Journal of Equity for Science and Sustainable Development

Vol. 1(1), pp. 1-13, June 2017

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Full Length Research Paper

Students' Beliefs in Mathematics Education Related to Stream: The Case of Grade Eleven Students in West Arsi Zone, Ethiopia

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Received: 25 Feburary, 2017; Accepted: 13 June, 2017; Published: 26 June, 2017

ABSTRACT

The beliefs that both natural and social science students have in mathematics education play an important role in their success or failure in school mathematics. Thus, studying students' beliefs in mathematics education related to stream is essential in educational research. Accordingly, this research focused on investigation of students' beliefs in mathematics education related to stream. To address this issue mixed-methods approach were employed. The data were collected from four schools in West Arsi Zone using multistage sampling. The quantitative data obtained were analyzed using percentage, mean, independent samples t-test, correlation and regression. Whereas, for the qualitative data collected through semi-structured interview and focused group discussion, thematic data analysis was emoloyed on the basis of common characteristics. Consequently, this study displayed that overall there was statistically significant stream difference in students' beliefs in mathematics education, t (502.97) = 12.12, p<0.05. The main reason revealed from semi structured interview and focused group discussion for the belief difference between natural and social science students in this study were due to the nature of the subjects in natural and in social science, subject teachers' partiality, and self beliefs in mathematics education. To change the situation it is important social science students to take the first initiatives to improve their beliefs in mathematics education. It is also very important to build students' mathematics knowledge at elementary school so that both natural and social science students to come to learn mathematics in the high school with courage.

Key words: *Beliefs, Mathematics Education, Stearm*

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Introduction

Both cognition and metacognition are necessary psychological functions for students to learn and to do mathematics problems. However, they are not sufficient elements for effective learning. Affective components such as beliefs, attitudes, emotions and values are also important (Op't Eynde, *et al.*, 2002). From these affective components regarding beliefs, research indicates that there is a growing awareness that beliefs have a significant influence in every action of students in learning mathematics and problem solving. In line with this Pajares and Schunk (2002) underlined that the beliefs in which students get into their heads become the rules that govern their actions, for good or, regretfully, sometimes for ill. For example, students' beliefs in mathematics education such as "mathematics is difficult for me" and "I do not have natural talent to learn mathematics" have their own influence so that students to have little reason to make his/her effort for being successful in mathematics.

In general, beliefs matter (Goldin *et al.*, 2009). Because, students' beliefs in mathematics education can determine how students choose to approach a problem, which techniques will be used, how long and how hard one will work on it, and so on (Dweck, *et al.,* 2004; Linnenbrink and Pintrich, 2004). Indeed, beliefs help students to be more eager and willing to learn and to study mathematics; to use their prior knowledge to construct newer; to develop relationships and relate mathematics to the contextual situation to solve real life problems; and to facilitate the skill of problem solving and mathematical logical thinking. This importance of students' beliefs in mathematics education do not restrict to elementary or secondary or tertiary educational level; rather it is crucial in all educational sections associated with students' mathematics learning, problem solving and mathematics achievement. On these bases, various researches were done in different countries in the world at elementary, high school, and tertiary level to verify the beliefs of students in mathematics education and their impact on mathematics learning, problem solving and mathematics achievement (Stevenson and Witruk, 2000; House, 2006; Randel *et al*., 2010; Kaldo, 2011).

For instance, Kaldo (2011) investigated Estonian science and non-science students' views of mathematics at university level, including seven factors in the study: performance-approach goal orientation, mastery goal orientation, relevance, personal value of mathematics, student competence, teacher role, cheating behavior. The findings underlined that students for most factors, that is, five factors: mastery goal orientation, relevance, personal value of mathematics, student competence, teacher role, science students have more a positive view of mathematics than non-science students. Indeed, even though the mean difference is not great, statistically significant mean diffence was observed between science and non-science groups in five factors: mastery goal orientation, relevance, personal value of mathematics, student competence and cheating behavior. On the other hand, statistically significant mean diffence was not found between science and non-science groups in two factors: performance-approach goal orientation and teacher role. In addition, both science and non-science students think that knowledge of mathematics is important; it helps them to understand the world. They also believe that the teacher role holds a neutral position close to disagreement suggesting the teacher has not inspired them to study mathematics very well.

