Exploring the Influence of Crisis Management, Principal Traits, School Culture, and External Support on the Principal's Leadership Style in Times of Crisis: A Structural Equation Model

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ABSTRACT

The leadership of school principals was challenged, resulting in many transformations and adjustments during the time of the global health crisis. This study aimed to determine the best-fit model for a principal's leadership style in times of crisis. There were four exogenous variables, namely: crisis management, principal traits, school culture, and external support; and one endogenous variable which is the principal's leadership style. Results showed that the levels of these four exogenous variables were high, which means that these variables were much observed. Results also revealed that the four exogenous variables have a significant relationship to the principal's leadership style with external support having the strongest relationship. The fit indices of the structural equation model (SEM) together with the dimensions revealed that the 5-factor model is the best-fit model as it passed all the criteria for goodness of fit. It is recommended that the 5-factor model of the principal's leadership style be utilized during the program enhancement of the school heads to improve their leadership style, and even apply it among the schools in Davao Region and beyond.

Keywords: crisis management, principal traits, school culture, external support, principals' leadership style, structural equation modeling, Davao Region

INTRODUCTION

School leaders provide direction, motivate, and inspire school faculty and students, set high expectations, establish a positive culture, and make decisions that reflect the best interest of the school community. However, the kind of leadership they employed during the pandemic was challenged vigorously. Indeed, their leadership was crucial during the invasion of COVID-19. School principals were asked to perform and demonstrate effective leadership skills to navigate the school community through a difficult situation (Reyes-Guerra et al., 2021). Some of them had shown their best and managed the school accordingly, yet some leaders failed to perform their expected duties. Some schools lacked communication which led to confusion, rumors, and panic among teachers, students, and parents. They failed to plan and prepare for a crisis that resulted in a chaotic and unorganized response. Those were just some of the challenges of the school leaders that need to be addressed.

As the global health crisis brought by the pandemic constitutes potentially high and often disruptive consequences for economies and organizations, principal leadership has recently resurfaced as the focal

point in a series of systematic reviews that aimed to redefine it and provide useful insights into the determinants that condition successful leadership practice in times of crisis in different organizational contexts (Brock et al., 2021). A study by Nurdiansyah (2021) on the role of school principals in Indonesia during the onslaught of the COVID-19 pandemic found that school principals were adopting distance learning and other blended learning modalities to continue the education of students since schools were closed and many areas or establishments were quarantined. Furthermore, a study by Adams et al. (2023) on the insights of Philippine settings found that school principals during crises made some swift decisions on the implementation of online learning platforms, distribution of learning materials, and the training of teachers and staff to ensure continuity in education.

Moreover, the principal's leadership style has been linked to crisis management, principal traits, school culture, and external support. A study by Purmono et al. (2021) found that a principal's leadership style and proactive approach to crisis preparedness can significantly impact the resilience of the school community. Crises, characterized by intense external pressures and significant potential disruptions to economies and organizations, such as the recent pandemic, have prompted a renewed focus on principal leadership (Hazaa et al., 2021). Moreover, a series of recent systematic reviews have sought to redefine and offer valuable insights into the factors influencing successful leadership practices during crises across various organizational settings. Some authors have suggested that principal leadership underscores the significance of embracing an interdisciplinary perspective by integrating findings from related theoretical and empirical research in the fields of economics, psychology, and business administration (Bundy et al., 2017).

Moreover, De Castro and Jimenez (2022) stressed that principal traits such as interpersonal and intrapersonal abilities create a positive leadership environment and strong leadership skills. As outlined by Smith and Riley (2012), crisis leadership entails a leader's proactive traits for swift changes and capacity to respond promptly and fittingly. School leaders do not lead in the same manner in times of adversity as they do in normal conditions. There is a greater emphasis on the present state of people's emotions during a crisis, which therefore requires more and better communication and greater flexibility. In connection to collaboration and communication, a considerable amount of literature has been published by Abrams (2020) stating that effective leaders embed the collective values, ideals, principles, and beliefs of the school within its members.

