

REIMAGINING CRIMINOLOGY EDUCATION: A STUDY ON THE METACOGNITIVE AWARENESS AND SELF-REGULATION OF CRIMINOLOGY STUDENTS

ANGELERIES D. ORBIGO¹, KERWIN PAUL J. GONZALES^{1,2}

<https://orcid.org/0009-0001-2625-4688>¹, <https://orcid.org/0000-0002-1361-4509>²

angeleries.orbigo@olivarezcollege.edu.ph, kerwinpaul.gonzales@perpetual.edu.ph.

Olivarez College, Philippines¹⁻²

University of Perpetual Help System DALTA, Philippines²

DOI:<https://doi.org/10.54476/ioer-imrj/948794>

ABSTRACT

Metacognition as part of the teaching and learning process, has been one of the pivotal issues in the Philippine Criminological Education System. It has been a crucial concern for instructors and institutions alike to identify the thinking process of the students. Hence, in the educational process, pre-existing understandings are deemed important as various subjects need to have improvement in their instruction as to their specific discipline. Thus, it is imperative to draw out and understand the process of students learning, and improve activities, as to conform to the teaching approaches as it is significant to the curriculum and the discipline. In addition, self-regulation dictates the student's thinking in a way of managing and improving their cognition. Hence, the study describes the metacognitive awareness and learning self-regulation of the Philippines' Criminology students. Through a descriptive correlation research design, the study foresees to analyze its relationship; and provide an understanding of the students' modern learning behavior.

Keywords: Metacognition, Criminology, Learning-Regulation, Education, Student-Learning

INTRODUCTION

Criminology education in the Philippines has grown in popularity, becoming one of the most sought-after bachelor's programs in the country. Its inclusion in the expanded academic framework (Official Gazette, 1996) has contributed to its appeal, attracting an increasing number of enrollees and graduates. However, despite this growth, the performance of criminology graduates in the Board Licensure

Examination for Criminologists has been suboptimal, with an average passing rate of only 34.5%. This persistent trend highlights a disconnect between enrollment growth and

licensure success. Additionally, historical data shows that many examinees pass only on their second attempt, spanning over a period of 11 years, further emphasizing the need for strategies to enhance student preparation and success.

This study investigates the metacognitive and self-regulation thinking processes of criminology students in Metro Manila, Philippines, providing valuable insights into how these cognitive abilities may influence educational outcomes. Specifically, it aims to shed light on the potential role of these thinking processes in addressing challenges faced by criminology education, particularly concerning the consistently low licensure examination

passing rates. By exploring the link between students' cognitive processes and their educational achievements, this study aims to provide a deeper understanding of how metacognition and self-regulation could be leveraged to improve the quality and outcomes of criminology education.

This has been an observed fact as well as a looming problem for the program's success. In this regard, the root cause of such failure falls beyond the classroom instruction but may be assumed to be in the field of the student's critical thinking, learning styles, and classroom participation (Albina et al., 2022). Furthermore, Albina et. al. (2022) have identified specific influences of the failure focusing on student-related challenges such as (a) hours spent in reading books and other resources, (b) conducting research using the library or sourcing it out on the Internet, (c) time spent on studying specific lessons, and (d) interest in the program. In addition, school factors that influence mainly circulate on the instructors' teaching strategies on promoting student learning, while some personal factors that influence the said problem revolve on the intrinsic motivation of the students to (a) learn and pass the exam, (b) ability to think critically, and (c) ability to memorize (Albina et al., 2022; Barreda, 2022). Adding to the already packed cause of low performance of students is the lack of focus of students either in their classroom learning or in attending reviews (Albina et al., 2022).

On the other hand, challenges of the non-passers are better learned and provided with solutions from the preparation of various topnotchers of different fields. Hence, metacognition as mentioned by Pueblo, Besas, and Rodriguez (2024) is an important skill that is to be mastered by test-takers. Further on this note, takers' awareness of such skills and the quality of their reading and time management skills is an ability that is important to master. As it helps in the mastery of content knowledge and interconnectedness of the in-between and across areas of its curriculum (Albite, 2019; DepEd, 2017). Thus, it is imperative that takers are knowledgeable about learning deductive strategies such as comprehending the question

and (a) eliminating options, and (b) analyzing content information from the stem and other context clues in the test (Pueblo, Besas, & Rodriguez, 2024). In this regard, the process of thinking as to how to think is very crucial in the metacognitive process. As it involves personal motivation as a factor, as well as the knowledge of the student about themselves, and how it may impact their learning and performance. Another is the process and strategies; and when and reasons for using various strategies during the learning processes. This may be summarized as (a) declarative, (b) procedural, and (c) conditional.