Statement of the Problem

The importance of having a solid background in mathematics as prerequisites for admission into university and college areas of study is well known. However, mathematics is widely recognized not only as a core component of the curriculum but also as a critical filter to many educational and career opportunities. In addition, in recent years much concern has been expressed in Ethiopia about students' reluctance to continue with the study of mathematics beyond the compulsory years (Belachew, 2015). This is widely observed in grade eleven stream choices and in their first year tertiary education department choice (Belachew, 2015). Hence, the above problems are indicators to study students' beliefs in mathematics education related to stream.

Objectives and Research Questions

The general objective of this research was to investigate students' beliefs in mathematics education related to stream. From the general objective, the following two specific objectives were drawn in order to address the study:

- To analyze whether there is a significance difference between natural science and social science students' beliefs in mathematics education.
- To explain the rationale underlying for the significance difference between natural science and social science students' beliefs in mathematics education.

Accordingly, in this study, the following two major research questions were posed to be addressed:

1. Is there a significant difference between natural science and social science students' beliefs in mathematics education?
2. What is the rationale underlying for the significance difference between natural science and social science students' beliefs in mathematics education?

Materials and Methods

Research Design

In this research to analyse and to describe the significant difference between natural science and social science students' beliefs in mathematics education, and to explain the rationale underlying their beliefs in mathematics education mixed methods research using a quantitative investigation for obtaining descriptive statistics followed by a qualitative investigation were employed. Accordingly, in phase one mathematics belief scale was applied to address the first research question of this study and to analyze students' beliefs in mathematics education related to stream. Because, based on the research question of this study, the mathematics belief scale was used to address the views of large number of participants using many items. In phase two semi-structured interview questions and focused group discussion questions were applied to address the second research question in this study so that to address the rationale underlying for the significance difference between natural science and social science students' beliefs in mathematics education depending on the quantitative results. In doing so, the two phases of the research were occurred sequentially, where the qualitative data was used to explain the quantitative data. Hence, in this study explanatory sequential mixed methods design was employed (Creswell, 2014).

Study Area

This study was conducted in West-Arsi zone, one of the zone of Oromia National Regional State in Ethiopia. Its capital town, Shashamane is about 250km from Finfine. The zone was established in 2006 from previously existing districts administered under Estern-Shewa, Arsi, and Bale zone in order to solve long-existed socio-economic and political problems in the society in the past (Abate, 2009).

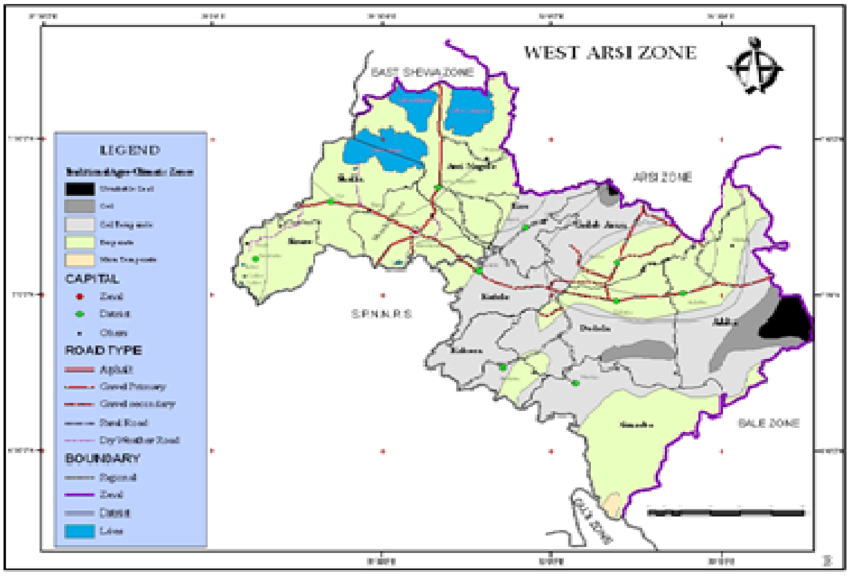

Figure 1: West Arsi Zone Administrative Division (*Source*: O/F/&E/D/O statistical abstracts)

Population and Sampling

According to 2013/14 data obtained from the Zone Education Office, West-Arsi Zone has ten preparatory schools. These are Adaba, Dodola, Kokosa, Nensabo, Gedeb Hasasa, Kofele, Shashemene, Kuyera, Arsi Negele, and Ajje preparatory schools.