In the relationship between school culture and the principal's leadership style, a study by Cooray (2023) found that a healthy school culture enhances the effectiveness of principal leadership by fostering trust, cooperation, and collective commitment to the educational mission. Moreover, establishing a school culture falls under the purview of the school leader, who, through enhanced representation of the organizational culture, can reinforce their symbolic leadership practices (Brion, 2021). Therefore, it provides a framework for understanding the organization's goals, strategies, and practices influencing decision-making. This domain encompasses a variety of perspectives, expectations, attitudes, narratives, and trends that collectively shape its overarching framework.

Furthermore, Kaiser and Thompson (2021) emphasized that effective leaders leverage external support to supplement internal resources, providing opportunities for professional development, innovative programs, and additional services for students. Likewise, other studies have considered the relationship between leadership style and external support (Adam & Alarifi, 2021) that external support denotes aid extended to the enterprise from external entities. In addition, external support involves continuous collaboration centered on the primary purpose of schools, which is student learning. It also entails transparent dialogue addressing the imperative that many schools encounter to enhance student learning during periods of crisis (Supovitz, 2008).

Although there are several literatures have focused on the interrelationships between crisis management, principal traits, school culture, external support, and principal leadership style, there is still a scarcity of

studies related to these variables and there is no empirical evidence of these variables towards principal's leadership, as most of the related studies are bivariate. With the use of some research designs, data analysis, and sampling procedures, this study is important in developing an extensive influence on a principal's leadership style during a crisis.

Objective of the Study and Research Questions

The purpose of this study is to construct a causal model of a principal's leadership style through crisis management, principal traits, school culture, and external support. Specifically, this study aims to answer the following questions: (1) What is the level of crisis management in terms of commitment of management, awareness, flexibility, and learning? (2) What is the level of principal traits in terms of intra-personal human ability, inter-personal human ability, strategic intra-organizational ability, inter-organizational strategic ability, team management, general management, instructional leadership, school leadership, and external relations? (3) What is the level of school culture in terms of professional collaboration, affiliative collegiality, and self-determination/efficacy? (4) What is the level of external support in terms of characteristics of the critical facilitator, that promotes the achievement of the task, and promotes the achievement of process outcomes among participants? (5) What is the level of the principal's leadership style in terms of democratic leadership, autocratic leadership, and laissez-faire leadership? (6) What is the significant relationship between variables? (7) What model best fits the principal's leadership style?

Theoretical and Conceptual Framework

This study is anchored on Bandura's (2005) Social Cognitive Theory where the principal's leadership style increases commitment and responsiveness to crises by having a positive influence on teachers' behavior, beliefs, knowledge, and practice. By using leadership style, school principals can positively increase their teachers' efficacy, ability, and productivity to act accordingly in a time of crisis. This theory aligns with the idea that leaders serve as role models whose actions and decisions are observed by the school community. Moreover, this theory is relevant to various aspects of educational leadership such as crisis management where this theory models effective coping strategies and problem-solving skills in responding to crises and challenges. This theory is also closely linked to principal traits as it emphasizes the role of personal characteristics and self-efficacy in shaping behavior.

Moreover, this theory extends its relationship to school culture. The theory underpins the importance of observational learning in the transmission of cultural norms, with leaders playing a central role in setting the tone for the school community. By aligning their actions with the values they seek to promote, principals can contribute to the development of a healthy and cohesive school culture. Likewise, this theory can be applied to understand the role of external support in educational leadership. Bandura's (2005) emphasis on the importance of environmental influences aligns with the notion that external support, such as collaboration with external organizations, can shape the leadership behaviors of principals. Through interactions with external entities, principals have the opportunity to observe and learn from successful models, adapting effective strategies to their own leadership context.