Further on this regard Schraw, Crippen, & Hartley (2006) as expounded by Albite (2019) have looked into metacognitive regulation as part of monitoring of one's cognition. Specially in planning, awareness of comprehension, and evaluation of how effective the monitoring process and strategies are. With this, the questionnaire aims to look into the different motivation factors as well as the activities that would be able to assist the learners in regulating their learning.

On the other hand, academic self-regulation may also be measured using Ryan and Connell's questionnaire as described by Balashov et. al. (2022). As per the use of the questionnaire, self-regulation and internal motivation of the students may be measured (Balashov et al., 2022). Also, the primary indicators of the questionnaire may allow the understanding of the behavior of the students as to their personal desire, wills, and choices. Hence, academic self-regulation allows the study to understand the different regulation processes of the students specifically (a) external regulation, (b) introjected regulation, (c) identified regulation, and (d) internal regulation are measured and analyzed.

The current literature presents the gaps that criminological education in the Philippines experience. As many of the takers of the licensure examination have a low passing rate; it is imperative to explore the challenges of the students as it contributes to their learning processes. Hence, as literature describes the relationship of metacognitive awareness of students to self-regulation; the study aims to put forward the interconnectedness of the criminology

students' metacognitive awareness with their self-regulation. Simply saying that both the students' intellectual, and cognitive activities should be identified and paired up with the correct and proper metacognitive learning strategy (Balashov et al., 2022).

This entails that metacognition knowledge focuses on the structure of what is known as metaknowledge. Specifically, it may be divided into two (a) Metacognitive knowledge; composed of (i) General Knowledge about knowledge, (ii) Knowledge about cognitive tasks, and (iii) Knowledge about own learning. While (b) Metacognitive Processes; focus on (i) Evaluation and Monitoring, and (ii) Control and regulation (Balashov et al., 2022, Byundyugova et al., 2024).

Though metacognitive awareness and self-regulation have a large number of studies, its position in the Philippine setting vis-a-vis its stand in Criminology Education in the country is not well explored and researched. Hence, in this study, a more extensive probe of the subject matter as to its relationship and to its connection to the improvement of the Criminology Education teaching and learning process. All this to improve the quality of education of the Criminology Program of the country as to its knowledge transfer, student-experience, teaching strategies, and skill- development.

OBJECTIVES OF THE STUDY

In the diversity basis of having low performance in the recent 10 years of the Board Licensure Examination for Criminologists; one of the factors of having such realizations is the student's learning process, are the students' awareness of their metacognition and academic self-regulation.

This study purports to explore the 1) Metacognitive Awareness of Criminology Students as to the following variables; 1.1) Knowledge about Cognition, and 1.2) Regulation of Cognition; It will also look into the 2) Learning Self-Regulation of the same respondents, along with the given variables; 2.1) Controlled Self-Regulation, and 2.2) Autonomous Self-

Regulation. Furthermore, the study aims to 3) Analyze the relationship of the metacognitive awareness and learning self-regulation of the students.

METHODOLOGY

With the study focusing on the determination of two concrete variables as to metacognitive awareness and learning self-regulation; the study will be utilizing a descriptive-exploratory design where the numerical values determine the overall perspective of the respondents (Edmonds et al., 2016). Hence, an adapted and contextualized survey will be utilized, as well as subjected to a McDonald's Ω , to determine the reliability of the contextualized survey. Furthermore, as the data is gathered only from Criminology students of Metro Manila, Philippines; the study gathers its sample purposefully.

Using the Krejcie and Morgan Scale at 5% margin of error, assumes that there are 17 576 who annually take the Board Licensure Examination for Criminologist (Philippine Regulatory Commission, 2023). Hence, the table determines that the study gathers data from 384 Criminology students. Looking at a 100% response rate, the researcher fields 480 survey questionnaires; using Google Forms considering all ethical considerations.

These said considerations focus on following the Data Privacy Act of 2012 (Philippine Congress, 2012); which reminds the researchers to consider information confidentiality and declares the consent gathering of each respondent who voluntarily considers joining the study data gathering.

In this regard, storage of the data is only applicable during the study analysis and a year after its completion. After that, the data is disposed of. Lastly, in the analysis of the study data, the researchers utilize Regression Analysis to analyze the relationship between the variables. Statistically analyzing the data, the research will be using the JAMOV software in the conduct of its computation.

