CONSTRUCTIVIST LEARNING ENVIRONMENT MANAGEMENT, METACOGNITIVE AWARENESS AND EPISTEMOLOGICAL BELIEFS: A STRUCTURAL EQUATION MODEL ON ACADEMIC SUCCESS OF STUDENTS IN PUBLIC SENIOR HIGH SCHOOLS

Jean M. Del Valle[1i],
Eugenio S. Guhao Jr.[2]
[1]Doctor of Education,
Major in Educational Management,
Principal 1,
Kinablangan Elementary School,
Kinablangan, Baganga,
Davao Oriental, Philippines
[2]Dean, DM,
Professional School,
Senior Vice-President for Academic Affairs,
University Professor,
University of Mindanao,
Davao City, Philippines

Abstract:

The purpose of the study was to establish a causal model of academic success for students influenced by constructivist learning environment management, metacognitive awareness, and epistemological beliefs. The research design used in the study was descriptive-causal design through Structural Equation Modeling. Four hundred (400) public school teachers in Region XI, Philippines, were randomly selected as respondents of the study. The data collected were analyzed using mean, product-moment correlation and structural equation modeling. This study is also aligned with the United Nations SDG #4, entitled Ensuring Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All (United Nations, 2024). Findings revealed that the variable, constructivist learning environment management, had a very high mean level, while metacognitive awareness, epistemological beliefs, and academic success exhibited only high mean levels. Furthermore, there were significant relationships between each exogenous variable and endogenous variable, namely: constructivist learning environment management and academic success of students; metacognitive awareness and academic success of students; and epistemological beliefs and academic success of students. Findings further showed that among the three generated structural models, Model 3 was the best-fit model. After structural modification, Model 3 revealed

[i] Correspondence: email jean.delvalle001@deped.gov.ph

that Constructivist Learning Environment Management (CLEM) was described by the remaining two indicators: communication and interaction (ci) and relation establishment (re), while Metacognitive Awareness (MCA) was measured by its remaining two indicators, namely: conditional knowledge (ck) and procedural knowledge (pk). Moreover, epistemological beliefs (EB) are determined by two remaining indicators: source (sou) and speed/stability (ss). Finally, the endogenous variable, Academic Success of Students (ASS), was defined by three indicators: internal motivation confidence (imc), socialization (soc), and personal adjustment (pa). The findings of the research study can help the Department of Education develop a more comprehensive intervention program to boost the chances of academic success of students.

Keywords: educational management, student academic success, constructivist learning environment management, metacognitive awareness, epistemological beliefs, Philippines

1. Introduction

Problems with the poor academic success of students have been a significant frustration for teachers, administrators, parents, and stakeholders at school. The problem of low academic success among students is one of the most challenging problems, which has many causes, and it has educational, social, cultural and psychological dimensions. Students' low academic achievement is the weakness of the student's mark under the normal average in a study subject level for some reasons, including those related to the student himself or those related to the social and academic environment. Factors such as the teachers who play a significant role in student performance and can be responsible for poor student performance. Also, schools themselves in the area of leadership can contribute to low student performance (Al-Zoubi & Younes, 2019; Cascio, 2019).

In conjunction, academic success is essential in students' behavioral attainment and is an important factor in moving to higher education and professional life. Students who are academically successful and with high levels of education are more likely to be employed, have more employment opportunities and earn higher salaries, are more likely to have health insurance, are less dependent on social assistance, are less likely to engage in criminal activity, are more active as citizens and charitable volunteers and are healthier and happier. More so, academically successful adolescents have higher self-esteem, lower levels of depression and anxiety, are socially inclined, and are less likely to abuse alcohol and engage in substance abuse (Koser, 2022; Regier, 2021).

A previous study found out that when constructivist learning environment management is used frequently in different lessons, it could significantly contribute to students' academic success. The results of students' success in learning processes with a constructivist learning approach show the most significant effect size in terms of learning discovery models (Mayasari, Handhika, Huriawati, Sasono, Kurniadi, Purwandari &

Yusro, 2018). Moreover, in another study, metacognitive awareness was found to be unaffected by gender, grade level, or the average number of books read per year, but high academic success would increase metacognitive awareness. It was established that the majority of students with high academic skills were also at a satisfactory level in terms of metacognitive awareness (Özçakmak, Köroglu, Korkmaz & Bolat, 2021). Additionally, student success can be predicted by dimensions of epistemological beliefs and motivational strategies. Among the dimensions of epistemological beliefs, knowledge stability and acquisition speed were negative predictors of student success (Ongowo, 2022).

Furthermore, existing studies are only on the Relationship between Epistemological Beliefs, Self-Regulated Learning Strategies and Academic Achievement by Savoji, A. P. Niusha, B. & Boreiri L. (2013) and Metacognitive Awareness and Academic Motivation and their Impact on Academic Achievement of Ajman University Students by Abdelrahman (2020). The researcher had not come across a study that dealt with a causal model on the academic success of senior high school students with variables affecting the constructivist learning environment management of teachers, metacognitive awareness and epistemological beliefs in the local setting. It was in this context that the researcher was interested in determining whether factors such as constructivist learning environment management of teachers, metacognitive awareness and epistemological beliefs of students significantly influenced the academic success of students in public schools in Region XI as this can raise concern to the intended beneficiaries of this study and possibly develop action plans to develop the constructivist learning environment management of teachers, metacognitive awareness and epistemological beliefs of students and consequently improve academic success of senior high school students; thus, the need to conduct this study.

2. Literature Review

Reviews of related literature are discussed in support of the study. On constructivist learning environment management as the first exogenous variable, 21st-century skills are positively related to teachers' perceptions of managing the constructivist learning environment. Teachers who possess strong perceptions concerning problem-solving, critical thinking, cooperation, communication and creativity provide their students with learning environments that are more open to students' inquiry and investigation and are more conducive to positive student attitudes. As an educator seeks to create a constructivist learning environment, the principles of constructivism must continue to be firmly embodied. A 21st-century student is expected to graduate with a skill set never before by society (Anagun, 2018; Mercer, 2020).

Relation establishment refers to teachers' approach to providing opportunities for school learners to establish a relation between what they learn and the information and concepts. The teacher creates a consistent learning environment by working with

students in relation to the establishment of a cooperative plan for classroom rules, procedures, and academic learning that governs the classroom. As they are taught citizenship skills and given chances for leadership, students gain the experiences necessary to become self-disciplined. Likewise, large numbers of teachers and students use social media as an essential element of the overall learning experience. Aside from the ability to communicate information anywhere, social media sites are also a source of producing networking possibilities for relation establishment, social activities and new jobs (Darling-Hammond, Flook, Cook-Harvey, Barron & Osher, 2020; Haleem, Javaid, Qadri & Suman, 2022).

Learning environment refers to teachers' organization of the learning and materials in the learning environment that will help support students' involvement and participation. The learning environment affects not only learners' outcomes and attainment but is also a prominent policy issue in a number of countries. A school with an adequate learning environment contributes to the expected outcomes of learning that will facilitate good academic performance by encouraging effective teaching and learning (Chepkwony *et al.*, 2018; Usman & Madudili, 2019).

