching of mathematics in the classroom.Reflective practice begins with a consideration of why we need reflection and also gives strong argument that it is very crucial for transformative process (Schon, 1983, as cited in Luitel, 2003). Hence self-reflection is the most important in case of a wellbeing.

Critical pedagogy

According to Lerman, (2006) theorizing power relations, identifying regulatory processes and pedagogic identities, and careful elaboration of recognition and realization rules within research are necessary features of a new ethnographic turn in studies on learning mathematics. We know that knowledge is auto generated by means of experience with the help of self critical reflection. A reflective person will get solution of problems according to pre experience of life.

Delivering what is there in the curriculum, doing all the problems of the textbook, making all the loops and holes clear theoretically, making the students score excellent marks in the exam or letting them bring flowering colors of marks in their result is not only the responsibility or the duty of the teacher but the teacher must be able to question back himself whether the thing or the course s/he is delivering is making them able to understand the mathematics that is required for him to be a proper citizen for tomorrow is more important. Correction in ones work, self reflection on ones practice, critical self reflection and thinking out of the box are key points to change self. Core content teaching and teaching of mathematics for the sake of mathematics is not the key agenda for teaching the child but a teacher must be able to place oneself into the child's culture understand the problem of a child be like a child then solve his/her problem. For all the states, the teacher must do research so research can't go apart

BE CRITICAL

Everyone said you should be a leader,

You are good at rhetoric.

To be anyone, anywhere,

I understood one should first be self critic.

Critical, critical, critical,

To question others work was what I understood to be critical.

Realized now the self reflection,

Is the main theme for being critical.

Not just questioning by pointing a finger,

Should be able to answer where the others trigger.

Teaching geometry, trigonometry and factorization,

Will be better after self critical reflection.

When one unpins self, understands the pedagogy,

Then is just able to read the childs psychology.

One has to know the technology,

from the teacher. The teacher will not be able to continue the classes by making an ethnographer give the feedback about his/her class so he himself needs to be with the research. So, I believe that a teacher as researcher is the most relative and authentic metaphor for a teacher. For all these the shift in the paradigm is necessary i.e. the nature of teacher must definitely be changed from just delivering what he knows to what he should know.

Teacher always was someone whom I always thought was deliverer of knowledge. My practice also said me the same. I viewed the teacher as the box of knowledge similar to the Pandora's Box who could deliver the required knowledge as per the necessity of students of the class. I always found the same in my practice when I was a student. I always thought that they have huge, massive brains which I can never have. I always thought if I could become as my teacher and have the big brains as they have. My experience as a teacher also became the same for a quite long time span. I could not reflect back on what the students want or they understand. I always thought that they should understand what I teach as I was a teacher who delivers and they are the one who receives. After teaching for certain years, the practice made me understand that what I was doing was not so appropriate even the students liked my way of teaching. I tried to change a lot in my way of teaching which I now understand as it was me being critical.

According to Hackenberg & Mewborn (2004) as in Pandey 2011, I came to know that critical pedagogy challenges to recognize engage and critique about any existing undemocratic social practices and institutional structures. It concerns with the politics of education, which includes the structures of schools; the curricula chosen; the treatment and preparation of students and teachers; the relationship of schools learning to community, national and global events; and the purpose of public

education. It seeks to heighten awareness the issues so that people will be empowered to make changes toward more equitable and more democratic practices, relationships, and institutions.

Kincheloe (2008) says that critical pedagogies involve more than learning pedagogical techniques and the knowledge required by the curriculum, the standards, or the textbook. He says that critical pedagogy is a challenge to all who are engaged in teaching learning activities. He believes that nothing is impossible. A critical knowledge seeks to connect with the corporeal and the emotional way that understands at multiple levels and seeks to moderate human suffering. Critical pedagogy works to help teacher educators and teachers reconstruct their work so it facilitates the empowerment to all students. Being critical actually to my understanding, what it was before and what I have understood after discussion has a large gap in it. Only commenting others does not only mean it but looking to self and able to reflect upon oneself also means being critical. I always narrated one statement to my students when I find them doing some mischievous work like cheating during exam, speaking false statements, trying to cheat etc I said "You can cheat the whole world but you cannot cheat yourself". I realize now these words came to me because I was one among those who thought self is great. I am asking to myself was I critical to say those lines as I think self is rather important than other.

Every second that is experienced now becomes the past after each succeeding moment. A person who is able to review his past so that we can secure his present and have a better future is said to be being critical whereas just commenting others practices is only not enough in being so. Yes, of course others practices should also be able to challenge for the improvement but own reflection is the prime source for doing and being so.

What am I doing at this moment, what are my practices, what is the reason behind these practices, how did I use these into my practice etc all the questions if are answered by one self then I think we are in the first phase of being critical. As said by a proverb "A journey of 1000 miles starts from a single step" the same is with being critical. So in this phase we need to look at our self first then to others. Self-evaluation and change is more important before commenting others. Obviously, when we speak about criticizing it is again not only looking just at us but the grand narratives that are being followed from a long time back, the hegemony of others into own work, the bureaucratization of the working process should be challenged which all lie in being critical.

SELF TRANSFORMATION

What I was?
And what am I?
Is a big question,
Of how and why?

Once who taught,
Just set and range.
Is telling you mathematics,
Consists of sense.

Mathematics is not just time,
money and rate.
But also leads the,
World to emancipate.

Who I was?
And Who am I?
Is a big question,
Of How and why?
Is a big question of
How and why?

Lastly, being critical means being able to challenge not only others theories and practice but challenge own facts, feelings, practice so that a reformation will be seen today which will lead to positive transformation tomorrow.

Transformative learning theory

To be oneself is really difficult. I have been looked as being as a carbon copy of my teacher there. Me being myself is also determined by me trying to be as someone who can leave some image in me which made me feel bad some time tried to find out the identity within me but later realized that I am myself not any one other but just the one who tries to purify oneself as one does by looking at the mirror everyday in the morning. I am thankful to my teacher who made me realize that I also can be reflective, critical and transformative like him. I also would thank my teacher who always wanted me to be myself.

Transformation by the word was always understood as the process of shifting of an object in terms of both position and size to a mathematics teacher like me. According to Mezirow (2009) it is the process of effecting change in the frame of reference. Luitel (2009) says the concept between being informed, being reformed and being transformed are all different. Being just known about and matter or material or the status of a place or certain scenario gives the concept of information. Knowing and trying with the certain movement than the static motion is termed as reformation whereas understanding the whole scenario and trying out some new features than the status quo is known as being transformed.

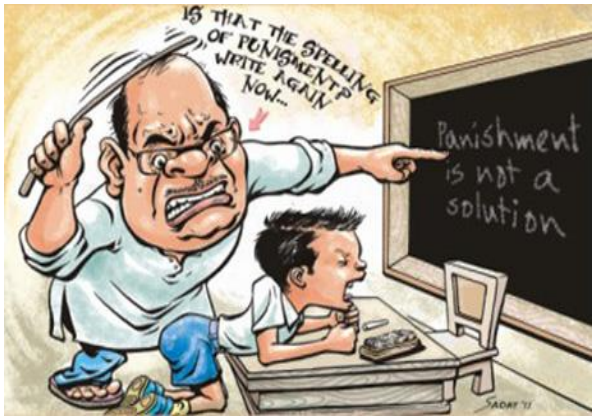
The real sense of transformation only came into existence when I change my self from what I was as a change from a caterpillar to a butterfly as Belbase (2006) states in his journey in his dissertation. Same case can be observed by me when I changed myself from an authoritative teacher to a progressively child friendly teacher. Kinchole (2008), further states on critical pedagogy issue is a challenge to scholars and social activists to push the boundaries of knowledge, to go

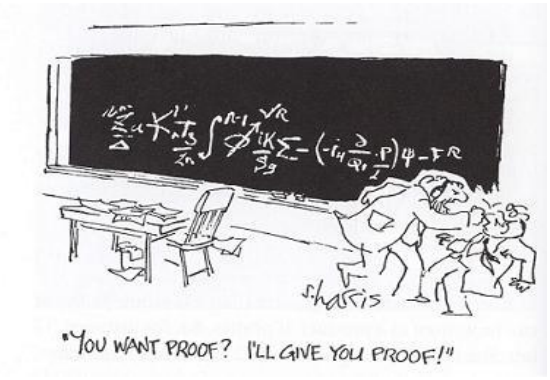
to new epistemological places, and to employ the insights gained for the larger social good.

Transformation is really essential for becoming what you desire to be from what you are being now. The change in human is essential. Bringing out some changes in oneself for the betterment is transformation I understand. I always thought that I was a good teacher in mathematics from my angle. I was a teacher who always had feeling towards teaching mathematics as it is a subject where I think I can show magic and the students can be mesmerized by my charismatic teaching style. I always tried to connect mathematics with magic and tried to make students too its technicians. But I forgot that other parts are also equally important to teaching. I also had a feeling within me that I can teach excellently and can make my students excel in the subject matter. But I never knew that for teaching to have also aspects like being critical, self- reflexive, understanding the class room culture, politics and being well known with the social aspects is also important. The transformative process started in me when I was with the team of Kathmandu University especially people like you who could not only enlighten the knowledge but help in emancipating oneself. Cohen as cited in Luitel (2009), says “There’s a crack in everything. That’s how the light gets in”. This statement is so strong in itself that if we try to analyze it we can totally be transformed. Trying for some new change can be the starting vantage for being transformed. Transformation is really important for the mathematics educator like us because still in our country we have a tradition that what eve is there in the book is to be taught which really does not imply. Teaching the things in the textbook for the sake of doing job is one of the biggest problems of the country. We need not just be transformed in our selves but make others also change. The leading role or the foundation stone have been laid by our teachers and we need not just follow it but try

to make other transformed too. Learning and teaching of mathematics was and is still considered to be done in a pure approach. Learning mathematics as well as the content of mathematics both are considered to be pure. But the nature of mathematics should be neither pure nor impure totally. Luitel (2009), believes its nature should be im/pure which is neither impure nor pure body of knowledge. Similar is the concept of a teacher. They should be transformed to take such courses. If we want our nation also to be a developed nation we need to transform ourselves. Transformation not only means the transformation in thought but in all. Transformation in thinking, transformation in teaching, transformation in making the students emancipated all should be present in transformation so that we can have a better Nepal with all the people being emancipated for mathematics literacy.

Punishment-based teaching





A teacher who had a baggage following him that anything not in a proper track can be brought in track by punishing the student came to a conclusion that the punishment is not the final alternative. If anyone repels or does not come to track as stated what will be the next step to bring the child's attention towards study without hating the subject, subject teacher and the subject matter became a big question to answer. Actually by beating the child's/he are not going to obey and like the subject. Punishment harms the child more than brining him/her to positive direction. Nunley (2010) writes,

> Research tells us that punishment is ineffective. Psychologists are in agreement that punishment does more harm than good. Thousands of studies and years of practice show what punishment does teach are fear aggression and avoidance. People who are punished do not quickly learn to stop a behavior - what they quickly learn is next time don't get caught, or let's just avoid the whole situation if at all possible. (p. 1)

Punishing the child may make him do his homework for a certain time, make him come to school for some number of days but at last the suffering the child is getting cannot be forgotten. We aim to make the students in the proper or right track but by using improper of false means that is by harming them. We also need to look at the long term effect the child suffers when the child is punished. It may not do as good as it does harm. Hence, by punishing the students thinking for their betterment has to be overcome by giving the students autonomy and making them self-responsible about their work.

Nature of mathematics

Being critical or just trying to be reflexive was not enough to be a knower of mathematics education. Knowledge about the nature of mathematics in different versions is quite important. As the statement of Plato, mathematics was considered as pure as god at that time. So was my thought. My feeling towards mathematics was somewhat similar to Plato as he too had a statement in his school as “No one ignorant of mathematics enters my class”. I too took mathematics as a pure as a complex and abstract in nature. The alternative nature of mathematics is it being a blend of pure and impure mathematics. I too agree with the view of Luitel (2009), about the view on the nature of mathematics as it being a composition of im/pure mathematics rather than being completely pure or completely impure. Mathematics has been always

viewed as a value free so the mathematics pedagogy is also considered a free from culture politics and personal vantage points. But as going through the papers of Skovsmose (2009), Keitel (2009) and Lerman (2009) I came to a conclusion that mathematics and mathematics pedagogy cannot be free of socio cultural aspects. Mathematics what I understood as a value free in many of the aspect but found it can never ever be value free but it is totally value laden subject as justified by Skovsmose (2009) where he shows the challenges for mathematics education research. Neutrality, transparency and progress are the assumptions he discusses in the paper through which mathematics education research can be held. Socio-cultural and political issues are also to be taken into consideration when the research in mathematics pedagogy is to be done or conducted. The pedagogical research is context dependent, politically driven and influenced by the value systems of researchers. Actually the theme is to focus on the lost humanness from the pedagogical territory which is due to social, cultural and political turn in mathematics pedagogy.

As Skovsmose (2009) tries to state that there can be the political and socio cultural aspect in the mathematics pedagogy and I too agree with his statement. Whose interest is being served in the mathematics education also plays a very vital role because who is being taught is very important. The writers like Skovsmose (2009), Lerman (2009) and Keitel (2009) tries to address on the emancipation of the students through getting autonomy to make them be active citizen for tomorrow, be a mathematics literate who can deal the simple logical problem in mathematics related with their daily life. The overall intention deals with making the students or the mathematics learners' active rather than making passive citizen who can talk in the public sphere questioning the status quo of the so-called good mathematics. If we try

to think once what we are learning or what we are teaching even it is science or mathematics it is same the old Eurocentric mathematics and science. The world is now galloping in the supersonic speed and we are still following the others mathematics don't we have anything of our own. Why is it so? We have our own culture and society so is our mathematics. So why is it felt as if as we are far away from our own culture? We need to focus on our culture too. Being based on the notion of D' Ambrosio (2006) I hereby want to focus on the cultural mathematics agenda of learning mathematics. We perform mathematics in every loop and corners and we know it, but once if we try to focus on the real learning situation we are again back to the Eurocentric mathematics curricula. Why are we not able to develop our own mathematics? Why are we not able to teach in our own context? Why do we forget we too have something with us? We should try to incorporate our own mathematics so that we also can claim mathematics learning as a social process. I too agree with Luitel (2003), that mathematics is to be made as cultural product. The classroom culture and politics is also to be considered when the subject is to be taught. Luitel (2009) also believes that the politics, culture does not mean or try to relay with the big culture or the big politics but the politics and the culture here try to relay the concept of class room culture and classroom politics. So all important things here are about the context and the curriculum should be made taking care of the socio, political and cultural context.

Mathematics for Citizen

We are in the generation of technology. Everything is associated. Our life worlds are related. Perhaps, we may not separate mathematics from other subjects and day-to-day activities. Thus far, our mathematics education focused on providing mathematical knowledge as a alienated and a separate discipline. Our school

mathematics needs a vision that concerns with mathematical literary that can also provide skills necessary for local and global citizenship, for we need to develop skills and abilities to perform a two-way border crossing.Thus, I would like to subscribe to the view of citizen mathematics for my future practice and that as a public educator I would prefer this mathematics to promote social democratic ideals(Swetz, as cited in Nikolakaki, 2011, p.1).A citizen with civic senses needs mathematics because many decisions that directly affect our lives. Hence, we need to advocate for making mathematics for all the citizens not for some.

