



**MOTIVATIONAL STRANDS ON LEARNERS' ACADEMIC PERFORMANCE:
BASIS FOR INSTRUCTIONAL ENHANCEMENT PLAN**

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Abstract:

Motivation of learners is an important strand in education, particularly in achieving academic performance. It is one element that leads students' attitude towards learning process. Thus, this study was conducted to determine the motivational strands influencing learners' academic performance in the Division of Misamis Oriental during the School Year 2019-2020. The respondents of the study were the 500 senior high school students who were purposively selected. It made use of the questionnaire that was modified to elicit information on motivational strands on learner's academic performance.

The data gathered from the survey were subjected to descriptive statistics such as frequency, percentage, mean and standard deviation to describe the variables in the study. Pearson Product Moment Correlation (r) was used to determine the relationship between motivational strands and learners' academic performance. Regression analysis was employed to determine the effect of motivational strands on learners' academic performance.

The motivational strands based on intrinsic and extrinsic motivations were significantly associated with learners' academic performance. There is a significant effect of motivational strands on learners' performance particularly on curiosity for English and Science, independent mastery to English and Mathematics; and extrinsic-teachers' support on Science. Thus, the null hypothesis on significant effect of the motivational strands on learners' academic achievement was rejected except on the strands mentioned above.

Moreover, teachers and parents should motivate their students to perform well in school. DepEd and school heads should formulate strategies to stimulate students' motivation.

Keywords: Motivational strands, academic performance, and instructional enhancement plan

Introduction:

Education is the process through which we can bring out the potentialities or capacity of an individual or learner. Academic motivation is crucial to a learner's academic success at any venture. Since learners form self-concepts, values, and beliefs about their abilities at a young age, the development of early academic motivation has significant implications for later academic careers. Learners high in academic motivation are more likely to have increased levels of academic achievement and lower dropout rates.

The motivation of learners is an important factor in education, particularly in achieving academic performance. Learners' motivation is the element that leads students' attitude towards learning process. Motivation can be seen as a form of cognitive and emotional arousal that makes us want to do something or attain a result. Such a desire often leads to making a decision to act and sustain our efforts for a period of time to achieve our aim.

In this study, two main types of motivation are considered. These are intrinsic motivation and extrinsic motivation. Intrinsic motivation refers to motivation that is derived from joy or satisfaction one gets from participating in an activity. Extrinsic motivation, on the other hand, is a state of cognitive or emotional arousal to earn a reward or to avoid negative outcomes.

Today, the demand for higher students' academic achievement in schools is rapidly taking center stage more than ever the world over. It is in the school that educational objectives will be achieved. To achieve these objectives, teachers should apply appropriate managerial and motivational skills. Motivational factors and types are very central in organizations, especially service organizations like schools because it

helped to harness all factors of learning and gear them towards maximizing students' academic achievement.

Without effective motivational factors designed to address young adolescent development, the Philippines would have more dropouts and lower grades. With effective teacher's motivational strands, they help students successfully to navigate early adolescence so that they can be successful in senior high school by achieving higher academic performance (Ibukun, Oyewole & Abe, 2016).

More so, the study was conducted in order to identify intrinsic and extrinsic motivational strands that affect the academic performance of the learners in Science, Technology, Engineering and Mathematics (STEM) strand. The above premises lead the desire of the researcher to conceptualize and conduct this study.

This study aimed to determine the motivational strands influencing learners' academic performance in the Division of Misamis Oriental during the School Year 2019-2020. Specifically, this paper sought to answer the following questions:

1. What are the characteristics of the respondents in terms of:
 - 1.1 Age;
 - 1.2 Sex;
 - 1.3 Study Habit;
 - 1.4 Attitude toward English, Mathematics and Science;
 - 1.5 Parents' Occupation;
 - 1.6 Parents' Educational Attainment;
 - 1.7 Family Monthly Income; and
 - 1.8 Learning Style?
2. What is the respondents' level of motivational strands as regards:
 - 2.1 Intrinsic
 - 2.1.1 Challenge
 - 2.1.2 Curiosity
 - 2.1.3 Independent Mastery
 - 2.2 Extrinsic
 - 2.2.1 Easy Work

2.2.2 Teachers' Characteristics

2.2.3 Teachers' Support

3. What is the academic performance of the students on the following:
 - 3.1 English;
 - 3.2 Mathematics; and
 - 3.3 Science?
4. How do the respondents compare in their academic performance when grouped according to
 - 4.1 Age;
 - 4.2 Sex;
 - 4.3 Study Habit;
 - 4.4 Attitude toward English, Mathematics and Science;
 - 4.5 Parents' Occupation;
 - 4.6 Parents' Educational Attainment;
 - 4.7 Family Monthly Income; and
 - 4.8 Learning Style?
5. Is there a significant relationship between the motivational strands and the learners' academic performance?
6. Is there a significant effect of motivational strands on learners' academic performance?

Conceptual Framework:

This study is anchored on Nick Savage's Self-determination Theory (2018). According to this theory, there are two types of motivation such as extrinsic motivation and intrinsic motivation.

Extrinsic motivation can be defined as, "it pertains to a wide variety of behaviors that are engaged in as a means to an end and not for their own sake (Savage, 2018). Extrinsic motivation viewed as extrinsically motivated student engages in learning purely for attaining a reward or for avoiding some punishment. In addition, extrinsic motivation means to obtain some reward or avoid some punishment external to the activity itself such as grades, stickers or teacher approval.

