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The Effect of Goal Orientation to the Academic Performance in Mathematics of Grade 10 Students

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Abstract

Mathematics is a multifaceted activity; it has a lot of faces, even those one we can't notice. Each facet is worth it to deal with so that every individual will be prepared for their future. It provides us with something to walk through difficulties. It is beneficial to set a goal for each individual, whether it is a short-term goal, long-term goal, or even the goal that falls in the middle. Setting a goal has been used extensively in a variety of ways, even on the outside of the school or in any settings. It could possibly bring you a positive achievement if follows correctly. The main purpose of this study was to determine if the goal orientation of the grade 10 students of one school in Region IV-A (CALABARZON) Rizal has a significant effect to their academic performance. As regards to the data of the significant effect of goal orientation to the academic performance of grade 10 students, the p-value of less than 0.001 revealed that the task goal orientation of the respondents has a significant effect to their academic performance in mathematics. The p-value of 0.007 implied that the ego goal orientation of the respondents has also had a significant effect on their academic performance in mathematics. Therefore, the researchers concluded that there is a significant effect of the respondents' goal orientation, although the effect is very low and low, respectively. For the betterment, it is advised that researchers conducting a comparable study on goal orientation expand their scope to include student study habits, which may be influenced by a variety of circumstances.

Keywords: Goal Orientation, Ego Orientation, Task Orientation, Academic Performance

Introduction

"We are what we repeatedly do. Excellence then, is not an act, but a habit." -Aristotle

Mathematics is indeed a unique subject: a complex but interesting world with its own exact language. From the very first stage of our life, we have been introduced to the concept of mathematics. We can't say that we are alienated to this matter, but we can't also deny the fact that between having a positive or negative attitude towards this subject, most of us choose the latter. As the result of the study of Gafoor and Kurukkan (2015) about the factors affecting the negative behaviors toward mathematics revealed that 58% of the students are afraid of mathematics, 63% find it boring, still, 43% felt learning mathematics as interesting. Some students will say, "I don't like mathematics because it seems so difficult," or will ask, "Where am I ever going to use mathematics?" They show no willingness to learn. Mathematics in the first place is rigid, complicated, and tedious. Thus, it scares the students. As cited in the study of Pasion (2016), students sometimes do not realize its importance and usefulness even if they are applying mathematics consciously or unconsciously in their

everyday lives. The researchers believe that if the students become aware and familiar with their own goal orientation, this may serve as their motivation to learn Mathematics. According to Lugtu (2016), students' goals serve as their motivation to accomplish an academic task successful.

Nicholls (1989) defined goal orientation as an individual disposition toward developing or validating one's ability in achievement settings. The work of early goal theorists contrasted two types of goal orientations: mastery (which is, task goal orientation), is a desire to gain additional knowledge or master new/current skills and performance (ego goal orientation) is a desire to show high ability and make a good impression. Goal orientation has been also defined as the feeling of success from attainment of goals. It is the standards used by an individual to define their own interpretation of success (Andrion, 2016). There are various terminologies used to describe two distinct goal orientations, such as task and ego, performance and outcome, mastery and performance, even learning and performance. In the end, these terms represent similar issues in the goal orientation, and for this study, the term task and ego orientation will be used. In simpler words, task-oriented individuals are those who want to have a mastery of the content of the subject. Whether it seems hard and challenging, they will keep on striving more to learn the whole concept of it. This means it is fine for them to flunk a subject as long as they understand it, even though it may take some time. Failing leads to perseverance, and eventually to success. The focus of learning and improvement is within oneself, his/her disposition, and will.

Ego-oriented individuals are those who exert effort depending on the abilities of others. They feel more successful when they outperform others, so basically, some of them avoid failures. Comparing yourself to others is a dominant character of an ego-oriented person. Villas (2001, cited in Lugtu, 2016) conducted a study which revealed that there is a significant relationship between achievement in mathematics and learning orientation. Therefore, if a student has a strong goal orientation, it can be expected that they might achieve better in mathematics. This result shows the need to motivate students to set their goals and to attain mastery of concepts and process. Teacher should then provide learning activities that are challenging and assign tasks that are within the bounds of the students' skills and abilities. If a task is too difficult, this may discourage the students from working (Lugtu, 2016).