Furthermore, a study that used SCT in the context of crises showed that people's motivation to prepare for disasters or crises is a function of the cognitive and affective reactions to a natural hazard (Lee & Lemyre, 2000). This implies that when individuals are motivated, intentions to prepare, to be committed, and responsive are formed based on their outcomes expectancies, and self-efficacy.
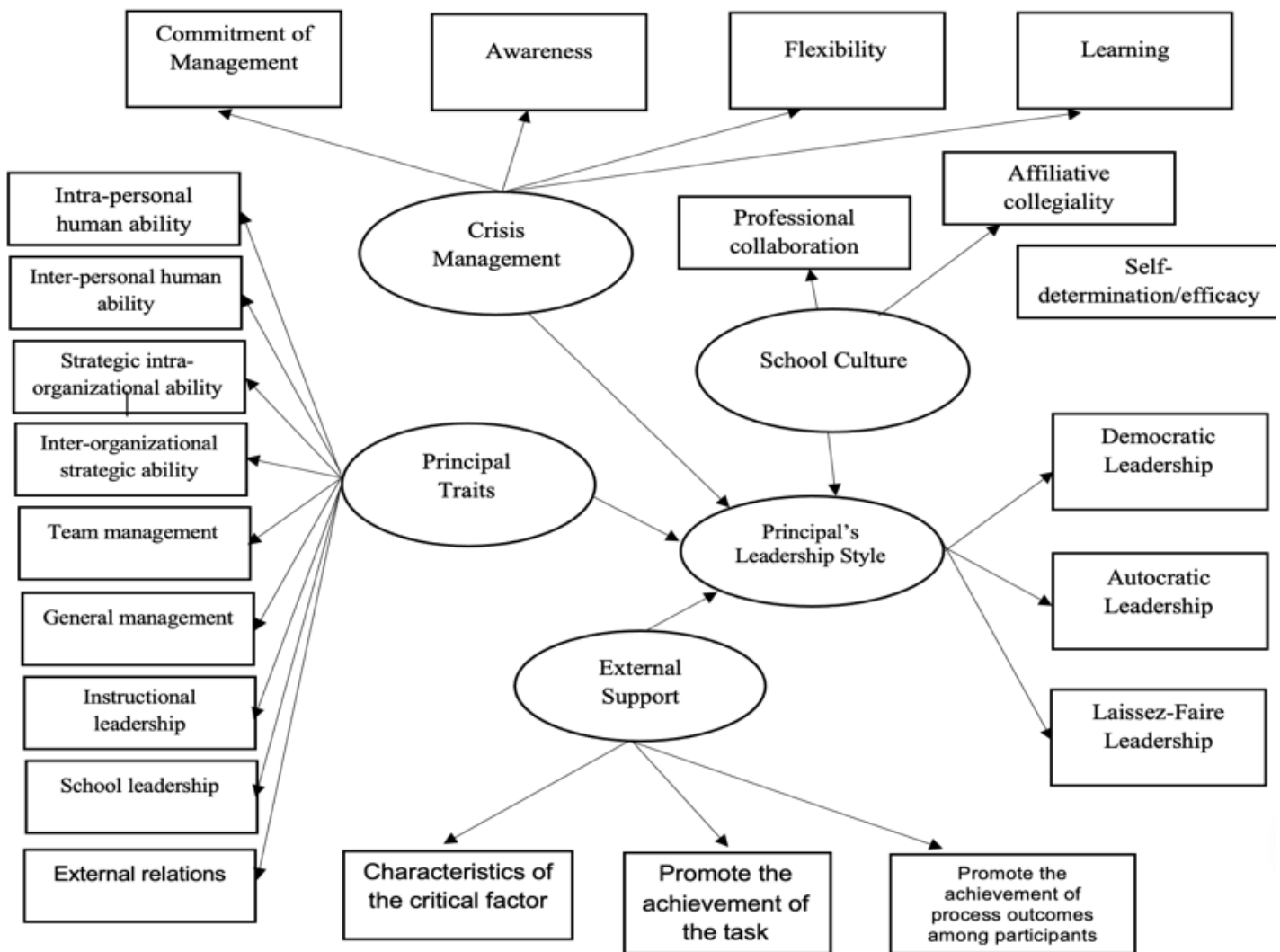
Figure 1. The Conceptual Paradigm of the Study showing the Exogenous and Endogenous Variables.

METHODS

This section outlined the research methods employed in the study which include the research design, population and sample, research instrument, data gathering procedure, data analysis, and ethical consideration.