Table 1: West Arsi Zone grade 11 students' data at the begning of 2013/2014 academic year

Location of Preparatory School Before 2006	Preparatory School	Grade 11		
		Male	**Female**	**Total**
Bale Zone	Adaba	91	62	153
	Dodola	341	161	502
	Kokosa	60	31	91
	Nensabo	64	96	160
Arsi Zone	Gedeb Hasasa	171	73	244
	Kofele	93	34	127
East Shewa Zone	Shashemene	511	441	952
	Kuyera	46	40	86
	Arsi Negele	403	195	598
	Ajje	39	19	58
Total		1819	1152	2971

Source: Zone and District Education Office

All grade eleven students from government schools of West Arsi Zone were constitute the population of the study. Regarding sampling for data collection using mathematics belief scale, multistage sampling was used. Accordingly, Dodola preparatory school was selected from Adaba, Dodola, Kokosa and Nensebo preparatory schools of southern cluster; Gedeb Hasasa preparatory school was selected from Kofele and Gedeb Hasasa preparatory schools of central cluster; and two preparatory schools: Shasheme and Arsi Negela were selected from

Shasheme, Kuyera, Arsi Negela and Ajje preparataory schools of northern cluster by lottery method. There were 2046 (1247 males and 799 females; 1233 natural science and 813 social science) students in the four sampled preparatory schools when the sample was taken. Following the selection of the four sampled preparatory schools, it was made clear that the students were assigned randomly without any discrimination in each section through discussion with school directors, home room teachers and mathematics teachers. Hence, sections were selected using lottery method to collect data using mathematics belief scale. The researcher then considered all students in the selected sections for data collection. The respondents of the study were 600 students in which all are the members of the above selected schools and selected sections. However, from 600 respondents the participants who have completed the data for all items in the mathematics belief scale were 545 (325 males and 220 females). Thus, the responses of 545 respondents were used for the main data analysis. The responses of 55 respondents (41 males and 14 females) were dropped due to inconsistency and incomplete responses.

On other hand, to collect the data using semi structed interview and focused group discussion three students for interview and five students for focused group discussion were selected from each of Shashemene, Arsi Negele, Gedeb Hasasa and Dodola preparatory schools based on purposeful sampling in order to get relevant and rich information. Indeed, the respondents of interview and focused group discussion questions were those who participated in the data collection using mathematics belief scale.

Instruments of Data Collection

In order to address the research questions of this study mathematics belief scale, semi-structured interview questions and focused group discussion questions were used. The mathematics belief scale used in pilot study has nineteen belief components and 150 items covering the nineteen belief components. The nineteen belief components in mathematics belief scale were from the five belief categories: students' beliefs about mathematics, students' beliefs about mathematics learning and problem solving, students' beliefs about mathematics teaching, students' beliefs about self in mathematics education, and students' beliefs about context support in mathematics education. The first belief category students' beliefs about mathematics represented by one belief component, that is, students’ beliefs about nature of mathematics, which contain ten items. The second belief category students' beliefs about mathematics learning and problem solving represented by two belief components: students’ beliefs about mathematics learning and students’ beliefs about mathematics problem solving, each contain eight belief items. The third belief category students’ beliefs about mathematics teaching represented by one belief component, that is, students’ beliefs about mathematics teaching, which contain eight items. The fourth belief category students' beliefs about self in mathematics education represented by four belief components: students’ self-efficacy beliefs about mathematics education, students’ control beliefs about mathematics education, students’ goal orientation beliefs about mathematics education, and students’ task value beliefs about mathematics education, each contain eight items.