Way back to the National Research and Extension Conference, the researchers have watched a presentation regarding the effect of goal orientation to the performance of athletes. This caught the interest of the researchers and came up with the question, "Does the goal orientation could possibly pull out the students from the verge of giving up on solving mathematical problem as well as on the whole concept of mathematics?". Exploring more the topic, the interest of the researchers increased. The researchers find it necessary to study the effect of the goal orientation of the students to their academic performance in Mathematics, though the concept of goal orientation has been related numerously in the terms of sports. This study aims to know the consequences of being a task or ego-oriented in the context of learning on the said subject matter. Furthermore, the researchers open windows for improvement to the instructional design; to ease problems related to the quality of teaching and learning mathematics.

Theoretical and Conceptual Framework

Nicholl's Achievement Goal Theory (1989), states the differences of an individual in goal perspectives, or how they judge their competence and define success. These goal perspectives manage the way in which an individual thinks about achievement and set as a guide in decision making and action. Nicholls (1989) defined goal orientation as an individual's disposition toward develop-

ing or validating one's ability in achievement settings and, with the help of motivation, an individual can identify their goal orientation. According to Kahayon and Aquino (2004), motivation is a hypothetical concept that stands for the underlying force impelling behavior and giving it direction. Taylor (2009) also stated that motivation is the foundation of all efforts and accomplishments. To improve the performance, mental factors, confidence, intensity, focus and emotions are needed to be considered in maintaining the desire and determination. A well-motivated student performs better in achievement situations, has higher educational aspirations, spends more effort in learning tasks and persists longer at difficult tasks compared to poor motivated students (Pintrich & Schunk, 2002). Pintrich and De Groot (1990) asserted that the intensity of an individual's motivation will trigger him or her to execute good or bad learning strategies. In other words, motivation supports an individual toward their goal orientations. These orientations can be classified based on the definition of personal competence: task and ego goals (Nicholls 1984; Nicholls 1989) or the mastery and performance goals (Dweck 1986; Dweck &Leggett 1988)

The goal orientation is classified into two distinct types; the first is called mastery goal, which can be referred as the task goal. Students are said to be task oriented when their primary goal is to learn and master the task. This can be observed in the student's interest in performing the given task. These are students are interested in self-improvement and tend to compare their current achievement to their previous accomplishments. They will feel more successful as long as they can satisfy an effort to learn and improve them. Also, they give high efforts and do their best while collaborating with others. Performance goal is the other type of goal orientation, which is also known as the ego goal. The primary goal of these students is to demonstrate their ability compared to others. Therefore, they tend to compare and find similarities or differences from other students, rather than themselves. These students are interested in competition and demonstrating their competence. They are driven to succeed by outperforming others, and their feelings of success depend on maintaining self-worth and avoiding failure. Mastery and performance goals are divided into approach and avoid goals. In term of mastery goals, mastery-approach oriented students are interested in truly mastering an academic task; in contrast, mastery-avoid oriented students are interested in avoiding to misunderstand the task. In terms of performance goals, performance-approach oriented students are interested in demonstrating that they are more competent than other students (i.e., have more ability than other); in contrast, performance-avoid oriented students are interested in avoiding appearing incompetent or stupid (Anderman, 2015, cited in Lugtu, 2016). In this study, instead of using the terms mastery and performance goals, the researchers used the term 'task and ego goals' to focus on orientation itself rather than on its divided parts, which is approach and avoid goals. These orientations are guided by various factors. One factor has already been presented upon the developmental factor of understanding ability against effort, difficulty, and capacity. The ability is the competence in an activity because of one's skill, training or other qualification. On the other hand, effort is the conscious exertion of power to achieve a desire result. Therefore, ability is already a gained skill while effort is trying to improve one's skill. These measure the level of difficulty or the state of being hard to do, deal with, or understand one thing. With these difficulties, there are limits to our ability to do things or an individual's capacity.