Metacognitive awareness is the second exogenous variable; it is a higher-level thinking process important for learning and problem-solving. Metacognitive awareness is active knowledge of an individual's cognitive process, planning of achieving learning tasks, monitoring, and continuous evaluation of learning. It is also essential for teachers to be aware of metacognitive activities and strategies to know how to teach students better. Students who develop metacognitive strategies can plan, monitor and regulate their cognition process. Thus, more efficient study plans, responsibilities and deep learning should be developed. Metacognitive practices result in better care, reasoning, decision making and a continuous process of lifelong learning, which is essential in any practice (Dhyani & Maikhuri, 2018; Siqueira, Gonçalves, Mendonça, Kobayasi, Arantes-Costa, Tempski & Martins, 2020).

Declarative knowledge refers to knowledge about oneself as a learner and about what factors can influence one's performance. Declarative knowledge can also be referred to as world knowledge. Further, declarative knowledge includes knowledge about oneself as a learner and about what factors influence one's performance. Declarative knowledge is functional knowledge, such as the ability to name, list or describe and recall what they know, what and how they teach mathematics in the context of the learners in their specific classrooms. These include knowledge of the best teaching practice in the context of the learners and about factors that can affect teaching in a specific context (Potgieter & van der Walt, 2022; Schraw, 2018).

Further, individuals with a high degree of procedural knowledge perform tasks more automatically, are more likely to possess a more extensive repertoire of strategies, sequence strategies effectively and use qualitatively different strategies to solve problems. Procedural knowledge is also defined as an understanding of the order of the rules and the steps used to solve problems. Following sequential steps during practicum

leads to predicted results. If one does the opposite, the results of the practicum will be far from what is desired. It can be assumed that students often do practical activities and that this affects their procedural knowledge (Glaser & Chi, 2018; Wiono, Meriza & Agnesa, 2021).

On epistemological beliefs as the third exogenous variable, epistemological belief has three factors: quick learning, innate ability, and specific knowledge. Students' learning styles depend on their ability and motivation as learning styles relate to learners' metacognition and epistemological beliefs, which directly affect the modes of teaching. However, epistemological beliefs directly influence the attitude of learners towards the learning process, and epistemological beliefs are the predictors of self-efficacy of learning. Epistemological beliefs also refer to beliefs about the nature of knowledge. Epistemic competence is of particular significance since it is a determinant of acquiring coherent knowledge that is of practical value in real-life contexts. The acquisition of coherent knowledge is of strategic value, especially at a time when a more significant premium is placed on the provision of solutions to problems in society (Jena & Chakraborty, 2018; Ongowo, 2021).

Moreover, the speed of knowledge acquisition is based on research on math-related beliefs and their influence on learning. A person with low beliefs always thinks learning happens quickly, but a person with high beliefs thinks learning is a gradual process that requires continued effort and persistence. Epistemological beliefs have been associated with constructivism. In Mathematics, formulas are significant and represent valuable ideas. Students believe that if they cannot solve mathematics problems speedily, then devoting additional time does not help. This reflects their weak beliefs about the speed of knowledge acquisition (Anjusha & Niranjana, 2018; Shoaib, Akhtar, & Naheed, 2020).

The source is an indicator of epistemological beliefs. The source of knowledge is a belief which is handed down by omniscient authority to derive from reason. This dimension reflects a range of views regarding the role of an authority figure. Engagement in online activities is also associated with epistemic beliefs. Students with a naive epistemic belief that knowledge is passively transmitted and unchanging are less likely to participate in online discussions for subject content. Students who view internet-based information as a good source of knowledge of detailed and stable information for course-related work have more frequent online activities (Lee, 2018; Wheeler, 2017).

In addition, the source of knowledge, which portrays knowledge as passed on by authority, is composed of knowledge that is gained through reason or rationality. A key term is testimony, as epistemology in the modern tradition cites perception, memory, and rational inference as the central sources of knowledge. Clearly, it seems that, whereas perception, memory, and reasoning go on in control, testimony comes from without, which is why quality control is less secure (Hart, 2017; Swiderski, 2020).

On academic success as the exogenous variable, Academic success is more than scores, grade point averages or degree certificates. Academic success for students

includes outcomes such as the development of soft skills like networking, communication, teamwork, presentation, and writing, research skills, improvement of academic knowledge, contributions to society, and exploration of international life. A previous study on students' success motivation, academic self-concept, and academic accomplishment found out that there is a link between self-concept and academic achievement in students. There is also a relationship between achievement motivation and academic performance (Bakar, Alsmadi, Ali, Shuaibu, & Solahudin, 2022; Myburgh, 2019).

Teachers with high levels of self-efficacy tend to cope effectively with a range of student behaviors in the classroom and create positive relationships with their students. For instance, teachers with a strong sense of efficacy create a supportive classroom environment. Moreover, instructors with high efficacy show more remarkable persistence in the face of obstacles. They are also more likely to try new instructional approaches in an effort to find better ways of teaching and are more willing to work with students who are experiencing difficulties. Highly efficacious teachers attributed their high sense of teaching efficacy to their increased knowledge of teaching strategies (Buric & Kim, 2020; Seneviratne *et al.*, 2019).

Personal adjustment can be explained by the idea that positive coping is related to fewer emotional and behavioral disorders. It also predicts positive academic and personal adjustment in a student's education. Students are likely to use both problem-focused and emotion-focused forms of coping in stressful encounters. Having well-adjusted students is one of the purposes of any school since it has been found that students' adjustment can have a significant effect on students' academic performance. The relationship between students' academic and personal adjustment to their academic performance can be emphasized by schools to produce more successful students (Alipio, 2020; Dlamini, Tom, Nel & Zogli, 2020).

Performing the task for a long time and concentrating on the desired stimuli of attention depends on continuous stimulation. When there is no change in the nature and severity of these arousals since the individual got used to the stimulant, he/she starts not to react to the stimuli, and the learning environment becomes meaningless. Even if all factors are positive, learning does not occur when students cannot pay attention to the activities in the classroom environment. Additionally, learning concentration is a concentration focus of thoughts on a particular object to reduce or set aside things that are not related to the object studied. The poor quality and learning achievement of students is caused mainly by the weak ability to concentrate while studying (Cicekci & Sadik, 2019; Sari *et al.*, 2021).

During the process of learning, parents' encouragement of external motivation and the importance of learning viewpoint should be paid attention to. Though teachers are responsible for students' performance at school, parents are in charge of students' performance at home. Most families attach importance to learning, as it is one of the main cores of current times. Two significant factors interfering with learning in the classroom

are external and internal disturbance. Some examples of external disturbance are hard-to-understand instructions, class temperature, and students prefer listening to music rather than paying attention to their teachers. Meanwhile, internal disturbance covers those coming from students themselves, such as lack of external motivation, laziness, prefer playing with other classmates, and the desire to eat in class (Liu, 2022; Mauliya *et al.*, 2020).

