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# **Impact of Counseling Pedagogy in Application of Mathematics for Daily Living on Students' Affective Calculus in Mathematics Learning Process in a Secondary School in Enugu, Enugu State, Nigeria**

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### **Abstract**

This study sees affective domain as the central area for human thoughts and ideas. It thus, defines Mathematics as a science of symbolic transformation and representation of human thoughts and ideas into functional relations that serves as a framework for simple to complex reasoning. The study utilized counseling pedagogy and investigated its impact on students' affective variables of belief, value, interest and behaviour regarding Mathematics application outside the school system. Using a survey design, a sample of 109 (65 male and 44 female) senior secondary school three students were counseled and taken out on a field trip. Data were collected using Mathematics Applications in Daily Living (MADL), a twenty-item researcher developed instrument validated

by five experts. The results of the study revealed that due to counseling pedagogy students' belief in, value for, interest in and behaviour towards application of Mathematics outside the school system were improved to a great extent. Recommendations among others were that counseling and field trips should be used as a teaching pedagogy in Mathematics. These should be carried out at least once every term by Mathematics teachers to show Mathematics application in daily activities.

**Keywords:** Mathematics Applications, School Mathematics, Calculus, Affective Domain (Psyche), Field Trip, Counseling Pedagogy, Tailoring

## Introduction

The most frequent question students do ask Mathematics teachers is “how can we apply the  $x$  and  $y$  variables of Mathematics in our various life endeavor as we leave school system”? This question seems to be indicating that Mathematics teaching is mainly been focused on written examinations, thus, creating a gap between the affective, the cognitive and the psychomotor domains functioning that are supposed to be working together in the Mathematics teaching and learning processes. This may be the reason why Boyd, Dooley and Felton (2006) posit that, at every level, every state or stage, even in adult, we cannot find change which is purely cognitive without *affect* nor a purely affective state without a cognitive element involved. In their suggestion, Gresalfi and Cobb (2006) posit that, learning Mathematics is more than just the acquisition of skills and knowledge, and it is not sufficient to focus exclusively on the ideas and skills that we want students to learn. It therefore seems that, Mathematics teaching methods that provide first hand learning experiences to students may help better in closing the observed gap between the affective, the cognitive and the psychomotor domain functioning. Thus, Attard (2015) opined that, the coming together of the three domains leads to students feeling good, thinking hard, and actively participating in their Mathematics learning. The good feeling in Mathematics learning is the major emotional issues that call for students' attention while learning Mathematics.

Mathematics and all kinds of learning are viewed as the mental activity by which knowledge and skills, habits and attitudes, virtues and ideas are acquired, retained and utilized resulting in the progressive adoption and modification of conduct and behaviour (Okoye, 2010). In this regard, field trip counseling pedagogy serves to provide unique opportunities for students to engage in learning beyond the classroom, with opportunities for connecting both theory and practice, and provide a way for students to contextualize the study of concepts and subject matter. This is because students gain understanding through personal connections, and they also develop emotional connections to the subject matter. Field trip, also termed as an instructional trip, school excursion, or school journey, is defined as a school or class trip with an educational intent in which students interact with the setting, displays, and exhibits to gain an experiential connection to the ideas, concepts, and subject matter (Krepel & Duvall in Behrendt & Franklin, 2014). Counseling according to Oviogbodu (2015) defined as a number of procedures in assisting an individual to solve his problems, seems helpful. Through counseling, students are assisted to be disciplined and become able to deal with challenges and realities they face in their academic, social and physical environment. It means that counseling is more involved emotionally in the affective system which has such variables like emotions or feelings, values, interest, attitudes and behaviour. These variables, if properly harnessed will bring about the required affective calculus in an individual.

