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Learning Styles Preferences of Chemistry Students of the Institute of Business, Accountancy and Entrepreneurship in Kalinga -Apayao State College

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Abstract— *This study was conducted at the Institute of Business, Accountancy and Entrepreneurship of Kalinga-Apayao State College, Dagupan Campus The respondents of the study are sixty one (61) students who are enrollees of Bachelor of Science in Entrepreneurship for the first semester of the school year 2015-2016.*

The researcher made use of a descriptive survey using Learning Styles questionnaire to identify the Learning Styles preferences of the respondents...The study found out that the Learning Style preferences of the Bachelor of Science in Entrepreneurship who are taking Chemistry prefer Visual Learning Style as revealed with a total average weighted mean of 2.57 which means " often" followed by Auditory and tactile with a total average weighted mean of 2.44 and 2.06 respectively which means "sometimes".

It was also found out that the Learning style preferences of students is individual learning as revealed with a total weighted mean of 2.52 which means "often" to encourage student to be dependent in doing work and group learning is 2.34 which means "sometimes" which make other students dependent to their classmates.

The teacher in Chemistry should take note of the different activities in teaching Chemistry to increase the interest of the students to strive more in their studies, prepare instructional materials and introduce Chemistry activities for individual to avail and keep a record of their observations on the learning style preferences of the students to serve guide in the choice of strategies of teaching and in preparation of learning activities

Keywords— ***Learning Styles, Entrepreneurship, Chemistry activities.***

I. RATIONALE

Learning is a continuous process that take place in every individual which can change in response of behavior caused partly or wholly by experiences, thus every problems has its own solution achieve. Change your attitudes and you change your life. It is then in this study to know the preferences learning style in order to attain good result of the teaching learning process in the study of Chemistry. Part of the teacher's plan is to identify the learning style preferences of the students in order to serves as bench mark at the start of the semester to look at the initial knowledge of the entering to a higher year. In this way, learning style preferences can lead developmental set of characteristic that make identical instructional environments, methods and resources effective for some learners and ineffective for others, learning style can be switch to other approach which may fit the needs of the student's abilities.

Research has shown that Learning Style Preferences in Chemistry is crucial for functioning in everyday life, as well as for success in the workplace that are reliant on technology, through the result of the study, the teacher know what particular learning style preferences of the students that should be use in the process of learning. In order that the results of the study can be used as an bench mark to identify the preferences of the students and the teacher as well for an improved learning by the students and teaching by the teachers.

This study therefore was designed to find out the learning style preferences of the students who are taking Bachelor of Science in Entrepreneurship who are enrolled in Chemistry.

II. REVIEW OF RELATED LITERATURE

The Philippines has one of the highest literacy in Asia. Section I of Article XIV of the Philippine Constitution mandate that; the state shall protect and promotes the right

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of all citizens to quality education of all levels shall make appropriate steps to make education accessible to all mankind. Thus, the teacher, "I've come to a frightening conclusion that I am the decisive element in the classroom. It's my personal approach that makes the weather. As a teacher, I possess a tremendous power to make child's life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or humor, hurt of heal. In all situations it is my response that decides whether a crisis is escalated or de-escalated and child humanized of de-humanized. Learning styles most individuals can learn. The instructional environments, resources and approaches should respond to diversifies learning styles strengths. Everyone has strengths, but different people have very different strengths. Individual instructional preferences exist and can be measured reliably.

Instructors / professors have to let students see and appreciate the spectacular progress brought about by science and technology such as deciphering the genetic code of living cells and the potentials of fabricating genes. The use of stem cells to cure disease of human beings and forensic to identify the suspect of a certain crimes and the different products that we can see around in the different groceries which we are using in our daily life.