RESULTS AND DISCUSSION

1. Demographic Profile of the Study Respondents and Locale of the Study

Criminology students as they look into the different lessons and demands of the program, are analyzed as to the process of thinking, motivation, and studying habits and techniques. The data response as it reached 100% response rate are described to have been composed of 60.9% male and 39.1% female students, which are composed of 12.2% First Year students, 34.1% second year students, 12.2% third-year students, and 41.4% fourth-year students. Evidently as the students are widely composed of students in their fourth year, majority (91.1%) of the respondents belong to the age group of 20-24 years old. In addition, the respondent's school location is located mainly at Manila (79.2%), Quezon City (11.2%), and Caloocan (4.2%). Other locations include Mandaluyong (2.9%), Valenzuela (1.0%), Taguig (0.8%), Marikina, Navotas, and Paranaque which composed the rest of the population location.

Table 1
Item Reliability Statistics (Metacognition)

	Mean	SD	Item-rest correlation	If item dropped	
				Cronbach's α	McDonald's ω
DK 1 METACOG	3.48	0.554	0.587	0.967	0.968
DK 2 METACOG	3.51	0.564	0.618	0.967	0.968
DK 3 METACOG	3.28	0.654	0.659	0.967	0.968
DK 4 METACOG	3.31	0.694	0.617	0.967	0.968
DK 5 METACOG	3.17	0.709	0.631	0.967	0.968
DK 6 METACOG	3.61	0.553	0.549	0.967	0.968
PK 1 METACOG	3.43	0.600	0.641	0.967	0.968
PK 2 METACOG	3.36	0.564	0.658	0.967	0.968
PK 3 METACOG	3.43	0.578	0.742	0.966	0.967
PK 4 METACOG	3.35	0.627	0.718	0.967	0.967
PL 1 METACOG	3.33	0.627	0.681	0.967	0.967
PL 2 METACOG	3.43	0.559	0.703	0.967	0.967
PL 3 METACOG	3.37	0.623	0.704	0.967	0.967
PL 4 METACOG	3.31	0.632	0.681	0.967	0.967
PL 5 METACOG	3.37	0.603	0.722	0.967	0.967
PL 6 METACOG	3.47	0.585	0.653	0.967	0.968
PL 7 METACOG	3.40	0.595	0.678	0.967	0.967
INFO 1 METACOG	3.40	0.612	0.596	0.967	0.968
INFO 2 METACOG	3.44	0.565	0.683	0.967	0.967
INFO 3 METACOG	3.43	0.604	0.694	0.967	0.967
INFO 4 METACOG	3.30	0.670	0.674	0.967	0.967
INFO 5 METACOG	3.05	0.796	0.602	0.967	0.968
COMP 1 METACOG	3.30	0.665	0.713	0.967	0.967
COMP 2 METACOG	3.32	0.640	0.744	0.966	0.967
COMP 3 METACOG	3.35	0.602	0.735	0.967	0.967
COMP 4 METACOG	3.35	0.594	0.721	0.967	0.967
COMP 5 METACOG	3.32	0.599	0.731	0.967	0.967
COMP 6 METACOG	3.36	0.600	0.694	0.967	0.967
COMP 7 METACOG	3.38	0.622	0.723	0.967	0.967
EVAL 1 METACOG	3.34	0.649	0.691	0.967	0.967
EVAL 3 METACOG	3.31	0.668	0.681	0.967	0.967
EVAL 4 METACOG	3.35	0.620	0.692	0.967	0.967
EVAL 5 METACOG	3.34	0.607	0.692	0.967	0.967

Table 2
Item Reliability Statistics (Self-Regulation)

	Mean	SD	Item-rest correlation	If item dropped	
				Cronbach's α	McDonald's ω
COMPLE 1 SR	3.37	0.683	0.678	0.954	0.956
COMPLE 2 SR	3.15	0.744	0.612	0.955	0.957
COMPLE 3 SR	3.30	0.671	0.664	0.955	0.956
COMPLE 4 SR	3.38	0.658	0.605	0.955	0.957
COMPLE 5 SR	3.65	0.586	0.574	0.955	0.957
COMPLE 6 SR	3.43	0.617	0.669	0.955	0.956
COMPLE 7 SR	3.42	0.644	0.619	0.955	0.957
COMPLE 8 SR	3.50	0.588	0.575	0.955	0.957
ACT 1 SR	3.17	0.680	0.658	0.955	0.957
ACT 2 SR	3.31	0.662	0.697	0.954	0.956
ACT 3 SR	3.36	0.637	0.665	0.955	0.956
ACT 4 SR	3.23	0.684	0.659	0.955	0.956
ACT 5 SR	3.40	0.604	0.737	0.954	0.956
ACT 6 SR	3.36	0.630	0.695	0.954	0.956
ACT 7 SR	3.39	0.616	0.709	0.954	0.956
QUES 1 SR	2.95	0.680	0.557	0.956	0.957
QUES 2 SR	3.28	0.664	0.650	0.955	0.957
QUES 3 SR	3.07	0.772	0.649	0.955	0.957
QUES 4 SR	3.22	0.691	0.691	0.954	0.956
QUES 5 SR	3.38	0.592	0.678	0.955	0.956
QUES 6 SR	3.21	0.691	0.680	0.954	0.956
QUES 7 SR	2.95	0.901	0.543	0.956	0.958
COL 2 SR	3.22	0.710	0.696	0.954	0.956
COL 3 SR	3.60	0.573	0.608	0.955	0.957
COL 4 SR	3.38	0.630	0.635	0.955	0.957
COL 5 SR	3.47	0.568	0.656	0.955	0.956
COL 6 SR	3.47	0.599	0.562	0.955	0.957
COL 7 SR	3.32	0.704	0.651	0.955	0.957

