Effect of Cognitive and Appetitive Faculties in the Numerical Proficiency of Grade 10 Students: A Correlational Study

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Abstract

The study aimed to determine whether the appetitive and cognitive faculty of a learner significantly correlate to their numerical proficiency. Using simple random sampling, five sections of Grade-10 were chosen as respondents consisting of 120 Grade 10 junior high school learners. Using the descriptive-correlation design, survey questionnaires and an objective test were used in gathering data. The data gathered were analyzed using mean, standard deviation and Pearson correlation coefficient. The findings disclosed that the mean of appetitive faculty of junior high school learners is high. The level of cognitive faculty of junior high school learners is moderate. Meanwhile, the numerical proficiency level of the junior high school students is proficient. The findings also showed that there is a significant relationship between the appetitive and cognitive faculty of the junior high school students. However, no significant relationship was found between appetitive faculty and numerical proficiency, and cognitive faculty and numerical proficiency.

Keywords:

appetitive faculty, cognitive faculty, numerical proficiency

Introduction

Within the educational process, learners ought to be presented with a variety of ways to learn. They don't need to learn distinctive things the same way. Corpuz and Salandanan (2013), in their book Principles of Teaching I stress that all learners have appetitive and cognitive faculties. These resources will actually help or direct the learner as he/she manage his/her learning process. The appetitive faculty of the learner includes the feeling, the emotion, and the learner's rational will. On the other hand, the cognitive faculties of the learner include five faculties: memory, creative ability, intuition, and intellect.

Appetitive and cognitive faculties are important factors not only to learning but also to academic performance. In mathematics, being a subject where conceptual understanding and procedural skills are needed; these faculties affect their ability to understand and apply the concepts. Like these faculties, working with numbers seems to come naturally for Asians. In fact, the recent Third International Mathematics and Science Study (TIMSS) showed that East Asian students from — Singapore, Hong Kong, Korea, Chinese Taipei, and Japan continue to outperform all participating countries in mathematics at the fourth and eighth grades, maintaining the 20-year edge (TIMSS, 2016). However, though Asians are stereotyped as number crunchers, the Philippines still lags behind our Asian counterparts. In the recent global competitiveness report in 2017, the Philippines ranked 76th out of 137 countries in perceived quality of mathematics (World Economic Forum, 2017).

In the National Achievement Test result for S.Y. conducted in 2018, the secondary students in Region II performed poorly in Mathematics, with a mean percentage score of 35.34 percent, which was lower than the Department of Education's minimal standard

of 75 percent (Cariño, 2019). This result simply means that, despite advancements in teaching methodologies that aid academic accomplishment in Mathematics, there are other elements to consider in explaining these low outcomes.

Numerical operations continue to be a critical piece of the mathematics curriculum in the Philippines. Learning as an individual responsibility with help being sought but not imposed, the fundamental faculties a learner possesses have potential effect to numerical proficiency. How do these faculties facilitate students to be become skilled with numbers? What extent it is learned through with the appetitive and cognitive faculties the students have. Learners possess certain fundamental qualities that can be considered as equipment in order to absorb knowledge in learning. This fundamental equipment are the learners' cognitive and appetitive faculties.

Therefore, this study is an attempt to provide knowledge on how student appetitive and cognitive faculties can be factors to numerical proficiency. How do these faculties make learning possible and of which among these faculties significantly affect numerical proficiency? Moreover, the study also attempts to determine the level of appetitive, cognitive and numerical proficiency of students. This investigation determines the relationship between the students' level of appetitive and cognitive faculties and their numerical proficiency. Specifically, it sought to answer the following questions:

1. What is the level of appetitive faculty of the Junior High School students in terms of:

    1.1. emotions;

    1.2. feelings; and

    1.3. rational will?

2. What is the level of cognitive faculty of the Junior High School students in terms of:

    2.1. the five senses;

    2.2. imagination;

    2.3. instinct;

    2.4. intellect; and

    2.5. memory?

