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Principal Instructional Leadership and its Influence on Teachers' Self-Efficacy in MARA Junior Science Colleges (MJSC,MRSM) Across Malaysia

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ABSTRACT

The principal and teachers are the main pillars in ensuring the highest quality of learning in schools. The principal's ability to influence teachers in carrying out effective teaching tasks is highly significant in ensuring students' academic excellence and overall development. Therefore, this study aims to examine the influence of the principal's instructional leadership on the self-efficacy of teachers in MARA Junior Science Colleges (MJSC) across Malaysia. The study was conducted using a survey method through a Google Form questionnaire on 304 teachers in MJSC nationwide. Data analysis was performed using two statistical software programs: the Statistical Package for the Social Sciences (SPSS) 28.0 for Multiple Regression, and the Structural Equation Modeling (SEM) technique using the Analysis of Moment Structure (AMOS) software. The Pearson Correlation Test (Pearson Product-moment) is used to analyze the relationship between two study variables: the Principal's Instructional Leadership and Teacher Self-Efficacy among MJSC teachers nationwide. The findings through SEM analysis indicated that the proposed model fits the data and is significant [χ^2 (N=304, df=.89 = .89, p<.05] with an RMSEA index value of .000 (<.08), a CFI index value of 1.00 (>.90), a TLI value of 1.00 (>.90), and a Chi-square/df ratio of .89(<5.0). The model fit statistics successfully demonstrated that all model fit indices meet the recommended values. The regression weight (C.R) for the path between the principal's instructional leadership and teacher self-efficacy met the required conditions, having a C.R value greater than the critical value of +1.96 (at p = .05) and being statistically significant. The indicators measured in this study were also predictors of latent variables, as shown by the results of the Squared Multiple Correlation (R^2) analysis. The R^2 analysis showed that the tested indicators (items) are predictors of both independent and dependent variables, with values ranging from .142 to .780. This proves that the model's evaluation indices are consistent with the data studied. Thus, it can be concluded that the principal's instructional leadership has a moderate influence on teacher self-efficacy.

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INTRODUCTION

Over the last 50 years, there has been significant progress in education globally (World Development Report 2018). In many countries, student enrollment has reached nearly 100 percent, and most children have completed their primary education. Even marginalized groups, such as girls from disadvantaged backgrounds, are now attending school, with nearly all completing secondary education. However, despite these advancements, schooling does not equate to effective learning. The mere enrollment of children in schools is not considered an achievement in terms of educational outcomes. This situation has led to what the World Development Report 2018 refers to as a 'learning crisis.'

Education serves as a key indicator of a country's development. As such, the demand for quality education is crucial for meeting the nation's aspirations to engage effectively in the global market (PPPM, 2013-2025). The role of principals as instructional leaders has emerged as a critical topic in the education system, especially following the implementation of the National Education Plan (2013-2025). This plan provides a comprehensive framework aimed at facilitating sustainable and rapid educational transformation by 2025. Principals are no longer viewed merely as school managers; their roles and responsibilities now encompass significant leadership functions that address the needs of a thriving nation. Effective principal leadership is vital for ensuring the success of schools (Kemethofer, D., Helm, C., & Warwas, J., 2022).

In developing countries, education is paramount and is a collective responsibility to ensure its success. The Malaysian Education Development Plan 2013-2025 emphasizes that a country's success relies heavily on the high level of knowledge, diverse skills, and competencies of its people. This underscores the critical importance of education for all members of society and citizens worldwide, regardless of age, race, religion, or socio-economic status. Education is fundamental to national development; without it, a country faces significant challenges in achieving success across various sectors.

LITERATURE REVIEW

INSTRUCTIONAL LEADERSHIP

The principal's instructional leadership is a leadership style that involves the active engagement of principals, teachers, students, and the curriculum in the classroom learning process. According to the Malaysian Education Quality Standard (2010), instructional leadership refers to the principal's role in overseeing curriculum implementation and fostering a learning environment that nurtures a culture of learning. The Aminuddin Baki Institute, as part of the National Educational Leaders Professional Qualification Program (NPQEL), emphasizes that instructional leadership is a crucial process for school leaders to cultivate an atmosphere that supports excellent teaching and learning in every school.