Calculus in Mathematics means the rate of infinitesimal change (differentiation) and cumulative growth (integration) observed or that can be measured over a given period of time. This mathematical concept of calculus in most cases is expressed in the form of a function. A function in Mathematics is a rule that assigns a variable (dependent) quantity to another variable (independent) quantity. This is algebraically expressed as;  $y = ax + b$  (for linear function) or  $y = ax^2 + bx + c$  (for quadratic function) where,  $y$  is the dependent variable and  $x$  the independent variable, while  $a$ ,  $b$  and  $c$  are constants. In the context of Mathematics teaching and learning processes, students' affective calculus translate as the mental changes acquired through Mathematics learning activities or experiences. Experiences, environment, social interactions and reflection all contribute to a person's affective development that lead to formation of attitude, values, beliefs and interest (Wendee, 2015). Affect is valued as a necessary feature in education which is essential for the development of good character, beliefs, and values, leading to positive citizenship. These changes are inculcated to students through Mathematics teacher's pedagogies expected to bring about human affective calculi of value re-orientation. It is in regard to value re-orientation focused in Mathematics teaching and learning processes that this study focuses on the human affective variables of beliefs, values, interests and behaviors of students' in application of Mathematics in daily living. Hence, the need to use among other methods, field trip counseling pedagogy in Mathematics teaching and learning processes.

Studies have revealed that affective system or emotion occurs before cognition, and that they have different functions and operating parameters. While the affective system is judgmental, assigning positive and negative valence to the environment rapidly and efficiently, the cognitive system interprets and makes sense of the world (Norman, 2002; Russell, 2003). It therefore implies that, in order to produce students with a holistic education, the content of each course of study must include three important domains of affective, cognitive and psychomotor. This is because while the affective domain deals with changes in feelings or emotional areas, cognitive domain deals with mental intellectual skills and psychomotor domain deals with manual or physical skills. This means that affect is the driving force behind cognition and psychomotor development, as it is the vehicle through which children first encounter a learning experience (Wendee, 2015).

Before we can interpret and make sense of the world around us, our belief, value, interest or behavior must first come to play on the mathematical  $x$  and  $y$  variables. The x-raying of these variables is while Aghadiuno in Iji (2019) wrote that, for ideas and theories to be meaningful and understandable by the mind, they must be presented in a mathematically understandable form. This shows that Mathematics as an educational subject is often not an end in itself but rather a vehicle employed in the service of other goals. Considering such thoughts, this study defines Mathematics as a science of symbolic transformation and representation of human thoughts and ideas into functional relations that serves as a framework for simple to complex reasoning. That is to say, human comprehended thoughts and ideas can only be assessable and understandable by others if such are transformed into some symbolic framework for reasoning that is commonly accepted. It is this transformed thoughts and ideas that are symbolically represented into different functional relationships (or framework for reasoning) with enough precision to gain insight into how things work and any expected changes which are then used as School-Mathematics. The conviction that Mathematics provides a framework for complex reasoning may better be accessed in the conglomeration nature of mathematical concepts used in both academic and daily living.

Mathematics teaching and learning as it concerns the affective domain is aimed at educating the students to live responsible, creative, and fulfilling lives. However, the Mathematics learnt can only have meaning if its applications are seen or felt directly by the students in their immediate environment (Ezenweani, 2010). This was the reasoning of Shechter, Durik, Miyamoto and Harackiewicz (2011) who posit that tasks which are perceived as valuable are more likely to be associated with a wide range of motivational outcomes, including better achievement. This means that the Mathematics for application in daily living can mostly be found in the students' affective system (emotion, value, interest and attitude). This is because the mathematical presentations of ideas are the bases of every thought process of the affective system. This also shows that, Mathematics plays the role of training the mind towards achieving life goals. Contributing on the development of human thought process and the training of the affect (psyche) for actualization of the human set goals, Etumudor (2013) wrote,

The psyche is the essence of humanity; its greatest instrument is an indefinable creative entity of enormous people, subtlety and power that eludes all attempts to explain it. In psychology, the psyche is the centre of thought, feeling and motivation, consciously and unconsciously directing the body's reactions to its social and physical environment. The way it acts on environment finalizes how the world of humanity is shaped.