3. What is the level of numerical proficiency of the Junior High School students in terms of:

    3.1. arithmetic;

    3.2. number sense; and

    3.3. basic mathematics?

4. Is there a significant relationship between the level of appetitive and cognitive faculties of the Junior High School students?

5. Is there a significant relationship between level of appetitive faculty and numerical proficiency of the Junior High School students?

6. Is there a significant relationship between level of cognitive faculty and numerical proficiency of the Junior High School students?

Appetitive Faculties

Appetitive is the aggravation and delight of an article or a movement. It is indicated through the character of an individual. Appetitive faculty of the student incorporates the feeling, and the inclination just as the student's levelheaded will. These faculties will normally help or guide the student as he/she manages the learning cycle (Corpuz & Salandanan, 2013).

Emotion is the thing that occurs in the mind. It is a neurological response to an occasion. It is a lower-level reaction happening in the sub-cortical districts of the brain, the amygdala, and the ventromedial prefrontal cortices, making biochemical responses in the body changing the actual state. Emotional responses are coded in human genes, and while they differ depending on circumstances, they are largely consistent across all type of species (Hampton, 2015).

The second appetitive workforce is feeling. Sentiments that start in the neocortical areas of the mind, are mental affiliations and responses to feelings, and are abstract being affected by close to home insight, convictions, and recollections. It is a psychological depiction of what is happening in the body when one has feeling and is the side-effect of the mind seeing and allocating importance to the feeling. As dopamine and oxytocin hit the circulatory system, each organ in the body responds. Pulses get quicker, breath gets in the throat and each cell in the body stands to consideration in energy (Corpuz & Salandanan,2013).

In a study of Côté-Lussier and Fitzpatrick (2016), students who have high level of feeling as appetitive faculty were reported to be more engaged and attentive in school. Feeling as an appetitive faculty contributes to their long term success and can affect beyond their intellectual capacities. These studies additionally revealed less side effects of depression, for example, feeling troubled and experiencing issues in appreciating various events or situations. With this, students who are well focused and engaged in the classroom activities contribute to their holistic development much beyond than reading or math skills.

Zientek and colleagues (2013) led an examination on student-level and instructor-level factors that impact the achievement of college students who took a crack at formative arithmetic courses. The outcomes showed that participation was the biggest indicator for higher course grades, by means of full engagement and self-awareness on the activities in math courses. The findings provide precise guidance for increased communication between part-time and full-time instructors to address certain issues of students. The results pave the way for implementation of participation strategies, the process of handling students' disappointments, and the need to address students' ability to be self-aware.

Rational will is another appetitive faculty. It is the student's ability to think and pick what it thinks to be alluring as per his/her own examination. It fills in as a sort of directing power or a principle coordinating power in the person (Corpuz & Salandanan, 2013). Motivation and engagement can be viewed as the main impetuses of rational will. They can likewise influence students' personal satisfaction during their youthfulness and can impact whether they will effectively seek after further instructive or work market openings. Specifically, given the significance of science for students' future lives, instructional frameworks need to guarantee that students have both the interest and the motivation to keep on learning.

Cognitive Faculties

Cognitive faculties of the student incorporate their five senses. These resources are identified with the essential activity of the human mind and are fundamental for the learning cycle. The five senses are important for the conscious body. Through the student's five senses, the student can have the option to: see – learns through seeing, hear – learns best through hearing things, feel – learns through encountering or getting things done, smell and taste – utilize its feeling of smell and taste to learn (Corpuz & Salandanan, 2013).

Imagination is the students' capacity to shape a psychological picture of something not seen through the faculties (Corpuz & Salandanan, 2013). It is the capacity to shape mental pictures, phonological sections, analogies, or stories of something not seen through the faculties. It is an indication of memory and it empowers the student to examine the past and develop theoretical future situations. Imagination, additionally enables one to see things according to different perspectives and feel for other people (Hunter, 2013). As indicated by Judson (2016), numerous educators compare "imagination" with early learning. Others accept the concept that conversation of imagination in schooling alludes to an expression injected in educational program. This thought that imagination is at chances with thorough, scholarly learning is a risky confusion. This is the reason why many teachers don't spend focused pedagogical time thinking about how to engage their students' imaginations in learning.