Likewise, the fifth belief category students' beliefs about context’s support in mathematics education represented by eleven belief components: students’ beliefs about mathematics as a male domain, students’ beliefs about mothers’ support in mathematics education, students’ beliefs about fathers’ support in mathematics education, students’ beliefs about siblings’ support in mathematics education, students’ beliefs about relatives’ support in mathematics education, students’ beliefs about mathematics teachers' support in mathematics education, students' beliefs about peers support in mathematics education, students' beliefs about non mathematics teachers support in mathematics education, students' beliefs about education system's support in mathematics education, students' beliefs about mathematics text's support in mathematics education, and students' beliefs about school's support in mathematics education. Each of the above belief components except students' beliefs about mathematics text's support in mathematics education, and students' beliefs about school's support in mathematics education contain eight items; whereas, the belief components: students' beliefs about mathematics text's support in mathematics education, and students' beliefs about school's support in mathematics education each contain six belief items.

Also, 75 of the items of the mathematics belief scale are positive and 75 of the items are negative. In the scale the respondents were asked to complete on a five point Likert Scale: "Strongly agree", "Agree", "Undecided", "Disagree", and "Strongly Disagree". The response for each item was rated 1-5 so that for positive item strongly agree, agree undecided, disagree and strongly disagree worth 5, 4, 3, 2, and 1 respectively; while for negative item the rating was reversed.

On other hand, both semi-structured interview and focused group discussion have two questions, and also the questions are the same. Moreover, besides the initial questions, participants also came up with additional points of view called follow-up interview and focused group discussion questions, spontaneously during interview and focused group discussion process, which in turn used to stimulate the participants. Regarding, trustworthiness of the qualitative data besides triangulation of information among different sources of data, member checking was employed.

Validity Reliability and Normality of Mathematics Belief Scale

In this research, to maintain both the content and the face validity the mathematics belief scale, it was repeatedly checked by colleagues and then by experts. Also, pilot-test was conducted on 40 (19 males, 21 females; 21 natural science, 19 social science) grade 11 students of Didea Preparatory School in East Arsi Zone, Oromia, Ethiopia, which was selected by simple random sampling. From 40 respondents the participants who have completed the data for all items in the mathematics belief scale were 34 (15 males and 19 females). The remaining 6 respondents' responses (4 males and 2 females) were dropped due to incomplete responses. Thus, the responses of 34 respondents of the pilot study were used for discussing the reliability statistics of both belief components and students' beliefs in mathematics education. Accordingly, the reliability statistics (Cronbach's Alpha) for both belief components and students' beliefs in mathematics education are greater than 0.7, which indicated that the mathematics belief scale was internally reliable.

In addition, for this research the skewness statistics for mathematics belief scale and students' beliefs in mathematics education are between -1 and 1. Accordingly, the data distribution is normal (Leech *et a*l., 2005). Moreover, for the pilot study there were 34 correctly responded observations, so greater than the numbers of the predicators (belief components). Indeed, the dependent variable, that is, students' beliefs in mathematics education is a scale level variable, which is normally distributed in the data. In addition, the remaining assumptions of multiple regressions were satisfied testing them with the help of SPSS 20. For instance, the relationship between each of the belief components and students' beliefs in mathematics education was linear as it was tested by drawing scattered plot using SPSS 20. Furthermore, in the pilot study the correlations between students' beliefs about mathematics teaching and students' beliefs about relatives' support in mathematics education was r(34)= .88. Thus, based on the rule of thumb one of these belief components should be dropped; in this case, students' beliefs about mathematics teaching discarded from the regression analysis due to multicollinearity (Garson, 2012). Hence, regression analysis was applied with eighteen belief components of the pilot data to determine the contribution of each of the belief components to students' beliefs in mathematics education, since students' beliefs about mathematics teaching was reduced from the nineteen belief components due to multicollinearity. This was summarized in Table 2.