According to Weiss and Williams (2004), in the absence of either a performance or mastery environment, children are likely to adopt a task orientation as their concept of ability is limited. It is not until they have a firmer grasp of ability that they are better equipped to make appropriate comparisons leading to an ego-oriented construct. This only shows that developmental factor of under-

standing affects an individual at the young age. The second factor is the predisposition toward a goal orientation. Students already set their minds on a certain goal orientation, and they may also take the other orientation. Weiss and Williams (2004) describe this as one's "proneness" toward an orientation across domains. For children, being oriented one way versus the other can produce either adaptive or maladaptive motivational patterns. Adaptive patterns, as is more common in children who are task-oriented, tend to inspire performance while mitigating perceived obstacles through greater effort, perceived competence, positive affect, and intrinsic motivation. Conversely, maladaptive patterns, as is more common in children who are ego-oriented, tend to suppress performance, especially in the face of obstacles due to less effort, perceived competence, positive affect, and intrinsic motivation (Dweck, 1986; Weiss and Williams, 2004). This can happen either during competition or during practice. The final factor is environmental in nature and includes elements of objectivity, a rewards system, and subjectivity. Objectives are intended to attain or accomplish by one's efforts or actions. Reward systems are procedures, rules and standards associated with the learners. Subjective is a philosophy relating to the way a person experiences thing in his own mind. With the presence of these elements, the two-goal orientation will be influenced. The question becomes, is the motivational climate performance (ego) or mastery (task) oriented? Nicholls (1990) suggests that environments focused on performance and measurement facilitate an ego orientation. This fosters a dependency on pure athleticism and trying to win, rather than on effort, interest, and the process that characterizes a task orientation. Further, a task orientation is associated with greater satisfaction of both the process of skill acquisition as well as performance. Different consequences in the achievement context will be determined through these two goal orientations. In general, task orientation is regarded as more adaptive than ego orientation. Task orientation is related to selection of challenging tasks, effective study strategies, positive attitudes toward learning, and positive emotions, whereas quite often ego orientation is associated with selection of easier tasks, trivial learning strategies, concern for social status, and thoughts of escape and behavioral withdrawal when difficulties are encountered (Dweck & Leggett 1988; Biddle, Wang, & Kavussanu, 2003; Kaplan&Maehr 2007; Bortoli, Bertollo, Comani, & Robazza, 2011).

For the Conceptual framework, this paradigm of the study aims to determine the effect of the goal orientation of the Grade 10 students of one school in Region IV-A (CALABARZON) Rizal to their academic performance in mathematics. The independent variable for this study is the goal orientation, which is classified into two: (a) task and (b) ego goal orientation. The dependent variable is the students' academic performance in mathematics during the first grading period. The arrow represents the one-way relationship between the independent and dependent variable.

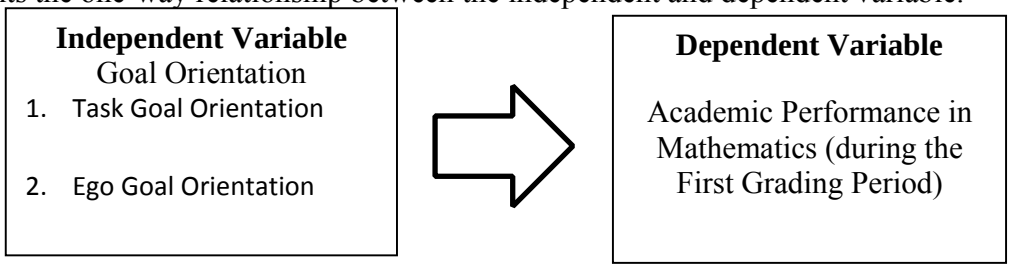

Figure 1. Relationship between the Students' Goal Orientation and their Academic Performance in Mathematics Conceptual Framework

We have now the following statement of the problem. Specifically, it seeks to answer the following questions:

1. What is the goal orientation of the students in terms of:
1.1 Task Goal Orientation?
1.2 Ego Goal Orientation?
2. What is the academic performance of the students in mathematics during first grading period?
3. Is the goal orientation of the students has a significant effect to their academic performance in Mathematics?