Meanwhile, Intrinsic motivation refers to being in an activity for itself, and the pleasure and satisfaction derived from participation. Academic intrinsic motivation plays significant role in achievement, competency and academic learning. Savage (2018) posits that intrinsic motivation stems from the innate psychological needs of competence and self-determination. Intrinsic motivation reveals the presence of three types of intrinsic motivation: to know, to experience stimulation, and to accomplish things. Intrinsic motivation to know relates to several constructs such as exploration, curiosity, learning goals, intrinsic intellectuality, and finally intrinsic motivation to learn. In addition, intrinsic motivation take place when someone engages in an activity in order to experience stimulating sensations (e.g., aesthetic experiences, sensory pleasure, with fun and excitement) derived from one's engagement in the activity. Research on the dynamic and holistic sensation of flow, on feelings of excitement in intrinsic motivation, on aesthetic stimulating experiences, and peak experiences is representative of this form of intrinsic motivation.

In addition, a learner is intrinsically motivated when he or she is motivated from within. Intrinsically motivated students keenly engage themselves in learning out of oddity, interest, or enjoyment, or in order to achieve their own scholarly and personal goals. Dev (2017) viewed that student who is intrinsically motivated will not need any type of reward or incentive to instigate or complete a task. This type of student is more likely to complete the chosen task and eager by the challenging nature of an activity.

Furthermore, intrinsic motivation can be viewed as for own sake for the enjoyment it provides, the learning it permits, or the feeling of accomplishment it evokes. Thus, senior high school students with intrinsic motivation are more enthusiastic, self driven, challenging and feel pleasure in their studies and students with extrinsic motivation try to drag themselves with academic assignments, feel compelled to learn, and always put minimal efforts to achieve maximum appreciations. Intrinsically motivated, students tend to utilize strategies that require more effort and that allow them to process information more intensely.

When STEM (Science, Technology, Engineering and Mathematics) students were confronted with multifarious intellectual tasks, those with an intrinsic direction used

more logical information-gathering and decision-making strategies than did students who were extrinsically motivated. STEM students with an intrinsic orientation also tend to prefer tasks that are fairly challenging, whereas extrinsically oriented students incline toward tasks that are low in degree of difficulty (Chambers, 2016).

Many Grade-12 senior high schools may engage in an academic task both because it interests them and because it will please their teacher or help them to earn a good grade. STEM students may prefer to solve problems independently up to some point, beyond which they may need to turn to the teacher for guidance.

Thus, grade-12 Senior High School Students under the STEM strand may be motivated by both independent problem solving and assistance from the teacher, depending on the stage in the learning process and the particular problem in question. Furthermore, STEM is an educational program developed to prepare primary and secondary students for college and graduate study in the fields of science, technology, engineering, and mathematics (STEM).

In addition to subject-specific learning, STEM aims to foster inquiring minds, logical reasoning, and collaboration skills. In the 21st century, scientific and technological innovations have become increasingly important as we face the benefits and challenges of both globalization and a knowledge-based economy. To succeed in this new information-based and highly technological society, students need to develop their capabilities in STEM to levels much beyond what was considered acceptable in the past.

It is from this framework that the study will be conceptualized. As shown in the schematic presentation of the conceptual framework, this study will attempt to establish a relationship between the intrinsic motivational factors of the learners such as challenge, curiosity, independent mastery and extrinsic motivation such as easy work, pleasing teacher and dependence on teacher with their academic performance in school particularly in English, Mathematics and Science. The results of this study will be the basis for the development of an instructional enhancement plan.

Methods:

The respondents of the study were 500 senior high school students in six (6) Districts of Misamis Oriental. There are Medina, Balingasag, Tagoloan, Alubijid, Initao and Naawan Districts. These districts offer Senior High School under the STEM strand. All of the students were included as participants of the study but under certain circumstances, only 500 out of 534 Grade12 senior high school respondents participated the study. The study employed purposive sampling procedure in gathering data and information. Purposive sampling is intentional selection of informants based on their ability to elucidate a specific theme, concept, or phenomenon. The method for performing purposive sampling is fairly straightforward. The researcher only chooses the Senior High School students under the STEM strand in order to fit in the study.

The questionnaire was tried out to 30 students in one of the junior high schools in the Division of Misamis Oriental. These students were not part of the sample group. This was done to see the extent to which the instructions were followed but also to locate the problems in proper sequence and in using acceptable and appropriate words. This instrument has been field-tested with the students. The items were also critiqued by the teachers, college professors and panel members for theoretical consistency.

Descriptive statistics such as frequency, percentage, mean and standard deviation were used to describe the variables in this study. Pearson Product of Correlation was used to determine the significant relationship between the respondents' motivational strands and academic performance. In addition, Regression Analysis was used to determine the effect of motivational strand on learners' academic performance.

Discussion of Results:

1. Table 1 shows the distribution of respondents' age. It can be seen that out of 500 respondents, 219 (43.80%) of them are 18 years old. This implies that many of the respondents are 18 years old in the place where the study was conducted. It is observed that Senior High School students are on this age since additional two years were added in the K+12 education in the Philippines. In the study of Williams (2016) 18 years of age is the common phase of Philippine educational system.

Conversely, only 54 (10.80%) of the respondents are 20 years old and above. This implies that these respondents are supposed to be in their tertiary education since

they are the lifelong learners that belong to the old curriculum. These respondents were affected by K+12 education and went to additional two years of education. According to CHED Memorandum No. 10, series of 2017, lifelong learners are usually 20 years old and above since these are students who graduated from high school before 2016.

Table 1

Distribution of Respondents' Age

Age	Frequency	Percentage
20 years old and above	54	10.80
19 years old	164	32.80
18 years old	219	43.80
17 years old and below	63	12.60
Total	500	100.00

2. The data below shows the respondents' sex and results show that 383 (76.60%) are female. This means that majority of the respondents are female. In the Philippines, there is a wide gender disparity on school attendance, that is, more female students attend school than males even in higher level of education.

