

The Perceptual Learning Styles of Criminology Graduates in Relation to Their Performance In The Criminologist Licensure Examination

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Abstract — This study determined the perceptual learning styles of criminology graduates of Jose Rizal Memorial State University, Dipolog Campus, Dipolog City about their performance in the criminologist licensure exam. The study utilized the descriptive-survey method of gathering data and employed the simple random technique in selecting the respondents. Percentage computation, weighted mean, and chi-square tests were used to analyze the data. Results revealed that auditory and kinesthetic learning modalities are the most preferred styles by the graduates. It further revealed that the overall performance in the licensure exam is below the average national percentage of passing though the BS Criminology program had produced numerous licensed criminologists in the last three years. The study also ascertained that there is a significant relationship between the learning styles of the respondents to their performance in the licensure exam. The study recommends that faculty should align their teaching strategies to the preferred learning style of the students and should seek professional advancement to keep them abreast with the latest trends in teaching that could respond to students' needs, interests, and capabilities. The top-level management should initiate the conduct of relevant training aimed at helping the instructors realign their teaching practices to the present needs and abilities of today's learners.

I. Introduction

Dr. Jose Rizal once said, "Without education and liberty, which are the soil and the sun of man, no reform is possible, and no measure can give the result desired". This statement of our National Hero stressed the importance not only of having freedom but also of being educated, as education is a powerful tool for the improvement of one's knowledge, skills, and abilities and can bring a country's people to greater heights.

The concepts of perceptual learning styles have been extensively discussed in the field of education for the past two decades. Researchers recognize that students learn in different ways and in the same manner that teachers have varying methodologies and strategies. Perceptual learning style is observed to be consistent across settings and has been considered one of the influential factors in students' learning. Also, the instructional approaches of teachers are just as diverse as their students and affect their performance in the Criminology Licensure Examination.

According to Hou (2007) matching teaching and learning styles improved student achievement and aligning the learning styles of students with the teaching styles could lead to an improvement in academic achievement (Zeeb, 2004). Zeeb (2004) further explained that the information obtained from assessing learning and teaching styles helped teachers modify their teaching styles to accommodate varying learning preferences, which resulted in improving students' test scores.

The manners in which a learner characteristically gets, hold onto, and recalls information, are collectively coined as the individual's perceptual learning style. A student may learn best by seeing, hearing, being active, or reflecting, to name a few. According to Guy & Guy (1995), perceptual learning styles are typically described by a student's sensory modalities (i.e., visual, tactile, auditory, and kinesthetic) and intellectual processes (i.e., active, reflective, global, or analytical). On the one hand, teaching style, as defined by the existing literature, refers to the approach teachers put into practice to carry out teaching and learning activities. This typically includes giving lectures, demonstrating, facilitating, holding discussions, or role-playing.

The BS Criminology curriculum aims to prepare students for careers in crime prevention, law enforcement, scientific crime detection, correctional administration, industrial security administration, and forensic science to meet the demands of globalization in interdisciplinary fields of criminal justice. (CMO No. 21, 2005).

In the report of the Professional Regulation Commission on the performance of schools in the Criminologist Licensure Examination data shows that in the last past five (5) years, the Jose Rizal Memorial State University (JRMSU)-Dipolog Campus has an average of 30%. Although the results are within the national percentage passing rate, there is a gap that needs to be filled to achieve much higher results than sticking just to the average passing rate.

Thus, this study of perceptual learning styles of criminology graduates is timely as individual students vary considerably in how they learn. Any given person has academic or learning strengths that are determined by a combination of hereditary and environmental influences. These strengths, which translate into preferences to learn and communicate visually, tactilely, kinesthetically, and auditory are one's learning style, thereby bringing a revitalized interest that is found relevant.

Literature Review

In The Praeger Handbook of Learning and the Brain, Feintein (2006) suggested that although humans use their senses to assimilate environmental stimuli, each sense does not contribute the same amount of information to the brain.