Methodology

In this study, descriptive method of research was used by the researchers to determine the attributes indicating the goal orientation of the selected Grade 10 students of one school in Region IV-A (CALABARZON) Rizal during the School Year of 2018-2019. The academic performances of the students were then related to their goal orientation in Mathematics. There were 579 Grade 10 students enrolled and is stratified into 9 sections: Pilot, Laboratory, Archimedes, Copernicus, Dalton, Edison, Faraday, Galilei and Newton. The total number of sample size is composed of 237 students. 120 of these students are female gaining 50.63%. On the other hand, 117 students are male occupying the remaining 49.37% of the total sample size. The average age of these respondents is 15 years old.

A survey questionnaire has been used as an instrument in this study. The questionnaire is in Likert format to determine the agreement level of the students. The researchers used a 4-point Likert scale to manipulate the answers of the respondents into: strongly agree, agree, disagree and strongly disagree. This was done to avoid having a neutral answer from the respondents. Each response option has the following numbers to rate each statement with corresponding interpretations:

Table 1. Interpretation of Scale Values for Students' Agreement Level

Scale Value	Range of Weighted Means	Interpretation
4	3.51 – 4.00	Strongly Agree
3	2.51 – 3.50	Agree
2	1.51 – 2.5	Disagree
1	1.00 – 1.50	Strongly Disagree

The survey questionnaire is divided into two parts: the first part includes the personal profile which helped the researchers describe the Grade 10 students, while the second part contains the directions and questions which determined the goal orientation of the said students. The questionnaire is based and modified from the Achievement Goal Questionnaire (AGQ) of Andrew J. Elliot and Holly A. McGregor (2001) and from the Revised Achievement Goal Questionnaire (R-AGQ) of Andrew J. Elliot and Kou Murayama (2008). The AGQ contains 12 questions that are evenly categorized to task and ego goal orientation, but upon reviewing these questions, the validators then conclude that two of these are similar in construction and meaning thus, the researchers summed it up to 10 items.

Performance of the respondents was evaluated using their grades in Mathematics for the first grading period.

Table 2. Interpretation of Students' Numerical Grades

Grades	Interpretation
90 and above	Outstanding
85-89	Very Satisfactory
80-84	Satisfactory
75-79	Fairly Satisfactory
74 and below	Did not meet expectations

Results and Discussion

This section presents all the relevant information that was collected from the respondents and were then carefully analyzed and interpreted in the context of the specific problems of the study.

Table 3. Weighted Mean and Verbal Interpretation of the Respondents' Task Goal Orientation

Statements	Mean	SD	Interpretation
I desire to completely learn the topic presented in this class.	3.41	0.52	Agree
My goal is to learn as much as possible from this class.	3.70	0.74	Strongly Agree
I am striving to understand the content of this subject as thoroughly as possible.	3.26	0.56	Agree
I am often concerned that I may not learn all that is to learn in this class.	3.07	0.46	Agree
I'm afraid that I may not understand the content of this class as thoroughly as I'd like.	3.04	0.63	Agree
Overall	**3.30**	**0.58**	**Agree**

Legend: 3.51-4.00 = Strongly Agree, 2.51-3.50 = Agree, 1.51-2.50 = Disagree, 1.00-1.50 Strongly Disagree

Table 3 presents the mean and verbal interpretation of the respondents' task goal orientation. The data shows that the highest among the indicators is the statement "My goal is to learn as much as possible in this class" with a mean of 3.70 (*SD*=0.74), interpreted that the respondents 'strongly agree'. Then the statement "I desire to completely learn the topic presented in this class garnered a mean of 3.41 (*SD*=0.52), interpreted that the respondents 'agree'; followed by the statement "I am striving to understand the content as thoroughly as possible" has a mean of 3.07 (*SD*=0.46) interpreted also that the respondents 'agree'. The last statement "I am afraid that I may not understand the content of this class as thoroughly as I'd like" had the lowest mean among the indicators with a mean of 3.04 (*SD*=0.63), but still inferred that the respondents 'agree' to this statement. This is supported by the study of Sta. Maria (2014) argues that though sometimes the students do not initially understand a topic in mathematics, they are still optimistic that they will be able to solve the problem. This shows that the respondents are confident learners in their mathematics class even though they find it hard to understand its content. Also, Govindarajan (2013, cited in Cariño, 2016) added that self-confidence was a factor which influences that individual's academic achievement and also