Research Design

This study employed a cross-sectional research design to investigate the relationships between key variables and their influence on the principal's leadership style during times of crisis. Structural equation modeling (SEM) was used as the primary analytical method to test the proposed structural model.

The researcher utilized data analysis using structural equation modeling with Smart PLS-SEM 3.0. and they were processed in two stages. The first stage evaluated the measurement model consisting of convergent validity, discriminant validity, consistency reliability, convergent validity, and discriminant validity (Stein et al., 2012). The second stage was the evaluation of the structural model (inner model), there are several criteria in the assessment of the structural model: (1) to measure the significance by using a significant value, the t-value must be greater than 1.96 and p must be less than 0.05 (Hair et al., 2014), (2) Analysis of

the coefficient of determination (R-Square), which is to show the ability of how much exogenous or independent variables are in predicting endogenous or dependent variables and showing the strength of the model made.

Population and Sample

The study involved 376 secondary public school teachers in the Davao Region, selected from a total of 15, 820 secondary school teachers in the entire region based on the data from the Davao Region Office XI for the school year 2023-2024. The secondary public school teachers were chosen as respondents of the study since they observed the problem firsthand, where there is a problem with the principal's leadership style, along with issues on leadership especially in times of crisis.

The sample size was calculated using the Raosoft sample size online calculator which is set at 5% margin of error. Stratified random sampling was used as a sampling technique so there would be an equitable distribution of respondents across each division. During the stratification process, the researcher categorized the strata based on shared attributes or characteristics among the secondary public school teachers.

Research Instrument

The researchers utilized five (5) modified and validated questionnaires sourced from online journals adapted from various authors namely: crisis management (Azadian et al., 2014), principal traits (Friedman, 2020), school culture (Glisi, 2016), external support (O'Brien et al., 2017), and principal's leadership style (Northouse, 2009). These questionnaires were also subjected to external validation by the experts in the field. After a series of revisions, a pilot test involving 50 respondents was conducted. The gathered data have undergone a reliability test using Cronbach's alpha reliability coefficient. A Cronbach's alpha of 0.70 and up is considered to be reliable and has a greater internal consistency among the items in the scale (Kline, 2005). Based on Cronbach's alpha results, the variables crisis management, principal traits, school culture, external support, and principal's leadership style have 0.88, 0.79. 0.91, 0.96, and 0.85 Cronbach's alpha values, respectively. This means that all items of these questionnaires were reliable.

Likewise, the scoring guide in evaluating the endogenous and exogenous latent variables of the responses was categorized into five levels. The scales are as follows: 4.20- 5.00 which means very high with an interpretation of being always manifested; 3.40-4.19 which means high with an interpretation of being oftentimes manifested; 2.60-3.39 which means moderate with an interpretation of the variable of being sometimes manifested; 1.80-2.59 which means low with an interpretation of being seldom manifested; and 1.00-1.79 which means very low with an interpretation of being never manifested.

Data Gathering Procedure

The researchers employed a quantitative, non-experimental design, utilizing structural equation modeling (SEM) in measuring and analyzing the connections among both observed and latent variables. This allowed the researchers to examine these variables and provide a comprehensive view of the interconnections within a theoretical model. SEM allows for the simultaneous examination of multiple relationships in a model, considering the direct and indirect effects of variables (Civelek, 2018). This investigation also aimed to develop a best-fit model of the principal's leadership style during the crisis.

The researchers utilized a descriptive-correlational research design, measuring each variable at different levels and establishing correlations to understand the associations or relationships between variables. The exploration of relationships within social science disciplines is a primary motivation for scientific investigation, transcending even the most nuanced distinctions between different research methods (Curtis et al., 2016).

After obtaining approval, the researcher personally distributed and oversaw the administration of the survey questionnaires to guarantee the complete retrieval of all questionnaires. The survey was planned for the second semester of the school year 2023-2024, and the compiled data were organized, tabulated, analyzed, and interpreted under the research questions.