This helps to explain that change of attitude is more of self-set goals which are but a function of the affective qualities. Affective quality is the ability of an object or stimulus to cause changes in one's affect (mood, emotion, feelings) which is a fundamental aspect of human found to influence reflex, perception, cognition, and behavior (Norman, 2002; Russell, 2003). These affective qualities were propounded as taxonomy by Krathwohl, Bloom and Masia (1964). They include;

- i. *Quality of receiving*: That is when the students are listening and are being attentive to what their Mathematics teacher or other students are saying or doing. (This shows that one is aware of and/or is passively attending to certain events or stimuli).
- ii. *Quality of responding*: Such include, when students obey and comply with the Mathematics teacher's directives and lessons' instructions, and are participating in class activities as expected. (This shows that the students complies with instructions by attending or reacting to given instructions in positive ways).
- iii. *Valuing*: This is a case where a student displays behaviors consistent with one or more beliefs or attitudes in situations that he or she is not forced to comply or obey. That is, students who devotedly solve their Mathematics class-work (complete a task), solve Home-work and Assignment (complies to a given instructions) without been forced to do so are said to have value for the study of Mathematics.
- iv. *Organizing*: Incorporating values into life by being committed to a set of values and displaying or communicating his or her beliefs or values in other ways (The students show their adherence to clarity of arrangement and presentation of solutions to any given Mathematics task, e.g., keep track of writing date at the top left corner of their note always, being punctual to Mathematics lessons, been consistent to standing instructions).

- v. *Characterization*: Displaying consistency between one's feelings, thoughts, and behaviours.

It was the interpretation of such affective qualities that made Keller (2001) to title his book "*Attitude is Everything*". This is so, because these affective qualities are all based on attitude of the individual. With regard to Mathematics teachers and students, these qualities are more focused on students. Mathematics teachers however, do mandatorily observe such personal qualities by taking students' attendance in each Mathematics lesson, prompt marking of notes, punctuality to class and other school functions (hardworking), dressing simple and neat, tact, politeness, honesty, friendliness, confident and competency (Yousef & Balaramulu, 2013). In addition to such qualities, the affective calculus in the Mathematics classroom is all about obedience and compliance innovations.

The Mathematics teacher ignites this change in the students through his repertoire of teaching pedagogies. That means in every Mathematics classroom, teacher's attitudes and instructions/comments are the key to change in affective system of the students. This is because attitude is a learned predisposition to respond positively or negatively to a specific object, situation, institution, or person (Aiken, 2000). Thus, attitude affects what people do and it reflects who they are, hence, it is a determining factor of people's behavior. Keller (2001) defined attitude as your mental filter through which you experience the world. According to Fishbein and Ajzen in Lai (2017), attitude is the individual's evaluation of an object. Attitudes are affective and are based upon a set of beliefs about the object of behavior. Hence, to be able to make students change their attitude about Mathematics, be self-reliant and earn their living, Mathematics teachers need sound pedagogical reasoning and actions to impact positively on students' development of attitude towards Mathematics for self-reliance.

Sirohi (2013) in a study examined the career maturity of secondary school students by gender, type of school and vocational guidance provisions and to know the perception of students about vocational guidance services in their schools. The researcher draws a sample of 160 students from eight secondary schools through stratified sampling technique. The quantitative and qualitative analysis of data revealed among others findings that students in schools with vocational guidance and counseling provisions show high career maturity in self-awareness and occupational information as compared to none from those schools which are deprived of these provisions, similarly in choosing a job, the students who are privileged to be exposed to the guidance and counseling programmes show much higher career maturity than their underprivileged counterpart.

Dabone, Graham and Fabea (2015) in their study investigated impact of guidance and counseling services on academic performance in Dormaa Central Municipality of the Brong-Ahafo Region of Ghana. The study used a pre-test and post-test control group design with a study sample of 40 students. The study analyses revealed that significant difference was realized between post-test scores of experimental and control group with regards to academic performance.

Also, Tuchili and Ndhlovu (2016) in their study investigated effects of guidance and counseling services on students' interpersonal, study, vocational and problem-solving skills in selected public universities in Zambia. The study used a correlational design and sampled 105 university students. Using an in-depth interview guides, focus group discussions and questionnaires, the researchers collected data that was analyzed. The study founding reveals that



there was statistically significant difference between students who received guidance and counseling services and those who did not. They concluded that students who received guidance and counseling services were better developed in interpersonal, study, vocational and problem-solving skills than their counterparts in the control group.