Chapter Summary

This chapter incorporates wide array of research issues which deals about the theoretical referents which I have undertaken during my search to answer to my research questions. Reflective practice, critical pedagogy, punishment based teaching, mathematics for citizen, transformative learning theory, nature of mathematics are the key theoretical referents addressed for the research.

CHAPTER III

METHODOLOGY

Research Design

This chapter deals with methodological aspect of my proposed study. This chapter has been divided into two parts. The first part deals with research methodology – general principles which underline how we investigate the social world and how we demonstrate that the knowledge generated is legitimate. In this section, I will mainly focus on research paradigm, my ontological assumptions, epistemological stand point and my value system, beauty of doing qualitative research, the appropriateness and relevance of autoethnographic study. The second part deals with research method- more practical issues of choosing an appropriate research design- to answer a research question, and then designing basis to generate data. This section includes strategy of proving my text legitimate and useful. It will also consider the ethical issues of the study.

Research Paradigms

Paradigm for many is a broad framework of perception, understanding, belief within which theories and practices operate. It is a basis for comprehension, for interpreting social reality. Generally, it is a way of seeing; a frame of reference. A research paradigm is a perspective about research held by a community of researchers that is based on a set of shared assumptions, concepts, values, and practices. More simply, it is an approach to thinking about and doing research. My study will not only interpret the data that I will generate through various methods which I shall discuss later but also will be critical as well. Critical here does not again symbolize criticizing others work but rather refer to self-question the past practices. Also I shall not follow

any grand narratives that have been so called as the structure so the flavor of post modernization can also be found in some parts of my study. So, for my proposed study, I will use integralism (Luitel, 2009) paradigm. Integralism is a single paradigm but I shall try to make it a blend of three paradigms. I shall show briefly how this multi-paradigmatic research design spaces constituting of hybrid research methodologies will be a part of my research design. I will be taking some flavors of interpretivism, some parts of criticalism, some essence of post modernization and some part of positivism. Taylor (2008) writes,

> The interpretive research paradigm is concerned primarily with generating context based understanding, and its social constructivist epistemology foregrounds the researcher's unfolding subjectivity in making sense (hermeneutically) of his/her research participants' meaning perspectives. Hallmarks of this paradigm are Guba and Lincoln's (1989) quality standards of trustworthiness and authenticity. (p. 6)

I as a researcher will use this paradigm of interpretivism as a tool of creating emergent research questions, emergent modes of inquiry and emergent reporting structure where the subjectivity of the researcher is always maintained. Moreover the active view of a researcher can be maintained.

Moreover Taylor (2008) writes,

> Critical paradigm is a transformative concern with promoting social justice, acting on the world to make it fairer, more equitable, more inclusive and more harmonious, indeed going beyond interpretive understanding to redressing social injustices through advocacy and active engagement as culture workers. Critical researchers employ ideology critique to understand critically key sources of social injustice within the structures of society and the habituated

> behaviors of enculturated individuals (including themselves via critical reflexivity). (p. 7)

Hence, I shall be using this paradigm to evoke out all the suppressed voices. Furthermore this will help to bring the emancipation within self at least through developing critical conscience and higher order thinking skills.

The concept of the paradigm of post modernism shall challenge the grand narratives as a result of which my dissertation will not be a six chapter structure post structuralism and various genres of writing along with the artistic flavors will be indulged within it. Taylor (2008) also says “Postmodernism elicits both fear and favor via its basic principle: be suspicious of all grand narratives (including that of postmodernism, respond its critics, not without irony).

Therefore, my research qualitatively tries to understand and explain research topic “A voyage from past to present in search of progressively child friendly teacher: A transformative autoethnographic journey” and will focus on explaining my shift and the turning point of life which made me stand today at this stage.

I shall try to bring out my dissertation on the basis of subjectivity. But the truth as mentioned by Kinchole (2008)as is the moment of practice, and cannot be away from the objective world. I shall be using few contents of positivism to bring about objectivity in my thesis.

While using this paradigm I shall use data texts, confessional stories, semi-fictive writing, narrative constructions based on nodal moments to make my writing more lively. Writing as inquiry will be my mainfocus, which will help me to inquire self as well as others during my research process. As stated by Richardson & Pierre(2000) as cited in Poudel (2010), I have told more stories, invented one more history,invoke one more discussion of the intricacies of theories and praxis. In my

research, writing is not separate from the inquiry, rather it is the constitutive of inquiry. I will try to incorporate different genre of writing like poems, narratives, vignettes, arts- based approaches etc to prove my deep immersion into the study as well as to give the beauty to the data text. As I have already stated that I am not bound with a single paradigm and will blend different paradigms into my research study as a consequence of which postmodern aspect is one I will not follow the structure that has been followed which is known to us as the six chapter design. Addition of the chapters as per the context, time and situation may be the quite similar to its removal. Emergent design will be given more emphasis rather than the old structured one.

I believe myself not to be a single, saturated and an ideal personality but consider myself to be a product of society, culture and politics. I am neither value free nor valueless identity but an identity that is born for creating an emancipated, justifiable power relationship in the society via the means of transference of knowledge. The concept of metaphor shall be used a lot in my work. The straight forward meaning that a simple literary approach cannot deliver metaphors can. So metaphors shall resemble the in depth meaning as well as the expected interpretation. I shall be using auto ethnography as a genre, as phenomenology, as a critical project, as hermeneutics as well as envisioning alternatives (Luitel, 2007).

Autoethnography as my method and methodology

Going into the literal meaning autoethnography it consists of three simple words. Auto meaning self, ethno meaning culture and graphy the study of culture, are the components if they are studied separately in a layman sense. Here in this method or methodology what so ever we say it is a tool where we can study ones or self culture by being self indulged with it. Autoethnography is a current methodology of research method. Ethnographic researches are highly increased in current time period.

As we know that auto-ethnography means study of others linking activities of self. As our understanding study of problem faced by others by linking together with self is auto ethnography. According to Spry (2001), Autoethnographic performance is the convergence of the "autobiographic impulse" and the "ethnographic moment" represented through movement and critical self-reflexive discourse in performance, articulating the intersections of peoples and culture through the inner sanctions of the always migratory identity.

Self is active participant in this research method. Research problem will be obtained by own experience and solution will be obtained with the help of such experience in different steps of life. The experience, views, narration during the life gives important result for future. So study of experience or in other hand study of life is itself a valuable subject.

Autoethnography is the methodology of research under critical paradigm. A person in whole life is more than a book where life and world are attached together. The person self is known by simple view but unknown by depth view. Writing as inquiry will be my method within it. The person to know self is himself/herself but may be insufficient. If the question be asked "Who am I?" the answer is easier, the answers are multiple but will not be sufficient. So, study of self by asking questions may get solution. In other part study of others is performed and in combination form it is being autoethnography.

Autoethnography, however, values these memories and seeks to connect the details to each other and to the present, all in a way that gives new meaning to the present. The scholarship of Carolyn Ellis remains particularly influential in my self-study. Ellis (2000) notes that in order to achieve the maximum benefits from an

autoethnography, the subject must write toward vulnerability. In other words, the details and experiences recorded must be honest and personal, so much that they subject the writer to vulnerability. As per (Lerman, 2006) cultural prospective sees all meanings as socially produced, physical experiences too being interpreted through the local cultural practices. Individuality is the expression of the unique set of socio-cultural experiences, gender, class, ethnicity etc. it means out all knowledge industry are attached with our society and culture so we need to relate our mathematics with our own context.

Autoethnography is defined as a genre of writing and research that displays multiple layers of consciousness (Ellis, 2000, p. 10). Sparkes (2000) describes, "Autoethnographies are highly personalized accounts that draw upon the experience of the author/researcher for the purposes of extending sociological understanding" (as cited in Wall, 2006, p. 2). Autoethnography reveals concretely realized patterns in one's own actions rather than the actions of others, a form of research we have come to know as ethnography (Roth, 2005, p. 4). It means it is an emergent ethnographic writing practice, in which authors draw on their own experiences to extend understanding of a particular discipline or culture (Holt, 2003, p. 2). To some extent the tradition might be similar to the other researchers because the nature of autoethnography bounded all of us. However, there are so many differences in micro level that readers can experience. For example, the research questions, way of designing research, the events and experiences, the meaning that we made from the inquiry and its purpose distinguish how our inquiry is different than others and meaningful to us as well. Researcher will try to explore his/her personal 'political' agenda and disclosureness of the past to some extent. The idea of critical reflexivity entails the notion of exposing me as well as being self-conscious of my own

(unfolding) subjectivity (Luitel, 2009). Visualizing our past if we go ahead, of course we get wisdom in life. Extra knowledge will be obtained if we read the whole book of own life. We are feeling our self, that the process of studying life gives pleasure and improves self-confidence. But some where it creates painful situation of life. When we remember sad situation of life, we feel uneasy and want to forget it. But reality is just reality which remains always same and we have to accept it with happiness. We are feeling truthfulness within us. So, I have used to reveal my experiences using autoethnography as both method and methodology.

Epistemology

Epistemology is the way of knowing. Taylor (1998) also takes it as the thread of knowing. Every individual is different so we need different knowledge. If all would have been same single knowledge will have been more than enough. The knowledge conceiving process is known as epistemology. It can also be understood as the nature of knowledge as well as the belief system about knowledge. I shall construct the knowledge or the process of knowing again in the terms of metaphor. I shall consider knowing as interpreting the context in own as well as others level of understanding. Constructing the new ways and views of knowledge shall be given more preference. Knowledge to me is contextual and can change relatively to time and context. Knowledge that I shall grant or generate during my study will be soulful and intangible which shall give help in personal meaning making and relate it in owns life. More strong forms of language, performative stories shall be taken into more account than connotative which will help them to perform or prepare for their future. I shall not just focus on telling my own story but also question the status quo i.e. the old practice. Epistemology of absence will be taken into consideration as day explains night.

Ontology

Ontology in a simple sense is understood as the ways of being and becoming. As mentioned earlier I shall not be positivist following the grand narratives so I pre assume that realities are not same for each individual. It is again the game of time and space. I shall be using the concept of subjectiveness rather than objectiveness. I believe in the system where I can have multiple reality embedded within an individual. So I believe on the ontology of change/motion rather than ontology of rest/statics as I believe that everything in this earth is changing in a supersonic speed and so is the reality. So there is a possibility of many truths. I totally agree on the statement of Kinchole (2008), as "Truth is the moment of practice". So for me the moment we take anything into action is more important than the so called truth. I also agree with the statement of Luitel (2009), as really unity in diversity is the key concept of being and becoming.

Axiology

What is the value of anything? Richards (2003) explores that axiology deals with truth or worth. Anything is to be made value free or value laden it depends upon an axiology. A teacher may say mathematics is value free text; it has nothing to do with the society then it is its value and represents that mathematics is nothing to do with the context. But if we say it is value laden then the scenario becomes quite different and may have an opposing interpretation. In my study I shall give value to personal "political" agenda as well as value shall be given to the personal practical knowledge. Similarly the disclosureness (vulnerability) of own past experience will be done till some extend.

Data Text Sources

As my methodology will be auto ethnography where I shall be writing my research on the basic of my own life history I shall not be roaming around for any sort of collection of data rather I shall be generating my own data from my past events. The past events may be the reflections of my past deeds, critical reflection on the nodal moments. So data generation will be given more importance than data collection. The reflection on the critical moments of life will also be an evident for my data. Professional personal experiences, constructed memories, diaries, self created stories, poems, reflective accounts and semi fictive writing will be my data sources which will help me in creating a *datagenic* scene for my research. I shall be representing my voices through multiple logics and genre where non-linguistic genre is also one of them.

Quality Standards of My Research

I shall make my writing to be as if it is true. My writing will not have any result in fact and figures so I will make my research having the quality of verisimilitude which means truthfulness in nature. Any reader of my research will not find data text in my research to prove my research valid but will find the value of truthfulness and the reader will find the document as if it is their stories and can be generalized in their sense too. After reading my data text the readers may also reflect their practices that may bring about the changes in their practices too making them rethink upon their teaching and learning methods and methodology. This will help in bringing out the pedagogical thoughtfulness as one of the prime quality standards. My research will also have the quality of being transferable as it has already been mentioned. The research will help in making of generalizing the critical reflexivity among me also and help in making other critical. Finally; whole scenario will be

crystallized to give some concrete result. Making self and others pedagogical thoughtful, critical reflective and verisimilitude will be the quality standards which will help to make my research trustworthy. At last my research will have theoretical significance for my context. But what so will happen I shall keep the active views of being a researcher (Kinchole, 2009) than a passive one.

Ethical issues

My research as already mentioned is an autoethnographic research so as the data will be generated by me being based on nodal moments of life. So my research will be connected with my many other people except me. My student life as well as my teaching carrer is not just related with me but many other people with me are connected. So, my narratives will speak about many people who came in consideration. My teachers, my students, my classmates, my friends my co-teachers will also be the actors in my auto ethnographic research. In this research, I will keep the participants as unidentified as far as possible.

Chapter Summary

This chapter incorporates wide array of research issues ranging from autoethnography as a method and methodology, integralism as my research paradigm which is a blend of interpretative, criticalism and post modernism. Verisimilitude, pedagogical thoughtfulness, praxis and critical reflexivity has been chosen as my quality standards as rigor of criteria dealing with ethical issues to be addressed for the research.

CHAPTER IV

NATURE OF MATHEMATICS IN VARIOUS EDUCATIVE STAGES OF MY LIFE

Chapter Overview

In this chapter, I address the first research question, which is "Why and how did I find views of the nature of mathematics different in various educative stages of my life?" Mathematics did not always become similar to me. It was sometimes absolute in nature whereas sometimes became very fallible. Somewhere it behaved as a pure source of knowledge where as somewhere totally impure. I will bring the narratives related to the nature of mathematics in different stages of my student life and professional life. Then, I will discuss the narratives under certain themes with the help of related literatures.

Get your eye sight checked

I hardly remember how I learnt mathematics in my childhood days. Very faint remembrance of it remains in my brain somewhere, maybe I studied just for reading purpose that's why it is so, maybe I could not apply the things that I learnt in my daily life or may be due to some other un/known reasons. I remember how I became used to with numbers but it's because of some different event not because how I practiced it in the school.

It is somewhere in the year 1988, I am about 5 years old. I can remember it is the time of winter. Cold, chilly, shivering evenings were all on. I remember, I was playing outside my house. My father and grandfather called me inside the house. I went inside. I was asked to stand a few meters away from a wall. An old calendar is

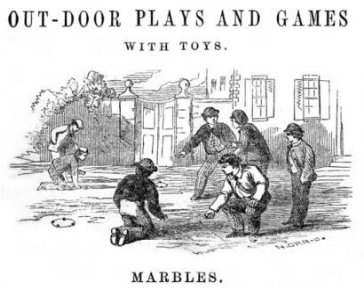
hung on the wall. My father stoodinfront of the calendar. My grandfather stands with me somewhere about 2 meters away from the wall. My father points to a date on the calendar and tells me to read it. I could see it properly and I read. I even could read the dates in English calendar. I read that too. My father and grandfather both smiled looking at each other. Almost they made me read all the dates present in the calendar randomly. They were happy. I was also happy as I could read out all the numbers there properly without any mistake. Why I was made to do this? I thought till a long time. Everyone might be thinking it is for the purpose of making me known to numbers. But the purpose was something different. Actually I was being tested to my eyesight. My father had a disease related with eye, known as Retinitis Pigmentosa[20], which was believed to be a genetic disease which could be transferred to the offspring. So, I was being checked of whether I had such disease or not rather than making me known to mathematical numbers. In this way my journey of mathematics started. Since this age, I can remember me reading the data text. Playing outdoor games were the only options that were present with me. Collecting the bottle caps of coca-cola bottles was for fun, counting it as the one who had the most and creating various patterns from it also made me learn mathematics too. The more caps one has was considered to be the richer in your friend's circle. This way mathematics was learned with fun with playful method.