Likewise, the study utilized various statistical tools to measure and test hypotheses at a significant level of alpha 0.05. Mean was used to measure the levels of crisis management, principal traits, school culture, external support, and principal's leadership style. Pearson r was used to measure the interrelationships between these variables, while regression analysis was used to determine the strength of their relationships. Structural Equation Modeling (SEM) was utilized to evaluate the interrelationships among hypothesized models and identify the best-fit model of the principal's leadership style. Model fit indices were assessed using the following: CMIN/DF should be $0<<2$ with a p-value >0.05, Tucker-Lewis Index (TLI) should be >0.9, Comparative Fit Index (CFI) should be >0.9, Goodness of Fit Index (GFI) should be >0.9, Normed Fit Index (NFI) should be >0.9 and Root Mean Square Error of Approximation (RMSEA) should be <0.05 and P of close Fit (PCLOSE) of >0.05 (Kim et al., 2016).

RESULTS AND DISCUSSION

This section shows discussions on the presentation, analysis, and interpretation of data on the research questions, specifically on the best-fit model that best explains the principal's leadership style in times of crisis.

Level of Crisis Management

Table 1 shows the crisis management of the school principals in terms of commitment to management, awareness, flexibility, and learning. Among the four (4) indicators, commitment of management got the highest mean of 4.02 with a descriptive equivalent of high, which means that s is much observed. In addition, awareness got the lowest mean of 3.47 with a descriptive equivalent of high.

Table 1. Level of Crisis Management of School Principals.

Items	Mean	SD	Description
Commitment of Management	4.02	0.71	High
Awareness	3.47	0.99	High
Flexibility	3.80	0.80	High
Learning	3.85	0.81	High
Category Mean	**3.79**	**0.66**	**High**

Level of Principal Traits

Table 2 shows the principal traits of the school principals in terms of intra-personal human ability, inter-personal human ability, strategic intra-organizational ability, inter-organizational strategic ability, team management, general management, instructional leadership, school leadership, and external relations. Among the nine (9) indicators, school leadership and external relations, both got the highest mean of 3.98 with a descriptive equivalent of high. This means that principal traits in terms of school leadership and external relations are much observed.

Table 2. Level of Principal Traits of School Principals.

Items	Mean	SD	Description
Intra-personal human ability	3.94	0.71	High
Inter-personal human ability	3.72	0.80	High
Strategic intra-organizational ability	3.56	0.92	High
Inter-organizational strategic ability	3.85	0.76	High
Team management	3.24	1.09	Moderate
General management	3.84	0.71	High
Instructional leadership	3.82	0.77	High
School leadership	3.98	0.67	High
External relations	3.98	0.68	High
Category Mean	**3.77**	**0.62**	**High**

Level of School Culture

Table 3 shows the school culture of public schools in terms of professional collaboration, affiliative collegiality, and self-determination/efficacy. Among the three (3) indicators, self-determination/efficacy got the highest mean of 4.01 with a descriptive equivalent of high, which means that it is much observed. The indicator affiliative collegiality got the lowest mean of 3.93 with a descriptive equivalent of high.

Table 3. Level of School Culture in Public Schools.

Items	Mean	SD	Description
Professional collaboration	3.98	0.68	High
Affiliative collegiality	3.93	0.65	High
Self-determination/efficacy	4.01	0.63	High
Category Mean	**3.97**	**0.57**	**High**

Level of External Support

Table 4 shows the external support of school principals in terms of characteristics of the critical factor, promote the achievement of the task, and promote the achievement of process outcomes among participants. Among the three (3) indicators, promote the achievement of process outcomes among participants got the highest mean of 4.13 with a descriptive equivalent of high, which means that it is much observed. The indicator, promote the achievement of the task, got the lowest mean of 3.93 with a descriptive equivalent of high.

Table 4. Level of External Support of School Principals.

Items	Mean	SD	Description
Characteristics of the critical factor	3.96	0.63	High
Promote the achievement of the task	3.93	0.69	High
Promote the achievement of process outcomes among participants	4.13	0.62	High
Category Mean	**4.00**	**0.56**	**High**

Level of Principal's Leadership Style

Table 5 shows the principal's leadership style in terms of democratic leadership, autocratic leadership, and laissez-faire leadership. Among the three (3) indicators, democratic leadership got the highest mean of 4.17 with a descriptive equivalent of high, which means that the principal's leadership style is much observed. The indicator autocratic leadership got the lowest mean of 3.87 with a descriptive equivalent of moderate, which means that principal's leadership style in terms of autocratic leadership is observed.