Individuals appear to learn differently or have different learning preferences or styles. Based on the description of each of the learning preferences, Feintein (2006) offered that auditory learners prefer to discuss what they are learning. This act helps them to process the information.

The auditory learner tends to be analytical, logical, and a sequential thinker. Visual learner assimilates information most effectively by reading or seeing something. They tend to be more holistic thinkers and need to see the "big picture" before they are given the bits and pieces that contribute to the big picture. The tactile learner depends on drawings, games, experiments, models, and writing to provide the connection between the brain and the hand. The kinesthetic learner needs to be actively (bodily) engaged in the learning process with real-world activities and with activities that have meaning to the learner.

This learning process is considered one of the most important learning styles since the learned information is stored in one of the strongest memory (procedural) systems of the brain. This procedural memory storage is what allows people to remember how to drive cars, ride bicycles and swim once they have learned or mastered the skill. As noted in The Praeger Handbook of Learning and the Brain, the Chinese proverb, "Tell me and I'll forget; show me and I may remember, involve me and I'll understand" seems appropriate.

Similarly, Kolb (2006) determined that learning styles are closely related to cognitive skills. Kolb's said that different people prefer different learning styles. Various factors influence a person's preferred style. In his experiential style model, he defines three stages of a person's development. The developmental stages Kolb defined areas: (i) Acquisition – this stage continues from birth to adolescence. At this stage the basic abilities and cognitive structures are developed; (ii) Specialization – this is the adulthood stage. In which a particular special learning style is shaped by educational and organizational socialization; (iii) Integration – it is about mid-career to later life, at this level person exhibits, an expression of a non-dominant learning style.

Kolb said that learners can be divided into four groups. 1. Learners who can learn by doing; 2. Learners who can learn by reflecting; 3. Learners who can learn by experience; and 4. Learners who can learn by thinking. Then he made groups and combined three styles into two components: (i) perception i.e., how new information is taken in, and (ii) processing i.e., how new information is assimilated.

In terms of perception an individual may have a preference for "concrete experience" or "abstract conceptualization". In concrete experience, a person participates in a specific situation that affects a person's feelings, whereas in abstract conceptualization the emphasis is on thinking rather than feeling.

In terms of processing an individual would either have a preference for "active experimentation" or "reflective observation". Inactive experimentation, a person prefers to do and want to involve in practical work, whereas in reflective observation person prefers to watch rather than do something. The person with this learning style emphasized understanding and seeing the situation from a different perspective.

These two dimensions of perceiving and processing information result in four types of learners: (1) concrete experience + reflective observation; (2) abstract conceptualization +

reflective observation; (3) abstract conceptualization + active experimentation; and (4) concrete experience + active experimentation.

Mostly Kolb's learning style concept was used to identify the learning styles of the distance learning system. Kolb has taken learning "out of the classrooms" and linked it to the experiences of daily life.

Likewise, Dunn and Dunn said that Learning Style can be: In the environmental factor, learners preferred: (i) Sound Preference; (ii) Light Preference; (iii) Temperature Preference; and (iv) Design Preference. The environment in learning style refers to the noise level, light, temperature, and seating design. For instance, some prefer to learn at night some in the day. Some achieve the best learning in a calm and quiet atmosphere whereas others prefer music around them.

In Emotional Stimuli Preference, learners preferred: (i) Motivation Preference; (ii) Persistence Preference; (iii) Responsibility Preference; and (iv) Structure Preference. By these factors, they mean motivation, persistence, responsibility, and the need for externally imposed structure versus flexibility. As some people prefer to complete one task before starting another and other people can easily perform multiple tasks, working well at a variety of responsibilities at the same time.

In Sociological Stimuli Preference, learners preferred: (i) Self Preference; (ii) Pair Preference; (iii) Peers/Team Preference; (iv) Adult Preference; and (v) Varied Preference. By sociological needs, they mean how individuals learn when associated with people or peers, with an authoritative person, or with a colleague.