Instinct on the other hand, is a term utilized to depict a set of behaviors that are both unlearned, and set in motion as the result of a few natural triggers. Instincts are frequently talked about in connection to motivation since they can also occur as a reaction to an organism's will to fulfill a few natural inner drives tied to survival (Zilbersheid, 2013).

As indicated by Davis (2016), our instinct is composed of five personality trainings. These five normal attributes are interrelated, and are cooperating in blend. If all five are strong, a child has a greater chance of having a stable behavior and academic

success. The first, most important aspect is providing social warmth and love. Children are profoundly influenced by friendship, graciousness, trust and forgiveness. The subsequent viewpoint is having a sense of security. This is most significant when the children test limit and rules. Our behavior contributes to their feeling of non-threatened and safe. The kid will not be restless, stress, tense and tricky. The third angle to support is interest. Interest is a psychological appetite that should be fulfilled, so kids need things like riddles and learning games to take care of their interest. The fourth part of the five personality traits is uprightness. We relate this straightforwardly to mental self-portrait. How much a kid characterizes what his/her identity is, influences his/her restraint. The last perspective to assist kids with creating is the level of activity. The scientists call this extraversion, which is a youngster drawing in with his/her reality.

Intellect is the capacity of the student to shape ideas of thoughts as he/she thinks, too make judgment from given data and tries to reason out. It is the capacity to contemplate things on a theoretical or hypothetical level. As per Blazer (2011), students' scholarly achievement might be impacted by their genuine capacity, yet in addition, by their convictions about their intellect. In her investigation, it was discovered that students enter a classroom with one of two particular originations of their scholarly capacity: few students accept their knowledge as expandable (development mentality), while others accept that their insight is a decent quality (fixed outlook). Students with development attitudes often beat students who hold fixed mentalities. The reception of a development attitude might diminish or really close accomplishment holes.

Memory is the cognitive faculty of holding and reviewing the past experiences. As the teaching and learning measure goes on, students should focus on memory-recipe exercises. Memory work is essential in learning, and remembering with comprehension is supported (Corpuz & Salandanan, 2013). The study of the College Board (2013) found out that in order for a 15-year-old student to remember the method for solving a mathematics problem, the student have to go through examples repeatedly. The student should try to remember every step in a procedure. Indeed, memorization strategies are important in many tasks such as verbatim representations of knowledge.

Numerical Proficiency

Numerical proficiency is the degree on how competent the learners'reasoning and capability to apply simple numerical concepts. This proficiency includes skills on comprehending fundamental arithmetic like addition, subtraction, multiplication, and division (Dunlosky et al., 2013).

Number sense is the ability to control or utilize numbers to effectively tackle issues (Bryant et al., 2011). As discussed by Tosto et al. (2017), number sense is used to describe a wide range of mathematically relevant concepts such as estimation and many more. In addition, number sense tackles issues on number sequencing, making exact numerical allowances through cutting edge mathematical thinking, deciphering complex information introduced in different graphical structures, and finding data and reaching intelligent determinations.

On the other hand, basic mathematics is the application of arithmetic and number sense. It comprises the numerical competencies that are foundational to building competence in mathematics. Children's facility with counting provides a basis for students to solve simple addition, subtraction, multiplication, and division problems with whole numbers (VanDerHeyden et al., 2011).

According to Cragg and Gilmore (2014), basic math skills continue to deteriorate in adulthood, with one-fifth of individuals having numeracy skills below the basic level required in everyday situations. As a result, numerical operations remain an important part of the Philippine mathematics curriculum. This only means that this essential skill that a learner possesses have the capacity to affect their numerical proficiency.