determines individual's level of persistence in pursuit of goals. In general, the respondents agree with their achievement goals in terms of task goal orientation with the overall mean of 3.30 (*SD*=0.58), which implies that their feeling of success is motivated by exhibiting mastery of skills through self-referenced performances.

Table 4. Weighted Mean and Verbal Interpretation of the Respondents' Ego Goal Orientation

Statements	Mean	SD	Interpretation
It is important for me to do better than other students.	3.00	0.67	Agree
My goal in this class is to get a better grade than most of the other students.	3.14	0.58	Agree
My goal in this class is to avoid performing poorly.	3.23	0.66	Agree
My fear of performing poorly in this class is what often motivates me.	3.14	0.54	Agree
My aim is to avoid doing worse than other students.	3.23	0.68	Agree
Overall	**3.15**	**0.63**	**Agree**

Legend: 3.51-4.00 = Strongly Agree, 2.51-3.50 = Agree, 1.51-2.50 = Disagree, 1.00-1.50 Strongly Disagree

Table 4 illustrated that the statements "My goal is in this class is to avoid performing poorly" and "My aim is to avoid doing worse than other students" obtained the highest mean of 3.23 (*SD*=0.66 and *SD*=0.68 respectively), interpreted that the respondents 'agree' to this two statements; followed by "My goal in this class is to get a better grade than most of the other students" and "My fear of performing poorly in this class is what often motivates me" both got a 3.14 mean (*SD*=0.58 and *SD*=0.54 respectively). The first statement "It is important for me to do better than other students" had the lowest mean of 3.00 (*SD*=0.67) but still inferred that the respondents 'agree'.

The results showed that the respondents had a high preference for not performing poorly or worse in their mathematics class, but still they do not give such importance in outperforming others. As what Sta. Maria (2014) stated in his study, a student may engage actively in the learning process and working with others as well.

As a whole, the respondents agree with their achievement goals in terms of ego goal orientation, with an overall mean of 3.15 (*SD*=0.63). This indicates that the respondents feel successful when exhibiting superior performance through comparison with other.

Table 5. Academic Performance in Mathematics of Grade 10 Students

Range of Grades	Remarks	Number of Students	%
90 and above	Outstanding	32	13.50
85-89	Very Satisfactory	42	17.72
80-84	Satisfactory	83	35.02
75-79	Fairly Satisfactory	79	33.33
74 and below	Did not meet expectation	1	0.42

Table 5 shows the distribution of the grades of the respondents in their mathematics subject for the first grading period. It revealed that from the range of 90 and above, there are 32 students or 13. 50% of the respondents have a remark of Outstanding. 42 students or 17.72% of the respondents are under the Very Satisfactory remark whose grades are ranging from 85-89. Majority of the respondents fall in the range of 80-84. They got a remark of Satisfactory. On the other hand, 79 students or 33.33% of the respondents have a Fairly Satisfactory remark which falls in the range of 75-79. Lastly, there is only one student who got a grade from the range of 74 and below, which means that 0.42% of the respondents did not meet the expectation.

Based on the average grade of 82.34, there are 83 students, or 35.02% of the respondents fall on this average grade. On the same basis, the grade of 80 students, which are 33.76% of the total respondents, fall below the average grade and there are 74 students, which is about 31.22% of the respondents are above average. The table implied that the average grade of the respondents in mathematics is 82.34, which indicate that the performance of the Grade 10 students is Satisfactory. This is supported by the study of Cariño (2017), which is as noted by the Lyceum of the Philippines University, while some students perform highly than others, some still do not perform well. Thus, they are concerned in those who do not perform well because if this poor performance goes unchecked, the University may lose its reputation and may affect not just the stand of the university, but as well as the graduates. They work and plan for the enhancement of the instruction and the curriculum in order to improve the performance of the students is greatly needed.