This above story portrays that mathematics can be learned with fun. I had learned mathematics in the similar way during my childhood. Actually my parents were more worried about my eye sight rather than me learning mathematics or any other subjects. He did not want me to be in the same situation as he was. So, knowingly unknowingly I was learning mathematics as I could revise all the numbers

[20] An eye disease where one has both side and night blindness.

that were written in the calendar. No one pressurized me to read, nothing was done for learning but I could recapitulate the numbers in my brain even if when I was not punished. I along with my friends used to spend a lot of time playing our own games in groups that helped to shape up my mathematical knowledge from the very beginning while collecting bottle caps for designing patterns. In my childhood, we used to roam around, play with each other different games like football, marbles, stickers etc. But I tried to co-relate these things with my learning now and I find they have been foundational basis, building blocks to my theory of mathematics. Scribner (1984) as cited in Sharma (2012), argues that mathematics of different groups in everyday settings showing that mathematical knowledge is generated in a wide variety of contexts by both adults and children. Playing and learning can be more effective than forcing the students to learn. Completion and not letting students play during their young age can lead the students to get far away from the interest in learning. Rokade (2012) also says that if we engage the child in doing task in a playful way the child will not feel and stress and pressure of the subject and which helps the child to learn more easily and the teacher can create fun game out of it for better teaching. So in this way I was in the process of generating my mathematical knowledge.

Different numbers inside and outside the class



While I was student at the school, I could never be a good learner of mathematics till grade 5. I really feel pity on myself to reveal the incidence that I failed in the examination off mathematics in grade 5. I was sort of 10 marks to pass and I was unable to classify even and odd numbers in the exam. But it does not mean that I didn't understand the concept. To

tell the fact, I was really good in playing marbles. While playing marbles, I liked to play a game named ***khalkibaad***. It was a game played between two opponents where the bet used to be kept in odd and even numbers. We used to bet for marbles, money and***kitta***. One used to win if he asks for odd and odd comes or vice versa. I used to win a lot of marbles, money and kittas that means I knew mathematics but unfortunately I used to fail in classifying the same in the class. So the concept inside the class and outside the class varied a lot. I was good for playing but not good scoring the number in the exam. So I understood mathematics as a very hard, raw subject till my lower secondary level of learning. My feeling towards mathematics became somewhat mixed like this on that time.

I always found the mathematics that is used in the classroom and the one that is used outside in the real world really does not seem to have any connection or if it has seems to have a very little connection. This may be one of the fact because of which I have been able to know about "*jod*[21]*"* and "*bijod*[22]" while playing marbles with my friends whereas not knowing about "*odd"* and "*even"* numbers in the class while taking the examination. When I sit and think now all the games that I played had some link with mathematics. Playing football not only gave me the tricks and strategy to play but also helped me to visualize how the ball travels in the air, which helps me to see that is follows certain pattern of quadratic equation. Playing stickers when the same picture in both the friends' sticker has helped me to teach the concept of like and unlike terms and set. Playing marbles has helped the concept of number system and many more. These are few scenarios that I am revealing but still many more remains unrevealed. So, the mathematics that we teach inside the classroom should be able to bridge in the real math and the classroom math.If there can be a

[21] even
[22] odd

proper link of mathematics inside and outside the class then the student will not require any punishment as they will understand it more easily.

The linkage between the mathematics inside and outside the class really is different. Formal mathematics is an expression of mathematics as culture-free subject which also can be a politically motivated expression for not incorporating knowledge systems arising from people's practices (Luitel & Taylor, 2007). The mathematics that we feel everyday, which is in our culture is not considered or taken into consideration. Belbase (2006) also puts his argument that informal mathematics should become a basis to learn formal or academic mathematics at school and college. I also fully support the idea of Belbase (2006) and put forward my view that the connection that is missing or very faint should be strengthen so that it becomes easy for the learner to learn and understand mathematics.

Subtract and add,
Lowers the fat.
Divide and multiply,
Don't think of very high.

Decimals and percentage,
Puts us in cage.
Profit and loss,
Can make us boss.

Don't think easy of,
Decimals and fractions.
If answer is wrong,
Teacher shows the actions.

Name is simple interest ,
But problem isn't simple.
Just you solve the problem
and you will have a dimple.

Values on equations,
Make us mad.
By luck if it's solved,
We will be most glad.

In daily life
There is no x and y
But in algebra
Why, why, why?

No connection! Why? Why?? Why???

I wrote the poem mentioned in the previous page when I was in grade 6. The poem portrays the feelings about mathematics as a subject I like but am really unable

to understand it completely. The feelings towards mathematics can decrease if there seems no connection with the real life or can't find anything learnt around. So, the mathematics that we teach inside the classroom should be able to bridge in the real math and the classroom math.

The linkage between the mathematics inside and outside the class really is different. Viholainen (2008) found that connecting informal and formal reasoning was often difficult for the students. Inability to use the definition does not explain this tendency, as several students were able to use the definition when they were asked to do so. The result indicates that crossing the line between informal and formal representation systems is difficult for many students. My concern is similar to that of Viholainen (2008). So, I argue on the appropriate use of formal and informal math to bring synergy in the learning activities.

What an awesome teacher!

This is somewhere in the year 1996. I am a student of grade 7. I still have the same kind of feeling towards mathematics that it is different what we read in the class and the real life mathematics is different. Even if I could do the problems of my math textbook I had already became weak in mathematics and could not perform better in the exams. The informal knowledge of mathematics was sound but the classroom performance was not as it should be. Always average scores was my trademark.

A new smart good looking teacher came to teach us. His personality influenced me. The way he spoke to us made us spellbound. I was so impressed by his fluency and command in English language. I have never faced with such teacher who could solve difficult and lengthy mathematical problem within a limited time with such high confident. I can remember

the first class he took. He came and wrote in the board with chalk. The handwriting was as a printed text. He asked the name of all the students and could remember all within a short time interval. He had good memory techniques I believe. He took a test of all the students to know their level in mathematics. The next day the encouraged all of us that we all were ok in mathematics but needed to work more hard on certain areas. He dealt with all the students individually and suggested their areas of development. He encouraged everyone. No one ever before had ever encouraged us in that manner. He started to teach us the fundamental of mathematics which helped in laying the foundation of mathematics. Impressed by his teaching techniques and encouragement, I started to love mathematics. I improved a lot and aimed to be a mathematics teacher as good as him. From that time I started to get very good marks and that class became my foundation for learning higher mathematics which may had been out of my reach if he would not have come into my life.

From the narrative above I felt that the teacher inside the class can bring about a change in the students learning capacity. The encouragement, appreciation, help and support that I got from my teacher was really very worthy. Ticha & Hospesova (2006) describes that all changes of the character of education and improvement of its quality depends particularly on the teacher. They further argue that to be able to do their work efficiently, teachers have to be equipped with professional skills and dispositions, with their competences. This shows that teacher plays a vital role in upgrading, motivating, inspiring in learning mathematics inside and outside the classroom. I also believe and agree with Ticha and Hospesova (2006) regarding the role to teacher to motivate and encourage the class. Actually what I feel is teacher is the only one who can really bring U-turn in one's life. Hence, teacher's teaching style, the way of delivering the content and the way of making the student understand the content are

most important for the student to have a positive attitude towards the subject matter as a result of which the positive improvement can last long.

Mathematics for securing marks

It is somewhere in the year 1999. I got 63% in my qualifying exam for S.L.C. examination. I was given a hallmark of an average student by my teachers, my parents my relatives and all others. I felt very sad for this. Two months of self-imprisoning in my own room was done by myself for the improvement. I became able to raise my privilege to 82% with 96 in compulsory Math and 99 in Optional Math[23]*. After the result I went to the school to take the mark sheet, Principal bagged me and said: 'I knew you had that capacity'. Well done my boy. You didn't show in the school but you have done at last. I was angry in one way as he was the one saying I an average and now turning own words. I find, people different avatars in different stages of time. But my happiness gave me a turnover and said it's not the time to be angry. My happiness won over anger and became happy for my own hard work and effort which can see in my mark sheet.*

I could only cherish with my companion friends Santosh, Star, Manoj and Surendra who had been close friends for me during my school life. Our co-operative and collaborative learning game all of us a good result that we all were searching for. Among them I always remember Santosh who had been a friend who always supported me, encouraged me and helped me to be who I am. Without his support it would have been difficult for me to secure Master's Degree.

Learning was for securing higher marks during this level rather than for understanding the contents. How much one has understood is not calculated by your ability to solve daily life problems or your capacity to make other know it but just

[23] Elective subject as additional mathematics.

calculated by three hours paper pencil test. Whatever happens with you does not matter you are trademarked as excellent otherwise in the similar criteria in the descending order? It is how we are all measured for our ability rather than any other means. I can remember how I got so good marks in the exams. It was not because I cheated in the exams but it was as I followed all the rules and regulations that were told by my mathematics teacher.

Missing no "or", "drawing lines after every answer" and "concluding the answer as told by the teacher" helped me to score so good marks. Following all the rules and regulations that were told to me made me score high marks. Ernest (1998) puts forward the view expressed by absolutists about the mathematics as outwardly rigid, fixed, logical, absolute, inhuman, cold, objective, pure, abstract, value-free and culture-free. At time moment of time I should say that I was guided by absolutist nature of mathematics as it not considering any social and cultural aspect but just following the specific rules and regulations that are supposed to be true. I was guided by my absolutist teacher to get absolute marks in the exam. It was only for scoring marks neither for understanding the core subject nor for the pedagogy.

Mathematics as a foreign subject

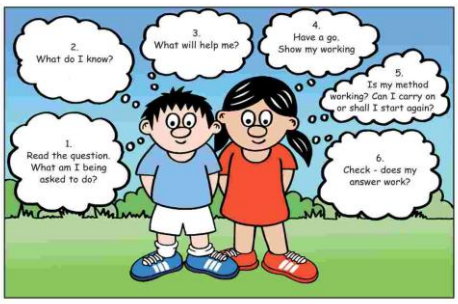
This is some time in the year 2003. I am a student of B.Sc II year. I was a student with the subject combination Physics, Statistics and Math. Till I studied first year, there used to be some mathematical work (algorithmic problems) where problem solving could be seen. As soon as I stepped into higher level, all those kinds of problems disappeared as the stars starts to disappear in the sky with the early rays of sun. Only the things that were in the course were Mathematical Analysis and Algebra. Rolle's theorem, Taylor Series, Cantor Intersection theorem, Bolzano Weierstrass theorem etc was only there to study. None of them could be understood

and neither had any connections to my life. When I started to learn this mathematics, I understood mathematics as foreign subject (Luitel, 2003) because there were not any related examples from our context. The teachers teaching those subjects "mathematics" were also very abstract in nature. We could not talk with them, they never laughed with us. If anyone would make noise in the class the statement "either the one who makes noise or me is out" would always throw the student out. They were happy to be in the class to Xerox the same thing what they have written in their note book as it is within 45 minutes of time. The class and the subject made me think that the mathematics is a foreign subject now. It is a difficult subject and the teacher needs to be strict.So I understood that my practice to get marks and pass the exams was sufficient. In short, it was the ultimate truth for me regarding mathematics at that time.

Mathematical facts, attitudes, theory and organized structure collectively make mathematics. The definitions, undefined terms, views, theories, laws and relations are organized in mathematics. There is wide search of facts and principles, laws and mathematical attitude. This search on different field of mathematics makes mathematical structure as a dynamic matter. The history of mathematics is irrelevant to the nature and justification of mathematical knowledge; it is pure isolated knowledge which happens to be useful because of its universal validity; it is value-free and culture-free, for the same reason (Ernest, 2001). According to absolutism that mathematical knowledge is timeless, although we may discover new theories and truths to add; it is superhuman and historical. The mathematics became very abstract entity to me and as a result of which turned me to an absolutist teacher.

Unchangeable Mathematics

It is a cold winter in the year 2006. I am a teacher at Kathmandu high school. I teach compulsory mathematics to the students of grade 9 and 10. We used to take the pre send up exams and send the answer sheets to other schools. The purpose of sending answer sheets to other schools was to know whether we had any areas that needed to be focused which were unseen and hidden from us. After the exam I consulted with everyone how they took their exams. Everyone told it was good. A boy named Suyog who was excellent in mathematics said it was the best exam he had ever given and would get 100 out of 100. I was also very happy for my student doing so well. The answer sheets came back. I checked the marks of all the students. I with a more emphasis looked at Suyog's marks. He only got 96. I took out his answer sheet and started to go through it. He had got 0 out of 4 in one of the theorem proving. The theorem was asked to prove that the triangles on the same base and between the same parallels are equal in area. He proved the theorem in 3 simple steps by drawing a perpendicular and using the area of triangle as ½ base × height. The examiner crossed the answer and it was written that if we can prove it so simply why we require the congruency of triangle. So, if it's so easy to do the proof it's easy to give me 0. I talked with Suyog and asked him why he had done it in that way. He replied me that it was easier that's why. It was easy so the marks went easily, I replied. Do as it is said don't be over smart, do we say. He nodded his head. I further told him don't you miss any or in the equation and the conclusion in the answer too in the S.LC. Exam. Be very specific and follow all the rules that I have said to you.



The journey portrays that I was also an absolutist teacher who followed the rules and regulations of mathematics. I knew that

the method Suyog did was correct but could not be definite with the answer whether he could follow it or not because if he follows it I myself was unsure that he will be getting marks for it or not. Golafshani (2002) also states that the teachers who hold the absolutist view about mathematics and its teaching and learning are more likely to create teacher-centered instructional environment, teach mathematics as rules to be memorized, and portray mathematics as an infallible discipline. They present mathematics to students in a way that suggests mathematics is a linear subject, facts and skills related to numbers which generally feature paper and-pencil activity. As the absolutist teachers' main objective is the learner's mastery of mathematical skills, the clear presentation of the step by step of any mathematical procedure and the emphasis on right or wrong answers are more practiced. Furthermore, absolutists believe that mathematical knowledge is made up of absolute truth and represents the unique realm of certain knowledge. The validity of mathematics derives from the stipulations which determine the meaning of the mathematical concepts and that the propositions of mathematics are therefore essentially 'true by definition' (Hempel,1945 as cited in Ernest, 1998). So according to absolutist view mathematics is fixed and unchangeable reality. The mathematical knowledge is formed by absolute truths and it represents the unchanged reality of knowledge. The absolutist nature of mathematics is hence guiding the teacher to be strict and finally leading towards the punishment. While teaching too it sometimes behaved to me being absolute where as in some span of time became fallible. In history, mathematics is taken as distinctive tool for social problem solving practice and also means of political power (Keitel, 2009). The most important knowledge conflicts at educational systems are clashes between students' personal knowledge and the knowledge presenter by teacher, between knowledge system, between modern and traditional system and between teachers and students

(Keitel, 2009). Contextual meaning making is also important for mathematics learning. Without context, no one understands and practices any types of mathematics. Truth is a moment of and practice that I perform in contexts (Kincheloe, 2008).Making students get more marks I need to say full marks was the truth, the absolute truth or the thing I could do at that moment was all for me. I did not have had any proper direction to the child for his logic neither encouraged him to foster his creativity but I wanted to make him get highest marks made me directed towards an inhumane teacher.