Learning occurs in several ways or follows a persistent pattern. Some like to work alone some impart their best performance working with the group. In Physiological Stimuli Preferences, learners preferred to (i) Perceptual Preference; (ii) Intake Preference; (iii) Time Preference; and (iv) Mobility Preference. Physical needs are related to physical performance for learning like modalities such as visual, auditory tactical, kinesthetic, time of day as the morning, evening, afternoon, and night, energy level, need for intake as eating or drinking while studying and mobility (sitting still or moving around at study time).

In the Psychological Stimuli Preferences, learners preferred (i) Global/Analytic Style; (ii) Hemisphericity Preference; (iii) Impulsive/Reflective Preferences. One may prefer to build up knowledge piece by piece from facts and figures, or others prefer to get the big picture first and go into the details afterward.

The teacher should give an equal chance for learners to learn, as emphasized by Chandler Joe (2013) through the use of learning styles in the classroom through adjustments in a curriculum that incorporates each style. The relationship of the affective domain to the learning styles of learners was studied by Masha, et al. (2006), these include emotional factors, such as feelings, values, appreciation, enthusiasm, motivations, and attitudes. The psychomotor domain includes

physical movement, coordination, and use of the motor skills areas (Simpson, 2007). Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The study discussed by Drysdale et.al (2001) about how academic performance is based on learning styles. However, they found out that students of liberal arts and social sciences students show no difference in their learning style and academic performance.

According to Nilson (2003), students learn best when they are presented with multi-modal instruction. Retention is high when students use their multiple senses in understanding a lesson. Consequently, students who receive multi-sensory approaches to teaching have good classroom performance.

In criminology, Greek (1995) asserted that the learning styles for criminology lie in active learning. Active learning strategies are now being employed in disciplines such as psychology (Benjamin, 1991) and sociology (Hamil and Janssen, 1987), and since criminology is a sociological science, active learning may be particularly suited to this field. First, the discipline has long-standing theoretical differences of opinion concerning the origins and solutions for the crime problem. Techniques that encourage students to fully immerse themselves in the complexities of these models may prove useful. Second, criminology has a major applied component that may not be communicated most effectively in traditional lecture formats. Third, most students lack real-life experience with criminal justice settings such as prisons or courtrooms. Ethnographic information presented in active learning formats such as field trips or documentary films may be particularly effective in exposing criminology students to these unfamiliar aspects of their society. Although the process is an important component of active learning, students still should expect that they must thoroughly master a body of knowledge before they can receive a superior grade for a course. Thus a primary goal is to develop a pedagogical method that will encourage students to recognize that they can master the material by relying principally on themselves and each other rather than on the instructor. Active learning is based on the idea that students who become responsible for their education are more aware of their achievements (Greek, 1995).

Furthermore, the preference of learning styles among criminology students as revealed by Tudy and Tudy (2014) stated that students prefer visual more than auditory and kinesthetic. They rely more on visuals and they make use of the sense of sight. As to how they expose themselves to learning situations, they are more introverted than extroverted, meaning they would like to work independently and they might want to work with someone else but only those they know well. In terms of how they handle possibilities, they prefer random-intuitive rather than concrete sequential which means being future-oriented. Criminology students like to guess about possibilities and are good at abstract thinking and do not like rigid instruction (Tudy and Tudy, 2014). This finding is also consistent with the study of Wilkins (1996) who discovered that sensing-thinking style is dominant among criminal justice students.

Learning Style in relation to academic performance

As compared by Cartmell, et al. (2007), learning styles, grade point average (GPA), and demographics (gender; classification (grade level); and permanent residency). The result shows that most of the learners were concrete sequential learners. Similarly, Lehman (2011) studied the relationships of learning styles, course grades, and instructional preferences, as well as gender differences related to learning styles in an introductory biology course, taught at Longwood University. Her research indicated that there is no significant difference noted between gender; grades; or instructional preferences based on learning style.