Table 2

Sex	Frequency	Percentage
Male	117	23.40
Female	383	76.60
Total	500	100.00

3. The data below reflects the study habit of the respondents with the overall mean of 2.95 (SD=0.789) described as **most of the time**. It means that the respondents have good study habits in preparing their school work. They prefer to study in a place where they are not disturbed by noise or any other visual stimuli. This has the same observation in the study of Penn (2018) among which said that it is easier to concentrate in a quiet space, and concentration is needed to learn.

. Table 3

Distribution of Respondents' Study Habit

Indicators	Mean	SD	Description
I study in a quiet place to minimize noise.	3.11	0.761	Most of the Time
I study in a place where I am comfortable.	3.47	0.709	Most of the Time
I study in a room with all materials ready.	2.87	0.833	Most of the Time
I review my notes after class hours.	2.38	0.773	Sometimes

I study to attain the desired objectives.	2.84	0.811	Most of the Time
I carefully plan my study schedule for the week.	2.64	0.835	Most of the Time
I study by simplifying the process of doing the right thing.	3.04	0.755	Most of the Time
I study with the outlined topics that will come out in the examination.	3.19	0.783	Most of the Time
I am motivated to study through the result of my exam.	3.16	0.803	Most of the Time
I study following the process: Survey, Questions, Read, Recite & Review (SQ3R) method.	2.77	0.825	Most of the Time
Overall	2.95	0.789	Most of the Time

Legend:

3.50 – 4.00
2.50 – 3.49

At All Times/Very Good
Most of the Time/Good

1.50 – 2.49
1.00 – 1.49

Sometimes/Fair
Never/Poor

4. The data below presents the respondents' attitude towards English, Mathematics and Science. The overall result reveals a mean of 2.98 (SD=0.733) with a description of **most of the time**. This implies that respondents have positive attitude towards the above subjects and valued the application of scientific knowledge and universal language that helps to satisfy many basic human needs and improve living standards. As observed, respondents make sense of the things around them. Furthermore, it prepares them to understand and analyze the real world. Baker (2016) mentioned that English, Mathematics and Science are the core subjects that develop learners' understanding of the world. In addition, the mentioned subjects are useful in current scientific knowledge and skills for problem solving and developing further knowledge.

Table 4
Distribution of Respondents' Attitude towards English, Mathematics and Science

Indicators	Mean	SD	Description
ENGLISH			
I like group discussion in English	3.08	0.696	Most of the Time
I love sharing ideas with classmates	3.06	0.731	Most of the Time
I enjoy well-written report for various disciplines	2.89	0.748	Most of the Time
I like an information gathered from the various texts.	2.98	0.728	Most of the Time
I love writing a comprehensive review /reaction paper	2.80	0.831	Most of the Time
Total	2.97	0.747	Most of the Time
MATHEMATICS			
I like the key concepts of random variables and probability distributions in Mathematics.	2.71	0.730	Most of the Time
I love performing correlation and regression analyses on real-life problems.	2.69	0.756	Most of the Time
Tests of hypotheses and population proportion are important in real life.	2.89	0.729	Most of the Time
Real life problems involving rational functions are useful in Mathematics.	2.87	0.777	Most of the Time
Financial instruments involving stocks and bonds are essential in Math.	2.85	0.737	Most of the Time
Total	2.80	0.748	Most of the Time

SCIENCE			
Science topics are important in daily life.	3.51	0.650	Most of the Time
Discoveries in Science are important to man.	3.41	0.663	Most of the Time
I enjoy periodic properties of the main group elements.	2.95	0.711	Most of the Time
I like Science through performing exercises on the structure of organic compounds.	3.06	0.744	Most of the Time
I like concept mapping in Science	2.86	0.754	Most of the Time
Total	3.16	0.704	Most of the Time
Overall	2.98	0.733	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

5. The data shows the distribution of father’s occupation of the respondents. It can be seen that out of 500 respondents, 135 (27%) of their fathers worked as a farmer. This implies that farming is the basic source of income of the respondents’ father. As observed, citizens in rural areas support themselves through farming. This is not a surprise because the geographic location of the houses of the students is in the rural areas where most of them worked in the farm. According to Caubat, (2017) majority of the man’s occupation will be based on the geographical area of an individual.

Table 5
Distribution of Fathers’ Occupation of the Respondents

Father Occupation	Frequency	Percentage
Teacher	5	1.00
Lawyer	3	0.60
Engineer	7	1.40
Driver	68	13.6
Farmer	135	27.00
Others, please specify:		
Construction Worker	55	11.00
Laborer	50	10.00
Fisherman	9	1.80
Welder	23	4.60
Vendor	13	2.60
Machine Operator	10	2.00
Security Guard	11	2.20
Carpenter	2	0.40
Businessman	6	1.20
Factory Worker	5	1.00
Chain Sawyer	3	0.60
Electrician	6	1.20
Politician	3	0.60
No Work	88	17.60
Total	500	100.00

6. Table 6 shows the mothers' occupation of the respondents and it can be gleaned that out of 500 respondents, 317 (63.40%) of them are housewives. This means that most of the mothers' respondents are housewives in the place where the study was conducted. As noticed, mothers of the respondents remain at home and is in-charge of raising the children while their husbands is at work. In the study of Buenrostro (2015) in the Philippines, women have traditionally controlled the family finances. In traditional societies they have been responsible for planting and household chores and child care although men have participated some in these duties. Women have traditionally been expected to be involved in nurturing tasks like education and service, while men were supposed to be leaders in politics.