A big statement to ponder upon

A hot summer in the year 2009. All the teachers were sitting in a shed during the lunch break. The students playing nearby.The coordinator comes and says :

Co- ordinator	:	*Prashant, what result is this? Almost all the students have failed in mathematics.*
Me	:	*They have done as much they could do. I have given my best.*
Co- ordinator	:	*You can't say that and get away from your responsibilities.*
Me	:	*I am not getting away. I have taught nicely everyone says they have understood when I ask them in the class.*
Co- ordinator	:	*But why is the result so?*
Me	:	*Let's ask the students then. (I called all the students in the ground itself and asked them)*
		Do you people understand what I teach?
Students	:	*Yes sir in a huge voice.*
Co- ordinator	:	*Then what happened in the exam (in an angry voice)*

All the students are quiet and the Co- ordinator again shouts.

Co- ordinator : Answer back to me.

He teaches very nicely but……. A long pause and one of student speaks from the mass.

Me : Yes, yes …speak up.

Rojina (one of the student) : Sir… actually you teach very nicely but at the time of exam everything goes foggy. We tend to forget everything.

The above story clearly shows why there was a necessity in me to change towards a constructivist teacher. This is an important decision made in my teaching career. As said, necessity is the mother of invention, there came a clear turning point on my life when I needed to change myself due to many reasons. One of them was updating oneself from the old. Constructivism is a philosophy of learning founded on a premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own ‘’rules’’ and ‘’ mental models’’ which we use to make sense of our experiences. Learning therefore, is simply the process of adjusting our mental models to accommodate new experiences (Star, 2005). Constructivists are talking about knowledge construction process and they don’t believe on knowledge transmission process (Star, 2005). Numbers of mathematical ideas were generated through knowledge transmission process. So, I could not perform according to its concept. Teaching was the replication of my teachers teaching me. I believed that I was doing quite well but the performance of the students was not up to the mark. The reason behind must have been me trying to impose the knowledge but not letting them construct it.

2 adds 3 and becomes 4!

I had gone through an article about creativeness in Mathematics classroom which dealt about how much we are fostering creativeness in a child's brain. Are we

only making them learn what we so called truth or Are their realities and experience is also counted was the main concern about the article.

The writer tries to give a clear example taking consideration of a student in grade 4. The teacher put forwards a query what in the sum of 2 and 3. The boy answers it being 4 whereas all other answers it as 5. The teacher also just related it to be a fake or a simple mistake. The child's logic is not looked with interest by anyone even his father does not want to listen to his talk. But the child tries to prove his proof by the help of a photo album which further illustrates and emphasizes on set theory is concept of cardinality. In the first album there is the presence of 2 friends whereas in the second his father mother and he is present but altogether there is the presence of 4 people which further relates 2+3=4.

Fallibilism rejects the absolutist image of mathematics as a body of pure and perfect abstract knowledge which exists in a superhuman, objective realm. Instead, mathematics is associated with sets of social practices, each with its history, persons, institutions and social locations, symbolic forms, purposes and power relations. The fallibilist view does not reject the role of logic and structure in mathematics, just the notion that there is a unique, fixed and permanently enduring hierarchical structure. Instead, it accepts the view that mathematics is made up of many overlapping structures, which, over the course of history, grow, dissolve, and then grow new, like trees in a forest.

Uncertainty and doubt concerning the future of mathematics have replaced the certainties and complacency of the past. The present state of mathematics is a mockery of the hitherto deep rooted and widely reputed truth and logical perfection of mathematics (Kline, 1980: 6 as cited in Ernest, 1991). There is no authoritative source of knowledge and no source is particularly reliable. Everything is welcomed as a

source of inspiration, including 'intuition'. But nothing is secure and we are all fallible (Popper, 1979 as cited in Ernest, 1991). I too started to feel the same with the nature of math. The nature of mathematics is fallible if the social context, culture and objectivity are taken into consideration. If the student answers in an objective ground where he can put his logic to validate the question's answer then he can be judged correct and if we listen to the child's logic then there may not be the necessity for any sort of punishment to rise in the class which ultimately can decrease the rate of punishment.

Amazing, isn't it?

It is 11th day of Dashain[24] 2010. We are celebrating Tika ceremony[25] with my aunt in my house. My uncle and their children received Tika and blessings from my grandmother. After having our brunch we start to take our places to play cards. We four, me, my brother, my father and my uncle start playing a game called marriage[26]. During the game, I realized the unrealized mathematical phenomenon within the culture of playing cards. I after started to study in K.U. I have been searching and wandering for multiple realities. When a joker in the game is cut it helps to get 3 points. But if 2 same jokers are present it is equivalent to 8 points. So 3+3 = 8 except or only being 6. So, we have using even creative and multiple realities in daily life but other core mathematics that we are learning in the classroom is far away from our real life mathematics. So, the same teacher who scolds, beats, deducts marks if the students write or says 3+3 ≠ 8 but is self-following the wrong theory. So, I have a question to myself. Is 3+3=6 or does it have different aspects in different stages.

[24] The national festival of Nepal.
[25] A ritual of offering the blessings of Lord Durga
[26] A game played with 21 cards.

Putnam (1975) as cited in Ernest (1991) believes that mathematical knowledge resembles empirical knowledge- that is the criterion of truth in mathematics just as much as in physics in success of our ideas in practice, and that mathematical knowledge is corrigible and not absolute. So, according to fallibilistic view mathematical knowledge can also be changed by time. Nothing is absolutely true. Non-Euclidian geometry may be the good example of it. The thing that believes true to some context may not be true to the next context. I too believe that mathematics is not absolute and started to underpin the secrets of nature of mathematics as I started to learn at Kathmandu University. The prior belief about mathematics as a rigid, structured, unchangeable, value less and non contextual subject changed to be valued, culture and context laden subject to me. I started to judge the phenomena that occurs in the everyday practice objectively so as to find out various nature of mathematics and what could be the possible range of activities so that the student can get punishment free environment in the class.

Teaching with the use of materials: A journey towards possible constructivism

It is a day in the mid 2012. A substitution class in the school in class 8 with 36 students is taking place. I enter the class. As the class had math period I was happy to talk with them about math. I asked them what they were learning. They said factorization. I started with writing factorization I n the board and asked them the meaning. As they had learnt it they said splitting the given algebraic terms or expression in terms of products of two or more terms or expressions. I wrote what they said in the board.

I quietly asked can you tell me what is the factorized form of $a^2 - b^2$ *? In a loud voice all of them replied* $(a + b) \times (a - b)$*. I appreciated their answer. And further asked them can you say how it is? One of the clever student said: Sir it's very simple*

multiply (a +b) with (a –b) you will get the desired result. I appreciated his views as being a constructivist teacher and one who believed that the nature of math is fallible I had to encourage the answer he kept forward. I made everyone clap for the answer and asked the class can we have other ideas. Can we prove it using materials? They class was quiet now. "Using materials it's not possible sir and it's a waste of time sir" one of the student replied. I smiled and replied to them. It's possible and you will save your time too. Ok everyone lets be in groups now. You are 36 so roll 1-6, 7-12, 13-18, … manage your groups. They did it at instant. I told them to take out a sheet of paper.

Me	:	*Can you make out a square of if? They did it fast. I asked them if the length of a side of the square was "a" what would be its area.*
All the students	:	*"a^2"*
Me	:	*Ok can we have another small square here? Show it to me if it is possible.*

All the students raising their papers showed me and I asked again.

Me	:	*If the length of a side of the new small square was "b" what would be its area.*
All the students		*"b^2"*
Me		*Ok now if I take out this small square from the big square will happen?*
A student	:	*We will have an L shaped figure left.*
Me	:	*Yes that exactly. Now can you express what is that called mathematically?*

Me : *Yes you are absolutely right. Now can you find the area of this L shaped figure by any means. They seem to be in dilemma. They think for some time and ask the questions: Can we use graph? Can we cut the paper? Etc etc…..*

The observation and facilitation is done throughout the process. After 10 minutes, they present their ideas as some groups use the concept of rectangle to find the area where as some use the area of trapezium. All the ideas were encouraged and appreciated.

Constructivism claims that knowledge cannot be transferred from one individual to another in educational environments. For a constructivist educationalist, knowledge must be actively constructed as the learner is an entity with previous experiences that must be considered as a "knowing being" (Fosnot, 1996) as in Belbase (2006). As learners encounter new situations, they look for similarities and differences against their own cognitive schemata. These contrasts, also called cognitive perturbations, are the end-product of conflictive knowledge waiting to be resolved through reorganizing schemes of knowledge (Phillip, 1995 as cited in Belbase, 2006). In constructivist terms, learning depends on the way each individual learner looks at a particular situation and draws his/her own conclusions. I agree that people therefore determine their own knowledge based on their own way of processing information and according to their own beliefs and attitudes towards learning (Biggs & Moore, 1993 as cited in Belbase, 2006). Constructivism therefore gives recognition and value instructional strategies in which students are able to learn mathematics by personally and socially constructing knowledge. For me, constructivist learning strategies include more reflective oriented learning activities in mathematics education such as exploratory and generative learning. More specifically, these activities include

problem solving, group learning, and discussions and situated learning (Murphy, 1997; Wood, Cobb, & Yackel, 1991 as cited n Belbase, 2006). After joining Kathmandu University the need in me evoked that I need to change myself to a constructivist teacher. The knowledge that is shared to the students and where the students themselves involve in the meaning making or the construction of knowledge is considered to be long lasting. The teacher who once had a rigid views about the mathematics now started to believe that during the construction of knowledge the students themselves must be involved as it is for them so they need to be there. A constructivist perspective views learners as actively engaged in making meaning, and teaching with that approach looks for what students can analyze, investigate, collaborate, share, build and generate based on what they already know, rather than what facts, skills, and processes they can parrot. To do this effectively, a teacher needs to be a learner and a researcher, to strive for greater awareness of the environments and the participants in a given teaching situation in order to continually adjust their actions to engage students in learning, using constructivism as a referent.

Constructivism enables me to ponder a possibility of having a context of learning only by their intuition without teaching in the classroom. The matter is that how student can construct knowledge and understanding. As student's learning will involve errors, tasks should offer opportunities for self-assessment, correction, peer discussion and teacher feedback. Teaching should be guided discovery. When one problem is presented in the classroom, opportunities should be provided to the students to express their understanding to each other and to develop this understanding before explaining by the teacher. The teacher should ask diagnostic questions to discover their misunderstandings. If the students give wrong answer, the teacher

should encourage them to explore the correct answer rather than discouraging by scolding. It is more relevance to use ‘Socratic Questioning model’ in constructivism.

Most of we teachers give importance to “What to learn?” but constructivism gives emphasis on “Why and How to learn?” These high order questions require students to construct their own conceptions of the new material. We can’t reason with material until we have conceptualized it. So, questions that require reasoning force towards conceptual understandings. Learning involves ‘pattern making’. So, the teachers have to use mind maps and summarize the relation of the parts of a topic to the whole. Learners need to think about parts and wholes at the same time and to integrate topics. Skills such as high order reasoning need to be taught with context and content not separately so that the students will be able to tackle with the real problems of their life. It focuses on learning should be as an integrated form.

So, evolving in learning activities is very essential task for the students. In most pedagogies based on constructivism, the teacher's role is not only to observe and assess but to also engage with the students while they are completing activities and posing questions to the students for promotion reasoning. It is totally related to students centered approach. Constructivist teachers pose questions and problems, and then guide students to help them find their own answers. They use many techniques in the teaching process. Also in constructivism if we are going to derive the value of sum of square number as $1^2+2^2 = 5$ we can let this problem in the group among the student in classroom ask them as what other number can be made by adding square number together, investigate yourself then firstly they will surprise how to find the solution and they start to share their ideas in group and can reach in one conclusion which may lead true and they will able to create such valuable number very differently and they can make them logical themselves.

Chapter summary

In this chapter I have tried to bring data texts and the supporting literatures regarding the different natures of mathematics which I have undergone when I was a child, a school student , a college student, a teacher, a teacher student and a novice teacher. I have tried to build up the relation between the nature of mathematics and its implications in the form of punishment as in an absolutist class as it being more towards corporal punishment user whereas in a fallible and constructivist class a thinker who thinks before taking any punishment. Taking about its nature it is really very difficult to catch or make the pace with. About the nature of mathematics, there are many views like mathematics is im/pure (Luitel, 2009), formal, logical, intuitionist, symbolic and foreign mathematics (Luitel, 2003). The feature of symbolic, abstract, algorithmic, and formal mathematics is the view of mathematics as culture-free subject which also can be a politically motivated expression for not incorporating knowledge systems arising from people's practices (Luitel & Taylor, 2007).

There are many critical questions related to mathematics learning like; what power of the learners is/or could be developed by learning mathematics? How does the identity of the learner change and develop through learning mathematics? Does learning mathematics affect on the whole person for good or for ill? How are the future mathematicians and the future citizens formed through learning mathematics? How important are affective dimensions including attitudes, beliefs and values in learning mathematics? What is mathematical ability and how can it be fostered?

These questions challenge mathematics teacher, mathematics teacher educator and mathematics student. For the improvement of this, we need to see mathematics

and its social relations too and answer the critical questions like; What are the aims of mathematics education in both teaching and learning process? Are these aims valid? How do the social, cultural and historical contexts relate to mathematics, the aims of teaching, and the teaching and learning of mathematics? What values underpin different sets of aims? How does mathematics contribute to the overall goals of society and education? What is the role of the teaching and learning of mathematics in promoting or hindering social justice conceived in terms of gender, race, class, ability and critical citizenship? If we can self reflect on these questions we can shift ourselves to pedagogy away from the corporal punishment.

CHAPTERV

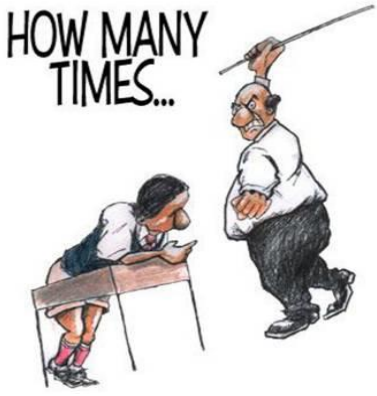
CORPORAL PUNISHMENT IN MATHEMATICS CLASSROOM

Chapter Overview

In this chapter, I haveaddressed the second research question, which is "Why and how is there a practice of corporal punishment in mathematics class?" I have tried to bring out different avenues of my life where I myself experienced punishment in mathematics class. Along with it I have tried to put forward different events that I have undergone with the students in the mathematics classroom. Then, I havediscussed the narratives under certain themes with the help of related literatures.

Get as many sticks as you require to pass the exam!

I failed in mathematics in the second terminal examination in grade 5. I got 40 out of 100 but I was 10 marks short because 50 was the pass marks. I classified all the odd numbers as even and all the even as odd. To my misfortune, classification of odd numbers and even numbers had 10 marks labeled to it but that steppingstone for others turned out to be a stumbling block for me. Had I been able to classify them properly I would have passed the examination. I failed as I was unable to link the mathematics outside and inside the classroom.



