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Reasons of Demotivation and Perception towards Mathematics

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Abstract
We have always been motivated as teachers to blame low-performing students by claiming that they have negative attitudes toward mathematics, but we are rarely interested in investigating the reasons for their negative attitudes toward mathematics. The goal of this case study was to look into the reasons why low-performing students have a demotivation attitude toward mathematics. The objective of this case study was to analyze the reasons for having demotivation of mathematics among the low-performing students. A low-performing student in mathematics was selected purposively based on her performance in mathematics as the key research participant from a higher secondary. Low-performing one student in mathematics with the help of her/her previous classroom performances was taken as the sample of the study. The information was gathered through a series of in-depth interviews conducted at various levels. The reasons for having demotivation attitudes of mathematics include: being repeatedly failed in exams, not teacher mediator/learning facilitator, lack of time given for practice, less confidence, and a lack of priori or conceptual knowledge.

***Keywords**: Attitudes, Low achieving, Demotivation, Mathematics*

Introduction

Mathematics is an essential part of the school level curriculum and is considered as one of the main subjects for many different fields. Mathematics education plays vital role in resolving the problematic situation in the mathematics curriculum and its implementations. Mathematics is not typically a popular subject, and it is one in which students face numerous challenges, with many opting out as much as they are permitted (Khan, 2012).There are many factors to influence attitudes toward mathematics and these factors are related to learning opportunities. A student, how used to perceive a subject, more or less reflects on his/her ability and performance in that subject (PISSA, 2012 as cited in Shen,(2003). The performance of students in mathematics is influenced by their attitudes toward mathematics, and the formation of such an attitude is influenced by their performance in mathematics. Many students find their studies in mathematics to be difficult and unrewarding (Alenezi, 2008). He found that not-positive attitudes among students may have important consequences for carrier choices and aids in extensive society.

Mathematics is poorly taught, but teachers can only teach what is mandated for them very often teachers are forced to follow the ways prescribed by textbooks (Ali, 2011). Many students struggle in mathematics classes, which lead to increased anxiety because they believe they are unable to succeed in mathematics. As a result, they develop negative attitudes toward mathematics (Khan, 2012). What is required of students and what occurs in the classroom where students learn mathematics appear to be vastly different. In the context of Nepal, generally, the

low-performing students used to have undesirable attitudes towards mathematics (UNESCO, 2009). In the experience of the author, students who have a negative perception of mathematics engage in fewer academic activities in class and have a negative attitude toward the subject teacher as well and previously be seated in the back row of the class and, as a result, have a poor learning achievement. Yasar (2015) elucidated the attitudes of the high school students towards mathematics are at a medium level. According to Qaisi (2010), more or less the performance of the students is directly related with his/her attitudes towards the subject matter and such attitude of the students reflects how meaningfully she or he perceived the subject. This paper is about that aims to find an answer to the question, "Why does a low-performing student usually have negative attitudes toward mathematics?" We, as mathematics teachers, generally used to get some students are good in mathematics and someone is very weak in mathematics in the same class but we never tried to know why such weak students are being weaker than weaker day by day.

So, to guide students toward a better understanding, we must first understand their root perceptions of a subject and, if necessary, change their deep-seated beliefs about how to approach a subject. For this, it is necessary to know that ‘what are the determining factors in creating an attitude towards mathematics. Then and only then can we make some positive changes so that we can see how negative attitudes toward mathematics are linked to poor student performance. What factors play a role in the development of a demotivation attitude toward mathematics? What is a teacher's role in changing a student's demotivated perception of a subject? What are the study's main goals? The goal of the study was to find an answer to the following research questions: What factors contribute to a low-performing student's demotivation attitude toward mathematics? And what characteristics might be associated with a low-achieving student who has a demotivation attitude toward mathematics? Ma and Kishor (1997) defined attitude towards mathematicsas “an aggregated measure of a liking or disliking of mathematics, a tendency to engage in or avoid mathematical activities, a belief that one is good or bad at mathematics, and a belief that mathematics is useful or useless” (p. 27). According to Hart (1989), an attitude towards mathematics comprises three components: an emotional response to mathematics, positive or negative, a conception of mathematics, and a behavioral tendency about mathematics.