Table 6
Distribution of Mothers' Occupation of the Respondents

Mother Occupation	Frequency	Percentage
Teacher	29	5.80
Lawyer	4	0.80
Engineer	2	0.40
Driver	1	0.20
Farmer	28	5.60
Others, please specify:		
Construction Worker	2	0.40
Laborer	16	3.20
Fisherman	2	0.40
Welder	2	0.40
Vendor	39	7.80
Factory Worker	18	3.60
Baby Sitter	2	0.40
Businesswoman	10	2.00
Lady Guard	3	0.60
OFW	16	3.20
Barangay Health Worker	9	1.80
Housewife	317	63.40
Total	500	100.00

7. Table 7 shows parents' educational attainment of the respondents. The data reveal that the highest frequency of 187 (37.40%) of the respondents' fathers are high school graduate. This implies that respondents' fathers fail to finish their education. As observed, parents' graduated high school due to lack of financial support. This is not a surprising result because many of them worked in the farm. Moreover, the study of Caubat (2017) stated that educational investment will lift an individual economic status. Thus, education will be the key to improve oneself.

Table 7
Distribution of Parents' Educational Attainment of Respondents

Educational Attainment	Father		Mother	
	Frequency	Percentage	Frequency	Percentage
Doctorate Degree Holder	6	1.20	5	1.00
Masteral Degree with Doctorate units	11	2.20	11	2.20
Masteral Degree Holder	4	0.80	11	2.20
Bachelor's Degree with M.A. units	10	2.00	12	2.40
Bachelor's Degree Holder	60	12.00	69	13.80
High School Graduate	187	37.40	200	40.00
High School Level	99	19.80	101	20.20
Elementary Graduate	44	8.80	48	9.60
Elementary Level	76	15.20	41	8.20
No Schooling	3	0.60	2	0.40
Total	500	100%	500	100.00

8. Table 8 unfolds the respondent's family monthly income and results reveal that the highest frequency of 164 (32.80%) are earning between P5, 000 to P9, 999. This implies that family monthly income is on minimum earners. This connotes that these families belong to the low-income families which is valid because many of them only worked in the farmlands in their area. As observed, most of the farmers earned such family income because they are in the minimum wage as presented in Table 5. It is observed further that farmers received low income in the Philippine society.

According to National Economic Development Authority (NEDA), a family of five needs Php 42,000 (estimate) for decent-enough living not simply for survival. Two family members would need to earn at least Php 21,000.00 per month under the estimated figure to have a rather comfortable lifestyle.

Table 8
Distribution of Respondents' Family Monthly Income

Family Monthly Income	Frequency	Percentage
P50,000 and above	22	4.40
P40,000 – P49,999	14	2.80
P30,000 – P39,999	26	5.20
P20,000 – P29,999	54	10.80
P10,000 – P19,999	110	22.00
P5,000 – P9,999	164	32.80
P4,999 and below	110	22.00
Total	500	100.00

9. Table 9 shows the respondents learning styles with the overall mean of 2.65 (SD=0.886) described as **most of the time**. It implies that respondents practiced their learning styles in school. As noticed, students begin to concentrate on, process and

internalize their learning styles in school or at home. According to Chick (2016) it is important to describe which learning styles suit their educational activities. This may improve students' accomplishments and feelings of achievement.

Table 9
Distribution of Respondents' Learning Styles

Indicators	Mean	SD	Verbal Description
VISUAL			
I remember something better if I write it down.	2.89	0.992	Most of the Time
I can see the textbook page and where the answer is located.	2.45	0.784	Sometimes
Flashcards helps me to retain important points in the tests.	2.55	0.847	Most of the Time
It is hard for me to understand what a person is saying when there are people talking.	2.70	0.919	Most of the Time
It is better for me to get work done in a quiet place.	2.95	1.003	Most of the Time
Total	2.71	0.909	Most of the Time
AUDITORY			
I use my finger as a pointer when reading.	2.53	0.969	Most of the Time
I do something if someone tells me, rather than read the same thing to myself.	2.50	0.745	Most of the Time
I remember things that I hear, rather than things that I see or read.	2.61	0.831	Most of the Time
It is hard for me to read other people's handwriting.	2.44	0.828	Sometimes
I choose to hear an information rather than read it.	2.48	0.857	Sometimes
Total	2.51	0.846	Most of the Time
KINESTHETIC			
I learn best when I see how to do it.	2.99	0.982	Most of the Time
I need breaks while studying.	2.82	0.917	Most of the Time
I think better when I have time to move around.	2.62	0.847	Most of the Time
I use my hands in thinking a specific word.	2.58	0.906	Most of the Time
I solve problems through a more trial-and-error approach.	2.63	0.859	Most of the Time
Total	2.73	0.902	Most of the Time
Overall	2.65	0.886	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

10. Table 10 shows the respondents level of motivational strands as regards on intrinsic motivation in terms of the challenges they encountered with the overall mean of 2.45 (SD=0.837) described as **sometimes or low**. It signifies that respondents were sometimes motivated when their teachers are challenging them in school work. As observed, challenge is part of learning but students find it difficult in handling school challenges of their teachers. According to Berongoy (2016), it is a struggle when students encounter challenges in school work. It is important to keep in mind that these challenges will help overcome and achieve goals in school. These are obstacles in life to shape someone and be a lesson for to improve oneself.