Hallinger (2000) identifies three primary dimensions of instructional leadership: defining and shaping school objectives, managing instructional programs, and promoting a conducive school environment. Within these dimensions, instructional leaders are expected to adhere to ten key practices: formulating school goals, clarifying those goals, supervising and evaluating teaching, coordinating the curriculum, monitoring student progress, maintaining visibility, providing incentives for teachers, promoting professional development, and encouraging student learning.

Murphy (1990) outlines four dimensions of instructional leadership, which include establishing a mission and goals, managing educational elements, fostering an academic learning climate, and creating a supportive school atmosphere. According to Murphy, effective instructional leaders engage in practices such as producing and communicating school objectives, supervising and evaluating student learning, protecting instructional time, coordinating the curriculum, monitoring student progress, setting high standards and expectations, maintaining visibility, incentivizing both teachers and students, promoting professional development, ensuring a safe and orderly learning environment, and providing opportunities for enhanced student engagement.

Reitzug and West (2011) describe instructional leadership as "the way principals make a difference in learning, achievement, and teaching in their schools." In this study, instructional leadership is defined as the principal's leadership practices related to defining and shaping school goals, managing instructional programs, promoting a positive learning climate, and fostering a supportive and collaborative school environment. Consequently, the principal is tasked with formulating and clarifying school goals, communicating these goals effectively, supervising and evaluating instruction, coordinating the curriculum, monitoring student development, promoting quality teaching, safeguarding instructional time, maintaining a high visibility, providing incentives for teachers, encouraging professional development, incentivizing student learning, establishing positive standards and expectations, creating a safe and orderly learning environment, facilitating meaningful student engagement, promoting collaboration among staff, securing external resources to support school objectives, and building relationships between home and school. This study will explore the practice of four dimensions and seventeen elements of the principal's instructional leadership.

A. Setting Goals (Defining and Forming School Goals)

Hallinger (2000) and Murphy (1990) define the process of establishing goals as framing, explaining, and communicating the objectives of the school. Formulating school goals involves creating a focused set of annual goals that are specific to the school. This process is a collaborative effort among staff to ensure that the established goals are achievable. To support the development of these assessment goals, both formal and informal methods are employed to gather input from teachers. Additionally, the goals should be straightforward and applicable for teachers within the school setting. In this study, clarifying and communicating the school's goals refers to effectively conveying the school's mission to all members of the school community. These goals encompass both academic and broader school objectives. Academic and school goals are discussed during staff meetings to ensure alignment and understanding. Furthermore, these goals serve as a guiding reference for school leaders when making decisions related to the curriculum. They also form the basis for discussions with students during assemblies or special meetings. The established goals should be in harmony with state standards, assessments, and the district curriculum. Both academic and school goals must be clearly communicated to teachers and prominently displayed on notice boards.

B. Managing the Instructional Programs

Hallinger (2000) defined the management of instructional programs as encompassing the supervision and evaluation of teaching, coordination of the curriculum, and monitoring of student development. Murphy (1990) further emphasized the importance of promoting quality teaching. Supervising and evaluating instruction involves ensuring that teachers' lesson plans align with the school's goals, considering students' performance when assessing teachers, and conducting regular informal classroom observations (defined as unplanned visits lasting at least five minutes). During these observations, teachers' strengths and weaknesses are documented on an observation form. In this study, coordinating the curriculum refers to clarifying the roles of those responsible for implementing the curriculum at each level (such as the principal, senior assistants, and subject heads). It also includes using the results of school-based assessments to inform decisions regarding the curriculum, overseeing its execution in the classroom to ensure alignment with the school's objectives, evaluating the connection between curriculum goals and the achievement tests used for assessment, and actively participating in the review and selection of curriculum materials and teaching resources.

Monitoring student development involves several key activities, including one-on-one discussions with teachers about students' academic progress and test results to pinpoint the curriculum's strengths and weaknesses. This process also includes utilizing test outcomes to assess the school's progress toward its goals, formally communicating the overall test results to teachers through memos or letters, and sharing the school's performance results with students. In the context of this study, promoting quality teaching is understood as facilitating discussions and evaluations of teaching practices with teachers. This includes providing targeted feedback and insights on the teaching and learning process, as well as allowing teachers to choose areas of focus that align with student learning interests.