These may be some indications that with good pedagogical repertoire, Mathematics teachers will be able to buttress before their students the assertion by Odumosu, Oluwayemi, and Olatunde (2012) that Mathematics is the carpenter's hammer, tailor's tape, artist's pencil, barber's clipper, hair dresser's comb, journalist's pen, broadcaster's microphone, doctor's stethoscope and lawyer's wig. Such will explain why there is no Mathematics in a job title but there is plenty of Mathematics in the job itself.

The centrality of counseling and field trip in student's Mathematics learning is rooted in affective-cognitive consistency theory which examines the relationship between affective variables of attitudes and beliefs and posits that individuals are in an unstable state when their attitudes towards an object, event or person and their knowledge about that object, event, or person are inconsistent (Simonson & Maushak in Miller, 2005). The theory suggests that the affective component of the attitude system may be changed by providing new information (changing the cognitive component) via a persuasive message. Thus, once the individual has processed the new information, he or she will undergo an attitude change to bring the knowledge and affect into harmony. Also, according to Dales' Cone of Experience, life is 10% what happens to you (information received) but 90% is reaction to what happens to you (Davis & Summer, 2015). That means there is nothing either good or bad but only thinking makes it so. Hence, the need for field trip so as to have firsthand experience with tailors that can change students' thinking about Mathematics.

## Statement of the Problem

Mathematics originates from human thought, ideas and actions, yet applying school Mathematics for daily living is said to have no common link. Students continue to ask how they can apply the famous  $x$  and  $y$  variables of Mathematics in their various life endeavors as they leave school system. Mathematics teachers have tried to use real life analogy, diagrams and explanations among other pedagogies to relate Mathematics to human daily activities, yet that correlate has not received very positive acceptance among learners of Mathematics.

Researchers worldwide have been striving for better ways of teaching and learning Mathematics by integrating counseling pedagogical approach. To this end, research has revealed that learning at any point in time involves all the three domains; however, affect or emotion do occurs before cognition, then psychomotor. It is the affective in its judgmental functions that do assign positive or negative valence to the environment before cognitive can interpret and makes sense of the world. Research also has shown that tasks that are perceived as valuable are more likely to be associated with a wide range of motivational outcomes.

The inadequacies of other approaches and methods to link school Mathematics with daily life applications has necessitated Mathematics educators to advocate counseling pedagogy in Mathematics teaching and learning processes. Thus, will field trip counseling pedagogy in Mathematics teaching and learning that take students out of to interact with tailors enhance

students' belief in, value for, interest in and behaviour towards application of Mathematics in daily living?

## Purpose of the Study

The main purpose of this study was to identify the applications of Mathematics in daily living outside school system using tailoring activities. Specifically, the study sought to:

- i. Determine the extent to which students believe in the application of mathematics for daily living after counselling/interaction with tailors.
- ii. Determine the extent to which students value the application of mathematics for daily living after counselling/interaction with tailors.
- iii. Determine the extent to which students become interested in the application of mathematics for daily living after counselling/interaction with tailors.
- iv. Determine the extent to which students positively behave towards the application of mathematics for daily living after counselling/interaction with tailors.

## Research Questions

The following research questions guided the study:

- i. To what extent do students believe in the application of mathematics for daily living after counselling/interaction with tailors?
- ii. To what extent do students value the application of mathematics for daily living after counselling/interaction with tailors?
- iii. To what extent do students become interested in the application of mathematics for daily living after counselling/interaction with tailors?
- iv. To what extent do students positively behave towards the application of mathematics for daily living after counselling/interaction with tailors?

## Methodology

The design of this study was a survey design. This used a questionnaire drawn up to sought students' opinion on their belief for, value for, interest in, and behaviour towards Mathematics applications in daily living. The target population for this study was the entire senior secondary three (SS3) students who are about leaving school for life endeavors. The study engaged a sample of 109 (65 male, and 44 female) senior secondary school three (SS3) students. Calculus, a mathematical concept under algebraic processes that teaches about the rate of infinitesimal change, was the focused of the field trip counseling lesson for students to be able to connect Mathematical concepts and their applications for successful daily living. This was aimed specifically at unlocking students' Mathematical potentials relative to their practice of daily trades and strengthening students' changes regarding their beliefs, values, interest, and behavior acquired over the years about Mathematics and its applications.