Table 5. Level of Principal's Leadership Style

Items	Mean	SD	Description
Democratic leadership	4.17	0.57	High
Autocratic leadership	3.37	0.74	Moderate
Laissez-faire leadership	4.00	0.64	High
Category Mean	**4.02**	**0.55**	**High**

Significance of the Relationships among Exogenous Variables to Principal's Leadership Style

Table 6 shows the significance of the relationships among exogenous variables (crisis management, principal traits, school culture, and external support) to the principal's leadership style. It is revealed in the table that all exogenous variables have a significant relationship with the principal's leadership style. Among the four (4) exogenous variables, external support got the highest r-value of .814, $p<.05$ which means that there is a positive strong significant relationship between external support and principal's leadership style, thus rejecting the null hypothesis. It is followed by school culture (r-value of .767, $p<.05$), principal traits (r-value of .760, $p<.05$), and crisis management (r-value of .662, $p<.05$) which is the lowest among the exogenous variables. This finding confirms the study of Tus et al. (2022) that external support principals with valuable resources and expertise can significantly impact their leadership style. In times of crisis, schools often require assistance beyond their immediate community, such as support from educational authorities, government agencies, or non-profit organizations. This is also supported by the study of Ahamed and Hassan (2020) that external support equips school principals with the necessary tools, information, and strategies to manage crises more efficiently, therefore shaping their decision-making processes and crisis response strategies.

Table 6. Significance of the Relationships among Exogenous Variables to Principal's Leadership Style

Exogenous Variables		Principal's Leadership Style	
	r	p-value	Remarks
Crisis Management	.662	.000	Significant
Principal Traits	.760	.000	Significant
School Culture	.767	.000	Significant
External Support	.814	.000	Significant