Another study was conducted by Damavandi (2011) on the academic achievement of learners with different learning styles. Based on his study, there is a statistical difference in academic achievement scores for the four learning styles namely, diverging, converging, accommodating, and assimilating.

Based on the study of Parreno (2013), the results showed that the aural learning style has a significant relationship with the learners' academic performance. The study also revealed that academic performance did not depend on the teacher's teaching style. A strong association was noted between academic performance and learners' learning styles.

The learner's achievement remained the major concern of psychologists, educationists, and parents. Many research studies were conducted to study the factors affecting learning achievement. People did a lot to maximize the learners' learning achievement. After reviewing the literature the factors affecting learning achievement can be divided into two groups the factors from the school side and the factors from the student's home side.

The factors from the school side may be the curriculum, school environment, the teaching methodology, and relationship with teacher and peers, whereas the factors from the student's home side were their abilities and the environment provided by parents at home or their socio-economic status (SES) in society. Saeed (2005) said that the factors affecting educational achievement are "parent education and occupation, SES homework school location, facilities at home, availability of books. Parent guidance and teacher guidance self-study habits are the major factors affecting student achievement. Learning styles have paid off minimal attention in the education industry. A factor of the low achievement level of the institution has been blamed on educators commonly called as teachers' factor. There are many factors to be considered in the low performance of the learners. One factor is the preferred learning styles of the individual which significantly differ from another individual.

A study by Claxton & Murrell (2005) supports that individual student's characteristics and behaviors affect learning. Matthews (2006) found that learning style was related to grade point average for first-year college learners; learners with social/conceptual and social/applied styles earned significantly higher grades than learners with a neutral style preference.

Learning style according to Lenehan, et al. (2008) was associated with higher grade point averages, increased science grades, and lowered anxiety. People adopt learning styles according to their preferences for perceiving and processing information. These are not quantifiable differences that can be expressed simply as a higher or lower Intelligent Quotient (IQ). These are qualitative differences in the kinds of perception and judgment that each person prefers to use. Learning depends on many factors. Each of us has a different mix of preferences, we learn in our own, particular, and individual ways thus we show different degrees of success in school. Akhtar (2010).

II. Methodology

The researchers utilized the descriptive-survey method using a survey questionnaire that determined the perceptual learning styles of graduates of the College of Criminal Justice Education and the graduates' performance in the Criminologist Licensure examination for the last three years. The study, which used a simple random technique, included 97 graduates from the academic years 2016-2017, 2018-2019, and 2018-2019, with 62 males (63.9%) and 32 females (36.1%) of the respondents. Percentage computation and weighted mean were used to interpret the data gathered. The Chi-square was used to determine the relationship between the student's perceptual learning style and their performance in the Criminologist Licensure Examination.

III. Results and Discussion

The BS Criminology graduates of Dipolog Campus from the academic year 2017-2019 participated in the study on the perceptual learning styles of students. It determines their preferred learning styles while they were in college and were categorized into six (6) such as visual, tactile, kinesthetic, auditory, group, and individual. It revealed that of all six styles of learning, the majority of them preferred the Auditory learning style with a weighted mean of 3.87 as reflected in Table 1. It was followed by Kinesthetic with a 3.85 weighted mean. The individual learning style with a weighted mean of 3.59 is the least preferred style of learning by the graduates.

Determined the perceptual learning styles of criminology graduates

Table 1 Summary Results on the Perceptual Learning Styles of Criminology Graduates

Perceptual Learning Styles	WM	Description
Visual	3.67	Agree
Tactile	3.74	Agree
Kinesthetic	3.85	Agree
Auditory	3.87	Agree
Group	3.68	Agree
Individual	3.59	Agree
Grand Mean	3.73	Agree

It revealed that criminology graduates mostly preferred auditory and kinesthetic rather than individual learning styles. Graduates learn better when the teacher gives a class lecture and when they participate in related activities, as shown in Table 2 below with a weighted mean of 4.24 and 3.94 respectively.