Using McDonald's Ω to determine the reliability of the survey questionnaire; it had computed a value of 0.968 which is > 0.7 ; hence, the survey questionnaire is reliable and acceptable to be used. Following this result, it is also to be noted that no item-rest correlation is ≤ 0.4 which indicates very good discrimination; for metacognition descriptors. While that of the self-regulation questionnaire computed for an Ω value of 0.958 and an item-rest correlation of > 0.4 which also indicates a very good discrimination.

2. Metacognitive Awareness of the Criminology Students as to Knowledge about and Regulation of Cognition

A person's knowledge about cognition deals with three (3) specific factors in this study. (a) Declarative Knowledge; which focuses on the learner's knowledge about a topic; may also their skills and their intellectual sources. It also focuses on (b) Procedural Knowledge; which looks into the execution of the knowledge and application of its strategies. In this study the criminology students of Greater Metro Manila Area were checked for their self-knowledge about cognition. This has been part of the study since decision making is an

important factor in a student's academic journey. This only shows that individuals should have a steady focus on the processes as well as their decision-making abilities (Basu & Dixit, 2022). However, not all believe that individuals have differences that may affect their decision-making and are most of the time ignored (Highhouse, 2019).

Since Declarative Knowledge specifically refers to the pre-concepts of a student or their prior knowledge it is imperative to know that it is highly dependent on the person's cognitive abilities as well as their personality and individual motivations (Basu & Dixit, 2022). However, as the authors expounded decision-making is continuously being overlooked it remains to be a priori component of metacognition; hence, it is an important fact to explore knowledge about cognition and regulation of cognition.

Table 3
Declarative Knowledge

Descriptor	\bar{x}	Verbal Interpretation
I understand my intellectual strengths and weaknesses.	3.48	Very Likely of Me
I know what kind of information is most important to learn.	3.51	Very Likely of Me
I am good at organizing information.	3.28	Very Likely of Me
I know what the teacher expects me to learn.	3.31	Very Likely of Me
I am good at remembering information.	3.17	Likely of Me
I learn more when I am interested in the topic.	3.61	Very Likely of Me
Total \bar{x}	3.39	Very Likely of Me

Table 4
Procedural Knowledge

Descriptor	\bar{x}	Verbal Interpretation
I try to use strategies that have worked in the past.	3.43	Very Likely of Me
I have a specific purpose for each strategy I use.	3.36	Very Likely of Me
I am aware of what strategies I use when I study.	3.43	Very Likely of Me
I find myself using helpful learning strategies automatically.	3.35	Very Likely of Me
Total \bar{x}	3.39	Very Likely of Me

It can be seen in both tables 3 & 4 that students based on the descriptors as adapted and contextualized from Metacognitive Awareness Inventory (Omprakash et al., 2021); notes that the students perceives that each of the

descriptors shows high likelihood of themselves as it had a mean of 3.39 for Declarative Knowledge and 3.39 for Procedural Knowledge which is verbally interpreted as *Very Likely of Me*. It is also good to note that in the Declarative Knowledge of the Criminology students, the least of the perceived descriptors focus on remembering and organizing information; which are vital academic skills to their preparation in any examination more so the Board Licensure Examination for Criminologists (BLEC).

This opens an argument that individuals of the study directly follow the paradigm as presented by Murphy and Castel (2021); where it shows that individuals strategically can remember items based on responsibility and that recalling or remembering are based on cues. Hence, it is to be explored if the paradigm strongly proceeds to the Filipino Criminology student where there is a thought of a metacognitive process such as what Murphy and Castel (2021) named as *responsible forgetting*, and defines as that individuals may forget less significant information and focus on remembering only what is crucial for them.

Since the respondents are highly likely to be knowledgeable about their cognition, the second sub-variable in the metacognitive awareness may explain their knowledge; as regulation of cognition explains the styles. This is because regulation of cognition involves sub-processes such as planning, monitoring, evaluation, and information management strategies; which is greatly responsible for the control of various cognitive activities (Najmaei & Sadeghinejad, 2016; Basu & Dixit, 2022).