The imperative need for instructors/ professors to identify individual learning styles Vis-a Vis balance in the use of strategies and materials are absolute. Thus; in assessing the quality of Chemistry teaching, teachers must look at the student's characteristics, the inputs, the processes and the outputs. The idea of relevance should be of the intrinsic concepts , that is, if what are taught and acquired by the students fit what they prefer to ably provide them with necessary tools for a decent quality of life. (Opper, 2003)

The instructors/professors must know the students to come out with compatibility between learning materials and leaning styles preferences. Teachers must be ready to accept that culture of student's correlates between established ways of sharing experiences including questioning by teachers. To break the barriers of culturally related beliefs and style, students must be encouraged to ask questions and to cultivate that habit of asking questions. With such measures, misconception in science learning will be minimized; different preferences brought about by individual characteristics will be put to balance. (Quirab, 2004)

The present curriculum puts emphasis on the use of science processes and concepts as contents. Students are led to discover and explore their environment by first hand experiences utilizing individual intellectual skills. The main objective is to satisfy the individuality of each student to make him more observant and responsive to natural phenomena in accordance to what he desires and prefers. Generally, science as a process is activity-oriented and provides the maximum involvement of each student indicative that teachers can have an easy access to observe their learning styles and preferences on how concepts must and should be presented. The lesson must be student-centered making it but proper that teachers must be responsive and present concepts in a systematic and are hierarchically arranged (Tanneenbaum, 2009).

Effective school is not the abundance of facilities, high technology equipment and gadgets, the kinds of students or teachers but it is the way of how individual needs and potentials are satisfied. Most teachers can learn to use learning styles as a cornerstone of their instruction and many students can learn better to capitalize on their learning style strength when concentrating on new or difficult academic materials.

III. OBJECTIVES

This simple study purposely satisfies the following specific objectives

1. To determine the learning styles preferences of Chemistry students in IBAE in the three aspects:
   a. Visual Learning
   b. Auditory Learning
   c. Tactile Learning
2. To determine the learning style according to types of learning situations.
   a. Introvert type
   b. Extrovert type

IV. METHODOLOGY

This study was conducted at the Institute of Business, Accountancy and Entrepreneurship of Kalinga-Apayao State College, Dagupan Campus. The respondents are the sixty one (61) students who are enrollees of Bachelor of Science in Entrepreneurship for the first semester of the school year 2015-2016.

The researcher made use of a descriptive survey using Learning Styles questionnaire. The questionnaire contains three parts, Part I. How I use my physical senses, Part II. How I expose myself to learning situations.

The questionnaire was adopted from Dun and Dun Learning Styles, hence, it was deemed valid and reliable.

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For the treatment of data, the following scale was used.

Arbitrary	Limits	Interpretation
	3.25- 4.00	Always
	2.50-3.24	Often
	1.75-2.49	Sometimes
	1.00-1.74	Rarely

Statistical tools:

The data were treated accordingly with the following statistical tools to answer the objectives identified in the study. The following statistical tools were used:

1. Frequency. The numbers of respondents falling into a single class in statistical survey of the variation of specified characteristics.
2. Percentage. This was used to quantify the number of respondents.
The formula is:

$$P = X \times \frac{100}{N}$$

Where: P = Percentage
X =Frequency
N = Total number of respondents

3. Weighted Mean. This was used to quantify the respondents using the formula:

$$\sum XW = \frac{WiFi}{Fir}$$

Where: xw= weighted mean
WiFi = Sum of the frequency
Fi = number of respondents// cases

V. DISCUSSION OF RESULTS

This part shows the different findings of the study presented in tabular forms. Corresponding analyses and interpretations are hereby given.

Table I. The Population of the Study

Courses	Frequency	Percentage
Entrepreneurship	61	100
Total	61	100

The table revealed that the respondents are the entrepreneurship with a total of 65 or 100 percent.

Table 2a presents the learning styles of students according to Visual learning

Indicators	Responses				
Visual Learning	1	2	3	4	Mean
I remember something better if I write down.	6 (6)	25 (50)	16 (48)	14 (56)	2.62
I take detailed notes during lecture	6 (6)	27 (54)	14 (42)	14 (56)	2.59

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I have to look at people to understand what they say.	8 (8)	20 (40)	17 (41)	16 (64)	2.51
I need written directions for tasks.	10 (10)	28 (56)	13 (39)	10 (40)	2.38
I understand lectures better when teachers write on the board	10 (10)	31 (62)	19 (57)	1 (4)	2.18
Charts, diagrams, and maps help me understand what someone say	19 (19)	15 (30)	20 (60)	7 (48)	2.57
I remember peoples' faces but not their names	14 (14)	20 (40)	25 (75)	2 (8)	2.25
TAWM					**2.44**