The present study adopts a rather simple definition of attitudes that includes, however, different kinds of negative feelings towards mathematics and problem-solving, such as hate, lack of practice time, anxiety, interest, and a perception of the usefulness of mathematics in life. So, mathematics has changed in the student’s eyes and it has become an interesting discipline to discover and investigate. With the help of literature, it is found that most of the studies are concluded with the findings that the low performing students have demotivation attitudes towards mathematics; however, they are devoted to seek the reasons of forming demotivation attitudes or to identify the factors that are motivating them to shape demotivate attitudes towards mathematics. As a scholar in the field of mathematics, the author has noticed the decreased in the enrolment of students in mathematics related programs. Even who enrolled in the programs do not see mathematics as a valuable subject of study. As a teacher of mathematics, the authors has experienced many occasions that students just feel mathematics as a burden to pass in the examination. Thus the author has realized a study on the attitude towards mathematics and tried to fulfill some of the gaps.

Methodology

The study has conducted within the framework of case study research design. I selected a student of higher secondary level, who usually used to have very low performance in mathematics, and conducted an in-depth interview to know her perception towards mathematics and got she has completely demotivation attitude towards mathematics and then researcher took her as the key respondent of my research study. Since,I have been teaching the same students for the last 3 years, the researcher is familiar with her attitude and behavior towards mathematics so that I concluded to select her as my key respondent through purposive sampling. I have conducted regular observation for some days to my key respondent to understand different characteristics and behaviors associated with her. An in-depth interview was taken in the second phase of the study with the respondent to know the hidden factors for having such demotivation attitudes towards mathematics and to get some insights for the way forward to reduce such demotivation attitude of the students. And, the academic progress report and other academic activities are also taken as the data of the research. According to Brown and Clark (2013), the data generated from the interviews and the classroom observations were analyzed within the interpretive framework by coding, categorizing, matching, and comparison and thematizing as well as corresponding with the theories by triangulation. The study was limited to only one student of higher school, hence the investigator cannot generalize the finding of this study to all grades and further research can be done in a large-scale study.

According to the philosophy underlying qualitative research, reality is relative to the meaning that people construct within social contexts. From an interpretive perspective, understanding is co-created and there is no objective truth or reality to which the results of a study can be compared. Therefore, the inclusion of member checking into the findings, that is, gaining feedback on the data, interpretations, and conclusions from the participants themselves, is one method that the researcher used in self-research to increase the credibility of this research. And further, the researcher tried to maintain the credibility standards in this research using prolong engagement with the key informants, persistent observation. Researcher has provided a rich, thick description of the study (time, context, background of researcher and research participants) such that, data and description speak for themselves to enable readers to appraise the significance of the meanings attached to the findings and make their judgment regarding the transferability of the research outcomes in other situations.

Result and Discussion

The study was intended to seek the possible reasons behind having demotivation attitudes towards mathematics mostly in low achieving students. After getting the raw data from the field study, I first make some coding and categorization to the response of the key respondents and tried to seek the pattern or the behaviors with the help of the theory and different reviews and come up with some conclusions. Data was obtained from the interview was interpreted by using the general inductive method as described by Thomas (2006). The findings of the research have been examined based on the following research questions:

Low performing students in mathematics. The primary goal of this study is to learn more about "how low-performing students' attitudes toward mathematics are typically formed." To get an answer to this question, it was necessary to first figure out "what are the factors that are

associated with students that cause them to have such demotivate attitudes?" Finally, with the prolonged engagement and the persistent observation of my key respondent, the researcher has concluded these bullets as the reasons for having such demotivation attitudes towards mathematics;

Usually unsuccessful in the exam . After maintaining a constant connection with the key respondent, the researcher came to the conclusion that receiving lower exam scores is one of the major factors in students' negative attitudes toward subjects, which is consistent with the conclusion of Shen (2003). In every conversation with her, in one or another way she always used to be unsatisfied with her marks obtained in the exam. She expressed 'If I don't have to study mathematics, I feel liberated.' From these key respondent's voice; I came to know that this is one of the most influential factors in the formation of attitudes toward mathematics.

*Learning facilitator. T*here are very low marks in exams of some mathematics students, and generally used to think that one of the weakest students in mathematics in the class. So, normally she could not be ready to participate in the classroom activities neither of her friends used to share with her so that generally she used to feel alone in the mathematics classroom from an academic point of view. In the time of my observation, I could not get her participated in any kind of academic activities in the class neither to share with friends nor to ask the question with the teacher. So, in the classroom, there is a lack of co-operation which is a factor of having demotivation attitudes towards mathematics. Also, the theoretical framework (Ajen, 1989) suggests that co-operation leads to better understanding among students and leads to having positive attitudes towards mathematics.