To further understand the sub-processes (a) planning is focused on setting of goals and distributing of resources; (b) monitoring and evaluating looks into an individual's performance and strategies; while (c) information management strategies focus on strategies of an individual in organizing, summarizing, and elaborating information as well as checking for mistakes (Shraw and Dennison, 1994 as mentioned by Basu & Dixit, 2022).

Table 5
Planning

Descriptor	\bar{x}	Verbal Interpretation
I pace myself while learning in order to have enough time.	3.33	Very Likely of Me
I think about what I really need to learn before I begin a task.	3.43	Very Likely of Me
I set specific goals before I begin a task.	3.37	Very Likely of Me
I ask myself questions about the material before I begin.	3.31	Very Likely of Me
I think of several ways to solve a problem and choose the best one.	3.37	Very Likely of Me
I read instructions carefully before I begin a task.	3.47	Very Likely of Me
I organize my time to best accomplish my goals.	3.40	Very Likely of Me
Total \bar{x}	3.38	Very Likely of Me

Table 6
Information Management Strategies

Descriptor	\bar{x}	Verbal Interpretation
I slow down when I encounter important information.	3.40	Very Likely of Me
I consciously focus my attention on important information.	3.44	Very Likely of Me
I focus on the meaning and significance of new information.	3.43	Very Likely of Me
I create my own examples to make information more meaningful.	3.3	Very Likely of Me
I draw pictures or diagrams to help me understand while learning.	3.05	Likely of Me
Total \bar{x}	3.32	Very Likely of Me

Table 7
Comprehension Monitoring

Descriptor	\bar{x}	Verbal Interpretation
I ask myself periodically if I am meeting my goals.	3.30	Very Likely of Me
I consider several alternatives to a problem before I answer.	3.32	Very Likely of Me
I ask myself if I have considered all options when solving a problem.	3.35	Very Likely of Me
I periodically review to help me understand important relationships.	3.35	Very Likely of Me
I find myself analyzing the usefulness of strategies while I study.	3.32	Very Likely of Me
I find myself pausing regularly to check my comprehension.	3.36	Very Likely of Me
I ask myself questions about how well I am doing while learning something new.	3.38	Very Likely of Me
Total \bar{x}	3.34	Very Likely of Me

Table 8
Evaluation

Descriptor	\bar{x}	Verbal Interpretation
I know how well I did once I finished the test.	3.34	Very Likely of Me
I asked myself if there was an easier way to do things after I finished a task.	3.38	Very Likely of Me
I summarize what I've learned after I finish.	3.31	Very Likely of Me
I ask myself if I have considered all options after I solve a problem.	3.35	Very Likely of Me
I ask myself if I learned as much as I could have once I finished a task.	3.34	Very Likely of Me
Total \bar{x}	3.34	Very Likely of Me

Analyzing the different tables to understand the regulation of cognition; it is evident that the respondents perceived that the descriptors show very likely of them. With the following mean (a) Planning with 3.38, (b) Information Management Strategies with 3.32, (c) Comprehension Monitoring with 3.34, and (d) Evaluation with 3.34; all interpreted as *Very Likely of Me*. The respondents can regulate the strategies that they do as related to their knowledge of their cognition and can give

meaning to it. However, it is also good to note that in planning, they are less likely to inquire about the materials they are handed to before beginning their task. They too rush into finishing the task since they rarely pace themselves. Hence, there is an argument that the community of respondents in Greater Metro Manila may have experienced less shared metacognition as to its place falling within that of the theory of community of inquiry (Garrison, 2022). In addition to this, Garrison (2022) further expounds that shared metacognition should assist in shaping constructs in learning. Hence, his proposal for a Practical Inquiry Model which focuses on problem definition, problem exploration, problem integration, and problem resolution is to be part of cognitive regulation.

On the other hand, in information management strategies, the participants are less likely to use drawings or diagrams to understand a certain topic. In addition to this, they too are unlikely to use personal examples in order to make lessons meaningful. This is similar to the learning preferences of other programs where they too are less likely to be visual in their study (Cerbato, Gonzales, & Lapastora, 2020).

Looking at monitoring and evaluation, it can be realized that checking on goals as well as conducting summaries of lessons are far beyond likelihood as the students were least to consider it in the process of regulation of cognition. In this regard, there is close evidence that an individual's cognitive, motivational, and behavioral aspects are determinants of self-regulated learning (Kim, Brady, & Wolters, 2020). In addition to this a college student's regulation of cognition is to be distinguished from other factors that may affect other processes such as motivation, behavior, and context as proposed in the model of Pintrich (2007) as mentioned by Kim, Brady, & Wolters (2020). In this model, it is also mentioned that the regulation of cognition highly involves the cognitive and metacognitive strategies of the individual in processing various information. Hence, the data declares a likely possibility that the respondents can conduct such processes.