Knowledge construction is essential as it welcomes a constructivist learning environment and the management of teaching. Students independently perceive their classroom environment as more favorable than students of another stream. Female academic success is better than that of male students, who use icon models rather than traditional teaching methods. Students taught through the constructivist approach score higher than those taught with the traditional method. There are many ways in which educators can interact and incorporate student-centered ideas to foster academic success. A focus on student-centered learning may be the most important contribution of constructivism, and the first step is being aware of how teachers treat students. If teachers communicate respectfully with students and treat them like capable learners, they can help them learn how to understand the material they are presenting (Adak & Chatterjee, 2019; Montgomery, 2020).

Moreover, constructivist management encourages the design of learning environments that are cooperative. Cooperative learning enables the students to work together, share various ways of thinking, and improve the way in which they come up with ideas. Cooperative learning improves academic success and socialization skills. It is a social procedure that involves group establishment and the making of decisions where all teaching and learning activities are collaborative. Relatedly, a constructivist learning environment is an effective method of teaching in schools and can be used to improve students' performance. Constructivist learning materials increase the academic success and retention of students (Njideka & Mkpa, 2019; Sunzuma, Zezekwa & Munakandafa, 2022).

Students with high levels of metacognitive awareness have high levels of academic success. Metacognitive awareness is a strong predictor of academic success. There is a significant positive relationship between metacognitive awareness and test performance in undergraduate students. Students with higher levels of metacognitive awareness use learning strategies more efficiently, which has positive effects on academic performance. Similarly, academic achievement is closely related to the student's ability to know one's way of thinking. The ability to know how to think is called metacognition. Metacognitive awareness and learning strategies are essential factors in academic success as well as a positive predictor of academic success (Fidrayani, 2020; Warmer, 2018).

In addition, the essential components of student-centered education are when students use their metacognitive awareness, regulate their own study procedures, and have motivation. The objective of education in the 21st century is to prepare students to become effective and independent learners who have self-regulatory skills and can

achieve academic success. Self-regulated learners are those who have the cognitive and metacognitive abilities along with motivational beliefs required to understand and direct their own learning. Supporting the development of metacognitive awareness is a powerful way to promote academic success. Students with high metacognitive abilities perform better than peers who are still developing their metacognition (Abdelrahman, 2020; Stanton, Sebesta & Dunlosky, 2021).

Students' epistemological beliefs are portrayed in the strategies they use in their studies and, at the same time, are a predictor of academic performance. Students who hold epistemological beliefs that see knowledge being constructed by themselves and where their ability can improve employ more effective study and problem-solving strategies and achieve greater academic success. Also, more constructivist learning environments and epistemological beliefs undermine motivational beliefs. When students believe that scientific knowledge is complex and are given a highly challenging task, their self-efficacy expectation for academic success may decrease. The more constructivist learning environments and students' epistemological beliefs, the higher their levels of motivation (Guo, 2022; Sheehy, Seale & Hayhoe, 2022).

Additionally, achievement goals, self-efficacy and cognitive engagement have a mediating role between dimensions of epistemological beliefs and academic success. The struggle with solving problems was due to five major reasons: making sense of the problem statement, conceptual understanding, contextualization, visualization of the problem, and critical thinking and reasoning. Relatedly, epistemological beliefs can affect academic success. Various aspects of the beliefs about the structure and source of knowledge affect the learners' academic achievement and psychological factors. Students' epistemological beliefs promote academic success (Shirzad, Barjesteh, Dehqan, & Zare, 2022; Shoaib, Akhtar, & Naheed, 2021).

Furthermore, by focusing on student progress goals, school heads help in the improvement of student learning. Thus, school heads should ensure that the faculty and staff make endeavors towards student academic success (Blas & Guhao, 2023). In terms of constructivist learning environment management, school discipline is a challenge faced by the teachers and administrators of schools. It is a challenge in terms of constructivist learning environment management, as well as teaching and learning (Sichon & Guhao, 2020). Similarly, project-based learning is linked with constructivist learning environment management as it is a constructivist instructional learning pedagogy. Through project-based learning, students solve real-life problems and experience new perspectives that include skills for competency (Tiburcio, Quines & Guhao, 2018).

The study is anchored on the Theory of Educational Productivity by Walberg (1981), which identifies nine key variables that influence educational outcomes namely: student ability/prior achievement, motivation, age/developmental level, quantity of instruction, quality of instruction, classroom climate, home environment, peer group, and exposure to mass media outside of school. The theory posits that the psychological

characteristics of individual students and their immediate psychological environments influence educational outcomes (cognitive, behavioral, and attitudinal).

This study was supported by the Constructivist Learning Theory by Boyle (1994), which emphasizes that learning is a process of constructing knowledge rather than acquiring it. It takes the student's social, cultural, and contextual conditions into consideration and theorizes that the student constructs knowledge through experience. Students interpret new information through their contextual experiences and build upon their existing knowledge from the conclusions reached during the incorporation of new knowledge and reflection.

This study was also supported by the Metacognition Theory by Flavell (1976), which highlights that metacognition consists of both monitoring and regulation aspects. Metacognition refers to the active monitoring and consequent regulation and orchestration of processes in relation to the cognitive objects on which they bear, usually in service of some concrete objective. There are three metas that children acquire: identify situations in which intentional, conscious storage of certain information may be useful at some time in the future; keep current any information which may be related to active problem-solving; and make deliberate, systematic searches for information which may be helpful in solving a problem.

3. Material and Methods

Using the maximum sample in Slovin's formula, which is 400 at the 0.05 level of significance (Yamane, 1967), the sample size of 400 senior high school students was used as the respondents of the study, representing eleven divisions in Region XI for the school year 2022-2023. With a desire to give everyone a chance to be included in the study, stratified random sampling was used. Stratified random sampling was employed in the study so that all students of the public senior high schools under the 11 identified schools would have the chance to be selected and considered for inclusion in the final sample. This is a sampling technique in which the population is divided into groups called strata. In this case, the Grade 11 and 12 students in the 11 identified public schools were the groups that became respondents. Moreover, the idea is that the groupings are made so that the population units within the groups are similar (Salkind, 2007).

Furthermore, in the selection of the respondents of the study, inclusion criteria were considered. Only grade 11 and 12 students in the identified schools of the study and who were enrolled in SY 2022-2023 were included as samples as they were the only ones who fit to the criteria and could answer the questions in the survey. Other students who were not enrolled in Grades 11 and 12 and who did not belong to the identified areas or were enrolled in private schools were deemed excluded from the study. Lastly, elementary students from Grade 7, 8, 9, and 10 levels were also excluded from the study.

The questionnaire for Constructivist Learning Environment Management of Teachers was adapted from Yildrim (2014) modified to fit the study, and was subjected

to experts. The questionnaire on constructivist learning environment management of teachers has the following indicators: communication and interaction, relation establishment, skills development, time usage and assessment, learning and teaching, and learning environment organization. Moreover, the questionnaire for Metacognitive Awareness of Students was adapted from Harford Community College (2014). It was modified to fit the study and was subjected to experts' validation. The questionnaire for the metacognitive awareness of students has the following indicators: declarative knowledge, procedural knowledge, and conditional knowledge. Furthermore, the questionnaire for Epistemological Beliefs of Students adapted from Rebmann *et al.* (2014) was modified to fit in to the study and was subjected to experts' validation. The epistemological beliefs of students have the following indicators: structure, speed/stability, control, and source. Moreover, the questionnaire for the academic success of students was adapted from Festa-Dreher (2012). The questionnaire for the academic success of students has the following indicators: general academic skills, internal motivation/confidence, perceived instructor efficacy, concentration, external motivation/future, socializing, career decisiveness, lack of anxiety, personal adjustment, and external motivation/current time.