Methodology

The study utilized a descriptive correlational design. Shields and Rangarajan (2013) mentioned that descriptive correlation research incorporates gathering mathematical data to test the speculations or offer response to questions concerning flow status which is by then directed either through self-reports gathered through reviews or meetings (individual or telephone), or through insights just as choosing the huge relationship between the two

variables of the study. This design configuration is fit in gathering the appetitive and cognitive faculties and the numerical ability of the junior high school students. The investigation and the amalgamation of the information give the test of the speculations. The study utilizes correlational method to determine the degree of association or relationship between the two factors utilizing measurable information. It recognized trends and patterns in data, but it does not go so distant in its examination to demonstrate causes for these observed patterns. Factors are not controlled; they are considered in a characteristic setting.

The respondents of this study were the junior high school students specifically the grade 10 students. Out of ten sections in Grade 10 which has a population of 252 students, a random sampling of five sections were chosen and the population per section represents the respondents of the study. The criteria for the respondents to be chosen were that they must be among the five sections of grade 10 students handled by one of the researchers. The study was conducted during the month of January 2018. There was a total of 120 respondents in this study. The distributions per sections were the following: Section A had 41 or 34.17%; Section B had 40 or 33.33%; and Section C had 39 or 32.50%.

The questionnaire was composed of three parts. Part I was about the appetitive faculty, Part II was the cognitive faculty, and Part III was a 30-item test on numerical proficiency. The appetitive and cognitive faculty questionnaire was a five-point Likert scale with a total of 40 questions. The indicators for appetitive faculty were emotions, feelings and rational will. On the other hand, the indicators of cognitive faculty were five senses, imagination, intellect, instinct and memory. The third part numerical proficiency was a multiple-choice questionnaire about arithmetic distributed as 10 items on the order of operations namely grouping symbols, exponents, multiplication and division and addition and subtraction; 10 items for number sense focused on sequences and series; and 10 items on basic mathematics focused on percentages, powers, fractions and data interpretation. The questionnaire was teacher made. A sample of the questions in the scale were as follows:

Part I. Appetitve and Cognitive Faculties Questionnaire

APPETITIVE FACULTIES					
EMOTIONS	**5**	**4**	**3**	**2**	**1**
1. I believe I am the kind of person who is good at all subjects.					
2. Studying makes me feel confident.					
FEELINGS	**5**	**4**	**3**	**2**	**1**
1. Studying any subject doesn't scare me at all.					
2. I'd be happy to get good grades in class.					
RATIONAL WILL	**5**	**4**	**3**	**2**	**1**
1. Working on homework doesn't give me stress.					
2. It wouldn't bother me at all to take more subjects.					
COGNTIVE FACULTIES					
FIVE SENSES	**5**	**4**	**3**	**2**	**1**
1. I listen attentively to my teacher.					
2. Seeing word problems and solutions excites me.					
IMAGINATION	**5**	**4**	**3**	**2**	**1**
1. Mathematics is everywhere.					
2. I like to come up with new ways to solve problems.					
INSTINCT	**5**	**4**	**3**	**2**	**1**
1. Students in my class treat one another with respect.					
2. Students are encouraged to say what they think.					
INTELLECT					
1. I am the type of person who can do well in class.					
2. I think I can do well on a test.					
MEMORY					
1. I easily remember important procedures in class.					
2. I am able to think clearly when working on problems.					

Part II. Numerical Ability

Directions: Encircle the letter of your answer. **NO CALCULATORS PERMITTED FOR THIS TEST**

ARITHMETIC

1. -10 + -3 - -4 + 5 =

   A. 2 B. -12

   C. -4 D. 16

2. -96 ÷ -6 ÷ 8 =

   A. 2 B. 12

   C. -2 D. -12

NUMBER SEQUENCE

1. Find the next number in the series 48 46 42 36 ____.

   A. 32 B. 28

   C. 33 D. 34

2. The first term of an arithmetic sequence is equal to 6 and the common difference is equal to 3. Find the 50^{th} term.