The instrument used for the study was Mathematics Applications in Daily Living (MADL) questionnaire. The survey instrument, in four sub-scales, sought students' beliefs in, value for, interest in, and behaviour towards Mathematics on a four-point scale questionnaire in the form of Very Great Extent (VGE), Great Extent (GE), Less Extent (LE) and No Extent (NE) weighted 4, 3, 2 and 1 accordingly. This instrument consists of twenty (20) items on tailoring which were developed by the researcher. The instrument was validated by two experts in Mathematics

Education, one expert in Measurement and Evaluation and two Mathematics teachers. A reliability index of 0.81, 0.87, 0.85 and 0.80 (with an overall coefficient of reliability of 0.83) was established for the instrument's four sub-scales using Cronbach Alpha ( $\alpha$ ).

The instrument was administered by the researcher after counseling the students. The instrument was completed by the students as they interacted with the tailors and seamstresses in their complex. The data collected and collated was analyzed using the descriptive statistic of mean and standard deviation. To arrive at a decision, items that were positively skewed which had a mean score of 2.5 and above were accepted, implying Great Extent; while any item with a mean score less than 2.5 were rejected, No Extent. For negatively skewed (i.e., negatively worded) items, the reverse was the case.

## Results

### Research Question One

To what extent do students believe in the application of mathematics for daily living after counselling/interaction with tailors?

**Table 1: Students' Beliefs in the Application of Mathematics for Daily Living in Tailoring Work**

S/No.	Items	VGE	GE	LE	NE	Mean	SD	Decision
1.	Tailors belief much in the use of Mathematics concepts of estimation and approximation in every transaction.	58	51	0	0	3.54	0.50	Great Extent
2.	Tailors belief much in the use of Mathematics concept of units of measurement in their everyday work.	63	46	0	0	3.58	0.49	Great Extent
3	Tailors belief they make use of the concept of fraction every day.	55	54	0	0	3.50	0.50	Great Extent
4	Tailors belief in their use of the Mathematics concept of parallel every day.	49	60		0	3.42	0.49	Great Extent
5	Tailors belief in their use of the Mathematics concept of reflection and symmetry every day.	48	61	0	0	3.56	0.49	Great Extent
<b>Total/Cluster Mean</b>		<b>273</b>	<b>272</b>	<b>0</b>	<b>0</b>	<b>3.52</b>	<b>-</b>	<b>Great Extent</b>

The data in Table 1 shows students responses after counseling/interaction with tailors. The result indicates that students have belief in application of Mathematical concepts in their daily living. This is evident in the cluster mean ( $\bar{x} = 3.52$ ) of the five items on tailors belief in daily application of Mathematical concepts in their tailoring work. This implies that after counseling/interaction with tailors, students believe in the application of Mathematical concepts in resolving issues in daily living outside the school system to a great extent.



**Research Question Two**

To what extent do students value the application of mathematics for daily living after counselling/interaction with tailors?

**Table 2: Students' Values for Application of Mathematics for Daily Living in Tailoring Work**

S/No.	Items	VGE	GE	LE	NE	Mean	SD	Decision
6.	Tailors value the Mathematics concept of statistics so much for planning ahead.	59	50	0	0	3.46	0.50	Great Extent
7.	Tailors value their use of the Mathematics concept of proportion on every customer.	49	60	0	0	3.56	0.49	Great Extent
8.	Tailors value the use of the Mathematics concept of similarity every day.	56	53		0	3.61	0.49	Great Extent
9.	Tailors value their use the Mathematics concept of congruence and equivalent measures every day.	55	54	0	0	3.43	0.48	Great Extent
10.	Tailors' value their measure of the circumference of the waist, arms, hips and wrists as being relative to finding the perimeter.	47	62	0	0	3.43	0.49	Great Extent
<b>Total/Cluster Mean</b>		<b>266</b>	<b>279</b>	<b>0</b>	<b>0</b>	<b>3.50</b>	<b>-</b>	<b>Great Extent</b>

The data in Table 2 shows students responses after the counseling/interaction with tailors. The result indicates that students have value for application of Mathematical concepts in their daily living. This is evident in the cluster mean ( $\bar{x} = 3.50$ ) of the five items on students' value for application of Mathematical concepts in daily living. This implies that after counseling/interaction with tailors, students value the application of Mathematical concepts in resolving issues in daily living outside school system to a great extent.