In evaluating the constructivist learning environment management of teachers, metacognitive awareness of students, epistemological beliefs of students, and academic success of students, the five orderable gradations with their respective range of means and descriptions were used as follows: 4.20 – 5.00 or very high means that the items are always manifested; 3.40 – 4.19 or high means that the items are often manifested; 2.60 – 3.39 or moderate means that the items are sometimes manifested; 1.80 – 2.59 or low means that the items are seldom manifested; and 1.00 – 1.79 or very low means that the items are not manifested at all.

The first draft of the research instrument was submitted to the research adviser for comments, suggestions and recommendations to improve its presentation with the corrections to be included and integrated. The final copies were submitted to a panel of experts for refinement. The final revision was made by incorporating the corrections, comments, and suggestions given by the expert validators before the data was gathered. The consolidated results from the experts obtained an average weighted mean of 4.5 which has a verbal description of very good.

Further, before the administration of the research instrument, pilot testing was conducted on selected students who were not the respondents of the study. The survey questionnaire for the pilot test was subjected to reliability testing using the Internal Consistency Method. This is the most appropriate method to use since the test contains dichotomously scored items in which the examinee either passed or failed in an item. The computed reliability of the instrument using the Cronbach alpha coefficient with the results 0.957 for Constructivist Learning Environment Management, 0.920 for Metacognitive Awareness, 0.882 for Epistemological Beliefs and 0.966 for Academic Success.

This study utilized a quantitative research method, specifically the causal-comparative. This develops and employs mathematical models, theories and or hypotheses pertaining to phenomena. In the generation of the best fit model, Structural Equation Model was used. First, it utilized the descriptive correlational method. According to Christensen, Johnson and Turner (2011), the descriptive-correlational method of research is a measure of associations of variables with varying levels of measurement. Second, the study employed Structural Equation Modeling, which aims to come up with a best-fit model on academic success that may help as a basis for the formulation of policies, planning and intervention programs among school heads in different school divisions under the Department of Education. This is an advanced multivariate technique to examine multiple dependence relationships between variables simultaneously.

SEM is a new and very strong analysis technique that consists of a combination of multivariate statistical techniques. It is commonly used by scientists who are engaged in the social sciences, like economists, education, and marketing researchers. SEM is an effective model testing and improving method that enables theoretical models to be tested as a whole and explains the cause-and-effect relationship of the variables in mixed hypotheses that are related to the models based on statistical dependence. It is based on testing a model of the relationships among the variables that stand in the researcher's mind before the research is done via data acquired from the research (Hair, Tatham & Anderson, 1998).

In evaluating the goodness of fit of the models, the following indices were computed as follows (D'Agostino & Stephens, 2017):

Chi-square	large value
P value	> 0.05
Chi-Square/Degrees of Freedom (CMIN/DF)	<0.05
Normative Fit Index	> 0.95
Comparative Fit Index	> 0.95
Goodness of Fit Index	> 0.95
Tucker-Lewis Index	> 0.95
Root Mean Square Error of Approximation (RMSEA)	<0.05
P close	> 0.05

This study followed a systematic procedure. First, the researcher prepared a letter-request approved by the Dean, Professional Schools. The approved letter was forwarded to the School Division Superintendent of the Department of Education Division identified in the locale of the study, asking permission for the conduct of the study. Then, the researcher furnished a copy of the approved letter to the different School Heads of the respondents for the conduct of a full-blown data gathering. Before the administration of the survey questionnaire to the respondents of the public schools under the 11 identified divisions, the researcher visited the school heads of the 11 said public schools for a courtesy call and discussed the plan for the conduct of an online survey through Google

Forms to all concerned respondents. Considering that there is still no declaration of a COVID-free situation, the researcher strictly observed the safety protocols during this pandemic time as per mandate by the Inter-Agency Task Force for the Emerging Infectious Disease (COVID-19), such as physical/social distancing and the wearing of face masks. During the courtesy call, a list and contact numbers/email addresses of all respondents were requested from the offices of the concerned school heads/principals. The lists served as the basis for the researcher's data gathering. The researcher transferred the survey questionnaire to the Google Forms template, which template contained specific instructions for the accomplishment and retrieval of the instrument and which contents were understandable to the respondents.

There was no evidence that the study was intentionally misrepresented to match a model or theoretical assumption. There was no indication of fabrication or over claiming. To avoid scientific misconduct such as falsification, the correction mechanism was improved, and researchers should work to give peer review the importance it deserves. Also, collaboration between research institutions, journals, authors and co-authors was needed to improve research standards and procedures, thus giving priority to knowledge over economic benefits and prestige. The study had no conflict of interest since the researcher had no relationship with the respondents of the study. It was a requirement for the completion of the doctoral degree in educational management at the University of Mindanao Professional Schools. The researcher ensured that there were no circumstances that provided the potential opportunities where the respondent's responses were compromised or would put in their personal interests or those of any other person or organization. There was no trace of COI, (i.e. Disclosure of COI) COI is a set of conditions in which a professional judgment concerning primary interest, such as the participants' welfare or the validity of the research, tends to be influenced by a secondary interest such as financial or academic gains or recognition.

The researcher secured proper permission from the targeted schools where the respondents were studying. The permission to conduct the study was in the form of a letter approved by the Dean, Professional Schools, University of Mindanao. The letter was addressed to the School's Division Superintendent of the Department of Education of the 11 divisions under Region XI. As soon as the letter was approved by the Division Superintendent, the researcher furnished the concerned School Heads of the 11 identified public schools in preparation for the full-blown data gathering. No person was authorized to publish nor present this paper except the researcher or the adviser with the consent of the researcher. In case the organization wants to have a copy of the result of the study, they can access it for the purpose of creating programs and policies in the organization, but still with the permission of the researcher, adviser, and the university. For purposes of publication of this study, the adviser becomes the co-author of the study.

As to the statistical tools and for a more comprehensive interpretation and analysis of the data, the following were employed: Mean was used to determine the level of constructivist learning environment management, metacognitive awareness,

epistemological beliefs and academic success. This answered research objectives 1, 2, 3, and 4. Pearson r was applied to determine if the relationships were significant between constructivist learning environment management, metacognitive awareness, epistemological beliefs and academic success. This answered research objective number 5. Path analysis was used to determine the best-fit model for the academic success of students in answer to research objective number 5.

The researcher conducted the study in strict adherence to ethical principles, adhering to the evaluations outlined in the study protocol and standardized criteria, with particular attention to population and data management. Concerns of a moral nature were noted throughout the course of this research. Prior to conducting the study, the researcher obtained consent from the relevant authorities concerning the behavior and participation of the intended participants. Respondents were briefed on their responsibilities and made aware that their participation was voluntary and without cost. Participants were requested to provide informed consent and were assured that the information gathered would remain private and confidential, with access restricted only to those who wished to rescind their involvement. The researcher ensured that all potential hazards were eliminated by taking into account psychological, financial, and physical preparations, as well as mitigating measures. There were no instances of plagiarism, falsification, or fabrication throughout the entire study period. There was no conflict of interest (COI) or traces of it, and deceit was prevented. In consideration for publication, the advisor is admitted as a co-author of the research.