3. Self-Regulation Learning of the Respondents in terms of Controlled and Autonomous Self-Regulation

In the data gathered in the study, the respondents were asked for their reasons why they are completing activities, their engagement in class activities, answering questions, taking down notes, and reasons why they would like to do well in college. Hence, the data may be divided into the two types of self-regulation.

The study of Zimmerman (2013) as mentioned by Kim, Brady, & Wolters (2020) referred to self-regulation as a learning process wherein it is focused on the motivation, effort, and choices considered by an individual to enhance their performance.

It is further divided into two where there is considered (a) controlled self-regulation and (b) autonomous self-regulation. With this aforementioned Pintrich's model as explained thoroughly by Panadero (2017) the aspects of self-regulation students are engaged purposely in self-regulatory activities such as planning, monitoring, controlling, and reflecting on their academic progress.

Table 9
Completion of Activities Given by the Instructor

Descriptor	\bar{x}	Verbal Interpretation
I want the instructor to think I'm a good student.	3.37	Very True
My instructor will think less of me if I don't.	3.15	Sort of True
Because it is fun.	3.30	Very True
I will feel bad about myself if I don't do it.	3.38	Very True
I understand the subject.	3.55	Very True
That is what is expected of me as a student.	3.43	Very True
I enjoy doing school-subject-related activities.	3.42	Very True
It is important for me to do my homework.	3.50	Very True
Total \bar{x}	3.39	Very True

Table 10
Active Engagement in Criminological Courses

Descriptor	\bar{x}	Verbal Interpretation
So that the instructor won't single me out.	3.17	Sort of True
I want the instructor to think I'm a good student.	3.31	Very True
I'll be ashamed of myself if it didn't get done.	3.36	Very True
Because it is fun.	3.23	Sort of True
Because that's what I'm supposed to do.	3.40	Very True
I enjoy being actively engaged.	3.36	Very True
It's important to me to be actively engaged.	3.39	Very True
Total \bar{x}	3.32	Very True

Table 11
Responding to Questions

Descriptor	\bar{x}	Verbal Interpretation
Because I want the other students to think I am smart.	2.95	Sort of True
I feel ashamed of myself when I don't try.	3.28	Very True
I enjoy answering hard questions.	3.07	Sort of True
Because that's what I'm supposed to do.	3.22	Sort of True
To find out if I'm right or wrong.	3.38	Very True
Because it's important for me to try to answer hard questions in class.	3.21	Sort of True
I want the instructor to praise or reward me.	2.95	Sort of True
Total \bar{x}	3.15	Sort of True

Table 12
Doing Well in College

Descriptor	\bar{x}	Verbal Interpretation
Because that is what I'm supposed to do.	3.35	Very True
So my instructors will think I'm a good student.	3.22	Sort of True
Because I enjoy succeeding in college.	3.50	Very True
Because I'll feel really bad about myself if I don't do well.	3.38	Very True
Because it is important for me to try to do well in school.	3.47	Very True
Because I will feel really proud of myself if I do well.	3.47	Very True
Because I might get recognition or a reward if I do well.	3.32	Very True
Total \bar{x}	3.39	Very True

In the analysis of the different data of self-regulation learning as scored by the individuals, falls into the fact of pure motivation. This may be integrated into another study as assessed of congruence by Broadbent and Poon (2015) where they have concluded that there are significant gaps between the models mentioned in this paper. In addition to this, time management provides self-regulation in learning where behaviors and increased attention should be evident (Wolters, Won, & Hussain, 2017). All these are specific strategies that students may probably use to regulate each of the types of self-regulation.

Since both types of self-regulation are very true as perceived of themselves by the respondents; it is important to note that these strategies are interrelated with each other and that each component reacts with the other. Though ambiguous and may need further exploration, especially with that of the respondents demographics; it is to be deduced that metacognition and self-regulated learning are influenced by individual behavior and may include a student's personal determination to achieve goals.

4. Relationship of Metacognitive Awareness and Self-Regulated Learning

It is hypothesized that there is a significant relationship between the metacognition and self-regulation learning as acquired and practiced by an individual. However, in the computation of the data as gathered, it used Kendall Tau's b to determine the statistical significance. Since the data does not meet the parametric correlation test, robust statistical measures to be considered to analyze the relationships between the variables; hence, the test is to be chosen due also to the small number of participants and entries (Anjitha, 2023). In computation it was evident that most of the p -values are > 0.05 , thus, accepting the null hypothesis that there is no significant difference among the given variables. However, the computed p of Completion of Activities Given by the Instructor is statistically significant with that of the Information Management Strategies with a p of 0.017.