The table show that visual learning is often use as learning styles of students as shown in the total average weighted mean of 2.44. The highest mean is 2.73 and the lowest is 2.18 respectively. Teachers have to let students see and appreciate the spectacular progress brought about by science and technology for the school curriculum is obsolete when it fails to provide students opportunities to see new functions in learning. As Seguban (2010) said teachers as agents of change have to without delay equip students with scientific thoughts which say spell the difference between national greatness and national retrogression. The statements cited imply that there is an imperative need for teachers to identify individual learning style. Recognition of learning style is reflective of well organized and properly staffed school with understanding teachers to have the possibility of realizing individual desires. (Urrubia, 2004). The respondents in this study as individuals have a variety of learning styles which much be recognized by the teachers to substantially expect transfer of learning. As evidenced in the obtained total average weighted mean of 2.44, the students do manifest a variety of learning styles.

2b. Auditory Learning	**Responses**				**Mean**
I remember things better if I discuss them with someone.	13 (13)	15 (30)	18 (54)	15 (60)	2.57
I need oral direction for a task.	5 (5)	28 (56)	25 (75)	3 (12)	2.43
I prefer to learn by listening to a lecture rather than reading.	6 (6)	20 (40)	25 (75)	10 (40)	2.64
Background sound helps me think.	10 (10)	30 (60)	13 (39)	8 (32)	2.31
I can identify people by their voices.	10 (10)	15 (30)	25 (75)	11 (44)	2.61
I easily remember jokes that I hear.	12 (12)	20 (40)	25 (75)	4 (16)	2.34
I remember peoples' names but not their faces.	11 (11)	30 (60)	15 (45)	5 (20)	2.23
I understand what people say even when I cannot see them.	6 (6)	25 (50)	20 (60)	10 (40)	2.56
I like to listen to music when I study or work.	10 (10)	28 (56)	16 (48)	7 (28)	2.33
TAWM					2.22

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Students of the auditory type of learning often spell phonetically and can have trouble with reading because they do not visualize. This type of students learn by listening and converse frequently, sometimes even with themselves. Although about 80 percent of all secondary instruction is delivered via an auditory method, fewer than 10 percent of students show this type to their strongest style (Butterfield, 2008). Tenedero (2005) too said that most learners become bore when taught is the same lecture mode. He added that brain research reveals that the maximum attention span of the use of the auditory is only 20 to 30 minutes. When pulled beyond this range, the brain takes its own break by shifting attention to something. Teachers then have to know the limits of the favorite mode of teaching- the lecture. The students as respondents too in the study apparently agree to the statements cited for them sometimes auditory learning with a total average weighted mean of 2.22.

Of the indicators along the auditory learning, the most manifested with the highest mean of 2.64 was along "I prefer to learn by listening to a lecture rather than reading." For most of the students, they learn better while listening to a well pronounced and well delivered lecture because they know that no teacher will let them listen to a "wrong" content of a lesson. The trust these students give to what the teachers say in front the class is a contributing factor to this indicator. The least auditory learning indicator is, "I remember peoples' names but not their faces." hich has a weighted mean of 2.23

Tactile Learning	**Responses**				
I prefer to start doing things rather than checking the direction first	12 (12)	23 (46)	10 (30)	16 (64)	2.49
I need to eat something when I read or study.	14 (14)	30 (60)	14 (42)	3 (12)	2.10
I think well when I move around.	11 (11)	28 (56)	12 (36)	10 (40)	2.34
I move my hands when I speak.	9 (9)	30 (60)	12 (36)	10 (40)	2.38
I play with or bite my pens during lectures.	13 (13)	24 (48)	11 (33)	13 (52)	2.39
I get nervous when I sit still too long.	33 (33)	12 (24)	7 (21)	9 (36)	1.87
I draw lots of pictures in my notebook during lectures.	35 (35)	15 (30)	5 (15)	6 (24)	1.70
I have to choose between sitting and standing, I'd rather stand.	15 (15)	35 (70)	6 (18)	5 (20)	2.02
TAWM					**2.16**