4. Results and Discussion

Table 1: Level of Constructivist Learning Environment Management

Indicators	SD	Mean	Descriptive Level
Communication and Interaction	0.545	4.23	Very High
Relation Establishment	0.589	4.28	Very High
Skills Development	0.629	4.16	High
Time Usage and Assessment	0.573	4.23	Very High
Learning and Teaching	0.643	4.17	High
Learning Environment	0.643	4.15	High
Overall	**0.513**	**4.20**	**Very High**

The results of the study, wherein constructivist learning environment management is always observed, were in consonance with various authors (Sichon & Guhao, 2020; Tiburcio, Quines & Guhao, 2018) wherein project-based learning is linked with constructivist learning environment management as it is a constructivist instructional learning pedagogy. Through project-based learning, students solve real-life problems and experience new perspectives that include skills for competency. Relatedly, discipline is highly challenging in terms of constructivist learning environment management, as well as teaching and learning.

Also, the establishment of indicator relations is very high. This is supported by various authors (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020; Haleem, Javaid, Qadri, & Suman, 2022) who stated that the teacher creates a consistent learning environment by working with students in relation to the establishment and a cooperative plan for classroom rules, procedures, and academic learning that governs the classroom. As they are taught citizenship skills and given chances for leadership, students gain the experiences necessary to become self-disciplined.

On the other hand, the learning environment is high. This is aligned with various authors (Chepkwony *et al.*, 2018; Usman & Madudili, 2019) who mentioned that the learning environment does not only affect learner's outcomes and attainment but is a prominent policy issue in a number of countries. A school with an adequate learning environment contributes to the expected outcomes of learning that will facilitate good academic performance by encouraging effective teaching and learning.

Table 2: Level of Metacognitive Awareness

Indicators	SD	Mean	Descriptive Level
Declarative Knowledge	0.581	4.20	Very High
Procedural Knowledge	0.701	4.08	High
Conditional Knowledge	0.663	4.13	High
Overall	**0.577**	**4.14**	**High**

The results of the study on the high level of metacognitive awareness are aligned with the statements of various authors (Dhyani & Maikhuri, 2018; Siqueira, Gonçalves, Mendonça, Kobayasi, Arantes-Costa, Tempski & Martins, 2020) that it is important for teachers to be aware of metacognitive activities and strategies in order to know how to teach students better. Students who develop metacognitive strategies can plan, monitor and regulate their cognition process. Thus, more efficient study plans, responsibilities and deep learning should be developed. Metacognitive practices result in better care, reasoning, decision making and a continuous process of lifelong learning, which is essential in any practice.

The indicator of declarative knowledge is very high. This is consistent with authors (Potgieter & van der Walt, 2022; and Schraw, 2018) who highlighted that declarative knowledge includes knowledge about oneself as a learner and about what factors influence one's performance. Declarative knowledge is functional knowledge, such as the ability to name, list, describe and recall what they know, what and how they teach mathematics in the context of the learners in their specific classrooms. These include knowledge of the best teaching practice in the context of the learners and about factors that can affect teaching in a specific context.

In addition, the indicator of procedural knowledge is high. It is in consonance with various authors (Glaser & Chi, 2018; Wiono, Meriza & Agnesa, 2021) who mentioned that individuals with a high degree of procedural knowledge perform tasks more automatically, are more likely to possess a larger repertoire of strategies, to sequence

strategies effectively and use qualitatively different strategies to solve problems. Following sequential steps during practicum leads to predicted results. It can be assumed that students often do practical activities and that this affects their procedural knowledge.

Table 3: Level of Epistemological Beliefs

Indicators	SD	Mean	Descriptive Level
Structure	0.630	4.07	High
Speed/Stability	0.711	4.05	High
Control	0.670	4.15	High
Source	0.625	4.20	Very High
Overall	**0.541**	**4.12**	**High**

The results revealed that there is a high level of epistemological beliefs, which is backed up by various authors (Jena & Chakraborty, 2018; Ongowo, 2021), wherein epistemological belief has three factors: quick learning, innate ability, and specific knowledge. Students' learning styles depend on their ability and motivation as learning styles relate to learners' metacognition and epistemological beliefs, which directly affect the modes of teaching. Epistemic competence is of particular significance since it is a determinant of the acquisition of coherent knowledge that is of practical value in real-life contexts. The acquisition of coherent knowledge is of strategic value, especially at a time when a more significant premium is placed on the provision of solutions to problems in society.

Additionally, the indicator source is very high. It is aligned with various authors (Lee, 2018; Swiderski, 2020) who stated that engagement in online activities is also associated with epistemic beliefs. Students who view internet-based information as a good source of knowledge and detailed and stable information for course-related work have more frequent online activities. A key term is testimony, as epistemology in the modern tradition cites perception, memory and rational inference as the central sources of knowledge.

Meanwhile, the indicator speed/stability has a high level. This is consistent with authors (Anjusha & Niranjana, 2018; Shoaib, Akhtar, & Naheed, 2020), who emphasized that the speed of knowledge acquisition is based on research on math-related beliefs and their influence on learning. A person with high beliefs thinks learning is a gradual process that requires continued effort and persistence. Epistemological beliefs have been associated with constructivism. Students believe that if they cannot solve mathematics problems speedily, then devoting additional time does not help. This reflects their beliefs about the speed of knowledge acquisition.

The results of the study wherein the level of academic success of students is often observed are in consonance with various authors (Bakar, Alsmadi, Ali, Shuaibu, & Solahudin, 2022; Blas & Guhao, 2023; Son, 2019) who mentioned that there is a link between students' success motivation, academic self-concept and academic accomplishment. There is also a relationship between achievement motivation and

academic performance. Student activities outside of school hours generally help to strengthen the ties between students and academic institutions, which leads to greater academic success. School heads should also ensure that the faculty and staff make endeavors towards student academic success.

Table 4: Level of Academic Success of Students

Indicators	SD	Mean	Descriptive Level
General Academic Skills	0.585	4.17	High
Internal Motivation/Confidence	0.595	4.20	Very High
Perceived Instructor Efficacy	0.592	4.24	Very High
Concentration	0.606	4.24	Very High
External Motivation/Future	0.646	4.20	Very High
Socializing	0.622	4.18	High
Career Decidedness	0.661	4.13	High
Lack of Anxiety	0.720	4.09	High
Personal Adjustment	0.639	4.08	High
External Motivation/Current Time	0.602	4.08	High
Overall	**0.517**	**4.16**	**High**

There is a very high level of perceived instructor efficacy. This is aligned with various authors (Buric & Kim, 2020; Seneviratne *et al.*, 2019) who highlighted that teachers with high levels of self-efficacy tend to cope effectively with a range of student behaviors in the classroom and create positive relationships with their students. For instance, teachers with a strong sense of efficacy create a supportive classroom environment. Moreover, instructors with high efficacy show greater persistence in the face of obstacles. Highly efficacious teachers attributed their high sense of teaching efficacy to their increased knowledge of teaching strategies.