C. Creating a Positive Climate

Creating a Positive Climate is defined by Hallinger (2000) and Murphy (1990) as encompassing several key practices: protecting teaching time, maintaining visibility, providing incentives for teachers, encouraging professional development, recognizing student achievements, and establishing positive standards and expectations. In this study, protecting teaching time is understood as minimizing interruptions during instructional periods caused by announcements (e.g., loudspeaker announcements, teacher meetings, lengthy assembly programs, or co-curricular activities). This includes ensuring that students are not called to the office during teaching hours, providing additional study time for students who are slow learners or absent, encouraging teachers to fully utilize teaching time to impart new skills and concepts, limiting disruptions from extracurricular activities, and adhering to policies that safeguard instructional time. Maintaining visibility is interpreted in this study as engaging with teachers and students during breaks, visiting classrooms to discuss school matters, participating in co-curricular activities, and stepping in as a substitute teacher when needed, thereby providing guidance and support to students in the classroom.

Providing incentives to teachers is viewed as recognizing and reinforcing excellent performance during staff meetings, through internal memos, and via private praise. This includes acknowledging teachers' achievements in memos that are stored in their personal files, offering opportunities for professional recognition (such as outstanding performance awards), and facilitating professional development opportunities as a reward for their significant contributions to the school. Encouraging professional development, in this context, means ensuring that in-service training activities align with the school's academic objectives, supporting teachers in applying skills acquired from training in the classroom, facilitating requests for relevant in-service training, leading or participating in such training sessions, and allocating time during staff meetings for teachers to share insights gained from their professional development experiences. Providing incentives for student learning involves formally recognizing academic excellence through awards like certificates, acknowledging achievements during school assemblies, celebrating students' improvements through personal meetings, notifying parents about their children's progress, and supporting teachers in acknowledging student contributions and successes in the classroom. Establishing positive standards and expectations entails setting high academic standards for students, encouraging teachers to adhere to scheduled class times, clearly communicating performance expectations to students, implementing criteria for academic progression that allows students to select courses only after mastering necessary skills, and supporting teachers in enforcing academic policies.

D. Creating a Friendly and Mutually Helpful School Atmosphere

According to Murphy (1990), fostering a friendly and supportive school environment involves creating a safe and organized learning atmosphere, providing students with opportunities to engage in meaningful activities, promoting collaboration and teamwork among staff, securing external resources to support school objectives, and building strong relationships between home and school.

In this study, cultivating cooperation and integrity among staff means encouraging collaboration among teachers during school activities, facilitating group discussions with staff, valuing and considering teachers' input, and promoting peer supervision. Securing external resources to support the school's goals involves inviting guest speakers to lead exam preparation seminars, seeking assistance from outside organizations to further school objectives, sharing the school's vision with the community, and involving local residents in school events. Establishing a relationship between home and school entails engaging parents in school programs and activities, conducting home visits to address students' academic challenges, inviting parents to discuss their child's learning issues at school, and ensuring a positive and constructive relationship between parents and the school.

TEACHER SELF-EFFICACY

Teacher self-efficacy refers to "the teacher's belief in their own ability to organize and execute the actions necessary to effectively complete a specific teaching task within a particular context" (Tschannen-Moran, Woolfolk-Hoy, and Hoy, 1998, p. 233). Albert Bandura, a leading figure in self-efficacy research, defined self-efficacy as an individual's assessment of their capability to manage and perform actions to meet predetermined goals (Bandura, 1997). Similarly, Ormrod (2006) describes self-efficacy as the personal belief in one's ability to perform effectively to achieve specific objectives. This concept applies across various areas of human functioning, encompassing both professional and personal behavior. In the educational context, teacher self-efficacy specifically reflects a teacher's belief in their capacity to plan lessons and meet teaching objectives. It pertains to the confidence teachers have in their ability to instruct students effectively and efficiently. It's important to distinguish teacher self-efficacy from the concept of teacher "competence," which typically refers solely to professional knowledge and skills.