Students at the very start bring along a variation potentials. Their aspirations and environmental experiences may contribute to a considerable degree the manifestation of a learning style. It has to be considered and recognized that the development of an individual is a product of heredity and environment. As Quirab (2004) said prevailing tendencies bring interactions between scientific education and social problems serving as determinants of the way one learns and prefers to learn. With the knowledgement of learning styles, students get to understand better scientific concepts as integrated into day to day experiences. In the case of the respondents in this study, they are of adolescence stage of the normal cycle of growth and development that are at the height of being active and curious of which this stage may bring about their manifestation along tactile learning. In this study, the respondents claimed that they "sometimes" tactile learning based from the total average weighted mean of 2.16. Of the tactile learning an indicator, the most manifested evidence by the highest mean obtained of 2.49 was along "I prefer to start doing things rather than checking the direction first " and the least was along "I draw lots of pictures in my notebook during lectures." There were respondents who said that in the early years of their formal schooling they often get reprimanded by teachers when the notebooks they

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submit for checking are full of drawings. The frequent reprimanded discourage them to manifest the indicator.

Part III. How I expose myself to learning situations

Group Learning	1	2	3	4	Mean
I learn better when I work with others than myself	12	90	49	14	2.39
I meet new people easily by jumping into the conversation.	41	79	35	10	2.08
I learn better in the classroom than with a private tutor.	29	46	49	41	2.62
It is easy for me to approach strangers.	45	83	21	16	2.05
Interacting with lots of people gives me energy.	24	78	41	22	2.37
I experience things first and then try to understand them.	16	70	51	28	2.55
Sub-Mean					2.34
Individual Learning					
I am energized by the inner world(what I am thinking inside)	20	80	49	16	2.37
I prefer individual or one-on-one games and activities.	19	91	40	15	2.31
I have a few interests, and I concentrate deeply on them.	13	83	55	14	2.42
After working with large group, I am exhausted.	14	100	31	20	2.35
I want to understand something well before I try it.	8	37	60	60	3.04
When I am in large group, I tend to keep silent and listen.	17	61	51	36	2.64
Sub-Mean					2.52
TAWM					2.43

The respondent in this study claimed that sometimes manifested group learning style evidenced in the obtained total average weighted mean of 2.34. The result is in collaboration with that of Fernandez (2011) studied with students in Urdaneta National High School as Abuca (2011) with students in Batangas National High respondents having similar results. However , the study conducted by Pacdayan (2009) with the students at the Philippine Science High School, Manila as respondents, revealed that most manifested group learning which is in contrast with the present study revealed that students manifested individual learning.

The most manifested group learning indicator with the mean of 2.62 was along the "I learn better in the classroom than with a private tutor." Which is often use because this is the actual way of our education today and the least as shown in the table is individual learning style with a mean of 2.43?

VI. SUMMARY OF FINDINGS

1.The study found out that the Learning Style preferences of the Bachelor of Science in Entrepreneurship who are taking Chemistry prefer Visual Learning Style as revealed with a total average weighted mean of 2.44 which means " often" followed by Auditory and tactile with a total average weighted mean of 2.22 and 2.16 respectively which means "sometimes".

2. It was also found out that the Learning style preferences of students is individual learning as revealed with a total weighted mean of 2.52 which means "often" to encourage student to be dependent in doing work and group learning is 2.34 which means "sometimes" which make other students dependent to their classmates.

VII. RECOMMENDATIONS

1. The teacher in Chemistry should take note of the different activities in teaching Chemistry to increase the interest of the students to strive more in their studies.
2. The teacher should prepare instructional materials and introduce Chemistry activities for individual to avail.
3. Teachers should keep a record of their observations on the learning style preferences of the students to serve guide in the choice of strategies of teaching and in preparation of learning activities.
4. The teacher should encourage every students to manipulate the different apparatuses use in their experiments.

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