**Research Question Three**

To what extent do students become interested in the application of mathematics for daily living after counselling/interaction with tailors?

**Table 3: Students' Interest in Application of Mathematics for Daily Living in Tailoring Work**

S/No.	Items	VGE	GE	LE	NE	Mean	SD	Decision
11.	Tailors' interest in the Mathematics concept of variation is because of customers' needs they encounter every day.	65	44	0	0	3.49	0.50	Great Extent
12.	In tailoring, mathematics knowledge is interesting when analyzing, organizing, planning and solving tailoring work demands.	51	58	0	0	3.56	0.49	Great Extent
13.	In tailoring, it is interesting observing material's fold which represents an axis as well as a line of reflection.	50	59	0	0	3.45	0.49	Great Extent
14.	In tailoring, it is interesting working with the knowledge of plane shapes and their properties.	53	56	0	0	3.52	0.50	Great Extent
15.	In tailoring, it is interesting observing the concept of statistics in records keeping.	57	52	0	0	3.48	0.50	Great Extent
<b>Total/Cluster Mean</b>		<b>276</b>	<b>269</b>	<b>0</b>	<b>0</b>	<b>3.50</b>	<b>-</b>	<b>Great Extent</b>

The data in Table 3 shows students responses after interactions with the tailors. The result indicates that students have interest in the application of Mathematical concepts in daily tailoring works. This is evident in the cluster mean ( $\bar{x} = 3.49$ ) of the five items on students' interest in application of Mathematical concepts in tailoring work. The implication is that after counseling/interaction with tailors, student became interested in the application of Mathematical concepts in resolving issues in daily living outside school system to a great extent.

#### **Research Question Four**

To what extent do students positively behave towards the application of mathematics for daily living after counselling/interaction with tailors?

**Table 4: Students' Behaviour towards Application of Mathematics for Daily Living in Tailoring Work**

S/No.	Items	VGE	GE	LE	NE	Mean	SD	Decision
16.	For tailors, the study of mathematics is helpful in moral development for dealing with the public.	49	60	0	0	3.37	0.48	Great Extent
17.	Mathematics is very helpful in the development of tailoring skills.	48	61	0	0	3.61	0.49	Great Extent
18.	In tailoring, the knowledge of mathematics helps in character development.	60	49	0	0	3.46	0.50	Great Extent
19.	In tailoring, mathematics concept of inequality helps in the development of sense of beauty of design & arrangement.	51	58	0	0	3.38	0.48	Great Extent
20.	In tailoring, mathematics concept of inequality helps in the development of sense of arrangement and expenditure.	54	55	0	0	3.50	0.50	Great Extent
<b>Total/Cluster Mean</b>		<b>262</b>	<b>283</b>	<b>0</b>	<b>0</b>	<b>3.46</b>	<b>-</b>	<b>Great Extent</b>

The data in Table 4 shows students responses after counseling/interactions with the tailors. The result indicates that students' behaviour towards application of Mathematical concepts in their daily living was encouraging (positive). This is evident in the cluster mean ( $\bar{x} = 3.46$ ) of the five items on students behaviour towards application of Mathematical concepts in tailoring works. This implies that after counseling/interaction with tailors, students positively behave towards application of Mathematical concepts in resolving issues in daily living outside school system to a great extent.

### Discussion

In all the research questions 1 to 4, the respondents opined from the given twenty items on tailoring that, based on the counseling lessons with teacher pedagogy which took them out on field trip, they have gain first-hand information and experiences from the tailors. They now can understand and explain what is meant by the Mathematics variables of  $x$  and  $y$  and its attendant applications in daily issues. These results support Goodykoontz (2008) who posit that developing students' attitudes in Mathematics depend among other factors teacher characteristics, teaching characteristics, classroom characteristics, assessments and achievement; and individual perceptions and characteristics. The finding also support the report of Tuchili and Ndhlovu (2016) that students who received guidance and counseling services were better developed in interpersonal, study, vocational and problem-solving skills. Again, the finding support Sirohi (2013) who found that students in schools with vocational guidance and counseling provisions show high career maturity in self-awareness, occupational information and higher career maturity than their underprivileged counterpart.