Table 2 Perceptual Learning Styles of Criminology Graduates in Terms of Auditory and Kinesthetic

Auditory		
Statements	WM	Description
1. When the teacher tells me the instructions, I understand better.	3.98	Agree
2. When someone tells me how to do something in class, I learn it better.	3.82	Agree
3. I remember things I have heard in class better than things.	3.69	Agree
4. I learn better in class when the teacher gives a lecture.	4.24	Strongly Agree
5. I learn better in class when I listen to someone.	3.63	Agree
Average Weighted Mean	3.87	Agree
Kinesthetic		
Statements	WM	Description
1. I prefer to learn by doing something in class.	3.80	Agree
2. When I do things in class, I learn better.	3.87	Agree
3. I enjoy learning in class by doing experiments.	3.91	Agree
4. I understand things better in class when I participate in roleplaying.	3.71	Agree
5. I learn best in class when I can participate in related activities..	3.94	Agree
Average Weighted Mean	3.85	Agree

This finding is consistent with Abdallah et al. (2013) that the auditory mode was the predominant selection among medical students at Taibah University in Saudi Arabia. It also supported the findings of Lambert (2018) and AlKhasawneh (2013) that their respondents preferred the kinesthetic learning style. However, the result disagrees with Tudy & Tudy's (2014) in their study, where criminology students at Cor Jesu College in Digos City preferred the visual learning style rather than auditory and kinesthetic.

The student's performance in the criminologist licensure examination

Table 3 Criminology Licensure Exam Passing Percentage

June 2017-November 2019		
Month/Year	JRMSU-Dipolog Passing Percentages	National Passing Percentage
June 2017	17.48%	24.98 %
December 2017	35.13%	35. 67%
June 2018	23.29%	33.37 %
December 2018	25.63%	34.64 %
June 2019	29.33%	38. 45 %
November 2019	45.86%	44.11 %

Source: *Professional Regulation Commission. (2021). [https://www.prc.gov.ph/sional Regulation Commission. \(2021\). <https://www.prc.gov.ph/>](https://www.prc.gov.ph/sional%20Regulation%20Commission)*

Table 3 presents the performance of BS Criminology graduates of Jose Rizal Memorial State University-Dipolog Campus for the last three years. Data shows that graduates performed best in the December 2017 and November 2019 examination vis-à-vis the national percentage of passing based on the official results posted by the Professional Regulation Commission. However, the overall performance for the last three consecutive years is below the national passing percentage, which aligns with the study conducted by Pacatang (2018) that found the overall performance of the graduates in the 2010 licensure performance rating was quite low.

In this research study, a total of ninety-seven (97) graduates who participated were grouped according to the year they graduated (2017, 2018, and 2019). As illustrated in Figure 1, criminology graduates in the academic year 2018-2019 have the most respondents with 59.8 percent, compared to the number of graduates in 2017 and 2018 with only 21.6 and 18.6 percent, respectively.