Teacher self-efficacy is a broader construct; high self-efficacy not only supports the effective application of professional knowledge and skills but also allows teachers to leverage their potential to enhance student learning. Conversely, low self-efficacy can hinder the effective use of these professional competencies. Furthermore, teacher self-efficacy is closely linked to perseverance; higher self-efficacy correlates with greater persistence, which in turn increases the likelihood of successful teaching behaviors. Bandura's social cognitive theory underpins the concept of teacher self-efficacy. He defines self-efficacy as the belief in one's ability to organize and execute specific tasks (Bandura, 1997). These self-efficacy beliefs shape thought patterns and emotions, which can either facilitate or impede actions. According to Bandura, self-efficacy consists of two key components: efficacy expectations and outcome expectations. Efficacy expectations refer to the belief in one's capability, knowledge, and skills to successfully perform the behaviors needed to achieve desired results. Outcome expectations represent an individual’s assessment of the potential consequences of their actions on their expected performance. In essence, outcome expectancy is the belief that certain behaviors will lead to the anticipated results. For teachers to succeed, they must possess both high efficacy expectations and high outcome expectations.

METHODOLOGY

Research Design

This study employs a quantitative methodology with a survey research approach, utilizing a comprehensive questionnaire to gather data. The primary aim is to investigate the instructional leadership practices of principals at MJSC nationwide. The researcher analyzed the data both descriptively and inferentially. Descriptive studies are essential for outlining the characteristics of variables, providing mean values, standard deviations, medians, modes, normal distributions, and Z scores (Chua, 2020). As noted by Ghazali Darusalam and Sufean Hussin (2021), data presentation and reporting in survey studies typically involve questionnaire instruments and can be examined through both descriptive and inferential analyses. The research methodology for this survey study is grounded in the title, background of the problem, aims, objectives, and research questions. Furthermore, according to Chua (2020), survey research is favored due to its extensive applicability.

Population and Sampling

The population for this study consists of all teachers employed in 53 MJSC institutions across Malaysia. They were selected as respondents because they are viewed as key practitioners of instructional leadership. For the sampling technique, a stratified random sampling method was utilized due to the diversity in gender, service categories, and administrative experience within the study population. This approach is effective for gathering a sample from a large and varied population (Babbie, 2014). Additionally, Cohen et al. (2011) and Oppenheim (2005) emphasize that sample selection should consider factors such as cost, time, and accessibility, highlighting that the accuracy of the sample is more crucial than its size.

Table 1: Distribution of MJSC teachers throughout Malaysia

State	MRSM Population	Teacher Population
Kelantan	5	225
Terengganu	4	298
Pahang	5	297
Perlis	2	117
Kedah	6	376
Perak	8	468
Selangor	2	148
Negeri Sembilan	3	223
Melaka	3	208
Johor	5	294
Sabah	4	211
Sarawak	3	170
Total	53	3240

Study Instrument

The instrument used in this study is divided into three parts. Part A consists of a questionnaire related to respondents' demographics, including age, gender, and work experience. Part B focuses on the principal's instructional leadership practices, while Part C contains the teacher's self-efficacy questionnaire. This study utilizes an instrument that was translated and adapted by Roslizam et al. (2019) from the 'Principals Instructional Management Rating Scale' (PIMRS) developed by Phillip Hallinger (2000, 2011). The researcher fully uses (adopts) the instrument by Roslizam et al., (2019) for this study. Hallinger (2000, 2001) defined instructional leadership through three dimensions: defining school goals, managing instructional programs, and promoting school climate. The teacher self-efficacy questionnaire includes 24 items adapted from the 'Teacher Sense of Efficacy Scale' developed by Tschannen-Moran and Hoy (2001). The primary purpose of this instrument is to assess the level of self-efficacy among teachers in MJSC nationwide. This instrument is deemed suitable for this purpose based on the comprehensive analysis and research conducted by Ahmad Zamri and Nordin (2012), who demonstrated its effectiveness using the Rasch Measurement Model. For Part C of the teacher self-efficacy assessment, the researcher fully adopted the instrument developed by Victor Jibson (2021), which is also based on the 'Teacher Sense of Efficacy Scale' by Tschannen-Moran and Woolfolk (2001). This instrument encompasses three dimensions: student interaction, instructional strategies, and classroom management. However, these dimensions have been combined into a single factor measuring teacher self-efficacy (Vanblaere & Devos, 2015).

Pilot Study

A pilot study serves several important functions, including testing and enhancing the effectiveness of research instruments, evaluating the feasibility of the actual study, formulating recommendations, outlining the study, and assessing the suitability of the study design (Chua, 2021). Additionally, as noted by Chua, pilot studies can strengthen the internal validity of research instruments.