Table 6. Significant Effect of Goal Orientation to the Academic Performance in Mathematics

Goal Orientation	Pearson R	Verbal Interpretation	p-value	Decision	Remarks
Task Goal	0.174	Very Low Relationship	0.000	Reject H_o	Significant
Ego Goal	0.229	Low Relationship	0.007	Reject H_o	Significant

Legend: "If p value is less than or equal to the level of significance (0.05) reject Ho, otherwise failed to reject Ho."

Table 6 displayed the degree of relationship and the significant effect of goal orientation to the respondent's academic performance in mathematics. The degree of relationship between the task goal orientation of the respondents and their academic performance in mathematics was 0.174, which means there is a very low relationship. Since the computed p-value 0.000 is less than the assigned level of significance, which is 0.05, the null hypothesis is rejected. Therefore, the task goal orientation has a significant effect to the academic performance of the Grade 10 students. The table revealed that the degree of relationship between the ego goal orientation of the respondents and their academic performance in mathematics was 0.229, which means there is a low relationship. Since the computed p-value 0.007 is less than the assigned level of significance, which is 0.05, the null hypothesis is rejected. Therefore, the ego goal orientation has a significant effect to the academic performance of the Grade 10 students.

Overall, both results of task and ego goal orientation are supported by the study of Lugtu, (2016) which revealed that there is a significant relationship between the achievement goals of Grade 11 students and their performance in General Mathematics. Also, concluded in the study of

Sta. Maria, 2014 that the preferences of the respondents on either competitive learning or cooperative learning and their mathematics achievement are found to be positively correlated, however, the observed correlation is weak. As the goal orientation and its two types has been defined on this study, the researchers may say that the competitive learning is somehow related on being an ego goal-oriented student as well as the cooperative learning is one of the sides of being a task oriented.

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The respondents agree with their achievement goals in terms of task goal orientation with the overall mean of 3.30, which implies that their feeling of success is motivated by exhibiting mastery of skills through self-referenced performances.
2. The respondents agree with their achievement goals in terms of ego goal orientation, with an overall mean of 3.15 indicates that the respondents feel successful when exhibiting superior performance through comparison with other.
3. The average grade of 82.34, there are 83 students or 35.02% of the respondents fall in this average grade. On the same basis, the grade of 80 students, which are 33.76% of the total respondents, fall below the average grade and there are 74 students, which is about 31.22% of the respondents are above average. The table implied that the average grade of the respondents in mathematics is 82.34, which indicate that the performance of the Grade 10 students is Satisfactory.
4. As the researchers conducted the surveys, the researchers concluded that the goal orientation (both task and ego) of the Grade 10 students of one school in Rizal have a significant effect to their academic performance in mathematics.

Recommendations

Based on the analysis of the data and conclusions drawn, the researchers came up with the following recommendations:

1. Since the ego goal orientation of the students has a higher level of effect to their academic performance, the researchers recommend that the teachers give students opportunities to improve themselves through friendly competition and activities. They can allow their students to share their knowledge to the class during discussion. Also, praising their students may help to boast their self-esteem. Though the task goal orientation of the students has a lower level of significant effect to their academic performance in mathematics, the researchers also recommend that teachers guide their students in developing self-assessment.
2. The researchers recommend the students to apply the concepts that they have learned inside the classroom to real-life situations through group discussions, tutorials and collaborative activities which show their skills. Also, joining interschool competition may help boost their confidence and improve study habits such as review and training, which may enhance their reasoning skills, creativity, critical thinking, problem solving ability and even effective communication skills.
3. Lastly, the researchers recommend the conduct of further researchers related to this study using a wider scope to validate the findings of the study and explore other studies toward the improvement of mathematics performance among the students, aside from the self-assessment inventories, an interview could also be conducted to provide better understanding and explanation of the data gathered from the questionnaire. This study could be extended in terms of student's study

habits that may be affected by various factors, such as developmental factors, environmental factors and their predisposition towards goal orientation.

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