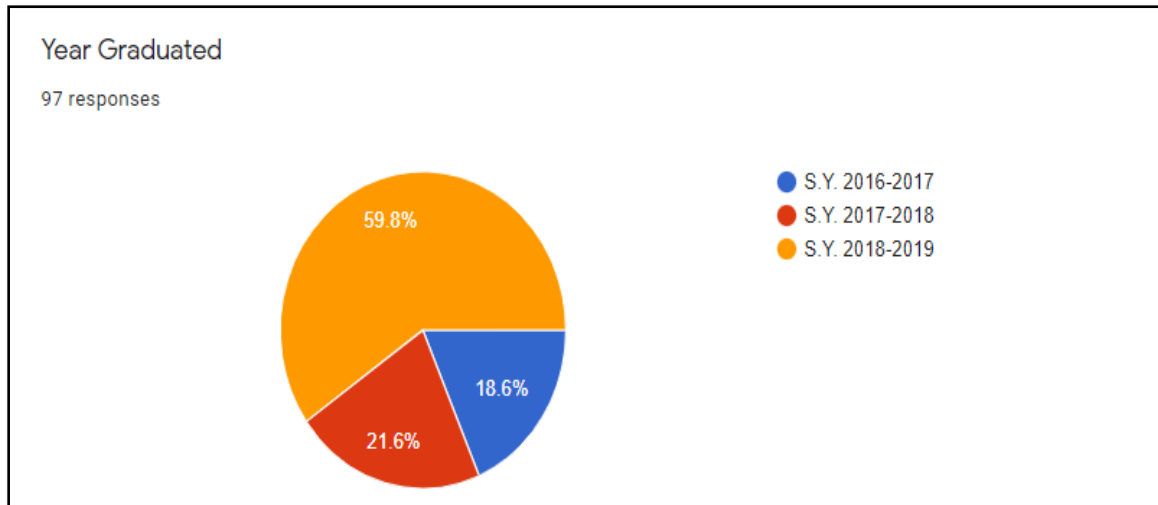


Figure 1

Table 4. Student's Performance in Criminologist Licensure Examination

Rating	Frequency f	Percentage
74 – down	21	22 %
75 – 77	19	20 %
78 – 80	26	27 %
81 – 83	13	13 %
84 – 86	9	9 %
87 – 89	9	9 %
Total	N = 97	100 %

It is reflected in Table 4, that out of ninety-seven (97) graduates, only 21 respondents, or 22 percent, have failed the board examination and seventy-six (76) of them have successfully passed the exam. Nine out of 76 even accumulated a rating between 87-89. This implies that the BSCriminology program of JRMSU-Dipolog Campus produced numerous licensed criminologists over the last three years.

Determined the significant relationship of students' perceptual learning style with their performance in the criminologist licensure examination.

Table 5 Test of Relationship between the Student's Perceptual Learning Style and Their Performance in Criminologist Licensure Examination

Student's Perceptual Learning Style	Performance in Criminologist Licensure Examination				
	α	p-value	χ^2	Interpretation	Action/ Decision
Visual	$\alpha = 0.05$	.021658	23.7992	Significant relationship	H_0 was rejected
Tactile	$\alpha = 0.05$	.000119	38.6839	Significant relationship	H_0 was rejected
Kinesthetic	$\alpha = 0.05$	.006423	21.287	Significant relationship	H_0 was rejected
Auditory	$\alpha = 0.05$	< .00001	58.1699	Significant relationship	H_0 was rejected
Group	$\alpha = 0.05$	.000064	32.7329	Significant relationship	H_0 was rejected
Individual	$\alpha = 0.05$	.001085	25.9172	Significant relationship	H_0 was rejected

Table 5 showed the test on the relationship between the student's perceptual learning style and their performance in the criminologist licensure exam. It revealed that there is a significant relationship between the Criminology graduates' preferred learning styles and their performance in the board examination. It implies that all learning styles, such as visual, tactile, kinesthetic, auditory, group, and even individual styles of learning, contribute to their performance in the said licensure exam. This is supported by the findings of Lynch et al. (1998) that there is a significant relationship between the learning styles of medical students and their performance on the United States Medical Licensing Examination. Further, Magulod (2019) found in his study that there were significant relationships between learning styles, study habits, and academic performance of students in applied science courses, which conforms with the study of Pacatang (2018) that found that study habits significantly related to success in the licensure exams.

IV. Conclusion

Based on the results, this study concludes that the BS Criminology graduates of Jose Rizal Memorial State University-Dipolog Campus preferred auditory and kinesthetic learning styles as major learning styles while they consider individual learning styles as the least learning preference. This study also concludes that the overall performance in the licensure exam is below the average national percentage however the BSCriminology program of JRMSU-Dipolog Campus produced

several licensed criminologists in the last three years. Further, it also concludes that there is a significant relationship between the Criminology graduates' preferred learning styles and their performance in the board examination. Thus, it implies that all learning styles, such as visual, tactile, kinesthetic, auditory, group, and even individual styles of learning, contribute to their performance in the criminologist's licensure exam.

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