Through the first hand information and experiences from the tailors, students in their individual perceptions and characteristics now believe Mathematics is not as abstract as they use to think. This is an attestation to Dales' Cone of Experience which state that life is 10% what happen to you (information received), and 90% how you react to it (Davis & Summer, 2015). That means, what you have learnt and know is 10%, the rest 90% is within the training that taught you how to find out what you did not know. You can acquire this through your attitude, emotion, behavior, feeling, etc., at every given situation.

## Conclusion

The result of Tables 1 to 4 above is an attestation that Mathematics teacher's counseling pedagogy which took the students out on a field trip, made impressive impact on the *affect* of the students. Their belief in, value for, interest in, and behaviour towards Mathematics is positive as evidenced in the mean ratings and standard deviations. The Mathematics teacher's use of counseling pedagogy seems to have positively influenced his students in developing their potentials, and achieving meaningful life goals for themselves and the society at large. Hence, counseling pedagogy is necessary for achievement in all the learning domains.

## Recommendations

- i. Mathematics teachers need to use much counseling as part of their pedagogical repertoire.
- ii. Mathematics teachers need to use appropriate intervention to remedy affective situations appropriately at its foundational stage. This is because, Mathematics teachers deal more with the young who are tender, both physically and psychologically.
- iii. In academic subjects like Mathematics which looks so abstract to students, teachers need to take students out on field trip counseling pedagogy so that students could experience real life values of Mathematics as it is being practiced in business, offices, trade, etc. This may be conducted, if possible, every term.
- iv. There is need for school administrators to provide Mathematics teachers with enabling environment, facilities and personnel so as to make field trip counseling exercise in Mathematics learning each term's practice. This will enable Mathematics teachers to demonstrate most Mathematics concepts to their students during such field trips.

## Suggestions for Further Study

Other researchers are encouraged to replicate this research in other areas of daily activities such as Carpentry, Small Scale Farming (e.g., Poultry), Hair Dressing, among others, in order to see students' belief in, value for, interest in and behaviour toward Mathematics applications in daily living.

## Reference

- Aiken, R. L. (2000). *Psychological testing and assessment*. Boston, MA: Allyn and Bacon.
- Attard, C. (2015). Engagement and mathematics: what does it look like in your classroom? *Journal of Professional learning*. Retrieved from; <https://cpl.asn.au/sites/default/files/journal/Catherine%20Attard%20%20-%20Engagment%20and%20Mathematics.pdf>