To analyze the relationship further, Tables 6 and 9 are to be further explored. If analyzed descriptively it will be assumed that the regulation of cognition of the respondents is highly related to the assumed relationship with that of the self-regulated learning. In specific, both the highest descriptor pertains to the cause and effect of the two processes. In other words, the students focusing and placing attention on the information yields a full understanding of the topic. Another understanding that may be derived from the gathered data is that the derivation of meaning and significance is due to the valuing and giving of importance of the students in doing assigned homework. One last analysis that may be included in the paper, is the enjoyment of the students in doing subject-related activities that yield them to critical analysis of producing metacognition by providing themselves with meaningful examples and information.

5. Proposed Model on Criminological Education metacognition and Self-Regulated Learning Quadrant

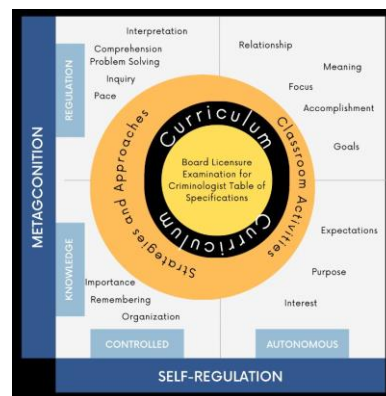


Figure 1. Proposed model on the Metacognition and Self-Regulation Learning

The proposed model on the Metacognition and Self-Regulation Learning utilizes a quadrant to show the relationship of each metacognition and self-regulation. The outer vertical fields provide the two aspects of metacognition; while the horizontal fields denote the two aspects of self-regulation. In each intersection are identified meanings and activities per aspects. Additionally, the center circles provide the anchor point of the possible improvement of test scores if done in the classroom. It shows that the released Table of Specifications for the Board Licensure Examination for Criminologists is the main anchor point where in the curriculum is to be aligned with. While the strategies and approaches lean more on the side of metacognition and are controlled by the students; on the other hand classroom activities lean on the other side where it falls on the self-determination of the students to do the activity or not.

CONCLUSION

This study highlights the critical role of metacognitive and self-regulated learning processes in preparing criminology students for their licensure examinations. The findings provide valuable insights into students' cognitive strategies and their relationship with academic performance.

1. Students, as the primary clients of schools, directly experience the teaching and learning strategies implemented in the classroom.

2. Criminology education in the Philippines prioritizes preparing students for their licensure examination, but the national passing rate remains an area for improvement.
3. The study revealed that respondents generally perceive their metacognitive processes and self-regulated learning strategies as highly reflective of their habits.
4. There is no significant relationship between the sub-variables of metacognitive knowledge, regulation of cognition, and controlled and autonomous self-regulation.
5. A notable finding is the significant relationship between the regulation of cognition sub-variable "Information Management Strategies" and the self-regulated learning sub-variable "Completing the Activities Given by the Instructor."

RECOMMENDATIONS

Based on the study's findings, the recommendations focus on enhancing teaching strategies and aligning educational practices with licensure examination requirements. These initiatives aim to optimize students' cognitive and self-regulation skills for improved outcomes.

1. Conduct a comprehensive review of teaching strategies, approaches, and pedagogy to address the least perceived areas of metacognitive knowledge, regulation, and self-regulated learning.
2. Align the curriculum and classroom processes with the prescribed Table of Specifications from the Philippine Commission on Higher Education using a backward design approach, focusing on end goals and licensure examination requirements.
3. Provide targeted interventions to strengthen students' information management strategies, particularly in relation to completing assigned activities.
4. Incorporate continuous professional development for educators to enhance their ability to foster students' metacognitive and self-regulated learning skills.
5. Conduct further research to explore other factors that may influence the relationship

between metacognition, self-regulation, and academic success.

REFERENCES

- Albina, A. C., Balasabas, J. Y., Laquinon, B. J. I., Pampilo, M. H., & Caballero, L. J. (2022). Factors and challenges influencing the criminologist licensure examination performance through the non-passers' lens. *European Journal of Educational Research*, 11(1), 365-380.
- Albite, R. (2019). A case study of topnotchers' preparations and contributory attributes in passing the licensure examination for teachers. *Southeastern Philippines Journal of Research and Development*, 24(2), 45-68..
- Balashov, E., Pasichnyk, I., & Kalamazh, R. (2022). Methodological and contextual foundations of metacognitive monitoring training program in student self-regulated learning. *Journal of Education Culture and Society*, 13(1), 77-92.
- Barreda, M. (2022). Academic performance of criminology graduates and its impact on the licensure examination for criminologists. *International Journal of Innovative Science and Research Technology*, 7(5), 659-668.
- Basu, S., & Dixit, S. (2022). Role of metacognition in explaining decision-making styles: a study of knowledge about cognition and regulation of cognition. *Personality and Individual Differences*, 185, 111318.
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The internet and higher education*, 27, 1-13.
- Byundyugova, T., Babikova, A., & Kornienko, E. (2024). Reducing the managers' anxiety related to the lack of media literacy by visualization methods. *International Journal of Media and Information Literacy*, 9(1), 30-39.
- Cerbito, a. F., Gonzales, K. P. J., & Lapastora, E. (2021). Learning preferences and competencies of radiologic technology interns on general radiography .https://www.researchgate.net/profile/Kerwin-Paul-Gonzales/publication/348446761_Learning_Prefere