Not teacher as mediator. In most of the days, my key respondent used to sit in the last rows of the class. In my observational period, I never find that the teachers tried to make him engaged in any way. In the time of the interview with her, she expressed that neither her mathematics teacher tried to motivate her in any way nor did the teacher go near to her and asked ‘do you understand?’ so these kinds of activities lead her to have anxiety (Luitel, 2007) in mathematics. And because of hearing always censuring voices from her teacher, she normally does not feel free to be with the mathematics teacher and I concluded that the teacher could not mediator to her and from the overall scenarios lead her to have negative attitudes towards mathematics.

Less confidence. Because of having poor results in mathematics, she is continuously losing her own belief that she can do mathematics so that she is motivated to terminate it rather than improve herself in mathematics. Because of having very little confidence (Kafle, 2002) in mathematics she always used to hesitate to ask the questions of teacher and friends and which leads to being motivated to copy the homework rather than to do it themselves, even if s/he knows and eventually this leads him to have the negative attitudes towards mathematics.

Lack of priori/ conceptual knowledge. Among various reasons for having negative attitudes towards mathematics, the study also revealed that the lack of priori of the conceptual understanding (Paran, 2009) is also one of them. From my observational study, it got that generally, the low performing students used to have a less conceptual understanding about the content comparatively than others which leads to again to have low performance in the exam and such continuous less achievement lead them to have negative perception towards mathematics.

Conclusions

Based on the findings mentioned above, the study is concluded with some remarkable conclusions. The first, psychological variable is the most forcing variable for students to form negative attitudes towards mathematics, especially for low-performing students. Low-performing students generally have a fear of getting unsuccessful in mathematics and that kind of fear finally forced them to be unsuccessful. The second, communication gap is also the forcing variable for the students to be negative with mathematics. This kind of gap is usually occurred with their friends and with teachers as well. The third, public image of mathematics like; mathematics is a vast subject is also a vital factor for the low performing students to form negative attitudes of mathematics at a higher level.

Reference

Alenezi, D. (2008). *A study of learning mathematics related to some cognitive factors and to attitudes (Unpublished PhD Dissertation)*. Glasgow, University of Glasgow.Retived: http://themes.gla.ac.uk/333/

Ali, T. (2011). Exploring students' learning difficulties in secondary mathematics classroom in Gilgit- Baltistan and teachers' effort to help students overcome these difficulties. *Bulletin of Education and Research*, 33(1), 47-69.

Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University

Hart (1989).*Rapport and respect: negotiating ethical relations between researcher and participant*. Medicine, Health Care,and Philosophy, 12(3), 291-299.

Khan, S.(2012). *The rise of the tech-powered teacher*: Education week

Ma, X., &Kishor, N. (1997). Assessing the relationship between attitude toward mathematics and achievement in mathematics: A Meta-Analysis. *Journal for Research in Mathematics Education, 28* (1), 26-47.

Paran, G. &Tibli, P. (2009).*Perceived Parental Encouragement, Motivation, and Attitudes towards Learning the English Language among Tertiary Students.* Proceedings of the 2nd International Conference of Teaching and Learning (ICTL 2009).INTI College. Malaysia.

Qaisi, (2010).*Shedding Some New Light on old Truths: Student Attitude to School in Terms of Year Level and Gender*. New Orleans American Education Research Association. Queensland.

Shen, C. (2003). The Relationship between students' achievement and their self-perception of competence and rigour of Mathematics and Science: A cross-national analysis. *Assessment in Education: Principles, Policy, and Practice*.

Thomas, R. R. (1990). From affirmative action to affirming diversity; Harvard Business.WHO (2020). Coronavirus Disease (COVID-19) Pandemic. Derived from:https://www.who.int/

UNESCO.(2009). *Policy Guidelines on Inclusion in Education.United Nations Educational, Scientific and Cultural Organization*. Fontenot, Paris: France

Yasar, M. (2015). High school students' attitudes towards mathematics. *Eurasia Joural of Mathematics, Sciece ad Techoology Education*, 12(4), 931 -945.