- Bakar, N., Buckland, R. & Shaarani, A. S. (2016). Educators' guideline for writing the Affective Domain Courses in learning outcome. Proceedings of the International Conference on Education towards Global Peace. 1 – 19. Retrieved from <http://www.iiu.edu.my/capeu2016/wp-content/uploads/2017/02/024.pdf>
- Behrendt, M. & Franklin T. (2014). A review of research on school field trips and their value in education. *International Journal of Environmental and Science Education*, 9(3), 235-245. doi: 10.12973/ijese.2014.213a
- Boyd, B. L., Dooley, K. E. & Felton, S. (2006). Measuring Learning in the Affective Domain using Reflective Writing about a Virtual International Agriculture Experience. *Journal of Agricultural Education*, 47(3), 24 – 32.
- Dabone, K, T., Graham, Y. A. & Fabea, I. B. (2015). Impact of Guidance and Counseling on Academic Performance. *Journal of Research on Humanities and Social Sciences*, 5(8), 225 – 227.
- Davis, B. & Summers, M. (2015). Applying Dale's Cone of Experience to increase learning and retention: A study of student learning in a foundational leadership course, QScience Proceedings (World Congress on Engineering Education 2014). Retrieved from: <http://dx.doi.org/10.5339/qproc.2015.wcee2014.6>
- Etumudor, M. (2013). Citizenship Education and National Integration: The imperative of Developing the Psyche. *Academic Journal of Interdisciplinary Studies*, 2(5), 179 – 185. Doi:10.5901/ajis.2012.v2n5p179
- Ezenweani, U. L. (2010). Esthetic Images Linking School and Societal Mathematics. *Abacus. The Journal of the mathematical Association of Nigeria*. 35(1), 32- 45.
- Gresalfi, M. S. & Cobb, P. (2006). Cultivating students' discipline-specific dispositions as a critical goal for pedagogy and equity. *Pedagogies: An International Journal*, 1(1), 49-57.
- Iji, C. O. (2019). Quest for Scientific Development in Nigeria: Insight and Issues. A Lead Paper Presented at the 7<sup>th</sup> Annual National Conference of the School of Sciences, College of Education, Oju, Benue State, Nigeria held from 11<sup>th</sup> – 15<sup>th</sup> March, 2019.
- Katz, D. (1960). The Functional Approach to the Study of Attitudes. *Public Opinion Quarterly*, 24(2), 163.
- Keller, J. (2001). Attitude is Everything. Retrieved from: <http://www.AsAManThinketh.net>.
- Krathwohl, D. R., Bloom, B.S. & Masia, B. B. (1964). *Taxonomy of educational objectives: The classification of educational goals*. Handbook II. Affective domain. New York: McKay.
- Lai, P. C. (2017). The literature review of technology adoption models and theories for the novelty technology. *Journal of Information Systems and Technology Management*, 14(10), 21-38. DOI: 10.4301/S1807-17752017000100002
- Martin, A., Ryan, R. M. & Brooks-Gunn, J. (2010). When fathers' supportiveness matters most: Maternal and paternal parenting and children's school readiness. *Journal of Family Psychology*, 24(2), 145–155. doi: 10.1037/a0018073.
- Miller, M. (2005). Teaching and learning in affective domain. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology*. Retrieved October 14, 2018, from <http://projects.coe.uga.edu/epltt/>
- Norman, D.A. (2002). Emotion and design: Attractive things work better. *Interactions: New Visions of Human-Computer Interaction*, IX(4), 36-42. 7.
- Odumosu, M.O., Oluwayemi, M.O. & Olatunde, T.O. (2012). Mathematics as a tool in technological acquisition and economic development in transforming Nigeria to attain vision 20:2020. Proceedings of Annual Conference of the Mathematical Association of Nigeria. 199- 207.
- Okoye, A. U. (2010). *Counseling in the industrial setting Visa Vis industrial relation*. Aroka: Erudite Publishers.
- Oviogbodu, C. O. (2015). Perceived impact of guidance and counseling in the development of Niger Delta Region. Paper present at Niger Delta University conference with the theme: education and sustainable development in the Niger Delta region of Nigeria. Held at the University Entrepreneur Center new site Niger Delta University, Wilberforce island, Amasoma, Bayals State Nigeria from 9<sup>th</sup> – 12<sup>th</sup> August.

- Russell, J.A. (2003). Core Affect and the Psychological Construction of Emotion. *Psychological Review*, 110(1), 145-172.
- Shechter, O. G., Durik, A. M., Miyamoto, Y. & Harackiewicz, J. M. (2011). The role of utility value in achievement behaviour: The importance of culture. *Personality and Social Psychology Bulletin*, 37, 303–317.
- Sirohi, V. (2013). Vocational guidance and career maturity among secondary school students: An Indian experience. Retrieved from: [eujournal.org/index.php/esj/article/viewFile/1350/1359](http://eujournal.org/index.php/esj/article/viewFile/1350/1359)
- Toh, L.T. (2009). Use of Cartoons and Comics to Teach Algebra in Mathematics Classrooms. Retrieved March, 2014. From <https://www.mav.vic.edu.au/files/conferences/2009/12Toh.pdf>
- Tuchili, A. M. & Ndhlovu, D. (2016). Effects of Guidance and Counseling services on Students' interpersonal, study, vocational and problem-solving skills in selected public universities in Zambia. *International Journal of Humanities Social Sciences and Education*, 3(12), 14-20
- Yousef, M. & Balamulu, D. (2013). The Influence of Teacher's Behavior on the Student's Self-Regulation. *Journal of Research and Method in Education* 1(6), 65 – 71.
- Wendee, B.W. (2015). The Relationship Between an Affective Instructional Design, Children's Attitudes Toward Mathematics, and Mathematics Learning for Kindergarten-Age Children. (Master's dissertation, East Tennessee State University). Retrieved from: <https://www.researchgate.net/publication/314231823>