There is also a very high level of concentration. This is consistent with authors (Cicekci & Sadik, 2019; Sari *et al.*, 2021) stating that performing the task for a long time and concentrating on the desired stimuli of attention depends on continuous stimulation. Even if all factors are positive, learning does not occur when students cannot pay attention to the activities in the classroom environment. Additionally, learning concentration is a concentration focus of thoughts on a certain object to reduce or set aside things that are not related to the object studied.

Moreover, there is a high level of personal adjustment. The result is in consonance with various authors (Alipio, 2020; Dlamini, Tom, Nel & Zogli, 2020) wherein positive coping predicts positive academic and personal adjustment in a student's education. Students are likely to use both problem-focused and emotion-focused forms of coping in stressful encounters. Having well-adjusted students is one of the purposes of any school since it has been found that students' adjustment can have a significant effect on students' academic performance. The relationship between students' academic and personal adjustment and their academic performance can be emphasized by schools to create more successful students.

Lastly, there is a high level of external motivation/current time. This is supported by authors (Liu, 2022; Mauliya *et al.*, 2020), who mentioned that during the process of learning, parents' encouragement on external motivation, and emphasizing the importance of learning viewpoint should be paid attention to. Though teachers are responsible for students' performance at school, parents are in charge of students' performance at home. Most families attach importance to learning, as it is one of the main cores of current times. Two significant factors interfering with learning in the classroom are external and internal disturbance. Meanwhile, internal disturbance covers those coming from students themselves, such as lack of external motivation, laziness, and the desire to eat in class.

Table 5: Significance on the Relationship between the Levels of Constructivist
Learning Environment Management and Academic Success of Students

CLE	Academic Success of Students										
	GAS	IM/C	PIE	CON	EM/F	SOC	CD	LA	PA	EM/CT	Overall
CI	.445* (0.000)	.411* (0.000)	.424* (0.000)	.388* (0.000)	.443* (0.000)	.408* (0.000)	.409* (0.000)	.419* (0.000)	.399* (0.000)	.433* (0.000)	**.507*** **(0.000)**
RE	.426* (0.000)	.400* (0.000)	.398* (0.000)	.337* (0.000)	.414* (0.000)	.357* (0.000)	.369* (0.000)	.364* (0.000)	.356* (0.000)	.334* (0.000)	**.456*** **(0.000)**
SD	.499* (0.000)	.445* (0.000)	.445* (0.000)	.371* (0.000)	.439* (0.000)	.426* (0.000)	.421* (0.000)	.388* (0.000)	.411* (0.000)	.396* (0.000)	**.514*** **(0.000)**
TUA	.470* (0.000)	.410* (0.000)	.429* (0.000)	.363* (0.000)	.432* (0.000)	.380* (0.000)	.366* (0.000)	.342* (0.000)	.392* (0.000)	.380* (0.000)	**.480*** **(0.000)**
LT	.459* (0.000)	.403* (0.000)	.417* (0.000)	.397* (0.000)	.409* (0.000)	.425* (0.000)	.355* (0.000)	.364* (0.000)	.404* (0.000)	.397* (0.000)	**.488*** **(0.000)**
LE	.422* (0.000)	.443* (0.000)	.334* (0.000)	.380* (0.000)	.407* (0.000)	.379* (0.000)	.355* (0.000)	.331* (0.000)	.313* (0.000)	.327* (0.000)	**.447*** **(0.000)**
Overall	**.534*** **(0.000)**	**.493*** **(0.000)**	**.479*** **(0.000)**	**.439*** **(0.000)**	**.498*** **(0.000)**	**.467*** **(0.000)**	**.446*** **(0.000)**	**.432*** **(0.000)**	**.446*** **(0.000)**	**.444*** **(0.000)**	**.567*** **(0.000)**

There is a significant relationship between constructivist learning environment management and academic success of students. The findings of the study are congruent with the statements of various authors (Njideka & Mkpa, 2019; Sunzuma, Zezekwa & Munakandafa, 2022), wherein constructivist management encourages the design of learning environments that are cooperative. Cooperative learning enables the students to work together, share various ways of thinking, and improve the way in which one makes ideas. Cooperative learning improves academic success and socialization skills. A constructivist learning environment is an effective method of teaching in schools and can be used to improve students' performance. Constructivist learning materials increase academic success and retention.

The result affirms the Constructivist Learning Theory by Boyle (1994), which emphasizes that learning is a process of constructing knowledge rather than acquiring it. It takes the student's social, cultural, and contextual conditions into consideration and theorizes that the student constructs knowledge through experience. Students interpret new information through their contextual experiences and build upon their existing knowledge from the conclusions reached during the incorporation of new knowledge and reflection.

Table 6: Significance on the Relationship between the Levels of
Metacognitive Awareness and Academic Success of Students

MCA	Academic Success of Students										
	GAS	IM/C	PIE	CON	EM/F	SOC	CD	LA	PA	EM/CT	Overall
DK	.450* (0.000)	.481* (0.000)	.394* (0.000)	.412* (0.000)	.450* (0.000)	.426* (0.000)	.386* (0.000)	.384* (0.000)	.388* (0.000)	.407* (0.000)	**.506*** **(0.000)**
PK	.451* (0.000)	.431* (0.000)	.384* (0.000)	.338* (0.000)	.384* (0.000)	.347* (0.000)	.342* (0.000)	.298* (0.000)	.355* (0.000)	.394* (0.000)	**.450*** **(0.000)**
CK	.474* (0.000)	.443* (0.000)	.392* (0.000)	.383* (0.000)	.376* (0.000)	.369* (0.000)	.341* (0.000)	.332* (0.000)	.340* (0.000)	.410* (0.000)	**.466*** **(0.000)**
Overall	**.515*** **(0.000)**	**.505*** **(0.000)**	**.438*** **(0.000)**	**.422*** **(0.000)**	**.450*** **(0.000)**	**.425*** **(0.000)**	**.398*** **(0.000)**	**.376*** **(0.000)**	**.404*** **(0.000)**	**.453*** **(0.000)**	**.530*** **(0.000)**

There is also a significant relationship between metacognitive awareness and students' academic success. The findings of the study are corroborated by the statements of various authors (Fidrayani & Hadiati, 2020; Warmer, 2018) who stated that students with high levels of metacognitive awareness have high levels of academic success. Metacognitive awareness is a strong predictor of academic success. There is a significant positive relationship between metacognitive awareness and test performance in undergraduate students and students with higher levels of metacognitive awareness use learning strategies more efficiently, which has positive effects on academic performance. Metacognitive awareness and learning strategies are essential factors in academic success as well as a positive predictor of academic success.

The result also affirms the Metacognition Theory by Flavell (1976), which highlights that metacognition consists of both monitoring and regulation aspects. Metacognition refers to the active monitoring and consequent regulation and orchestration of processes in relation to the cognitive objects on which they bear, usually in service of some concrete objective.