   A. 531 B. 351

   C. 135 D. 153

BASIC MATH

1. 3 is what percent of 15?

   A. 44.4% B. 34%

   C. 22.7% D. 24.3%

2. Write the ratio of 12 to 18 in lowest terms.

   A. 3:2 B. 2:3

   C. 3:4 D. 4:3

The survey was sent to an expert for additional recommendations and comments, and after that it was sent to the board of specialists for validation where it was rated five or excellent. To confirm the reliability of the questionnaire, it was subjected to pilot testing taking 30 respondents using Cronbach Alpha for Likert scale questionnaire of appetitive and cognitive faculty with the result of .805. Test retest method using correlation was used for multiple choices test with the result of .720. The independent variables used five-point Likert scaling system which is interpreted as follows:

Table 1
Range of mean score of students' cognitive and appetitive faculties with rounded mean and the corresponding qualitative description

Numerical Rating	Range	Descriptive Equivalent
5	4.6 – 5.0	Very High
4	3.6 – 4.5	High
3	2.6 – 3.5	Moderate
2	1.6 – 2.5	Low
1	1.0 – 1.5	Very Low

The dependent variables of the study were scaled using the five-point Likert scaling system. The Levels of Proficiency was adapted from Department of Education Levels of Proficiency, Dep-Ed Order No. 73, Series of 2012.

Table 2
Range of students' scores in numerical proficiency in accordance to DEPEd Levels of Proficiency

Score	Level of Proficiency	Description
1 – 6	Beginning	student battles with his/her understanding; prerequisite and principal knowledge and/or aptitudes have not been obtained or created enough to help understanding
7 – 12	Developing	student has the least information and abilities and core understandings but needs additional assistance all through the execution.
13 – 18	Approaching Proficiency	student developed the fundamental knowledge, skills and core understandings with little guidance from the teacher

19 – 24	Proficient	student can transfer independently the fundamental knowledge and skills
25 – 30	Advance	student exceeds the core requirements in terms of knowledge, skills and understandings and can transfer them automatically and flexibly through authentic performance tasks.

In the conduct of the study, the following steps were followed. First was to seek permission in the conduct of the study. The authors secured and requested permission from the school principal to administer the questionnaires to the specified students in Grade 10 level. Then, the authors administered the questionnaires to the respondents. Prior to the administration of the questionnaire, the students were informed about the study and a consent letter was given to them which intents about the confidentiality as well as their voluntarism to the activity. The students per section answered the following: part one, appetitive and cognitive faculties and part two, a 30-item multiple choice test about arithmetic, number sense and basic mathematics. Third, was the statistical analysis of gathered data. Tables were constructed in accordance to the research questions.

The information was tabulated and analyzed with the use of a computer utilizing statistical tools to better characterize and correlate the acquired data. The level and spread of appetitive and cognitive faculties, as well as the level of numerical proficiency, were determined using the mean and standard deviation. The Pearson-r was utilized to find a substantial link between appetitive and cognitive faculties, appetitive and numerical proficiency, and cognitive and numerical proficiency. The null hypothesis was tested at a significance level of .05.

Results and Discussion

This section shows how the data was analyzed and how it was interpreted in a meaningful way. The tables provide answers to the study's specific research questions.

Table 4
Level of Appetitive Faculty of the Junior High School Students

Appetitive Faculties	SD	Mean	Descriptive Level
Emotions	0.65	3.52	Moderate
Feelings	0.60	3.91	High
Rational will	0.56	3.53	Moderate
Overall	0.51	3.65	High

The overall mean of the appetitive faculty is 3.65 which is interpreted as high with a standard deviation of 0.51 which implies that most of the students' responses were similar to each other. Among the three indicators of appetitive faculty, feelings weighed heaviest than the rest of the indicators with a mean of 3.91 which is interpreted as high with a standard deviation of 0.60 while the indicator emotion got the lowest mean of 3.52 which is interpreted as moderate with a standard deviation of 0.65. Both the standard deviations of feeling and emotions imply that the responses of the students in these faculties were similar. The overall mean result reveals that students were not scared about school and are happy to get good grades. The outcome is parallel to the study of Rozek et al. (2014) who found that students showed more success if they are encouraged to generate their own connections and discover for themselves the relevance of subject matter to their lives.