Furthermore, pilot testing can help identify unclear items or those that may not be appropriate for inclusion, and it can be conducted with a small sample of respondents (Rattray & Jones, 2007). According to Cooper and Schindler (2006), there is no need for a statistically determined number of respondents for a pilot test, as its primary purpose is to evaluate the clarity of the questionnaire items rather than to gather data for analysis. It is

generally recommended that the sample size for a pilot test exceed 20 participants, since smaller samples may not support statistical testing (Dermoott & Sarella, 1996, as cited in Ghazali Darusalam & Sufean Hussin, 2021; Chua, 2021). Chua further suggests that an ideal pilot test should include between 20 and 40 individuals.

In this pilot study, the analysis of Cronbach's alpha revealed a value of α = .988 for the Principal Instructional Leadership (PIL) construct and α = .964 for Teacher Self-Efficacy (TSE). All constructs in the study exhibited Cronbach's alpha values exceeding the 0.7 threshold recommended by Sekaran and Bougie (2016) and Hair et al. (2017). Consequently, it can be concluded that all dimensions within the research constructs of Principal Instructional Leadership (PIL) and Teacher Self-Efficacy (TSE) demonstrate a high level of reliability and are suitable for use in this study.

Data Analysis

To analyze the data in this study, the researcher will employ two statistical software packages: Statistical Package for the Social Sciences (SPSS) version 28.0 for Windows 11 and Structural Equation Modeling (SEM) using Analysis of Moment Structures (AMOS) software. The Pearson Correlation Test (Pearson Product-Moment) will be utilized to examine the relationship between two research variables: the Principal's Instructional Leadership and Teacher Self-Efficacy among MRSM teachers across the nation. This test measures the strength of the correlation between the two variables through the correlation coefficient, denoted by the symbol (r), which indicates the strength of the relationship on a scale from +1.00 to -1.00. As noted by Chua (2022), the Pearson correlation value can be calculated using the appropriate correlation equation. The correlation coefficient is determined using the following formula:

$$r = \frac{\sum xy - \frac{(\sum x \sum y)}{n}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{n}\right)\left(\sum y^2 - \frac{(\sum y)^2}{n}\right)}}$$

Additionally, as noted by Chua (2022), the correlation values can be interpreted as follows: a range of 0.91 to 1.00 indicates a very strong correlation; 0.71 to 0.90 reflects a strong correlation; 0.51 to 0.70 signifies a moderate correlation; 0.31 to 0.50 suggests a weak correlation; 0.01 to 0.30 represents a very weak correlation; and a value of 0.00 denotes no correlation. Following this, a stepwise multiple regression test will be conducted to identify which dimensions of the principal's instructional leadership serve as predictors of teacher self-efficacy among MRSM teachers across Malaysia. To further analyze the relationships within the model, Structural Equation Modeling (SEM) will be employed to explore the connections between the principal's instructional leadership and teacher self-efficacy.

RESEARCH FINDINGS AND DISCUSSIONS

1. *The influence of principals' instructional leadership practices on teachers' self-efficacy in MARA Junior Science Colleges (MJSC) across Malaysia.*

Pearson's correlation test (Pearson Product-moment) was used to analyze the relationship between two study variables, namely Principal Instructional Leadership and Teacher Self-Efficacy among MJSC teachers nationwide. The results of the analysis are as in Table 2 below.

Table 2

Dimension	Setting Goals	Creating _ Positive Climate	M_ Instructional Programs	C_ Management	S_ Engagement	Inst_Strategy
Setting Goals	1					
Creating_ Positive Climate	.653**	1				
M_ Instructional Programs	.717**	.666**	1			
C_ Management	.193**	.263**	.238**	1		
S_Engagement	.270**	.365**	.349**	.757**	1	
Inst_ Strategy	.209**	.261**	.244**	.688**	.643**	1

Note: **correlation is significant at the p<.01 level
C_ Management -Classroom Management, S_Engagement -Student Engagement, Inst_ Strategy-Instructional Strategy, C_Positive Climate -Creating a Positive Climate, M_Inst Programs- Managing Instructional Programs