On the next day of the report card distribution, we all were to bring the answer paper to the class for discussion. Our mathematics teacher came with a bamboo stick. His mere presence with the stick along with his anger made us shiver

by the second. Every word that he spoke was making our heart pound as we were the low achievers. He started the class saying that we are going to be awarded with a special prize today. We all were surprised to hear that. A sea of expectation ran down our veins as we were literally bamboozled to hear these words of gratitude from our teacher after a relatively thumbs down performance. But to add salt to our wounds, he then said, you will be awarded with as many sticks as you require gettingthe pass marks. Silence fizzed around the classroom. We could hear the whip, whip, whip sound after a while as he was off and running in his merry way to slam bang the students with his stick. An air of uncomfortability covered the room as we were thrilled to bits by the sound produced by the stick on the hands to the ones who were termed failures. My turn came; I got 10 sticks on my hands, 5 on each. Though it was one of the most painful experiences of all time for me it is still a moment to remember. Battered and bruised I got down to my seat in anguish; still the pain reminded me of my curse. The statements that I always used to get from my father, 'I got punishment, my father got it, so you also should get it', also made me feel that punishment is definite when you learn made dumb to my complaint to anyone inside and even in the house. Had I gone to complain about the teacher, I would have been punished by my parents too for not studying.

This story reflects my childhood where I learnt that punishment is the only solution for the student not performing well in the data. The baggage that we govern during our life time (childhood) also prepares us for our future. Calderhead & Robson (1991) also puts forward their view as students hold particular images of teaching which are mostly derived from their experiences in schools as pupils. Many similar experiences guided me which governed me to be an authoritative teacher. So from the outset, we have imitated a behavioral pattern that seems to be replaced by nothing

else. Wubbels(1992), also puts his view as the students behave in the same way as they are treated by the teachers while they study. The mere presence of the mathematics teacher was enough for us to be dumb in the classroom. But everyone realized that we are getting dumb, to the contrary no one is realizing that we are getting deaf as well. We grew up by hearing that a class most effective is a class which is silent, but that silence has defied all the laws of teaching and learning mathematics. Shrigley (1986), also talks about the punishment in the classroom is regarded as crucial for pupils to learn effectively. So we have been most practicing punishment based mathematics education simply because we are followers of an unknown leader of an unknown realm. A child learns what he sees. I too also learnt what my teachers did to me. I always considered them as my leader and I was a follower of them. Walking on their path I began my journey to follow punishment based teaching when I started to teach.

“Be strict, do anything, anytime”

The poem “Be strict, do anything, anytime”tries to portray the transformation of a novice teacher who changes himself to an authoritative teacher due to different sequential events which compel him to turn towards a punishment giver. The teacher is raw in the field and especially who is not from the education field background has very little knowledge about teaching and learning process. How a student learns is not known by him. So, it is the first and foremost thing that any teacher must have knowledge about education before he goes to the profession of teaching. Else wise he will be using all the things that have been with him as his past experience when he was a student and will punish the students if he was punished and will encourage the students if he was encouraged.

A novice teacher goes to teach,
Thinks mathematics is in his reach.
Enters the school for the first day,
'All must pass' is the first line the Principal say.

Why it should be taught?
How the context must be brought?
What must be known?
Is all out of concern

Teach, Teach, Teach
Either you teach or you preach.
Just to make the students pass,
Is the major task

Examination comes near,
Now mathematics teachers are very dear.
Visiting and calling the mathematics teacher,
Is very frequent and regular

Examination is over,
Report cards are on the hand.
All the efforts gone
Thinks everything is gone to sand

Gets fifty in Nepali, English seems seventy
The parents are happy but I feel pity
They have their own opinions for these subjects
Only takes mathematics as the real object

Child scores 90 in mathematics
But they show a lot of dramatics
My child was good, could do a lot better
The marks scored now are very bitter
Hello, Mr. Class teacher,
Can I meet the Math teacher?

The parent moves towards the math teachers and says, 'Be strict, do anything, anytime'
But my child must get ninety-nine
The teacher who was very mild
Transforms himself towards the wild

The teacher who always understood other pain,
Starts to talk the word of cane!
Starts to talk the word of cane!

The pedagogical practice that the school has taken into consideration also makes a lot of difference. The classroom is a homogeneous cluster of students. All the students will not be of the same level. To make all the students to achieve the same level of height may not be possible. Maintaining a pin drop silent environment, where the teacher is considered to have the supreme power and all the students being passive listeners may not help the students to achieve what they can. A teacher centered class where they learn only what the teacher wants and follow the teacher strictly will make the students dull rather than making them wise.

In this modern era where knowledge doesn't revolve around the teacher only, how can a teacher kill the student's anxieties only because he wants a silent classroom? A big point to ponder upon I feel.Ferrini-Mundy& Findell (2010) also puts their argument as teachers must know what they are teaching in the class. They need to know what mathematics they are teaching in the class. They further argue that all the means to make the students understand mathematics is to be known. I also agree to their statement but the teacher who is new in the field will be moulded as someone wants. So, it is the prime time to change and may change in any direction towards student centred or teacher centred. Prensky (2011), argues that it is not only the teacher who is faulty in this process but a lot of other components like parents and administrations are also involved in it. Most of the teachers try to accomplish often against their will and better judgement and try to cover the curriculum and raise the test scores (Prensky, 2011). Hence in my view point too if the teachers are given a proper guidance and shown the right direction they will be able to provide better alternative and lead the level higher. Peterson etal (2011), also puts forward the argument that teacher student relationship is more important for the students learning and parents giving more pressure to the teachers. I too agree on the statement that

parents seem to pressure more to the teachers regarding the test scores to be high which can lead the corporal punishment to a raise. And finger pointing each other at the last does not suffice and improve the child rather degrades the environment and lead to punishment based teaching for raising the test scores.

Mathematics is for a select few

It was a day on the month of January 2011. If I am not mistaken it is the first day itself. I as per my daily schedule was roaming around the area of the school compound. In the mean time I happened to pass by the senior staff room which is near the class 10 blocks. Some of the students were inside the class whereas some of them were busy chatting with each other, gossiping and discussing about their upcoming Pokhara[27] tour which was being planned to start after a week. The senior optional mathematics teacher was just taking the sunbath. I wished him good morning and asked how he was. He smiled and told me that he was better than the day before as we were having cough and cold. I kiddingly said to him that his jacket was quite big and will protect him from any kind of cold weather.

I asked him. How are the students doing now in the subject? He replied me: what to say sir, the good ones are doing better and the low achievers are getting worse. He reminded me the things that he told me few months ago. He told me that he was facing a lot of problems with the class 8 and 9 students in the subject matter. I still remember his saying. Sir these class 8 and 9 students are going to make me fired from the job now. It's always the same kind of result. The numbers of students failing in optional maths do not seem to stop, rather increasing with time. It seems as if I have not been committed as a teacher and ill teaching them in the class. I am doing

[27] A tourist site in Nepal

my best but the result is expressing and directing towards the different way. I said I know sir but if the student does not study the result is going to be the same.

He joined the some past experiences with me. He showed me the jacket he was wearing. I looked at that but could not figure out anything. He laughed and told me, sir do you know why am I wearing this jacket. I again looked at his jacket very keenly and found "compass" being written in the jacket.

I smiled at him and told; sir you are a mathematics teacher and you teach optional mathematics. May be you are you are teaching vector so you are wearing that to make the students much more familiar with the subject matter. He laughed on my answer and said you are wrong sir. I actually wore this to show the scenario of my class. I got astonished and said how sir? How is it possible?

He replied me; compass is written in the jacket right. I said yes. So read it out in two different syllabi. I read com and the pass. So what does that imply he asked me back? I laughed. He told me during the conversation, this really shows the scenario of my class isn't it sir. Maximum numbers of students fail in my subject. So "com[28]*" which means less in Nepali and pass means pass. That means more students fail in the subject. So I have worn this jacket to represent the data of my students where more students fail and less (com) students pass he giggled. On the same time another teacher who teaches Nepali said; that's why compass is there in the geometry box, now I know why maximum students fail in the subject". We all laughed and the talk finished. I later came and thought for a quite long time. I realized, agreed. Yes there is a problem in the subject to pass. The teacher teaching the subject knows. The teacher not teaching the subject also knows. The parent knows. All of us know.*

[28] Less

We all are familiar but are we trying to find out what is the main problem for the students to fail rather than criticizing. Also there is a hidden agenda from the teacher's point of view. The belief system about the subject matter also has brought the same kind of trend. Ernest (1988) also believes that teacher plays a central role in teaching mathematics. If the teacher with such leading role makes the subject matter so difficult then there obviously the students as well as the parents are also going to agree upon it. Being the leader the teacher must try to make the subject comfortable for the students to learn so as they enjoy learning it. So, in my opinion the teacher is the one making the subject matter easy and hard. Ladson (1995) also puts his argument as teachers must search the ways to make mathematics accessible and meaningful to all the students not for a select few. This also agree upon his idea as if the teacher applies creative and exploratory methods to teach with positive attitude then the subject can be more interesting and the rate of punishment also can be less.

No to change

It was somewhere in the year 2007. The school had called for a meeting for the new academic year. All the teachers were present in the meeting. We all sat in the benches as students and the Principal, coordinator, Supervisor and Head of Departments sat in front of the class as special and distinguished guests. As usual, the Principal started to speak about her same old dialogue regarding what she wants and what she does not. It was same old things to me as in every meeting I had been hearing the same. 'Results in mathematics are always the same. "I want better results and students to max the paper";Principal said to the mathematics teachers. The Head of Department just nods her head to agree upon statement.

On the same time, I reply to the Principal.

Me : *'Ma'am, May be we too lack in our part. The worlds changed a lot*

man. New technologies are knocking the door steps and we are in the same old traditional method. If we can use methods that are new or if we get trained we will be in the better position to understand the children and the children also will be benefitted.

Principal : *No no, we have seen by training the teachers but we don't find anything new. They will share only those ideas that everyone knows. It is not beneficial at all.*

Before she finished her version, I reply

Me : *Ma'am, we can even use visual CD's like MITA Instructional CD. They can be very useful and the class can be interactive. We will be in the position to explain certain things which are difficult now.*

The Principal makes very angry face and looks towards the Head of Department and screams.

Principal : *'Maya, your teachers do not know how to teach?'*

I become speechless after her question towards the Head of Department. The meeting terminates there and I start to think how she took for new methods of teaching.

This was the stage I had been before I knew about the teaching learning methodologies. Even a Principal who had run school for more than 25 years had a feeling that using technology did not mean good teaching rather it was transcribed and questioned towards the teachers teaching ability. So, how can the teachers change and make students change. The same old belief system that has been guiding the schools are not sufficient now to run a school. The same old traditional pedagogy that has been used which states that the teacher only the supreme power of knowledge may not be true in all the cases. The teacher must know everything has to make follow what he knows may not be always right. The support from the management is most important

factor for effective education in the classroom (Stolee et al.2005). Since I could not find any support from the management more precisely the administration I was unable to change myself even if when I wanted to change. Waters, Marzano & McNulty(2003) also states that the leadership behavior makes a difference what happens in the school. The difference may be either positive or negative depending on the situation. The leaders who are leading the school must be concerned about their behavior to take the work environment go forward or backward.

Scene 1: I want pin dropped silence in the class

A sunny day in the year 2005.

Venue : *Kathmandu High school's Principal's office premise.*
A conversation between Newly appointed math's teacher (me) and the principal of the school.

Me : *Knocking the principal's door (knock, knock…)*

Principal : *Yes, come in.*

Me : *Good morning ma'am. May I come in?*

Principal : *Yes, please come in. Please sit down.*

Me : *Thank you ma'am. I sit down. The principal takes out & document & hands it over to me.*

Principal : *Ok ! Mr. Rajak. You have the document which has all the rules and regulations of our school. So, You are appointed here as a mathematics teacher for grade 8, 9 & 10. We expect you to make the entire student max their papers and score good marks in the examination finally.*

Me : *I will try my best to make them better.*

Principal : *It's not just trying, you need to succeed.*

Me : *I am a sort or speechless. Let's try.*

Principal : *And by the way in, I want pin drop silence must be there in the class I don't want noise at all.*

Me : *Sure, sure. Thank you ma'am. Is there anything else?*

Principal : *No, No. You may go to the class.*

Me : *Thank You Ma'am.*

Due to the schools belief in teacher centered pedagogy where the teacher is supreme, which is supposed in to have the full power and the ultimate source of knowledge, a novice teacher has to change oneself a rigid teacher. The teacher has a responsibility of making a class quiet but does not know how he can do it. So, ultimately he tries the technique that he has seen during his childhood which is punishing the child if they do not do so. Furthermore, the school expects all the school to do well in the subject matter where as while the class scenario of the students are not same. Fleener (1996), states that school should believe in the value and importance of mathematics and science inquiry, gender equity and ability with respect to pursuit of mathematics and science careers, the relationship between mathematics and technology, and the role of science in society to promote child friendly environment which can lead the students to emancipate. But the workplace where I worked had some different scenario which lead to a teacher centered environment and punishment became dominant over other facts and processes. The background of all the students, their strictly culture, working culture etc are not same which will eventually deal with the result of last. But schools do tend not to understand that and expect the similar kind of performance from all the students**.**

Scene 2: Oh god you saved me!

Venue : Class 10A at Kathmandu High School

It was a cold winter in the year 2005. I just started to teach in Kathmandu High School. It was my first year teaching grade 10 formally. I used to be there for just teaching grade 10. Coaching classes for grade 10 was going on for their upcoming S.L.C exam. Practice over practice and exams over exams were the main strategy for making them obtain higher scores in the exam. Practice makes a man perfect was the ideal proverb I used to tell my students as my guru mantra. Practice is directly proportional to mathematics; I used to say to them. Practice more to get good scores to secure your future was the statement I used to repeat time and again to them.

This accident or the bitter experience took place in a class when I distributed the answer sheets to the students who had taken their exams a day before. I was explaining them about the mistakes they made and probably scolding few who had spoiled or in my sense scored least marks. As I was scolding them the principal of the school walked into the class. She was hearing all the conversation between me and the students staying outside the room. She became furious with the student who got the least mark and told me that these students do not understand words. Cane is the only alternative to such people and immediately ordered for one. She handed it over to me and said to give them by left and right. In response to her order I took the stick and gave two nice shots on the hand. As soon as the second whip was over, the student who was standing quietly, receiving my stick without any argument sat on the bench. He started to turn pale. I became afraid if anything would happen to him. His body was shivering due to cold. I became more afraid and started to pray to god for his recovery. I rubbed his hands, gave him my jacket and ordered for a glass of hot water for him. He became o.k. after a short time and to answer my queries he

said that he was hungry from the very morning and had not had his food. A sudden unexpected biting made him weak and he fell down. Without thinking of the child I beat him and I find myself very guilty at the state of being a dictator.

The student was punished because the principal of the school wanted everyone to score fill marks or max all the paper which is not possible for everyone. As a result of which the teacher is enforced to punish the student. The teacher does not have any alternatives to punishment. He is unaware about any other ways to behave with the child. He is there supposed to beat the child as the principal oneself brings the stick and orders the teacher to beat. Neumerski (2013) puts forward the view as instructional leaders can make their followers follow them towards betterment. I also place myself in the position and think whether I had been treated in a different way I could not have performed and the child would not have undergone the situation. So, instead of giving better suggestions of punishment if the role model of the school makes the student beaten by the school, there is no questions for a teacher to think any alternatives to corporal punishment.

Scene 3:Bye Bye SubasJee!

Venue : Kathmandu High School'sHostel

We used to take extra tuition class for the hostel students to the evenings. The class used start from 5:30 pm. The principal often used to leave school early. But the day this incident took place, she was there in the school working late. I had already been a strict teacher by then. Students used to be scared of me. They used to have pin drop silence in the class and try to listen to me as I used to bit for only of their mischievous act. The case was different with a friend of mine who used to just come there to take extra class. He was not a strict teacher. He did not behave in punishment based teaching. As a result of which student in his class used to talk a

little. If the work is not completed, he used to give time for them and as a habit of student they too used to linger or procrastinated the work. He used to make them realize that they should finish the work, show them the importance of work. Some obeyed him, some said they will. In this way classes were on going.