Furthermore, the result reveal that students love to share and connect the things they learn in school to real life situations. They felt secured and they enjoyed while they were at school. This result conforms to the study of Côté-Lussier and Fitzpatrick (2016) where those students who have high level of feeling as appetitive faculty were reported to be more engaged and attentive in the school. Feeling as an appetitive faculty contributes to their long term success and can affect beyond their intellectual capacities.

The level of cognitive faculty of the junior high school learners was also determined. In general, the level was moderate with a mean score of 3.59 and a standard deviation of 0.51 as determined by five senses, imagination, instinct, intellect and memory. The standard deviation indicates that the responses of the respondents on the five domains of cognitive faculties were similar.

Table 5
Cognitive Faculty of the Junior High School Learners

Cognitive Faculties	SD	Mean	Descriptive Level
Five Senses	0.63	3.50	Moderate
Imagination	0.62	3.82	High
Instinct	0.65	3.57	Moderate
Intellect	0.61	3.66	Moderate
Memory	0.67	3.37	Moderate
Overall	**0.51**	**3.59**	**Moderate**

In terms of the five indicators of cognitive faculty (Table 5), only imagination was interpreted as high. Students were creative enough and discover things by themselves. They had consistently showed new ways to solve a problem and had come up with an understanding that the things they have learned in school can be used in real life situations. This result conforms to the findings of the study of Hunter (2013) who stated that having a high level of imagination gives a learner the ability to see things from other points of view and can empathize with others. However, students' moderate level on five senses imply that this cognitive faculty is on the average level. The ability to participate in school particularly in the classroom using their five senses is sometimes shown by the students. Students were on average level using their five senses when they solve problems in mathematics. The same was also found in instinct which was also on moderate level. This result means that students' innate and internal drive on solving and participating in class were on average level.

In terms of intellect, students' ability to form concepts of ideas through thinking and judgment was on average level. This result shows that students' belief on how well they can do in class and on how they view the importance of their learning was not too high or low but in the middle. Students' memory was also on the moderate level which means that students remember things easily and think clearly as well. This result contradicts the study of Willis (2014) who claimed that when several senses were stimulated with the information, more brain connections will be available when students need to recall which will result to great memory. Consistency of the responses was observed since all standard deviations are below 1.0.

Table 6
Level of Numerical Proficiency of the Junior High School Learners

Numerical Proficiency	SD	Mean	Descriptive Level
Arithmetic	2.18	8.02	Proficient
Number sense	2.09	7.06	Proficient
Basic Mathematics	1.97	6.56	Approaching Proficiency
Overall	**1.12**	**7.21**	**Proficient**

In general, the results show a proficient level of numerical proficiency (Table 6) with a mean score of 7.21 and a standard deviation of 1.12 which means that the students can transfer independently the fundamental knowledge and skills needed in numerical proficiency indicators arithmetic, number sense and basic mathematics. The value of the standard deviation which is close to 1 describes that most of the respondents' numerical proficiency were the same.

In terms of the indicators of numerical proficiency, arithmetic and number sense proficiency of the students are on the proficient level with mean scores 8.02 and 7.06, respectively. These results reveal that students are able to transfer independently the needed knowledge and skills in arithmetic and number sense. This result confirms the study of Libertus, et al. (2012) who believed that students' good level of number sense is a significant factor for students' good mathematical achievement. In addition, the structural equation modelling study conducted by Horning et al. (2014) emphasized the importance of number sense as one of the predictors of mathematical achievement in early years of schooling. It revealed that students with high level of number sense in their early years in elementary outperform other students and excel in mathematics at higher stages. It is considered as one of the foundations for child development. On the other hand, Nunes et al. (2012) claimed that mathematical reasoning as well as arithmetic plays an independent contribution to mathematical achievement. Thus, it is recommended that schools must plan accordingly related to instruction that will promote both of these skills.