nces_and_Competencies_of_Radiologic_Technology_Interns_on_General_Radiography/links/5ffff16692851c13fe0d8254/Learning-Preferences-and-Competencies-of-Radiologic-Technology-Interns-on-General-Radiography.pdf

Edmonds, W. A., & Kennedy, T. D. (2016). An applied guide to research designs: Quantitative, qualitative, and mixed methods. Sage Publications.

Garrison, D. R. (2022). Shared metacognition in a community of inquiry. *Online learning*, 26(1), 6-18.

Highhouse, H. R. (2019). College adjustment, belongingness, academic self-efficacy, persistence, and academic success among first-generation college students. <https://scholarworks.wmich.edu/dissertations/3496/>

Kim, Y. E., Brady, A. C., & Wolters, C. A. (2020). College students' regulation of cognition, motivation, behavior, and context: Distinct or overlapping processes?. *Learning and Individual Differences*, 80, 101872.

Murphy, D. H., & Castel, A. D. (2021). Responsible remembering and forgetting as contributors to memory for important information. *Memory & Cognition*, 49(5), 895-911.

Najmaei, A., & Sadeghinejad, Z. (2016). Toward a theory of business models and business modeling in public entrepreneurship. In *New Perspectives on Research, Policy & Practice in Public Entrepreneurship* (pp. 77-102). Emerald Group Publishing Limited.

Omprakash, A., Kumar, A. P., Kuppusamy, M., Sathiyasekaran, B. W. C., Ravinder, T., & Ramaswamy, P. (2021). Validation of Metacognitive Awareness Inventory from a private medical university in India. *Journal of education and health promotion*, 10.

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology*, 8, 422. <https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2017.00422/full>

Pueblo, J. A., Besas, M. J., & Rodriguez, G. D. (2024). From nothing to something: tale of unraveling the secret to success of a neophyte

criminologist in taking licensure exam. *European Journal of Education Studies*, 11(6).

Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting self-regulation in science education: metacognition as part of a broader perspective on learning. *research in science education*, 36, 111-139. <https://doi.org/10.1007/s11165-005-3917-8>

Wolters, C. A., Won, S., & Hussain, M. (2017). Examining the relations of time management and procrastination within a model of self-regulated learning. *Metacognition and learning*, 12, 381-399.

AUTHOR'S PROFILE

Angeleries D. Orbigo is the current Program Chair of the Criminology Department at Olivarez College, Parañaque. She is a Registered Criminologist and a distinguished graduate of BS Criminology, Master of Science in Criminal Justice with a Specialization in Criminology, and Doctor of Philosophy in Criminology from the Philippine College of Criminology, Manila, Philippines. Previously, she served as the Program Chair of Criminology and the Subject Area Coordinator for Crime Detection and Investigation at the Philippine College of Criminology. Dr. Angeleries D. Orbigo is also a Certified Criminological Research Specialist, achieving the distinction of being at the top of her batch. Additionally, she graduated Cum Laude with her doctorate degree. Dr. Orbigo actively guides students in criminological research, serving as a research panelist and a National Lecturer for the Board Licensure Examination for Criminologists.

Kerwin Paul J. Gonzales is currently a faculty member at the University of Perpetual Help System-Dalta, teaching science subjects. He is a Licensed Professional Teacher. Additionally, he teaches at the Philippine Normal University under the Faculty of Science, Technology, Engineering, and Mathematics. Previously, he served as the Forensic Science Subject Coordinator at the Philippine College of Criminology and is still teaching as a Research and Statistics instructor at the Graduate School. He is a published research writer and textbook author. He also serves as a research adviser, panel member, and lecturer for both the Board Licensure Examination for



Criminologists and the Board Licensure Examination for Professional Teachers.

COPYRIGHTS

Copyright of this article is retained by the author/s, with first publication rights granted to IIMRJ. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution – Noncommercial 4.0 International License (<http://creativecommons.org/licenses/by/4>).