It was almost dark. The time was 6:30pm students in my class were busy doing some of the problems that I wrote on the board. In the other class, my friend Subas was teaching science. May be he was doing class discussion, so noise was coming from the class. One the same time the principal came on round. The directly stopped outside the class form where noise was coming. In the very furious mood, she shouted.

Principal : *Mr. Subas!*

Subas : *He was surprised to see her shout like that. Yes, Yes ma'am.*

Principal : *Why is there so much noise in the class?*

Subas : *Ma'am, they are discussing.*

Principal : *What discussion are they doing? They are discussing on what topic? What is the usefulness of this discussion?*

Subas : *Ma'am .....*

Before he could say any other word, she further replied.

Principal : *These kinds of discussions bring no good result. The students have been failing in the exams, getting low marks; I always find this class noisy. You are useless. Come on I will teach for 15 days and let's compare the results. I will make them more marks than you can do. (The principal challenges the teacher in front of all the students.)*

Subas : *May be ma'am. You can teach better than I can. You may make them better and get more marks in the exam. But still I am trying.*

(The teacher in the red face replies)

Principal : *If you want to work well, maintain silence in the class, no noise should come from the class of all. And fore and foremost all students must improve.*

Subas jee just moves the head.

The next day onwards Mr. Subas is not seen in the school.

The journey portrays how a teacher is made compulsion to punish the students and move on the same pedagogical path where the teacher is the supreme bag of knowledge who transmits it to the students as it is. The students are also habituated towards punishment. They tend to not to do the works assigned by the teacher who follows different pedagogy. The responsibility of the work they have to undertake is also taken for granted. Comparing to the classes that my friend and I was taking the students seem to be silent and do the work in my class as I used to shout and punish them but on the other hand adopted the child friendly child centered environment seem to be neglected or in a way taken for granted. The students who are brought up with the similar kind of philosophy ultimately seek for it. The teacher also has no other option either to go for punishment in the class or has to be like Subas Jee who has the quit the job for having a different philosophy as he could not be included in it.Smith & Bourke (1992) states that teaching context, workload, and job satisfaction are directly related with stress. As a result of which the teacher who is not satisfied to the job has only the way out to quit the jib rather than taking the stress.

The school also has no alternatives to corporal punishment as the parents are focused to marks their child gets in the exam. Reflecting upon the event, I can say that teachers are bureaucratized as punishment administering agency. Unless and until there is alternative to paper pencil test the parents also will not have any other

achievement that they can look at and determine the level of students. Furthermore the whole system where we are educated and are educating others need to overlook otherwise it is very difficult to get rid of this scenario. The teacher is only the medium who implements it. So the teacher is the one punishing the student who is punished due to the whole system.

Culture as we know is a complex whole of belief system, religion, tradition, education, literature, festivals, rituals and various social value systems, cultural belief and its value remain an underlying principal in entire cultural practices. Socio-cultural norms and values determine the ways people think, behave and lead their life. The value system of any society is the guiding principle for the people of the society the compliance which help them adjust in their society.

The education system therefore can't eschew the pervasive cultural norms and values which remain as under current in educational sector of the society. Whether school or college or university. The cultural belief that children should be led by force not the reason determines the ways the teachers treat the students in the class rooms. Family schooling and socio-cultural belief and practices inculcate the minds of the teachers that children deserve the punishment for their mistakes they make in the classroom. Teachers follow the footprints of their own teachers in their school time that used to penalize the students for not having completed the assignment. Even in family, one experiences this tradition of punishment to the children for their mistakes as very natural and valid practice. This act of punishment to the students has been so largely conventionalized in the society and educational institutions that it appears very natural and logical. Students also take the punishment for granted when they fail to accomplish the class or home assignment. They experience this act everyday and

everywhere and they internalize it as natural and spontaneous act. Teachers and students thus share and accept this practice of punishment for goodness of each other.

It's not that the students do not react against this practice of punishment long inherited all the way from our ancient forefathers. Likewise many teachers attempt to seek out the alternative to the practice of punishment in pedagogical domain. The school teachers, finding no effective alternatives, are bound to punish the children to make them do the class and homework. Some teachers try their best not to exercise the physical penalty. They try out counseling strategy to correct their mal-behaviors but unfortunately their counseling is not effective enough to modify children's behavior.

The dependency on the corporal punishment to the students is basically supplied by the fact that it is a part of our convention and that it does not have any substitute. In Nepal, national education system has not realized the importance counselor in school management. Very few schools have been found to have employed such counselor to help students rectify their negative behavior. Even top rank governmental and private schools have not set up a separate counseling department for their children. To utter surprise, the setting up of such counseling department in the government schools where the head teachers have to ring the school bell themselves is a laughing stock.Venkatesan (2011), suggests that an attitudinal triangulation on academic problems between parents, teachers and the children must be held to open up the need for stepping up measures to de-triangulate or harmonize inter personal perceptions for optimum benefit of such children.

Chapter summary

In this chapter, I have tried to show why corporal punishment is practiced and how it is practiced in mathematics classroom. The parent’s attitude towards the

subject matter as marks scoring subject and the school’s belief system towards the traditional pedagogy can mislead and misguide the teacher towards punishment based teaching.

Conclusively, the school management must realize the importance of such counselor in the school for children's modification. As long as, the substitute of punishment is not developed, the punishment prevails in the classroom teaching. The counseling which has been seen as an effective alternative to wipe out the corporal punishment should be well realized and implemented in the schools for overall goodness of the teaching learning process.

CHAPTERVI

PEDAGOGICAL SHIFT

Chapter Overview

In this chapter, I have addressed the last research question, which is "How a possible shift against corporal punishment came in my thinking to existence and why did I start to practice it? How am I practicing it at the moment? I have brought the narratives related to the shift and what made me transform from an autocratic teacher to a progressively child friendly teacher. Then, I have discussed the narratives under certain themes with the help of related literatures.

Professional Crisis

`Even if, I was always known as Hitler, a nickname given to me by almost all the students of Kathmandu High School I was liked by almost all the students whom I taught. They said they liked my way of teaching. I was very strict with my rules and regulations. I was an absolutist as the nature of mathematics. I was known all the way round for my perfect work. Students would like to tease me by saying Mr. Perfectionist. "Good" students liked my perfection but the whole class cannot be expected to be "good". So the problem always arose. I always liked my students also to be the same and that always used to be the point of ignition for me to get angry and lose made temper and lead towards punishing the students.

It was a fine afternoon. The bell for the afternoon assembly just rang. I was proceeding towards the assembly ground from the senior ground. It was just a minutes' walk from the senior ground to the assembly ground. Assembly ground was in the junior block. So as the bell rang, I was heading towards the assembly ground I

saw a student of grade 3 fighting with few other students elder than him. I recognized him and called him.

Me: *Pa tseri, Pa tseri…. (His actual name was Pasang Tsering but everyone called him pa tseri)*

He tries to neglect my voice but stops the fight as he hears my voice. All other students disperse by my voice. He also tries to be moving aside as if as he hasn't heard me calling him and acts very innocent without any foul.

Me: *Pa tseri, Pa tseri….*

PasangTsering: *Yes sir (an innocent voice repeats)*

Me: *Come here.*

He approaches to me and stands in front of me as if he was coming from the study class. I can see him sweating through his face. He is a small boy having a total Tibetan look with a small nose with no bone to support it. He behaved to me as if he was the most genuine student of his class even he was the most kinesthetic one. I had all his bio data with me present clearly in my mind. His attitude in his home was also quite different one. I remember him by an incident where he once in his childhood inserted his fingers inside the electric socket because of which he got an electric shock because of which he was hospitalized for a long time. His mother hence used to drop in the school and say that he if is punished then please note that he is not bet in those parts where the consequence of shock is still remaining.

His other deeds were also very experiencing. The school used to arrange the classes for an educational tour at least once a year. The students when to a particular place were first lined up in the school, attendance used to be taken and they were lined up and sent to the bus. He was a short guy so always used to be in

front of the line. He firstly entered the bus and the others. We went to see everything and everyone was perfect or not, we saw an amazing thing. We could see a new bus driver in the bus. Our regular bus driver Bhimsen Dai was in the office to collect the letter for the trip and Pa Tsering was the new driver holding the steering. Thanks god the key was not in the bus otherwise he may have shown his new tricks. This does not end his stories, the stories that I am revealing are just the promos. Hope you all readers will be interested in seeing the whole picture. I cannot stay away without sharing another incidence. When returning home in motorbike I stopped in the way to Chandol[29]*. I could see him again in the way to his home somersaulting the whole way. I enjoyed to see the somersault but was equally afraid if any accidents would happen to the boy. Thanks he reached his home safe. I saw him getting to his home and I drove back to my house. The next day I called his parents and reported them about it that anything wrong happen if he returns in such way to home. The parents were convinced and agreed to take care of the ward and explain him about the street hazards. But to speak frankly that child is special. He really had different talent within him otherwise who can somersault for more than 10 minutes in a very busy road. Children's are really different; I really hadn't realized that they had such different abilities within them.*

PasangTsering: *Yes sir. (Just stood in front of me)*

Me: *"You were fighting with the elder students." Why were you doing so?*

PasangTsering: *(Could not repeat any words to me as he may have thought I caught him red handed) I won't fight again sir. Please give me last chance.*

[29] A place in Kathmandu

I just wanted to threaten him and make him aware than he shouldn't repeat it in the days to come as every teacher used to complain about his behavioural part and he could be "good".

Me: *Pa tseri if you were a big student then…….. so you know how I beat. If you still do such mischievous activity in the days to come I shall punish you.*

In the same time I uttered the following words.

Me: *When you will reach class 10, I will beat you.*

As soon as I finished he repeated after me.

PasangTsering: *"When I will be class 10 sir, you will be old".*

His statement made me think how cruel I was and how the students really used to take me as. The senior students could not talk and respond to me in such sense but the real fact was out. He had an intention stating that I was not doing any good and he wants to say that either I will be really old and cannot be able to beat him after 7 years or he will gain the resistance of resisting me. He made me think was I doing right? Many questions aroused inside me and made me think to and fro of the statement. Am I doing something fair to the students? The students whom I teach may be afraid of me and they could answer me back but small child are known as gods. They say what they see and feel. This small boy student in grade 3 who is just 9 years old made me think upon my action. I reflected back upon this scene and it made me think upon my professional career too.The real life problem may help toconstruct their understanding for meaningful learning outcomes (Poudel, 2010). I tried to construct the meaning in this scenario too as if I continue to punish the students than no doubt the same day as predicted by Pasang Tsering may not be far. And the most important thing is that if

similar situation exist then at that time where will I place myself. It made me remember a ***shlok[30] by Adikabi[31]Bhanu Bhakta Acharya;***"Ghasi daridra gharako tara hera buddhi kasto, ma bhanubhakta dhani bhayi kana aja yesto" which means the grasscutter even being so poor has so big thought but I being a son of such rich landlord why am I not being to think in the same way. Transformation involves higher-order thinking including critical reflective thinking, metaphoric reasoning, dialectical thinking, mindfulness, spiritual awareness, poetic thinking, envisioning (Taylor, 2012).This professional crisis really seemed to be a door opener for me because of whom I came to search and seek my transformative journey towards a child friendly teacher. Nunley (2010) also suggests that punishment does no good. I too realized that the punishment is not only the solution and I try to seek out if any other possibility exists outside the world of corporal punishment exists.

Humanitarian Crisis

It is the month of March 2008. The event was report card distribution in the Kathmandu High School. As I was class teacher of class 9 'A' in front of me in my table 9 'A' was pasted. Report card distribution was on progress. One of our parents headed towards my table and said.

Parent: Sir namaskar. You are Prashant Rajak if I am correct?

Me: Yes mam. How can I help you?

Parent: May be you don't know me but I am aunt of Salin Bhattarai.

Salin Bhattarai was our very good student who had passed S.L.C from the same school and was the topper of his batch could not forget him as he was excellent in my subject. I instantly said,

[30] Prose
[31] First known poet of Nepal in Nepali Literature

Me: *Oh I see. Is there anything that I can do for you mam.*

Parent: *Sir my child reads here in the school in grade 7. He has passed now and is going to class 8.*

Me: *Oh that's very good then.*

Parent: *Sir actually I am very happy for his result. I have also heard about your teaching. Salin has talked a lot about it. He says you teach very nicely, but .....*

Me: *But what mam.*

Parent: *But my child says he will not study here now.*

Me: *Why? Why is it so?*

Parent: *He says you beat the students very dangerously. He had once seen you beating a student and later that night he got a high fever. He even refuses to come here in front of you. I want him to learn from you but he is very scared and not willing to study here.*

Me: *It is not true. I punish the students but they realize the mistakes later. He may just be telling it and may have some another reason. Can you bring the child here now? Let me talk with him once.*

Parent calls the child but he does not come there. The parent drags to child and as he sees me he starts to shiver expecting a catastrophe.

The journey portrays my being not social to the children. This situation created me to think that the way I am behaving myself is antisocial against the norms and values of the society. It seemed to me as being totally non human who does not have any pity on other. It make me think that the punishment that I am giving to the students doing well. It is doing more good than harm is it harming others too who are even not related to this. Transformation comes from understanding the system of

profound knowledge (Daszko & Sheinberg, 2005). I come under a humanitarian crisis where I question myself about my deeds. I questioned myself. Am I a human?Edwards & Thomas (2010) state reflective practice describes the process that occurs when persons are apprenticed to any meaningful activity. This moment I too was brought to think critically to my deeds.Am I harming other others feelings? Why are they afraid of me? Is it good to create such scary environment in the school? This situation also made me question my practice and made me think that the change is necessary to me even just to act as human.

Procedural Crisis

It was a cold winter somewhere in the year 2009. We are in the lunch break at the Kathmandu High School. I and my friend at the Kathmandu High School. I and my friend Dipendra are at schools canteen having lunch together. Dipendra teaches English. While having lunch suddenly the talk about the morning immerged. I had beaten a child for not doing his homework.

Dipendra *Actually what happened today morning in the class?*

Me *Oh, I had warned Rohan to do his work but he was lying to me. He at first told he has forgotten his exercise book at home where he had done his work. Later, I checked his tag and the exercise took was in the bag itself and nothing was done in it. So I gave him a slap for telling lie.*

Dipendra *If, he told lie. So, Prashant are you sure now that he will not lie to you next time.*

Me *I am not completely sure. But I know he will think twice before he lies.*

Dipendra *May be he will lie with more plans which he prepares. He may be a prepared planned liar.*

Me *Without any thought. I will give him more beating.*

Dipendra *If he still does not improve you may hit with sticks too. But if he still does not show any changes what next?*

I became speechless and think upon it. Yes, it is really very difficult to think what next if the student doesnot improve after beating. A teacher may think if improving the child and beat the child a slap, on seeing no change may increase it. But what is the optimum limit of beating a child? And if no any changes are seen other the student suffers physically there is no use of such punishment. Thiessen (2012), states that teachers learn much from each other. I was also in the same scenario. I was having a talk with my friend who made me realize that the practice that I was taking with myself is creating a procedural crisis in self resulting in the harm of the child. Aderibigbe & Ajasa (2013) also puts forward their view as peer coaching is mostly perceived as a collaborative effort to enhance professional development.