Table 2: Contribution of each belief components to students' beliefs in mathematics education for the pilot study

Belief Components	Contribution (%)
Students' beliefs about nature of mathematics	2.41
Students' beliefs about mathematics learning	4.01
Students' beliefs about mathematics problem solving	7.80
Students' self-efficacy beliefs	9.47
Students' control beliefs	7.79
Students' goal orientation beliefs	4.45
Students' task value beliefs	5.47
Students' beliefs about mathematics as a male domain	2.48
Students' beliefs about mothers' support	6.87
Students' beliefs about fathers' support	8.73
Students' beliefs about siblings' support	7.44
Students' beliefs about relatives' support	2.27
Students' beliefs about mathematics teachers' support	8.38
Students' beliefs about peers' support	7.07
Students' beliefs about non mathematics teachers' support	2.92
Students' beliefs about education system's support	2.75
Students' beliefs about mathematics text's support	3.98
Students' beliefs about school's support	5.55
Total	99.84

According to Table 2, the belief components with less than 3% contribution to students' beliefs in mathematics education include: students' beliefs about relatives' support in mathematics education (2.27%), students' beliefs about nature of mathematics (2.41%), students' beliefs about mathematics as a male domain (2.48%), students' beliefs about education system's support (2.75%), and students' beliefs about non mathematics teachers' support (2.92%). Furthermore, as indicated in the informal discussion on the pilot items with respondents of the pilot study, the participants indicated that they were not familiar with items of students' beliefs about nature of mathematics which addresses students' beliefs about: source of mathematics knowledge, composition mathematics, structure of mathematics, and status of mathematics. Also, related to students' beliefs about relatives support in mathematics education, respondents underlined that relatives' contribution for students' to learn mathematics and on their results are not influencial. Therefore, students' beliefs about relatives' support in mathematics education and students' beliefs about nature of mathematics also discarded from the mathematics belief scale. Accordingly, the mathematics belief scale used for the main data collection has sixteen belief components and 124 items covering the sixteen belief components. Indeed, the sixteen belief components contained in mathematics belief scale for the main data collection are from the three belief categories: students' beliefs about mathematics learning and problem solving, students' beliefs about self in mathematics education, and students' beliefs about context support in mathematics education.

Method of Data Analysis

In accordance with the objective of the study and the research questions, mean, independent samples t-test, correlation and regression were employed in the study using statistical package for social science (SPSS) version 20. Regarding the qualitative data collected through semi-structured interview and focused group discussion, thematic data analysis was emoloyed on the basis of common characteristics.

Results and Discussions

Students' Beliefs in Mathematics Education related to Stream

The research question of this study related to stream of students, that is, is there a significant difference between natural science and social science students' beliefs in mathematics education?, was answered using independent-samples t-test. In this case also the Levene's F test for equality of variances was applied setting α = 0.05. Thus, the independent t-test was conducted for the above research questions according to the two assumptions, that are equal variances assumed, and equal variances not assumed, indicated in Levene statistic. The results appeared in Table 3.

Table 3: The independent t-test for comparing natural science and social science students' beliefs in mathematics education

Belief Variable	**Stream**	***n***	***M***	***SD***	***SE***	***df***	***t***	***p***
Students' Beliefs in						502.97	12.12	.000*
mathematics education	Natural	332	3.30	.64	.03			
	Social	213	2.68	.54	.04			

* *P*< 0.05 (2-tailed)

From the mean scores (*M*) for natural science and social science students indicated in Table 3, overall natural science students had higher mean score in students' beliefs in mathematics education than social science students. However, the question follows this is that, is the mean difference significant? For this question the result found in Table 3 also displayed that this mean difference was statistically significant ($t(502.97) = 12.12$, $p<.05$). This suggested that overall there was statistically significant belief difference in mathematics according to stream. The main reasons revealed from interview and focused group discussion for the belief difference between natural and social science students in this study were that its greater importance and usefulness in natural science's, the nature of the subjects in natural science and in social science, subject teachers' partiality, and problems associated with students' self beliefs in mathematics education. For example, it was expressed in the interviewe that:

> Mathematics gives strength for us to learn other subjects. In particular, it plays a great role in natural science subjects. Also, mathematics increases our confidence in doing in different work sectors.... For me, who have a plan to be a pilot, mathematics is one of the most important subjects to arrive at my target [Male, Age 22, Arsi Negele, Natural Science, Year 2014].