Table 10
Distribution of Respondents' Level of Motivational Strands as regards Intrinsic Motivation in terms of Challenge

Indicators	Mean	SD	Description
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I enjoy answering complex questions than the simple ones	2.51	0.789	Most of the Time
It is fun to look at STEM enrichment activities	2.36	0.800	Sometimes
I like to explore things in STEM	2.37	0.838	Sometimes
When I see a complex computer equipment, I want to learn how It works	2.79	0.840	Most of the Time
I would rather handle difficult STEM problem than just look at them	2.37	0.833	Sometimes
I enjoy solving mathematical and scientific calculations.	2.38	0.873	Sometimes
I am motivated to study when our STEM lesson is new.	2.32	0.824	Sometimes
I enjoy performing tricky STEM problems after listening to teacher's discussion	2.33	0.824	Sometimes
I learn best when there is too much pressure in our STEM subjects.	2.33	0.815	Sometimes
I love solving real-life problems.	2.75	0.933	Most of the Time
Overall	2.45	0.837	Sometimes

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

11. Table 11 shows the respondents' level of motivational strands as regards intrinsic motivation in terms of curiosity with the overall mean of 2.93 (SD=0.836) described as **most of the time**. This entails that respondents' level of curiosity was high. This mean that respondents' level of curiosity was active and receptive for learning when they attend school. As observed, learners urge to explore and seek novelty in gaining knowledge. Instilling students with strong desire to know or learn is vital in learning process.

Table 11

Distribution of Respondents' Level of Motivational Strands as regards Intrinsic Motivation in terms of Curiosity

Indicators	Mean	SD	Description
I like to think about problems and solve them.	2.75	0.860	Most of the Time
I like to study objects that are unusual.	2.70	0.798	Most of the Time
I like to discover strange objects.	2.87	0.859	Most of the Time
I want to solve problems alone.	2.59	0.899	Most of the Time
I am excited to experience something that is new.	3.20	0.796	Most of the Time
I like to follow how my teachers deliver the lesson.	2.94	0.784	Most of the Time
I like to discuss things that is shared to me.	3.00	0.840	Most of the Time
I am interested to learn a new lesson.	3.20	0.832	Most of the Time
I want to explore why things happen this way.	3.14	0.835	Most of the Time
I enjoy handling new objects.	2.94	0.856	Most of the Time
Overall	2.93	0.836	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

12. Table 12 shows the respondents level of motivational strands as regards intrinsic motivation in terms of independent mastery with the overall mean of 2.38 (SD=0.823) described as **sometimes**. This implies that respondents sometimes practiced independent mastery in school activities. As observed, STEM students have mastered independently activities required by their teachers in the classroom since they

do return demonstration. Students who master instructional material in a lesson can more easily learn new lessons. The skills and concepts that respondents acquire provide a very strong foundation for learning new skills and concepts.

Table 12

Distribution of Respondents' Level of Motivational Strands as regards Intrinsic Motivation in terms of Independent Mastery

Indicators	Mean	SD	Description
I perform return demonstration after the teacher finished the discussion	2.60	0.759	Most of the Time
I work in close collaboration with my classmates	2.75	0.745	Most of the Time
I perform computer navigation without help.	2.38	0.842	Sometimes
I solve mathematical equations without further explanation from the teacher	2.23	0.888	Sometimes
I perform exercises on the structure of compounds	2.30	0.691	Sometimes
I construct a cell membrane model from indigenous or recyclable materials	2.22	0.853	Sometimes
I prepare simple fermentation setup using common fruits to produce wine or vinegar via microorganisms	2.21	0.895	Sometimes
I construct mathematical models to represent real-life situations using functions.	2.26	0.873	Sometimes
I critique graphic design communication materials such as posters, billboards, commercials, digital and other media	2.44	0.830	Sometimes
I produce a well-balanced concept paper in a specific discipline	2.40	0.855	Sometimes
Overall	2.38	0.823	Sometimes

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

13. Table 13 shows the respondents' level of motivational strands as regards extrinsic motivation in terms of easy work with the overall mean of 2.69 (SD=0.818) described as **most of the time**. This implies that most of the time they had this extrinsic motivation practiced. This implies further that the degree of experience may not be very high for easy work as an extrinsic motivation. As observed, STEM students usually motivated and enjoyed in handling complex problems. Thus, easy work is sometimes practiced since they prefer teachers support and characteristics as pointed out in the succeeding pages.

Table 13

Distribution of Respondents' Level of Motivational Strands as regards Extrinsic Motivation in terms of Easy Work

Indicators	Mean	SD	Verbal Description
I like to learn non-complex situations	2.57	0.766	Most of the Time
I enjoy working without pressure	2.92	0.813	Most of the Time
I learn about STEM subjects by reviewing them	2.45	0.821	Sometimes
I am motivated to study when the lesson is repeated.	2.88	0.829	Most of the Time
I learn best through enrichment activities.	2.84	0.793	Most of the Time
I love to work lightly.	2.90	0.783	Most of the Time

I love solving simple-life problems.	2.91	0.846	Most of the Time
I like to navigate the computer terminal.	2.47	0.857	Sometimes
I like to handle simple STEM problem.	2.38	0.859	Sometimes
I like to do easy return demonstration.	2.58	0.813	Most of the Time
Overall	2.69	0.818	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

14. Data below shows the respondents level of motivational strands as regards extrinsic motivation in terms of teachers' characteristics with the overall mean of 3.01 (SD=0.826) described as **most of the time**. This implies that most of the time, teacher's characteristics served as one of the extrinsic motivations for their schooling. As observed, great teacher develops relationships with students. Engaging students in learning motivated them to develop interest. According to Vansteenkiste (2015) students are most affected by their teacher's characteristics. A student-focused approach is important to the learning process.