This analysis was conducted to examine the relationship between several main dimensions in the study, namely Setting Goals, Creating a Positive Climate, Managing Instructional Programs, Class Management, Student Engagement and Instructional Strategy. The Pearson Correlation Test (Pearson Product-moment) was used to determine the strength and direction of the linear relationship between these variables. In the table above, significant correlation values are marked with two star(**) which indicates a p value < 0.01. Goal Setting has a strong positive correlation with Managing the Instructional Program ($r = 0.717$, $p < 0.01$), indicating that as Goal Setting increases, Managing the Instructional Program also tends to increase. There is a moderate positive correlation between Goal Setting and Creating a Positive Climate ($r = 0.653$, $p < 0.01$). The correlation between Setting Goals with Classroom Management ($r = 0.193$), Student Engagement ($r = 0.270$), and Instructional Strategy ($r = 0.209$) is also significant but weaker. Creating a Positive Climate has a moderate positive correlation with Managing Instructional Programs ($r = 0.666$, $p < 0.01$) and a weaker correlation with Class Management ($r = 0.263$, $p < 0.01$), Student Engagement ($r = 0.365$, $p < 0.01$), and Instructional Strategy ($r = 0.261$, $p < 0.01$). Next, the correlation between Managing Instructional Programs and Class Management is positive but weak ($r = 0.238$, $p < 0.01$). While the relationship between Managing Instructional Programs and Student Engagement ($r = 0.349$) as well as Instructional Strategy ($r = 0.244$) is also significant but at a weak level. Class Management has a very strong positive correlation with Student Engagement ($r = 0.757$, $p < 0.01$) and a strong positive correlation with Instructional Strategy ($r = 0.688$, $p < 0.01$). Next, the correlation between Student Engagement and Instructional Strategy is also significant and strong ($r = 0.643$, $p < 0.01$). A very strong relationship was found between Classroom Management and Student Engagement, indicating that effective classroom strategies are closely related to pupil performance. The strong relationship between Goal Setting and Managing Instructional Programs indicates that clear goals are positively related to program success. Overall, this analysis shows some significant relationships between the studied dimensions. The strongest correlation between Classroom Management and Student Engagement suggests that interventions at the classroom level may lead to improved student outcomes.

2. *The predictor dimension of the principal's instructional leadership practice which is dominant in promoting teacher self-efficacy in MARA Junior Science Colleges (MJSC) throughout Malaysia.*

Multiple regression analysis was used by the researcher to identify the effect of each dimension in the principal's instructional leadership component (exogenous variable) which is the dominant predictor in promoting teacher self-efficacy (endogenous variable) in MJSC.

Table 3

Multiple Regression Analysis: Contributors to changes in teacher self-efficacy.

Dimensions of Principals' Instructional Leadership	**B**	**Beta (β)**	**t value**	**Sig. t**	**R^2**	**Contribution (%)**
Setting Goals	-.022	-.024	-.279	.780	.076	0.76
Creating a Positive Climate	.231	.255	3.375	.147	.155	15.5
Managing Instructional Programs	.184	.195	2.471	.014	.077	0.77
Constant	2.946					

R	.276
R^2	.076
Adjusted R^2	.067
Standard Error	.675

The findings from the multiple regression analysis (see Table 3) reveal that among the three dimensions of the principal's instructional leadership, only the dimension focused on creating a positive climate demonstrates a significant correlation and contributes notably (15.5%, $p < .05$) to the self-efficacy of teachers in MJSC throughout Malaysia. Specifically, the dimension of creating a positive climate serves as the main predictor of teacher self-efficacy, exhibiting a standardized coefficient (β) of .255, a t-value of 3.375, and a p-value of .000. The R-squared value ($R^2 = .155$) indicates that this dimension explains 15.5% of the variance in teacher self-efficacy. This implies that for every one-unit increase in the principal's score for the dimension of creating a positive climate, there is a corresponding increase of .155 units in teacher self-efficacy. Thus, these results underscore the importance of the dimension of creating a positive climate as a crucial factor influencing teacher self-efficacy in MJSC schools across Malaysia.