On the other hand, the students are in approaching proficiency level in terms of basic mathematics with mean score 6.56. This result reveal that although students have developed the fundamental knowledge,

Table 7
Relationship between the Appetitive and Cognitive Faculty of the Junior High School Learners

Appetitive faculty	Cognitive faculty					
	Senses	Imagination	Instinct	Intellect	Memory	Overall
Emotions	.688* (.000)	.515* (.000)	.566* (.000)	.450* (.000)	.600* (.000)	.708* (.000)
Feelings	.506* (.000)	.498* (.000)	.572* (.000)	.534* (.000)	.539* (.000)	.664* (.000)
Rational will	.478* (.000)	.443* (.000)	.532* (.000)	.485* (.000)	.565* (.000)	.629* (.000)
Overall	.670* (.000)	.580* (.000)	.663* (.000)	.581* (.000)	.677* (.000)	.796* (.000)

*Note: * = $p \leq .05$. P value appears inside the parenthesis*

Table 8
Relationship between the Appetitive Faculty and Numerical Frequency of the Junior High School Learners

Appetitive faculty	Numerical proficiency			
	Arithmetic	Number sense	Basic mathematics	Overall
Emotions	.007 (.942)	.113 (.209)	.059 (.512)	.077 (.395)
Feelings	.016 (.859)	.110 (.220)	.121 (.177)	.100 (.269)
Rational will	.034 (.704)	.044 (.627)	.025 (.780)	.027 (.764)
Overall	.022 (.810)	.076 (.399)	.082 (.361)	.062 (.491)

*Note: * = $p \leq .05$. P value appears inside the parenthesis.*

skills and core understanding of the said indicator, little guidance from the teacher is needed. As referenced in the investigation of Cragg and Gilmore (2014) , abilities in essential math keeps on declining in adulthood with a fifth of grown-ups have numeracy abilities beneath the fundamental level required for regular circumstances. Consistency of the scores was not noticed on the grounds that standard deviations are largely more prominent than 1.0.

Table 7 reveals a significant relationship between the level of appetitive faculty and cognitive faculty of the junior high school students with p value of .000 which is less than the level of significance of .05. Distinctively, all indicators of appetitive faculty emotions, feelings and rational show significant association with all the indicators of cognitive faculty; five senses, imagination, instinct, intellect and memory. The result conforms to the study of Maguire et al. (2017) that cognitive and appetitive faculties are two important factors that develop students' ability to learn. In order to develop these two factors, it recommends that teachers and instructors must engage students in activities that will promote collaboration and intellectual discussion. The result also parallels study of Shabgou and Daryani (2014) who stated the human beings were equipped from birth with the sense of sight, hearing, and smelling, tasting and feeling. Incorporating all the five senses affects students' experiences. Each of the five senses can affect their day to day life and could improve overall happiness and performance. Essentially, Immordino-Yang (2016) presented that enthusiastic and cognitive forms interact to create thought processes that influence learning and thinking and support decision-making. The students' viable enthusiastic rudder was critical because they develop their claim in their understanding of

Table 9
Relationship between the Cognitive Faculty and Numerical Proficiency of the Junior High School Learners

Cognitive faculty	Numerical proficiency			
	Arithmetic	Number sense	Basic mathematics	Overall
Five Senses	.044 (.628)	.009 (.921)	.123 (.170)	.086 (.339)
Imagination	.042 (.642)	.079 (.380)	.021 (.819)	.069 (.443)
Instinct	.033 (.711)	.016 (.858)	.022 (.811)	.021 (.817)
Intellect	.056 (.533)	.070 (.438)	.003 (.976)	.003 (.974)
Memory	.041 (.654)	.068 (.449)	.048 (.595)	.032 (.722)
Overall	.054 (.551)	.017 (.846)	.028 (.759)	.034 (.704)

*Note: * = $p \leq .05$. P value appears in the parenthesis*

the world, bringing prior knowledge and learning propensities to the learning process.