Smyth (1996), states that mutual help and support between the teachers can help in the process of self understanding and self betterment in professional development which can be really significant in teaching learning process. My friend really was able to bring insight to me when I was about to run short of the activities that harmed the students in the long run. So, this made me have a procedural arises. Actually I was punishing the children for their good and if does not do any good then it is of no use. So, I had to look for other alternatives to corporal punishment.

Thinking out of the box

It was a hot morning somewhere in the month of July 2009. The morning was hot so I took a cold water shower and went to my aunt's house. I went to meet my grandmother who was there after she broke her hands. She usually calls me if I don't go there in alternate days. That's the love they show towards their children. As I went

there she told that she liked to have hen "Local Nepali kukhura[32]". I and my uncle went to buy the hen in the shop nearby the house. A shop with a lot of hens was open. We went inside the shop and asked a small boy where his father was i.e. the main shopkeeper.

Me: *Where is your father?*

The small boy: *He is not my father, he is my boss. He has gone to take the hens for the shop.*

Me: *Can you give us a hen?*

The small boy: *Choose the best one you like and I will weigh it.*

We choose a black hen which is considered to be tasty and told the boy to weigh it can tell us how much it costs. The boy weighs it but he does not have enough weights to weigh it as some of the weights were misplaced in the night.

Me: *The weights are not enough. How are you going to weigh it now?*

The small boy: *Don't worry sir; I will borrow it from the next shop.*

He then goes to the neighboring shop and asks for some weights to weigh but the shopkeeper denies to gives to him and responds to him telling that your boss has already lost many of my weights, I shall not give your any more. The boy returns to his shop with a sad face. Before I could say anything to him he picks up a stone lying in the floor.

Me: *What are you going to do?*

The small boy: *I am trying to weigh this stone first and then weigh the hen.*

The small boy weighs the stone and lastly weighs the hen with the help of the weights he had and the stone he brought. I looked at this self made estimation theory and

[32] Hen

appreciated his idea.

During his procedure of measuring the hen with the help of the stone he brought and some previously available weights, the whole procedure made me so curious about the activity and the theory he used. My curiosity was going out of my control and I was enforced to ask a question to him from my heart.

Me: *Which school do you study in?*

The small boy: *I don't go to any school. I am illiterate. I don't have anyone in this world so I don't go to school. When I will earn lot of money, I will study.*

I was quiet and could not respond to his answer and felt pity to the condition of the child on one hand and on the other was praising the child for his active brain and concepts which were never taught to him by any one before. I then evaluated my children who are taught so much of mathematics but are unable to use it in their daily life and the small boy who is not taught mathematics but is able to run a shop with his self created mathematics. I scold, punish the students when they cannot think, analyze and do the problems. McCord(1991) argues that punishment is doing more harm and leads them to be antisocial. May be the punishment that I am giving the students harming them more the question arose in the mind. It made me think critically about my practice. I have used a lot of policies in teaching them but still I have failed a lot of times but this small kid who had never gone to school, never experienced such classes and never punished in such environment for such cause can also perform mathematical operations as required in the field. So, it does not only mean that I punishing the students can bring about a change in them. Rather I felt that I myself need to think some alternatives to corporal punishment which can help the child learn in a free environment with pleasure.

Thirst to learn the unexplained phenomena

I started to teach in Rampur Public School in the year 2007. I had completed my Bachelor's degree by then. I was called to teach there as a full time teacher but due to many circumstances I could not leave Kathmandu English High School. In high request I went there as a part time teacher who used to be there early in the morning, I used to teach compulsory mathematics to class 9 and 10 students early at 6 am in the morning.

In due time, I used to teach in Kathmandu English High School as an Optional mathematics teacher. One day I was teaching a chapter in grade 9. It was related with Trigonometric ratios of certain allied angles. It was not the first time was teaching the topic but a thought stroke me was the new one. While the was teaching in Rampur Public School, the principal there was Mr. Neupane an expert of Mathematics curriculum who had written many books in mathematics. He was my ideal mathematics teacher as he was known all the country round for his text book. The problem was related to Trigonometric ratio of certain allied angle where I had difficulty in understanding how an angle more than 90° can be kept inside a right angled triangle.

I after finishing my classes went to meet Mr. Principal. He was sitting in his office doing some personal business. I stood in front of his door and said.

Me : Excuse me Sir.

He : Yes, Sir. How can I help you?

Me : That's great of you Sir. May I come in sir?

He : Sure, sure Prashantjee. Be comfortable.

Me : Thank you Sir

He : Yes Sir. Do you have any problem?

Me : *Actually sir, I am here with a problem that I faced yesterday. I hope you can help me out with it.*

He : *Sure sir, if I can I will.*

[He thinks I have some problem regarding financial matter or something else but does not think I am into some textual problem]

I take out a pen and my notebook and make him look at it. I sketch the figure and illustrate him as follows.

Me : *Sir how can an angle more than 90° fit into a right-angled triangle. I illustrated him as (90°+A), (180°+A), (270°+A) etc.*

He : *Oh ho sir, Yes there is a problem I have never thought into this I shall see to it.*

Me : *Ok sir if you get any solutions to this please let me know sir about this ok sir.*

[I leave his room after this]

This journey portrays my experience to learn the unexplained phenomena which was never dealt when I was a student nor had I ever experienced during my early days of teaching. I had a feeling that an expert would have the solution to this problem at least see to it, try to analyze it but the answer was directly I haven't thought for this which made me think it had something to do with. As my expert also did not have the answer to my question I thought that it would be my work to find out what is the reality. Without ongoing critical dialogues between their old and new assumptions about teaching, learning, and literacy, their new assumptions could not become fully transformative (Sarah, 2006,p. 53). If I never challenged the old

ongoing methods I would have had the thirst for knowing the unknown phenomena. Multiple things can be proven by multiple ways. Multiple answers exist everywhere. We need to expand our horizon to find out what it is. If a student comes and asks the same theory to me then I shall be scolding the child for no reason. For me also to get a broader vision in needed to transform myself.

Wandering to new technology

The new technologies were on the door steps. If one was not updated about it, there was a large chance to fall back in the run. Various social medias were emerging. I was also new to this. But as it was on every ones mouth, I had to learn everything of it at least to be in the game. Students, friends, seniors let's say everyone were friends in the social sites. While using it, some of my ex- students were found to criticize the teachers. They even were using abusive language and foul words to the teachers were they showed their hated feelings towards them. They tried not to be good after once they pass out S.L.C from the school. Even few currently studying students also seem to post various hatred views and their feelings towards school and teachers. Once I saw one student writing in his wall and acronym of maths as

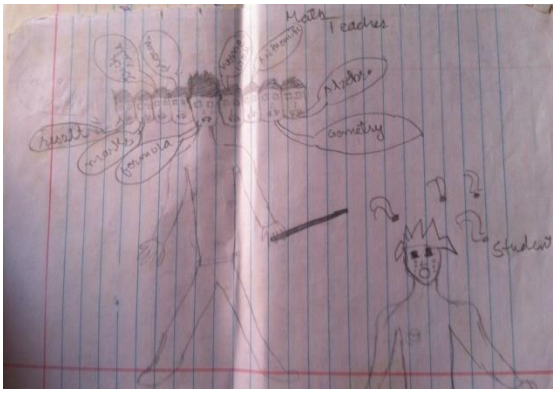
M = Mentally

A = Affected

T = Teachers

H = Harassing

S = Students



I was touched by this acronym. I felt bad to see and hear my students talk like that about the subject and teacher. The events made me feel very awkward.I started to ponder. The ex-students as they had nothing to do with me,had guts and some told

they thought that I am like a demon,whereas some told if I was not so giant they would even dare to take revenge.I even asked some of the current students about how they felt about me.Some told they liked me and a few told they were very afraid me.

All these sequence of events made me think upon my practice and question my doing 'Am I really doing good in the name of helping students?' when can I change the acronym of math to:

M= Mentally

A= Able

T= Teachers

H= Helping

S= Students

Pondering upon my thought how will I change the views of students upon me and mathematics I thought of taking help of the same social sites.I found several of links related with teaching learning process.I tried to have an access of it,read it,see it and understand it but it was not so easily possible.It would not find so many usefularticles, books and videos. But I tried to utilize as much as I found in internet.FitzGibbon (et al 2007), says that perception of technology helps in teaching learning in the classroom by the help of social networks. I also agree with them and try to dive in the pool of technology if I can myself find out any alternatives to corporal punishment. But just trying in the unknown field is not sufficient.I really didn't have had so much idea as I have now in the field out technology.I tried to see what people were doing in other places to make the students learn without punishing them.Is the scenario the same everywhere or is it only with me? This question was striking on my head time and again.I was confused now.I had heard about a few

progressive schools in Kathmandu valley which teaches the students without any punishment. I made a move to the so called progressive school of the valley via a means.

Peeping to a progressive school

I reflect myself back to a chilly evening in mid December, 2008. A friend of mine called me and we were jubilant that we reconnected as we were the closest of buddies in our school time. He was urging me to meet him as soon as possible. I assured him that I will come to meet him the next Sunday because I was free as it was a public holiday. He then gasped oh! , I too will be free that day because my school will also remain closed that day. That moment I knew that my friend had a school of his own. That made the meet more interesting as I was a mathematics teacher.

Sunday arrived at our feet when I went on meet him. I expressed my eagerness to see his school when the children were in the premise. He told me I was most welcome to come and have a peek. I managed my busy schedule and went to observe his school. That day I had one of this mesmerizing wow moments in his school which I am going to share now.

I reached school and I went to his office. He then let me scan the school in my pace. We reached the library. I found about 25 small students probably one graders watching a cricket match between India and Southafrica. I am a big cricket fan so I also had a peek at the score. India were going great guns as they had gone off to a very good start, they were batting and had 90 runs on the board in 10 overs. More than the situation of the game I was surprised at the school. I instantly told my friend. "Hey man, what's this". "The

teachers and students are enjoying a cricket match, What a uttersense, I said".

He then on the go told me to calm down as he explained the whole scenario to me. He told me this is one of a long term activity that students are doing to study the fundamentals of addition and multiplication. I said; What? I was thrilled to bits. Studying from cricket. I told him that I didn't understand a thing. He slowly told me the whole sequel. They were trying to make students learn with their subconscious mind while the students were studying the basic of mathematics. If a student doesn't learn the mathematical operations properly they will not be able to enrich themselves to further heights in mathematics. But the biggest question arises, "How the students ought to learn mathematics via cricket?"

As we all know cricket is a game of numbers, played with a bat and ball, there are many things to look forward to in cricket. Run rate is calculated after every ball which is a road map of how a team is playing and a prediction for how much score the team will make at the end of the allocated over. So if a team scores 6 runs in an over, then the prediction says the team will score 6x50=300 runs in the 50 overs. As we know it's easier to be committed when you are passionate, the students will enjoy the elixir and effervescence of cricket with the subconscious activity of calculation that includes addition, subtraction, multiplication as well as division.

After hearing this from my friend, I was thrilled. I had realized many things that I was missing in my teaching as well as learning process.Wrigley(2007) also expresses the views of changing schools as it places both educational and social aims at the centre of discussion of educational change. This part was always being missed on my side. I never cared about the student's differently learning situation except than jug and mug concept.Latendresse (2013), puts his argument as the cared given by progressive schools are culturally and politically rich than the old belief system

schools. This thing was unsettling me for a long time, so to quench my thirst I went on the search of activity based instructional education and I got into Kathmandu University, the turning point in my life.

Entry to Kathmandu University

It was the month of January 2009. I was taking the winter coaching class for the students preparing for S.L.C. I was always tensed with the core subjects like Analysis, Algebra, Topology etc which all really went off my head when I studied my Bachelors and Masters Degree. I was always seeking of a course which could be directly helpful for teaching students I always had a need for improving self in the content matter. Almost a decade had been spent in teaching; I was completely unaware about pedagogy and curriculum at all. I replicated all the mathematics that I learnt and learnt from my mistakes. I improvised myself in that learning by doing method.

The crisis that I have felt in me professional crisis, humanitarian crisis, and procedural crisis can only be resolved by changing my pedagogy and shift in my thinking. It was almost impossible without a change if I only followed by the path that I had been into I would be in a position to lose to my identity.
Suddenly a friend told shared us about the K.U's math education program and came to get detail information about it. Having all the information's about K.U., I finally decided to join the course.

As the due time passed, I started to learn various things and area related to education. As I was a student of pure science, everything that I was learning was new. I came to understand many facts and theories required for educating a child. I was a total teacher centered teacher who never gave importance to students self constructed knowledge. I was a total absolutist mathematics teacher who always

believed that the mathematics we learn & teach is rigid, fixed does not inculcate or has to do with multiple facts changed as there was a space for children's belief and experience. I always had a belief that the text book is the curriculum but according to Habermas (1972), I came to know that curriculum is not a physical thing but rather the interaction of teachers and students and their knowledge. I came to know about the three interest forwarded by Habermas (1972), which are the technical, practical and the emancipatory interest. Habermas indentifies emancipation with autonomy and responsibility (Grundy, 1987, p. 16).I was guided by the technical and the practical interest unknowingly when I started to teach. I did not facilitated autonomy and responsibility as I was following or moving in the path where interest is in control and it is the one that arises from the inclination rather than from reason.

K.U. brought a change in pedagogy from a teacher centered pedagogy to a child centered pedagogy, an autocratic teacher to a progressively child friendly teacher. A person who did not facilitate autonomy and responsibility has thought that he needs to practice it. I too had an access to different books, articles and mostly various people who have been working in progressive schools. These things made me get go with the things very easily and specifically. What practices are going on in other places, what are the recent method of teaching and learning process. Moreover the courses in K.U. made me an outlet to the crisis that I was facing.

Various courses were offered in different semesters.Foundation of education laid a foundation store on my journey to education from the sciences stream. Different theories and philosophies regarding education were introduced math education helped me in enlightening about different learning approaches

and philosophy about mathematics. The nature of mathematics that I had always believed just to be absolutist in nature was taken when I found new theories were existing from a long time back like fallibalism and constructivism. Knowledge is constructed not imposed or imitated was the main outcome from the learning.

Teaching mathematics 9-12 gave me a pure idea about teaching mathematics inside the class. Preparing more appropriate lesson plans, understanding the child,using technology inside the class were major areas focused and outcomes from the course.

Curriculum Development made me know the most important thing that what we teach inside the class is the curriculum not the book. My consideration that book has all the topics and it follows strict curriculum so book must be finished came to a dead end after a reflecting question whom are we teaching the child or the class?

Teacher Development helped me to know and explore more practices of other teachers. Knowledge is everywhere we need to grab it. Learning was done through observing other teachers classes. Feedbacks and help to others became an agenda after learning the course. Internship became a venue to share all the ideas that I have constructed within the time frame with all my colleagues which developed the working in a group and realize that being child friendly teacher is possible by accepting a new philosophies in activity based instruction.

Research in math pedagogy helped me to heighten my knowledge .Self critical reflection in most important task in update and upgrade oneself. Questioning the self practices, thinking from various points of view not limiting self just as a mathematics teacher helped me attain a different height in professional field. Kinchole (2008) says Truth is the moment of practice. We can

different over eye while looking at the students. If the vision changes we can see what they have potential in and how can it be used for their improvement. The new genres in writing, teaching mathematics via language, introducing reflective journals about the class, making the students use multiple genres in their understanding also helped me understand them. These all things lead me conclude that the crisis that I was feeling can be overcome now if I incorporate all my learning. Transformation is an integral process incorporating survival, critical resistance, and creativity (Mezirow, 2009, p. 36). The study at K.U. made me be in the transformative process from an autocratic teacher to the one searching for being a progressively child friendly teacher.