3. *The form of a model that can be developed to predict the appropriateness of influence between the principal's instructional leadership and self-efficacy in MARA Junior Science Colleges (MJSC) throughout Malaysia.*

Confirmatory factor analysis (CFA) of the measurement model is an essential step to undertake before testing the full structural equation model (SEM). This ensures that each indicator accurately reflects the construct being measured in the study (Byrne, 2010; Hair et al., 2010). The CFA is designed to evaluate the relationships between indicators and latent variables. For this analysis, AMOS software was employed to assess both the validity and reliability of the research instruments (Byrne, 2010; Hair et al., 2010). Convergent validity is established when the factor loadings are significant and exceed a threshold of .50 (Hair et al., 2010; Kline, 2011). Discriminant validity is confirmed when the correlation values between each factor do not surpass 0.90. If either of these validity conditions is not met, the corresponding item should be removed. Additionally, the evaluation of the model fit index should be conducted according to fit statistics as recommended by Hair et al. (2010) and Tabachnick and Fidell (2007).

CFA To Validate Principals' Instructional Leadership Constructs

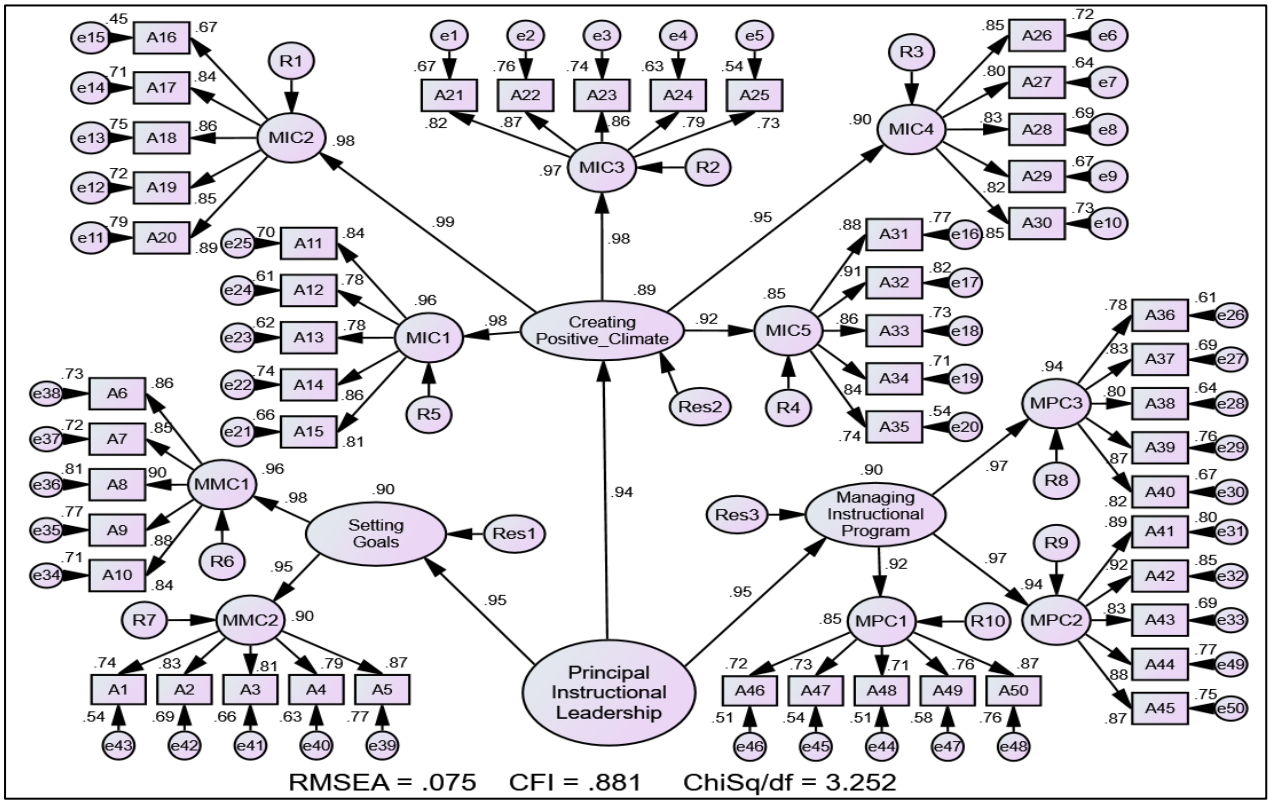

Figure 1: Principal Instructional Leadership Measurement Model

The Principal's Instructional Leadership is a second-order construct with three sub-constructs namely Setting Goals (10 items), Creating a Positive Climate (25 items) and Managing Instructional Programs (15 items). Figure 1 shows the initial measurement model for the Principal's Instructional Leadership construct built with 50 items, namely 10 items for the Setting Goals sub-construct, 25 items for the Creating a Positive Climate sub-construct and 15 items for the Managing Instructional Programs sub-construct. The combination of the above models has achieved the appropriateness index that has been set. All the selected or set criteria ie the RMSEA value has reached the level of the compatibility index that has been set which is 0.075 (<0.08), the CFI value is 0.97 (> 0.85) and the Chi Sq/df value is 3.25 (<5.0). The weighting factor for is also found to have reached the required level which is above 0.60. Due to the above measurement model has reached the set matching index does not need to be modified index (Modification Indices or MI) or model modification.