There are also cases in which the massage from mathematics teachers affects students' beliefs in mathematics education. For example, it was reflected in the questionnaire that:

> Our teacher tells us natural science students did this and that. He always exaggerates their good work. … He also tells us the problems are easy for natural science students. But, he often tells us as if we (social science students) do not want to do mathematics; and even the simplest problems are difficult for us. … I think he considered us as if we are not born for mathematics. Our effort is valueless in front of him. This despair me…. [Female, Age 20, Gedeb Hasasa, Social Science, Year 2014].

It was also indicated that natural science and social science students have not treated equally. For example, it was commented in focused group discussion that,

> The school does not treat natural and social science students equally. The school assigned competent mathematics teachers for natural science students. But, for us (social science students) the school assigned selecting weak mathematics teachers. … That is not competent. Teachers that cannot explain the topics well, and do not have confidence. … Do not have interest to help us, and they are not motivated to teach us. Indeed, some of the teachers are also not available on time. … Sometimes they also come without any preparation. … Also, mathematics teachers' do not give equal place and emphasis for natural science and social science students. … Both the school and the mathematics teachers believe that mathematics is very important for natural science students than social science students. … So they take every precaution for helping natural science students. But, for us (social science students) they do not bother [Shashemene, Social Science, Year 2014].

There are also social science students who believe that "we cannot understand mathematics". For example, it was explained in the questionnaire that:

> I could not understand mathematics even after many times trial. It is difficult for me to score passing marks. I do not know what I am going to do. I do not like mathematics by nature; and I dislike it very much. I also dislike not only the subject but also mathematics teachers. Let mathematics be omitted from our education [Female, Age 18, Shashemene, Social Science, Year 2014].

Similar sentiment shared by interviewee that,

> I do not understand mathematics. … I do not study it much time like other subjects, since I do not have interest for the subject. I do not think also mathematics is useful and important. I

> do not read mathematics text, and I do not work hard on mathematics problem. … I have also the habit of studying during only exam time [Female, Age 22, Gedeb Hasasa, Social Science, Year 2014].

Students underlined that the nature of social science subjects and the nature of mathematics do not go together like natural science subjects and mathematics. Students believed that natural science subjects (e.g., physics and chemistry) strongly connected to mathematics, whereas, they believed that social science subjects (e.g., geography and history) have weak association with mathematics. Social science students believed that social science subjects in most cases need simple mind work such as reading and memorization that do not need continuous hand exercises. On other hand, students indicated that mathematics, and other natural science subjects need both critical mind work and continuous hand work side by side. In fact, one cannot split mind activates and hand activities in mathematics and in basic natural science subjects. It needs always to exercise with hand in mathematics, and in other science subjects in addition to capturing and thinking the concepts in the mind. Therefore, the working habit students exercising in the field of social science subjects and in the field of mathematics do not go together. These influenced social science students' working culture and their overall mathematics performance in mathematics. This in turn influenced their beliefs in mathematics education.

To examine the belief difference in mathematics education across stream in detail, the mathematics belief scale was further analyzed across the three belief categories: students' beliefs about mathematics learning and problem solving, students' beliefs about self in mathematics education, and students' beliefs about contexts support in mathematics education (Table 4).

Table 4: The independent t-test for comparing natural science and social science students' beliefs about belief category

Belief Category	**Stream**	***n***	***M***	***SD***	***SE***	***df***	***t***	***p***
Students' belief about mathematics learning and problem solving						526.50	8.88	.000*
	Natural	332	3.23	.69	.04			
	Social	213	2.76	.53	.04			
Students' beliefs about self						522.69	13.04	.000*
	Natural	332	3.41	.93	.05			
	Social	213	2.48	.73	.05			
Students' beliefs about context's support						482.48	9.97	.000*
	Natural	332	3.26	.62	.03			
	Social	213	2.75	.57	.04			

* *P*<0 .05 (2-tailed)

The findings from the independent t-tests in Table 4 showed that there was statistically significant difference between natural and social science students in their beliefs about: mathematics learning and problem solving, self in mathematics education, and context's support in mathematics education, $t(526.50)=8.88$, $t(522.69)=13.04$, $t(482.48)=9.97$, $p<0.05$, respectively, favoring natural science students' in all cases. This difference is due to the belief difference between natural science and social science students on components of students' beliefs about mathematics learning and problem solving, self in mathematics education, and context's support in mathematics education.