Table 8 shows that no significant relationship was found between appetitive faculty and numerical proficiency with p-value of .491 which is greater than the .05 level of significance. The result is in line with the study of Kim et al. (2014) who claimed that affective factors are recognized as crucial to learning mathematics but the relationship is not significant. Among the three indicators of appetitive faculty: emotions, feelings and rational will against the three indicators of numerical proficiency: arithmetic, number sense and basic mathematics no significant relationships were found with p-values all greater than the .05 level of significance.

The result also reveals that all indicators of appetitive faculty and numerical proficiency are positively correlated. The result is in line with the study of Passolunghi, Cargnelutti, and Pellizzoni (2019) that emotional factors associates with mathematics skills such as arithmetic, problem-solving and basic mathematics even if students' have high cognitive skills such as working memory and processing speed. This results show that emotion plays a vital role in students' mathematics achievement.

Similarly, the Pearson r value of .100 between feelings and numerical proficiency and .027 between rational will and numerical proficiency which suggest a positive correlation. As mentioned in the study of Côté-Lussierand Fitzpatrick (2016), students with positive feelings about school were more mindful and effective in the classroom as evident in their good performance in tests.

Table 9 reveals that the five indicators of cognitive faculty: five senses, imagination, instinct, intellect and memory and the three indicators of numerical proficiency: arithmetic, number sense and basic mathematics show no significant relationships. The result also reveals that cognitive faculty and numerical proficiency is positively correlated with Pearson r value of .034. The same was also found between all the indicators of cognitive faculty and all the indicators numerical proficiency which also showed positive correlation. This result was similar to the study of De via et al. (2014) who believed that cognitive faculties such as five senses and intellect were the faculties innately functional in the brain in early development stages and promotes successful acquisition abilities in mathematics for number sense and spatial representations.

Conclusion and Recommendation

This study aimed to determine whether the appetitive and cognitive faculty of the learners have significant relationship to their numerical proficiency. Based on the results, hereunder are the conclusion drawn by the

authors. The high level of appetitive faculty manifested by the junior high school students meant that students have positive emotions, feelings and rational will about school. They have established confidence and are eager to share the things they learned in school to real life situations. The moderate level of cognitive faculty of the junior high school students meant that they were creative and they discover things by themselves in average level. The proficient level showed by the junior high school students in numerical proficiency meant that they can transfer independently the fundamental knowledge and skills needed. In addition, there was a significant relationship that exists between appetitive and cognitive faculties. This finding only means that students with high appetitive faculty results to high cognitive faculty and vice versa. Moreover, the appetitive faculty as well as cognitive faculty does not have any significant relationship on the level of numerical proficiency of the Grade 10 learners. This result means that an increase or decrease in these variables do not contribute to an increase or decrease in their numerical proficiency.

Based on the findings of the study, the researchers recommend the following. First, the Department of Education teachers must be encouraged to continue their dedication in providing appropriate and efficient teaching and learning practices that will enhance students' appetitive faculty. Second, there should be emphasis on promoting and implementing school programs and activities that will improve students' cognitive faculty. Third, Mathematics teachers should be encouraged to incorporate more efficient activities that will elevate the level of proficiency of the students. Fourth, regular evaluation and monitoring should be encouraged in school as reference in updating varied strategies of teaching that will improve students' numerical proficiency. Fifth, qualitative research maybe conducted to further investigate and find out students' and teachers' perceptions about the appetitive and cognitive faculties and on how these faculties affect schooling. Sixth, future researchers are encouraged to consider other factors like school, teacher, study habits, and faculties that will affect students' numerical proficiency. Lastly, future researchers are encouraged to study the effect of appetitive and cognitive faculties of the students to other subject areas or subjects.

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