Punishing the students for them not doing work was the only thing I used to do but I never took care why didn't they do? I never gave priority if the context due to which crisis came in me. I thought I was strong can beat the student but I was a not able to think that my strength is not immortal. This made a crisis generate in me. I was punishing the student, a stick today, 2 stick tomorrow but I never cared if the students does not improve for a year how many sticks he will get at the end of the year. This made me call a crisis.Kandel & Lazear (1992), states that peer pressure helps in mutual sharing, understanding, monitoring and help in creating empathy to create incentives. Discussing with peer helped me to come out this crisis and really think that the approach that i was using is not correct.

Through all my learning at K.U., I learnt that the teacher must know how to take care of the student. Just knowing to teach the theorems as given in the textbook is not sufficient. What are we teaching? What objective must be fulfilled? What will be the outcomes? How will we manage the class? How will

we guide the good ones? How will you help the weak ones? A planned way out is necessary. If we can maintain this we can be able to go to a class to teach. As the culture is very important, it guides us in doing anything. Total freedom and corporal and punishment both are not right if they are practiced towards the extremes. So, a teacher must be able to balance it somewhere in the means of the continuum taking care of the context where there is a win-win situation of both teacher and the student and a student learns being actively involved without being punished and teacher teaches without punishing the child. As Habermas (1972) defines emancipation as independence from all that is outside the individual and is a state of autonomy rather than libertinism, it is the act of self reflection. It gives rise to autonomous, responsible action based upon prudent decisions. I have been guided by this interest as I have been able to self critically reflect the act of my past which were not child friendly and not autonomous. Giving the freedom to the child, making them self responsible and self critically reflecting myself to my deeds that I thought myself was for good leaded me to a new situation. I came to a feeling that I might be in a good position if I emancipate myself towards a progressively child friendly teacher rather than an autocratic one. I not only have been practicing it to myself as teacher but I have been sharing this to the teacher community about self critical reflection and the disadvantages of corporal punishment. I have been working with other teachers of my school as all of them are not from the education back ground; they are also unknown about this field. So, I have been trying to share my experience to them which may help them to critically think and question about their practice via different meeting about the drawbacks and ultimately emancipate them too about providing autonomy and responsibility to the student to make them become better citizen of the world.

Chapter summary

This chapter shows why a shift in me came from an authoritative teacher towards the search o a child friendly teacher in me. The necessities were always there but we can see it sometimes where as sometimes they are hidden from us. Critically reflecting upon the self deeds is most important and Kathmandu University's Math Education program became a door opener to me in making me reflect. Critical social science promotes self reflection which results in attitudinal change (Kincheloe, 2001; Skovsmose, 2006), and thus critical teacher researcher challenges the current educational system that puts emphasis on using students as numbers rather than persons. The meaning of criticizing which was pointing finger to others mistake changed to underpinning the self beliefs and practice too.van Woerkom (2010), argues that critical thinking brings good thinking rather than describing the observed ways of thinking. I always thought that by making my students get high test scores by even using teacher centered pedagogy came to a dead end after I found the outlet to child centered pedagogy. Making them able to do the algorithmic problems are not important but making them be good citizens leading them to emancipation has been my prime agenda. Habermas indentifies emancipation with autonomy and responsibility (Grundy, 1987, p. 16). I now believe that giving the class autonomy and self responsibility can create the situation to get a chimeric and unfulfillable dream come true.

CHAPTERVII

REFLECTIONS, FINDINGSAND FUTURE DIRECTIONS

Research to me in Diploma level

I happened to hear the word research when I began my journey of studying science in my Diploma level. Many voices used to be all around the college as a lot of student could not pass the subject in the earlier year. It was a compulsory subject to study. Had it been an elective one I would have had a narrow escape through it at the time. Bound to study it with the conception it to a difficult subject to pass I entered into the world of it. It only dealt with the scientific method of doing quantitative research at the moment. It dealt with a research problem followed by a pilot study or literature review to conceptual framework, creating hypothesis which were assumed solution, gathering information, testing the hypothesis, evaluation of hypothesis, interpretations, conclusions and recommendations and preparing a report out of it. In short it only dealt with scientific research at the time. The way of doing research was also as absolute as I was when I was a novice teacher.

Different practice of research at K.U.

As I entered Kathmandu University the term research came to have a different meaning. Searching again something was the literal meaning I found at the beginning but later I came to realize that it to a door opener to have insight in self. The core contents that had to be passed were all cleared without any difficulty at all. I joined the university as the student of 2009 batch. At the end of 2010 all the core contents were over. Only the research paper was left out. Even though half of the work had been done I could not do the remaining due to my schedule. I always followed in the saying of Aristotle, well began is half done. Only my beginning was well but a lot of

work was pending. In spite of a lot of help from my teachers I was keeping my work pending. I am at the verse of the year 2013. New Year is about to begin in a day or two but still my work is in being to becoming process. A lot of help from my colleagues cannot be forgotten to make this work come to an effect but as it is said "Everything that happens, happens for good." I understood the real meaning of doing research. I understood how much my peers were helping me to do work. I can never ever forget the gratefulness of my respected Professor Dr. Bal Chandra Luitel, who has always believed me that I had the capacity of doing the work. Even till the last day he has supported me, helped me, suggested me and encouraged me to get me in the proper direction. His support to me cannot be explained by any words in the dictionary. I cannot say that I have learned a lot from doing this dissertation neither I claim that I have transformed totally to a child friendly teacher but it has certainly envisioned me new avenues where I can perform better and help out the people in the mathematics community to emancipate by making them know about autonomy and self-responsibility in their areas.

Addressing my Research Questions

Finally now I shall be discussing the research questions that I have developed in this point. I may have a lot of gray scales in it but rather I shall try to overcome it during my higher studies. As regards to my research, I have developed three research questions in my autoethnographic study. The research questions were as follows:

- Why and how did I find views of the nature of mathematics different in various educative stages of my life? How did it guide me to and fro of corporal punishment?
- How and why in mathematics classroom corporal punishment is practiced?

- How a possible shift against corporal punishment came in my thinking to existence and why did I start to practice it? How am I practicing it at the moment?

Now, I am going to address those research questions in a brief. With my first research question I had gained the concept of nature of mathematics different in different stages of my life. Mathematics was absolute in my days of schooling which led me to an absolute teacher in my beginning days of teaching. I learned the same as my teachers taught in the class and performed myself in the same way in the early days of teaching career. Later I understood mathematics to be human, culturally embedded, social product which can be fallible in nature. The constructivist nature of mathematics later guided me in meaning making process in the class which helped me to come out from the old belief as an absolutist teacher to seek for a progressively child friendly teacher in me.

To be up to the mark, it was the belief in nature of mathematics that made me cruel as my teacher were and someone now who tries to understands the students and their mathematical conceptions putting corporal punishment away from thought.

My second research question shows a lot of evidence how and why corporal punishment is practiced in the mathematics class. Numerous data text, poems, non linguistic genres are present to prove the evidence. It is the baggage of the teacher that makes him perform when he is new in the teaching field. The teacher who has only seemed his teacher taking control of the class through sticks also understands it as the absolute truth. The perceptions of parents to get their children high scores in mathematics and the beliefs about the school mangers to make all pass despite of their limitations also plays a vital role in making the class more inclined towards corporal punishment.

The teachers also tend to make it a bit complicated sometimes as they too feel it for a selected few where as it is also due to the baggage we are carrying at our back which is creating the scenario. Hence, if all of need to search for the alternatives for corporal punishment by everyone trying to give their best from all the ways as by applying the new pedagogy everybody saying yes to change.

My third and the last research questions dealt with the shift from corporal punishment. Many evidences and crisis in my personal life made me think that I am incomplete and the way I am moving is not correct. The moment the child made me realize my reality, my inhuman activity towards the child, my procedural crisis and new technologies all around made me think that corporally punishing the student is not the solution. My entry to Kathmandu University to attend my higher degree in the field of education and learning and seeing new pedagogies applied made me come to a conclusion that the class can also lead further without corporal punishment.

I could just not say that corporal punishment is of no use and does not work but also can find alternatives to it by involving all the students to construct the meaning of mathematics in the class by giving them autonomy and making them self responsible.

Future Direction

I do not believe that just by making the students good in the valley is enough. Mathematics should be beneficial for all. It is not for a select few. For all not just be in the words but it should be in the action. I plan to take away my teaching practice to some remote village in Nepal where their “emic” perspective about math can be converged with the “etic” perspective to have a dialectics and make all the citizens emancipate in the field of mathematics.

Vision of mathematics class using the language of games

Scene: A class in somewhere far away remote area. Students busy with each other talking about themselves. A teacher gets inside the class and some of the students get up and say good morning sir. Rest also gets up and greets the teacher.

Students: Good morning sir!

Teacher: Good morning students. Please sit down. So, what are we into today?

One of the student replies: We will not read anything today sir.

Teacher (in a surprised face): Why? What happened?

One of the student replies: It's of no use sir reading mathematics.

Teacher: Who told you this?

One of the student replies: Everyone says sir. It is just with rote learning the formulae and doing the same with the question in the exam. It has got nothing to do with daily life. If we learn Nepali language we can use it in each and every step when we talk with everyone. If we learn and be good in English we can go to Kathmandu valley, get good job.

Another student replies: Our English teacher just said we if are good in English we are sellable internationally also and get a good amount of money for our future.

Teacher: oh is it like that really (the teacher smiling tells). Yes, whatever you have understood and your language teachers have told is correct but if you go to earn also don't you think that you need mathematics there. You will need mathematics there too. How much you earn, have much you spend, how much you save is all mathematics my dear.

Another student replies: But sir, mathematics is really abstract. It really talks all about abstraction and has nothing to do with our real life.

Teacher: (smiles and puts a question back to the students). What do you like to do the most?

All the students in the same voice: We like to play sir.

Teacher: Ok then I will show you all how mathematics is incorporated in games that you play.

All the students start to giggle at the same time.

Students: Mathematics in games, mathematics in games, hahahahaha…

Teacher: What game do you people play the most nowadays?

Students:Dandibiyo[33] sir.

Teacher: do you see any mathematics in this game?

No sir replies a student Ram.

Ram: I don't see any mathematics here. It does not have any symbols, any operational tools nothing sir. Where is mathematics then?

Teacher: Ok! No problem. How many of you know how to play DandiBiyo then?

(All of the students raising their hands to show they know.)

Shyam another student replies: Sir, we play this always in the evenings then wont we know how to play?

[33] A game played with two stick one longer one dandi and the shorter one biyo where the longer stick is 4 times longer than the shorter one

Teacher: So, do you play randomly or….

Before the teacher could finish his question a student replies. We make two groups of friends and play the game.

Teacher: How do you make group?

Students: We move our hand in the air and the same sided palms are together.

Teacher: Is it just that much. Are there any fixed dimensions of the dandi and the biyo?

Ram: The dandi (stick) is about two feet long and a biyo the wooden pin is about half feet long. The biyo is a small wooden stick with pointed ends.

Teacher: Then?

Shyam: A hole is made on the ground, which in diameter is just smaller than the length of the pin. The hole should be dug about four inches deep. To play, the pin is laid across the hole and a player puts one end of the stick inside the hole and holds the other end.

Before he could finish Hari another students says: Then the player tries to jerk the stick to hit the pin so that the pin flies in the air. If another player catches the pin when it is in the air, the hitting players turn is over and other player goes to do the same. Finally if a player makes the pin hit the ground, that player plays to score.

Teacher: How is the scoring done then?

Sita (another student) replies: To score, a player should hit the pin with the stick at one of its edge. Then the pin flies in the air, and when the pin is in the air the player tries to hit the pin to make it travel the farthest. The distance travelled by the pin is

measured with the help of the stick. As an option, the player can hit the pin more than once in the air to increase the hit count which helps a lot to boost the score of the player.

Seeing Sita speak Gita another student also adds: The score is calculated by multiplying the hit count by the number of sticks the pin travelled. If the player hit the pin twice in the air, then his hit count is two, hence the score will be twice the number of sticks the pin travelled. The player who makes the highest score wins the game.

Teacher: It seems everyone knows the game here.

Gopal a small boy seems to add more in the game: Actually sir, first, the players must bounce the biyo from his dandi. Whoever bounces it the most number of times gets to play first.

You must flick the biyo as far as possible from the base, which is a small groove on the ground. Player then goes to where the biyo is and taps the edge so it leaps up into the air at which the player strikes it with all his might. Players then measure how far the biyo is from the base in dandi length units.

1. If the biyo is hit only once in midair, the distance is measured according to the length of the dandi.
2. If the biyo is hit twice, it is measured according to the length of the biyo.
3. If the biyo is hit thrice, measuring is done according to the distance between the forefinger and the tiny finger.

Once the measuring is over, the first player calls out the approximate distance his or her biyo travelled. The second player tries to outdo this and the third tries to outdo the second and so on.

Sometimes, other players try to block the biyo with branches and bushes they might have picked, making the game more interesting. Other players try to block the one

lifting the biyo out of the hole with his dandi. If they either catch the biyo or hit his dandi with it, the player is out.

Teacher: You all seem to know the game and the mathematics within it very nicely then.

All students at once: Mathematics, how sir?

Teacher: Ok! Let's begin from the first now. When you play you make a team first right. You categorize you and your opponent's team. You use the concept of set her isn't it?

Student (In a surprised mood) nods their head. Few seem to be still unclear with it. The teacher adds set is the collection of the objects, elements or an item of a type isn't it? So you are using the concept of set there. Counting and multiplications are there obviously. Similarly the biyo and the dandi have definite lengths. The biyo is half feet long whereas the dandi is two feet long. So is there a mathematical connection or not?

Ram answers: Yes sir. The biyo is shorter than the dandi always.

Shyam adds: The dandi is four times longer than the biyo

Teacher: Yes, you got it. The biyo is one fourth of length of the dandi or the dandi is four times the length of the biyo.

Gopal replies: Sir, I can see it teaching us ratio.

Teacher: Yes, excellent. Can we have the ratio of the dandi and the biyo now? How much is it:

All students: Yes sir. 4:1 and the ratio of biyo to dandi is 1:4

Teacher: What else do you see there then?

Gopal again speaks: Sir I think we have the concept of prisms and mixed objects too.

Other students: How?

Gopal says: The dandi itself is a cylindrical object whereas the biyo combines of two cones on the either ends joined on their bases. So, it really consists of mathematical concepts. We may calculate various other things related with it from these objects.

Teacher: Good Gopal. You have a good vision. Anyone else?

Sita: Sir may be I am wrong but shall I try?

Teacher: Yes of course.

Sita: Sir I think we have the concept of various measurement systems as we play it. I mean sir, If the biyo is hit only once in midair, the distance is measured according to the length of the dandi, If the biyo is hit twice, it is measured according to the length of the biyo, If the biyo is hit thrice, measuring is done according to the distance between the forefinger and the tiny finger. So, it emphasizes on various measuring systems and is same like how 1 meter is 100 cm or 1000 mm etc.

Teacher: That's good Sita. So, did you people find mathematics in the game that you keep on playing or not. This is not all. You may envision many more ideas which even I may not know. So, the homework to you all today is to go and play dandibiyo and check out the facts we discussed just now. Try to find out if any other mathematical facts exist. We shall discuss here in the class tomorrow.

The bell rings and the class get over.

In the same way the class continues every day. Students, teachers, parents and the school management all are happy.

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