Table 7: Significance on the Relationship between the
Levels of Epistemological Beliefs and Academic Success of Students

EB	Academic Success of Students										
	GAS	IM/C	PIE	CON	EM/F	SOC	CD	LA	PA	EM/CT	Overall
STRU	.398* (0.000)	.380* (0.000)	.306* (0.000)	.267* (0.000)	.344* (0.000)	.314* (0.000)	.297* (0.000)	.3 13* (0.000)	.311* (0.000)	.291* (0.000)	**.390*** **(0.000)**
SPE/STA	.462* (0.000)	.479* (0.000)	.387* (0.000)	.283* (0.000)	.443* (0.000)	.398* (0.000)	.380* (0.000)	.393* (0.000)	.373* (0.000)	.375* (0.000)	**.482*** **(0.000)**
CON	.613* (0.000)	.652* (0.000)	.615* (0.000)	.468* (0.000)	.625* (0.000)	.557* (0.000)	.516* (0.000)	.554* (0.000)	.442 (0.000))	.421* (0.000)	**.662*** **(0.000)**
SOU	.687* (0.000)	.651* (0.000)	.669* (0.000)	476* (0.000)	.618* (0.000)	.600* (0.000)	.553* (0.000)	.531* (0.000)	.538* (0.000)	.504* (0.000)	**.705*** **(0.000)**
Overall	**.656*** **(0.000)**	**.658*** **(0.000)**	**.600*** **(0.000)**	**.453*** **(0.000)**	**.618*** **(0.000)**	**.568*** **(0.000)**	**.531*** **(0.000)**	**.545*** **(0.000)**	**.505*** **(0.000)**	**.484*** **(0.000)**	**.681*** **(0.000)**

There is also a significant relationship between epistemological beliefs and the academic success of students. The findings of the study are in line with the statements of various authors (Shirzad, Barjesteh, Dehqan, & Zare, 2022: Shoaib, Akhtar, & Naheed, 2021) wherein achievement goals, self-efficacy, and cognitive engagement have a mediating role between dimensions of epistemological beliefs and academic success.

Epistemological beliefs can affect academic success. Various aspects of the beliefs about the structure and source of knowledge affect the learners' academic achievement and psychological factors. Students' epistemological beliefs promote academic success.

Further, the result affirms the Theory of Educational Productivity by Walberg (1981), which identifies nine key variables that influence educational outcomes namely: student ability/prior achievement, motivation, age/developmental level, quantity of instruction, quality of instruction, classroom climate, home environment, peer group, and exposure to mass media outside of school. The theory posits that the psychological characteristics of individual students and their immediate psychological environments influence educational outcomes (cognitive, behavioral, and attitudinal).

Table 8: Goodness of Fit Measures of Structural Equation Model 1

Index	Criterion	Model Fit Value
P-Close	>0.05	.000
CMIN/DF	0<value<2	5.475
P-value	>0.05	.000
GFI	>0.95	.795
CFI	>0.95	.878
NFI	>0.95	.854
TLI	>0.95	.863
RMSEA	<0.05	.102

In assessing the absolute fit of generated Model 1, it can be extracted from Table 8 that Chi-Square/Degrees of Freedom (CMIN/DF) of 5.175 provided a poor fit, Goodness of Fit Index (GFI) of 0.795 did not offer good support for the model, and Root Means of Error Approximation (RMSEA) of 0.102 did not satisfy the criterion to be reasonably fit. When assessing the comparative fit measures, results revealed that the Comparative Fit Index (CFI) was 0.878, the Normed Fit Index (NFI) was 0.854 and the Tucker-Lewis Index (TLI) was 0.863; implying that it did not fall within the acceptable criteria and did not provide support for the model. Moreover, the p-value (0.000) was not greater than 0.05 and the p-close (0.000) was not higher than 0.05. Overall, Structural Model 1 was a very poorly fit model as it failed to pass each of the criteria.

Table 9: Goodness of Fit Measures of Structural Equation Model 2

Index	Criterion	Model Fit Value
P-Close	>0.05	.000
CMIN/DF	0<value<2	3.201
P-value	>0.05	.000
GFI	>0.95	.919
CFI	>0.95	.955
NFI	>0.95	.937
TLI	>0.95	.944
RMSEA	<0.05	.074

Moreover, Table 9 shows the goodness of fit measures of Structural Model 2. In analyzing the absolute fit of generated Model 2, the indices CMIN/DF and RMSEA produced results of 3.201 and 0.74, respectively. This indicated a poor fit since it did not satisfy the criteria for absolute fit. For comparative fit, it did not pass the GFI (0.919), NFI (0.937) and TLI (0.944). Both the p-value (0.000) and p-close (0.000) were not higher than 0.05. Thus, Structural Model 2 was a poor fit in totality.

Table 10: Goodness of Fit Measures of Structural Equation Model 3

Index	Criterion	Model Fit Value
P-Close	>0.05	.858
CMIN/DF	0<value<2	1.436
P-value	>0.05	.089
GFI	>0.95	.983
CFI	>0.95	.995
NFI	>0.95	.984
TLI	>0.95	.991
RMSEA	<0.05	.033

Moreover, presented in Table 10 are the goodness of fit measures of Structural Model 3. It can be derived from the table that when comparing the model fit values against the absolute fit criteria, the model's RMSEA (0.033), CMIN/DF (1.436), GFI (0.983), CFI (0.995), NFI (0.984), and TLI (0.991), results were all highly acceptable. Also, both the p-value (0.089) and p-close (0.858) were higher than 0.05. Thus, Structural Model 3 is the best fit in totality.

The model clearly illustrates the importance of constructivist learning environment management, metacognitive awareness, and epistemological beliefs towards the academic success of students. Constructivist learning environment management, metacognitive awareness, and epistemological beliefs contribute to the improvement of the academic success of students. Thus, the findings suggest that the academic success of students is rooted in the strong evidence of constructivist learning environment management: communication and interaction and relation establishment; metacognitive awareness: procedural knowledge and conditional knowledge; and epistemological beliefs: speed/stability and source.