Table 14

Distribution of Respondents' Level of Motivational Strands as regards Extrinsic Motivation in terms of Teachers' Characteristics

Indicators	Mean	SD	Description
I am motivated to study because our teacher is attractive.	2.74	0.923	Most of the Time
I like to listen to class discussions because our teacher has a modulated voice.	3.11	0.796	Most of the Time
I learn best when our teacher uses group management approaches.	2.98	0.820	Most of the Time
I like the way our teacher develops concepts.	3.03	0.810	Most of the Time
I like the way our teachers motivate us.	3.27	0.779	Most of the Time
I am motivated to study because our teacher has the passion to teach.	3.28	0.788	Most of the Time
I am interested to learn because our teacher uses technology based instruction.	2.95	0.843	Most of the Time
I am motivated to study because our teacher has high expectations for me!"	2.72	0.849	Most of the Time
I am interested to study because our teacher uses different instructional tools.	2.89	0.824	Most of the Time
I learned best because our teacher maintains positive attitudes toward teaching.	3.14	0.831	Most of the Time
Overall	3.01	0.826	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

15. The table reflects the respondents' level of motivational strand as regards extrinsic motivation in terms of the level of teacher support with the overall mean of 3.13 (SD=0.701) described as **most of the time**. This implies that the most of the time they received teacher support which allows them to become motivated in their schooling. As observed, teacher recognizes their role to support students learning. Students must be willing to work with teachers towards common collective goals. Struggle should be acceptable and encouraged as part of the learning process.

Table 15
Distribution of Respondents' Level of Motivational Strands as regards
Extrinsic Motivation in terms of Teachers' Support

Indicators	Mean	SD	Description
Our teacher assists us in written and oral language.	3.04	0.786	Most of the Time
Our teacher provides an opportunity to interact with each other.	3.09	0.766	Most of the Time
Our teacher responds to our conversation and relates to students' comments.	3.15	0.753	Most of the Time
Our teacher interacts students with respect.	3.24	0.753	Most of the Time
Our teacher encourages us to use vernacular language to express our understanding.	3.05	0.799	Most of the Time
Our teacher gives clear feedback about our performance.	3.17	0.769	Most of the Time
Our teacher explains the lessons clearly.	3.14	0.785	Most of the Time
Our teacher considers learners individual differences.	3.05	0.800	Most of the Time
Our teacher supports us in all learning activities.	3.17	0.773	Most of the Time
Our teacher guides us in doing our tasks.	3.21	0.778	Most of the Time
Overall	3.13	0.701	Most of the Time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

16. Table 16 below shows the summary table showing the level of motivational strands with the overall mean of 2.77(SD=0.807) described as **most of the time**. It implies that the respondents experienced these motivational strands of their teachers. It implies further that intrinsic and extrinsic motivation are important strands on students learning. As noticed, students are motivated in both strands as they strive towards a goal for academic performance and other accomplishment. According to Skaalvic (2016), extrinsic motivation helps students become driven and competitive, while intrinsic motivation supports seeking knowledge for its own sake. Ultimately, fostering both types of motivation helps students develop good study habit and an investment in academic performance.

Table 16
Summary of Respondents' Level of
Motivational Strands

MOTIVATIONAL STRANDS		Mean	SD	Description
Intrinsic Motivation	Challenge	2.45	0.837	Sometimes
	Curiosity	2.93	0.836	Most of the Time
	Independent Mastery	2.38	0.823	Sometimes
	Total	2.59	0.832	Most of the Time
Extrinsic Motivation	Easy Work	2.69	0.818	Most of the Time
	Teachers' Characteristics	3.01	0.826	Most of the Time
	Teachers' Support	3.13	0.701	Most of the Time

	Total	2.94	0.782	Most of the Time
	Overall	2.77	0.807	Most of the time

Legend:

3.50 – 4.00	At All Times/Very Positive	1.50 – 2.49	Sometimes/Negative
2.50 – 3.49	Most of the Time/Positive	1.00 – 1.49	Never/Very Negative

17. Table 17 shows the respondents' academic performance in English, Science and Mathematics with the overall mean of 87.5 (SD=4.359) described as **proficient**. This means that these respondents perform well in Science as compared to Mathematics and English. This implies further an indication for the love of Science amongst respondents. As observed, STEM students take great satisfaction from developing a deeper understanding of things around us. Furthermore, experiments and scientific models allow students to understand some of the trickier concepts in life. According to Raffini (2017), loving Science teaches an understanding of natural phenomena. This aims to stimulate our natural curiosity in finding out why things happen in the way we do. In addition, it teaches methods of enquiry and investigation to stimulate creative thought.

Table 17
Distribution of Respondents' Academic Performance on English, Mathematics and Science

Subject	Mean	SD	Descriptive Rating
English	87.6	4.543	Proficient
Mathematics	85.9	4.764	Proficient
Science	89.0	3.768	Proficient
Overall	87.5	4.359	Proficient

Legend:

90% and above	Advanced	75% - 79%	Developing
85% – 89%	Proficient	74% and below	Beginning
80% - 84%	Approaching Proficiency		

18. Table 18 above shows the comparison of respondents' academic performance when grouped according to their characteristics. Results revealed that respondent's academic performance was significantly different when grouped according to their study habit and their attitude towards the subject which led to the rejection of the null hypothesis at 0.05 level of significance. This means that when the respondents have good study habits and positive attitude towards the subjects, most likely they will excel in English, Science and Mathematics as well. Other characteristics of the respondents showed no significant difference which implies that the students have the same academic performance although they have different age, gender, parents' occupation and educational attainment as well as their family monthly income and learning styles.

This implies that it is important to develop students study habits and positive attitude towards the subjects for them to perform well academically. According to the study of Sharma & Vyas (2017) there are factors that may affect students' level of study habits. Home is the first school for every child and mother is the first teacher. If the home environment is good, automatically child's nature in the school is good. Hence, the relationship with family member such as parents, brothers and sisters influence the child's performances. After home, child spends more time in his school. Hence, the school environment should be good. The teachers and the peer group also play an important role in his study habits. Parents should keep an eye on the friends of their child. Because with good friends, he/she learn good habits. The curriculum is also one of the factors for developing good study habits. Curriculum should be constructed on the standards of the child.