Best Fit Model

From the null/working model, the principal's leadership style model was developed using AMOS 18 licensed version. Figure 2 presents model 1 generated. The obtained Chisq/df (Chi-Square/degrees of freedom) value of 1.821, Normed Fit Index (NFI) of 0.95, Root Mean Square Error of Approximation (RMSEA) of 0.03, Tucker-Lewis Index (TLI) of 0.91, Comparative Fit Index (CFI) of 0.93, Goodness of Fit Index (GFI) of 0.94, and P of Close Fit (PCLOSE) of 0.06, were generated. This 5-factor model was selected as the best fit model of principal's leadership style in times of crisis because it passed the requirements of model fit indices.
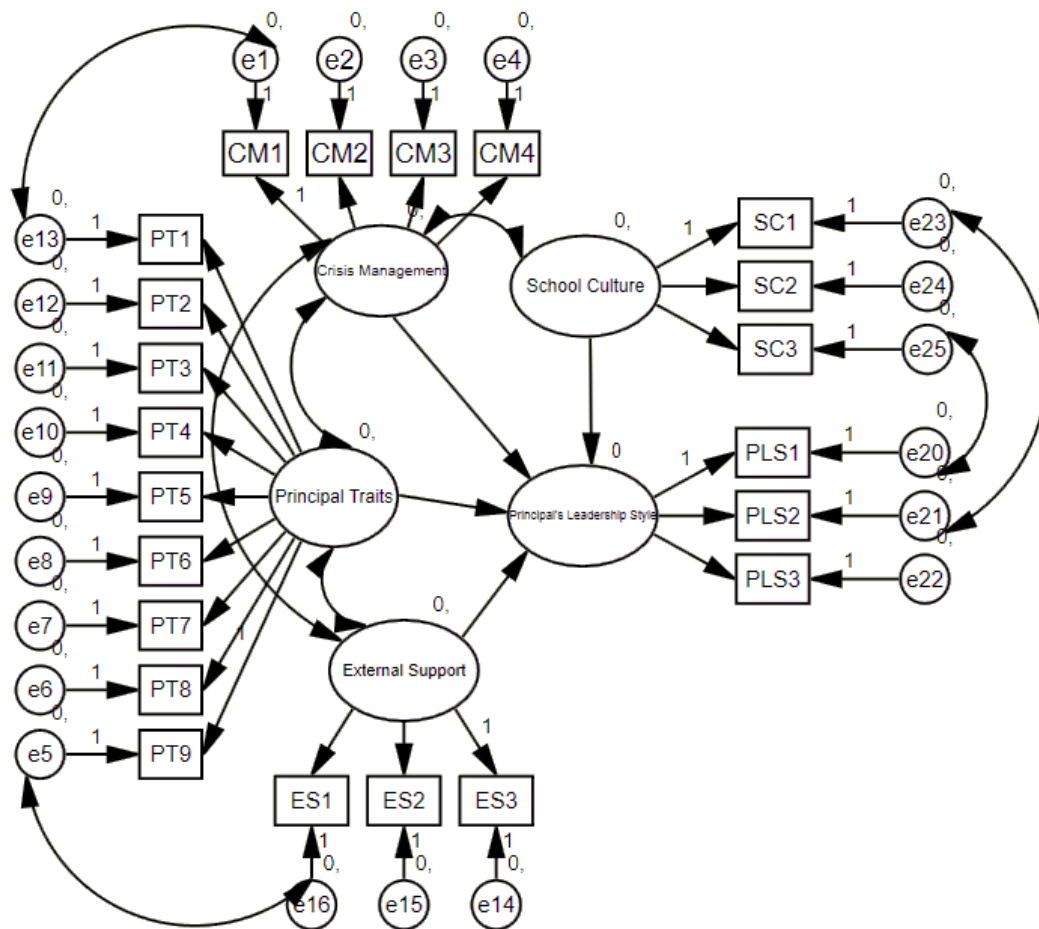
Goodness of Fit Statistics	Chisq/df	NFI	RMSEA	TLI	CFI	GFI	PCLOSE
Criteria	0<<2	>0.9	<0.05	>0.9	>0.9	>0.9	>0.05
Obtained Values	1.821	0.95	0.03	0.91	0.93	0.94	0.06

Figure 2. The 5-Factor Model of Principal's Leadership Style in Times of Crisis.

CONCLUSION

This study has explored the complex network of variables that influence a principal's leadership style amid a crisis in the educational setting. The adoption of a Structural Equation Model (SEM) provided a comprehensive framework to examine the interplay between crisis management, principal traits, school culture, and external support. Through a meticulous analysis of these variables, the study sought to unravel the complex dynamics that underlie effective leadership responses in times of crisis. The significance of crisis management strategies as pivotal determinants of a principal's leadership style during challenging times. School Principals who demonstrate adept crisis management skills are better equipped to navigate the complexities of unforeseen events, fostering a sense of security and confidence within the school community. Moreover, the study shed light on the intrinsic role of principal traits and the integral role of school culture in shaping the response mechanisms of educational leaders during crises. A positive and supportive school culture was identified as a catalyst for effective crisis leadership, fostering collaboration, trust, and a shared sense of purpose among stakeholders. External support emerged as another critical factor, with principals benefiting significantly from external resources, networks, and assistance during times of crisis.

RECOMMENDATIONS

The identification of crisis management strategies, principal traits, school culture, and external support as interconnected elements influencing leadership styles provides actionable knowledge to education leaders. The Department of Education can leverage this study to enhance and strengthen the principal leadership style in public schools within the Davao Region. The department shall capacitate the school principals in providing intensive training, seminars, and workshops that will improve their skills in dealing with teachers, students, and stakeholders. Likewise, the department shall provide a program enhancement that will utilize the 5-factor model provided such as improving the principal's leadership style in a way that will benefit the teachers and others. Future researchers may conduct a follow-up study on the effectiveness of the 5-factor model and apply it among the schools in Davao Region. Other regions may also adopt the 5-factor model for principals' leadership style to improve their leadership, performance, and public service.

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