Hypothesized Model 3 shows the interrelationship between the independent variables: constructivist learning environment management, metacognitive awareness, and epistemological beliefs and their causal relationship on students' academic success. Results suggest that the independent variables constructivist learning environment management represented by the measured variables communication and interaction and relation establishment; metacognitive awareness represented by the measured variables procedural knowledge and conditional knowledge; and epistemological beliefs represented by the measured variables speed/stability and source has a significant contribution to the dependent variable, academic success of students.
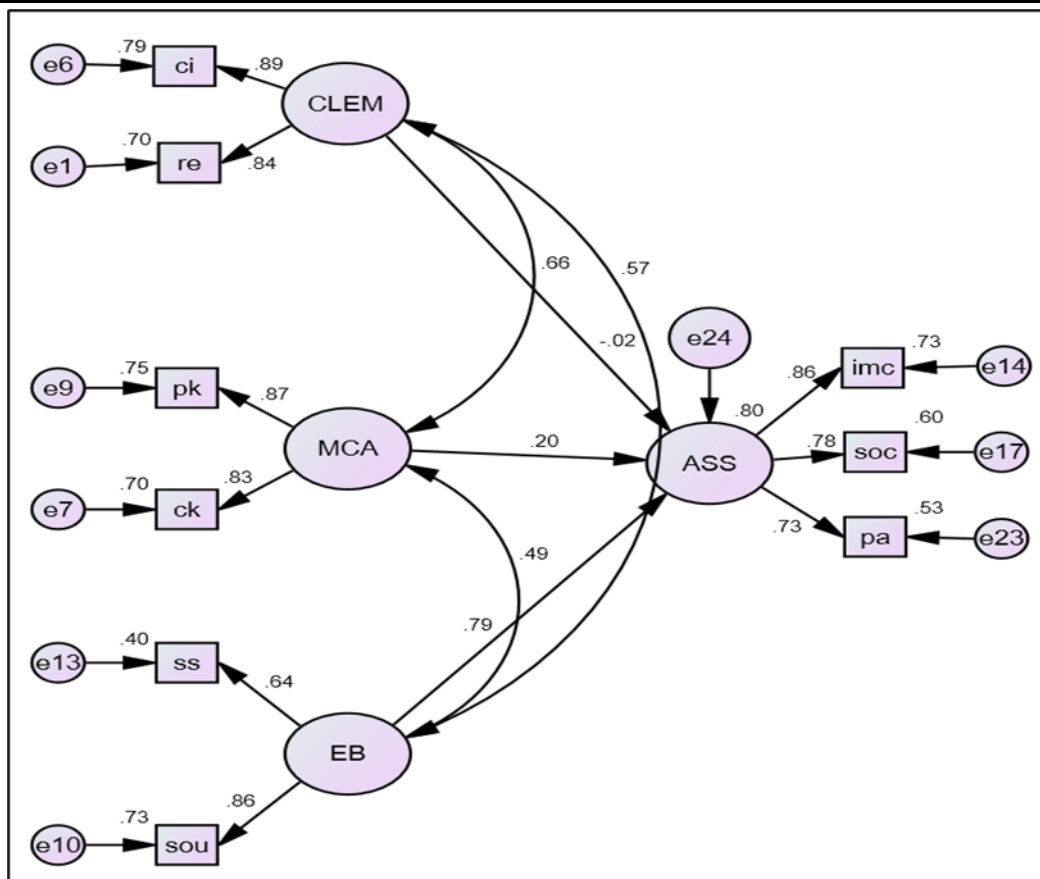
Figure 4: Structural Equation Model 3 in Standardized Solution

5. Recommendations

The researcher came up with recommendations based on the results of the study. On the very high level of constructivist learning environment management, it is hereby recommended that the best practices in the classroom be continued as they provide sustainable effects to the students. These include maintaining good relationships with all the students showing complete focus on the realization of the school's vision, mission and goals, being sensitive to the needs of the students and being able to make decisions in a win-win situation. Also, being supportive of the activities of the school involving teachers, students and parents, which activities may be conducted inside or outside the school premises.

Likewise, the researcher recommends the continuous implementation of open communication and building rapport between students, teachers and school management. This includes the conduct of focus group discussions or dialogue with the students to immediately address pressing problems or issues. Also, it is a good practice to start the daily classes and open them with some devotional reflection for guidance and enlightenment and to ensure positivity for the duration of the class. Teachers may have some spiritual activities annually like conducting retreats or recollections which are ecumenical in nature for some reflection and refreshing minds as they continue to deliver

their teaching tasks to the students. Since teachers are considered second parents in school, the teachers may continue to be approachable and open to the ideas of students in class and most especially guide the students on the proper way of living, reacting to different kinds of situations and addressing problems with positivity.

Furthermore, the best practices that the school has shown to all the stakeholders: the teachers, students and parents may be sustained. Activities like regular meetings or dialogue with teachers, students and parents allow a meaningful relationships among the stakeholders. The teachers may continue to communicate with the parents on the status of their children in the class. This may include also giving information to parents on the achievements achieved by their children. In this case, the teachers may consider the giving of awards or recognition to all deserving students for the job well done in the class in the school as a whole. There is this feeling of ownership of the school where they are enrolled/studying as the teachers and the students show respect, trust and dedication in everything that they do in school. This feeling will transcend over to the family and to the community, thus creating a good image of the school.

On the results of the high levels of metacognitive awareness, epistemological beliefs and academic success of students, the researcher recommends that school management may continue to establish an atmosphere in school where students feel that everything that they do matters to the school and to the community. Activities like school programs and activities like getting to know more about the students, honest and healthy dialogue between school management, teachers and students including parents through the conduct of focus group discussions, and meetings as a mode of addressing some students' concerns. It is also hereby recommended that the school management and the teachers continue with the practice of allowing the students to participate in all school activities, and provide the students with a variety of activities that would motivate them students to actively participate such as debates, quizzes bee contests, sports/cultural competition and such other class or school activities that may help enhance or develop students' abilities and skills. Intra-school or inter school competitions may be opened to students, then this may be part of the yearly undertaking to showcase the best talents of the students and even to market the school and gain more enrollees. The giving of recognition and commendations to students for their best achievements or performances may be done through the awarding of medals and certificates during recognition or graduation ceremonies.

Moreover, the teachers may encourage all the students to start or continue exploring the different social media platforms. This may allow both the teachers and the students to appreciate technology as a tool in the teaching and learning process. A good practice may be done in coming up with an evaluation process of the activities done in a year and identifying which activities increase the students' participation and motivation in class and which particular activity increases or needs improvement as far as the teacher's competencies in the class are concerned.

6. Conclusion

Based on the findings of the study, the researcher came up with the following conclusions. The level of constructivist learning environment management is very high, while the levels of metacognitive awareness, epistemological beliefs, and academic success are high. There are also significant relationships between constructivist learning environment management and the academic success of students, metacognitive awareness and the academic success of students, and epistemological beliefs and the academic success of students. Results also revealed that among the three structural models, model 3 is selected as the model which best fits the academic success of students.

All of the exogenous variable's constructivist learning environment management represented by the measured variables communication and interaction and relation establishment; metacognitive awareness represented by the measured variables procedural knowledge and conditional knowledge; and epistemological beliefs represented by the measured variables speed/stability and source had greatly given significant influence to the academic success of students. This study is supported by the anchor theory, the Theory of Educational Productivity by Walberg (1981) which posits that the immediate psychological environments and psychological characteristics of individual students influence educational outcomes (cognitive, behavioral, and attitudinal).

In conclusion, among the three structural models, model 3 is selected as the model which best fits the academic success of students. The model showed that constructivist learning environment management and metacognitive awareness have a direct effect on the academic success of students while epistemological beliefs have an indirect effect on the academic success of students. Therefore, the Department of Education may consider this result in the teacher's development program.

To my husband, Admer B. Del Valle and our children, Jhanus Nixell, Princess Yvonne, Amera Pearl Ysalm, Divine Adreanne, Alexa Rhea and Meriel Fedes; and friends for the inspiration they give every day;

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Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Jean M. Del Valle is a Principal 1 assigned at Kinablangan Elementary School, Kinablangan, Baganga, Davao Oriental, Philippines. She is a candidate for Doctor of Education Major in Educational Management.

Eugenio S. Guhao, Jr., DM. Dean, Professional School, Senior Vice-President for Academic Affairs and a University Professor, University of Mindanao, Davao City, Philippines.

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