Besides, from the above factors, personality of the child is very important strand in developing good study habits. If the child gets easily adjusted with the environment, he/she develop good study habits. If personality factors are good, the intelligence factors are also very good. Intelligence also plays a pivotal role in developing good study habits of the child. It is general observation that intelligent students stand in top positions. The community is also an important factor for developing good study habits. Community has to arrange the community centers such as library facilities, community resource centers, information centers, etc. a good community provide necessary facilities for good study habits.

Furthermore, they also mentioned causes of poor study habits. Firstly, if students do not know how to study. Most of the students do not aware how to study. They may never have learned the skill involved. Their poor study habits are a result of using whatever approaches they have naturally developed or picked up from a variety of sources. Student may not know how to use the library or dictionary or read a map, graph or table.

Another reason might be his learning disability such as any form of mental health is an obvious cause of study problem. Less obvious, but relatively frequent, is some form of learning disability. Many forms of serious reading problem (dyslexia) may go

unrecognized. Any weakness in the process of reading is a direct cause of study problem where reading is required. Psychological problem is also one of the problems why students have poor study habits. Many psychological problems can lead to difficulties in studying. Tension caused by family or peer interaction can lead to difficulty in concentrating. Anxiety, sadness and worries are also detrimental. Daydreaming or fatigues similarly interfere with efficiency. Fear of failure, dependency, feeling of inadequacy, and pessimism can lead to not wanting to try to study or to ineffective studying. Other problems such as lacks of peaceful environment, availability of space, knowledge of parents, finance, one of the parents are not live are the major causes of poor study habits.

Table 18

Comparison of Respondents' Academic Performance When Grouped According to Their Characteristics

Respondents' Characteristics	Subjects			Overall Academic Performance
	English	Mathematics	Science	
	<i>F-value</i> <i>p-value</i>	<i>F-value</i> <i>p-value</i>	<i>F-value</i> <i>p-value</i>	<i>F-value</i> <i>p-value</i>
Age	1.92	1.28	0.49	0.62
	0.125	0.282	0.693	0.601
	NS	NS	NS	NS
Gender	3.00	0.54	0.23	0.27
	0.084	0.462	0.633	0.602
	NS	NS	NS	NS
Study Habits	0.85 0.005* S	0.81 0.012* S	0.39 0.009* S	0.50 0.002* S
Attitude towards English, Mathematics and Science	0.82 0.004* S	0.98 0.025* S	0.26 0.017* S	0.28 0.028* S
Parents' Occupation Fathers' Occupation	0.74	0.89	0.83	0.85
	0.703	0.548	0.612	0.593
	NS	NS	NS	NS
Mothers' Occupation	1.36	1.53	0.29	0.44
	0.182	0.113	0.991	0.945
	NS	NS	NS	NS
Fathers' Educational Attainment	0.51	0.90	0.64	0.72
	0.867	0.523	0.767	0.686
	NS	NS	NS	NS
Mothers' Educational Attainment	1.06	1.41	0.68	1.05
	0.396	0.184	0.726	0.397
	NS	NS	NS	NS
Family Monthly Income	0.61	0.37	0.25	0.34
	0.725	0.899	0.959	0.914
	NS	NS	NS	NS
Learning Styles	0.79	0.85	0.40	0.50
	0.817	0.729	0.997	0.996
	NS	NS	NS	NS

Legend: S – significant NS – not significant

19. Table 19 below shows the test on relationship between motivational strands and learner's academic performance. Overall, the level of motivational strands based on intrinsic and extrinsic motivations was significantly moderately related on their academic performance which led to the rejection of the null hypothesis. This implies that when the level of motivational strand increases then most likely the level of academic performance of the students will also increase. Therefore, it is important for parents and teachers to provide the sufficient amount of motivation as well as the student themselves to really improve their academic performance in Science, Mathematics and English. The amount of intrinsic and extrinsic motivation amongst students proved to be a vital component in order for them to really perform well in the said subjects. This is confirmed in the study of Kistnasamy (2015), where she noted that intrinsic or extrinsic motivation is acknowledged as one of the most significant psychological concepts in education and can respectively, be indicated by the achievement of personal goal setting and developing an interest in the subject area; and reliance on external rewards and pressures. When students are successful, it results in a continuous motivating cycle of reflection, connection, confidence and positive self-esteem.

Therefore, it is imperative for an educator in a tertiary setting to create a positive environment that enhances encouragement and propagates a safe environment for learning and personal fulfillment. When there is a sense of victory, students will sacrifice to succeed, look for ways to win, become energized, follow the game plan and help other team members which all greatly contributes to developing attributes that can only enhance the graduate's future professional status. She further added that motivation is probably the key factor that educators can focus on in order to empower learners and improve learning even though it is highly abstract and its measurement, challenging. Intrinsic motivation is the preferred type as it is associated with meaningful learning, enhanced performance and positive well-being for the student in comparison to extrinsic motivation which must be provided by external resources such as the educator.

However, both types of motivation have been shown to positively influence study strategy, academic performance, adjustment and well-being in students in domains of education. Another important implication of this result is that motivation is not only

limited only in the effects of students' academic performance. This may go beyond even if students already graduated from college and already in their workplace. If they are always motivated, then they will be successful in their work and always productive. This is why it is very important that while they are still students, the value of motivation be always inculcated and appreciated by them to really excel in the classroom and bring this concept in the future (Taylor, 2015).