In case of students' beliefs about mathematics learning and problem solving, which was represented by two belief components: students' beliefs about mathematics learning and students' beliefs about problem solving, the mean of natural science students' beliefs about mathematics learning is less than that of social science students, where as in students' beliefs about mathematics problem solving, the mean of natural science students is greater than that of social science students. This in turn is due to the believe difference observed in each item contained in students' beliefs about mathematics learning and students' beliefs about mathematics problem solving. Similarly, in students' beliefs about self in mathematics education, which is represented by four belief components: self-efficacy beliefs, control beliefs, goal orientation beliefs and task value beliefs in mathematics education, In all cases the mean of natural science students was greater than the mean of social science students. This in turn is due to the believe difference observed in each belief item representing: self-efficacy beliefs, control beliefs, goal orientation beliefs and task value beliefs about mathematics education. Likewise, the mean of natural science students' beliefs about: mothers' support, fathers' support, siblings' support, mathematics teachers' support, peers' support, non mathematics teachers' support, education system's support, mathematics text's support, and school's support in mathematics education, which are components of students' beliefs about context's support in mathematics education, is greater than social science students' beliefs.

Conclusions and Recommendations

Conclusions

The purpose of this study was to investigate grade eleven students' beliefs in mathematics education related to stream. Specifically, the study was to analyze whether there is a significance difference between natural science and social science students; and to explain the rationale underlying for their difference. Therefore, from the result and discussion the following findings were obtained:

1) This study displayed that overall there was statistically significant stream difference in students' beliefs in mathematics education.
2) One of the reasons revealed from qualitative data for statistically significant belief difference between natural and social science students was the nature of the subjects in natural and in social sciences. Natural science subjects strongly attached to mathematics as compared to social science subjects.This also differenciate the working habit in social science subjects and in mathematics. In addition, social science students' believed that their connection with mathematics up to grade twelve national exams, while natural science students believed that it is beyond that. Consequently, majority of natural science students believed that mathematics is important and usefull for them and so that they have the desire to know, to understand, and to be successful in mathematics than social science students. Besides, students' outlined that mathematics teachers, also the schools favour natural science students. Indeed, students indicated that there were relatively better support for natural science students by mothers, fatherers, siblings, mathematics teachers, peers, education systems, and schools support.

Recommendations

In order to narrow the significance difference between natural and social science students and to improve the beliefs of social science students the following recommendations were proposed.

1) In general, it is important social science students to take the first initiatives to improve their beliefs in mathematics education. In this regard it is important to correct their beliefs about mathematics. Also, it is good to know

that students have the mind that has the power to understand things as long as there is individual effort. In addition, I claim that the nature of mathematics that it is difficult in some portion and simple in other section are two phases of the same coin. One cannot change this nature of mathematics. However, one can change his/her opinion and convince his/her energetic mind to learn and to be successful in the difficult parts of mathematics as he enjoys in it and easily learn the simplest parts of mathematics.

2) It is also important to establish and to strength mathematics club within the school. It helps to facilitate experience sharing programs related to mathematics inviting students, teachers, and others within the school or outside the school who have a good mathematics back ground. It is also important the school to organize contests and to facilitate rewards on the subject among students, since it awakes students to know they are in competetion. In addition, it is important the school to exercise good governance in assigning mathematics teachers for social science students.

3) What is important as mathematics teacher is to be free from the spirit of partiality, so that to treat equally both natural and social science students. Even, it is very important teachers to avoid symptoms of teachers caused variation among students as much as possible.

4) Both natural and social science students to come to learn mathematics in the high school with courage, building students' mathematics knowledge basis at the lower level is very crucial. This is because; students' solid foundation in mathematics in the elementary grades is the core part of students' later success in their education. Indeed, this saves mathematics from death in students' mind, and to see a living mathematics in the students' heart when they come to high school and subsequent higher institution. This requires strong collaboration among the concerned bodies, such as families, schools, teachers and education professionals.

Conflict of Interest

The author declared that there is no conflict of interest regading to this paper**.**

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