Table 19

Result of the Test on Relationship between Motivational Strands and Learner's Academic Performance

Motivational Strands		Subjects			Overall Academic Performance
		English	Mathematics	Science	
		<i>Pearson-r p-value</i>	<i>Pearson-r p-value</i>	<i>Pearson-r p-value</i>	<i>Pearson-r p-value</i>
Intrinsic Motivation	Challenge	0.503 (MPR) 0.021* S	0.561 (MPR) 0.000* S	0.518 (MPR) 0.019* S	0.519 (MPR) 0.006* S
	Curiosity	0.599 (MPR) 0.000* S	0.543 (MPR) 0.001* S	0.548 (MPR) 0.028* S	0.590 (MPR) 0.034* S
	Independent Mastery	0.521 (MPR) 0.034* S	0.592 (MPR) 0.040* S	0.551 (MPR) 0.025* S	0.552 (MPR) 0.023* S
Extrinsic Motivation	Easy Work	0.515 (MPR) 0.010* S	0.567 (MPR) 0.000* S	0.552 (MPR) 0.049* S	0.510 (MPR) 0.004* S
	Teachers' Characteristics	0.503 (MPR) 0.021* S	0.595 (MPR) 0.034* S	0.515 (MPR) 0.041* S	0.514 (MPR) 0.006* S
	Teachers' Support	0.558 (MPR) 0.000* S	0.504 (MPR) 0.020* S	0.662 (MPR) 0.016* S	0.583 (MPR) 0.005* S

Legend: S – significant NS – not significant

20. Table 20 shows the extent of the effect of motivational strands on students' academic performance. Overall, results reveal that a strong significant impact of independent mastery and curiosity for intrinsic motivation and teachers' support for extrinsic motivation on students' academic performance which led to the rejection of the null hypothesis at 0.05 level of significance. This implies that the level of independent mastery, curiosity and teacher's support is a big factor for students to have good

academic performance. In particular, students' level of curiosity showed a strong impact on students' performance in English and Science while the level of independent mastery showed a predictive value on students' performance in Mathematics and English. This means that when students' curiosity is enhanced then they will excel in English and Science and when they showed high level independent mastery, then they will excel in English and Mathematics. Finally, teachers support as an extrinsic motivation also showed strong impact on students' performance in Science. This is why teachers need to increase their level of support on their students to have better performance in Science. Teachers play an important role in nurturing students' sense of belongingness in school. If a student considers their teacher to be caring and accepting, they're more likely to adopt the academic and social values of their teacher. This can influence how students feel about school work and how much (or how little) they value it. Research suggests school strategies that increase a sense of belonging in at-risk students could reduce school drop-out rates and lead to improved academic achievement.

Table 20
Regression Analysis on the Effect of Motivational Strands on Learner's Academic Performance

Motivational Strands		Academic Performance			Overall <i>T-value</i> <i>p-value</i>
		English <i>T-value</i> <i>p-value</i>	Mathematics <i>T-value</i> <i>p-value</i>	Science <i>T-value</i> <i>p-value</i>	
Intrinsic Motivation	Challenge	0.77 0.444 NS	1.87 0.063 NS	0.69 0.491 NS	1.01 0.312 NS
	Curiosity	3.01 0.003* S	0.60 0.546 NS	1.12 0.005* S	0.28 0.008* S
	Independent Mastery	2.80 0.005* S	0.68 0.007* S	0.67 0.506 NS	1.48 0.039* S
Extrinsic Motivation	Easy Work	1.02 0.310 NS	1.90 0.058 NS	0.82 0.415 NS	0.25 0.803 NS
	Teachers' Characteristics	0.67 0.505 NS	0.38 0.706 NS	0.94 0.349 NS	0.85 0.394 NS
	Teachers' Support	1.92 0.055 NS	0.61 0.543 NS	2.44 0.015* S	2.24 0.025* S

Legend: S – significant NS – not significant

21. Table 21 presents the respondents' responses during the in-depth interview. The result indicates that most of the respondents wanted to engage teachers support in

the classroom. As noticed, teachers encourage active learning through hands-on activities. It is often the best way to get all students engaged in learning. Whenever a teacher gives performance task, assign students by small-group and project-based assignments that promote active and collaborative learning.

Conclusions:

Teachers' play a vital role in increasing students' learning through motivational strands: intrinsic and extrinsic, it is important for teacher to create an environment that motivates students' learning.

In addition, teachers also help students to learn by increasing their responsibility and participation in their own learning through letting them create their own goals and objectives and improve their academic performance. Teachers who build positive relationships with their students are more likely to influence their drive to learn. Building trust in a relationship takes time. Thus, the null hypothesis on no significant relationship between motivational strands and learners academic performance is rejected

Furthermore, students were born with different characteristics such as natural ability to learn, much is dependent on the teachers' involvement. Students' energy, drive, and enthusiasm for a subject or task may wane and therefore require continued reinforcement through motivational strands. Teachers, who are responsible for creating a supportive environment that facilitates and increases students' learning, often provide this motivation. Though students' motivation to learn can be intrinsic or extrinsic, the role of the teacher in supporting their learning and creating the right environment will further enhance their motivation to learn.

Recommendations:

Based on the findings and conclusions of the study, the following recommendations are endorsed; that

1. Teachers should motivate students to continually support and ignite their curiosity as well as developing their good study habits and positive attitude towards the subjects in school.

2. Parents should motivate their children to perform well in school and encourage open communication and free thinking to make them feel important and to recognize them for their contributions.
3. School heads should formulate practical strategies to stimulate students' motivation to learn and improve the outcomes of teaching and learning.
4. DepEd should conduct development training for teachers to increase innovation in teaching strategies using intrinsic and extrinsic motivation.
5. Future researches on motivational strands with the same variables should be conducted in other places.

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