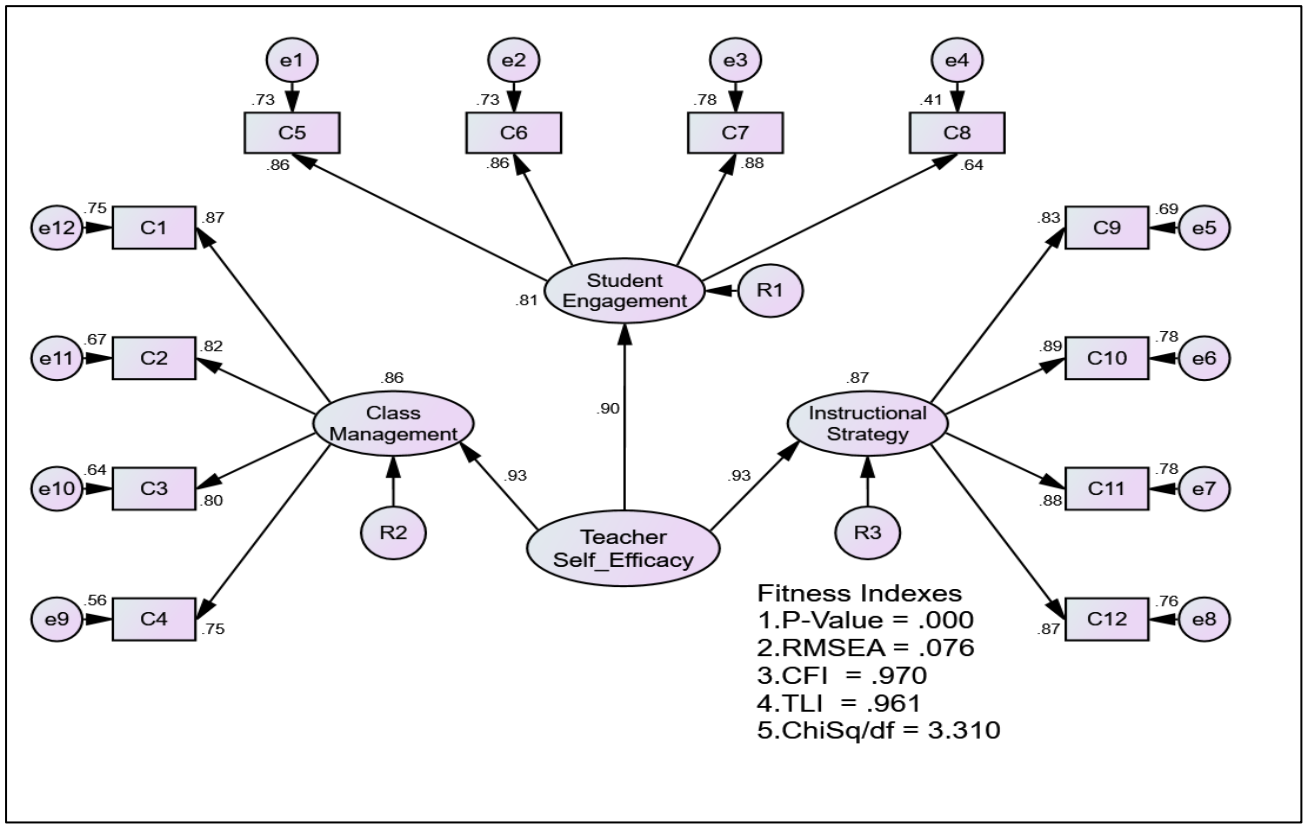

Figure 2: Teacher Self-Efficacy Measurement Model

Teacher Self-Efficacy is a second-order construct with three sub-constructs namely Class Management (4 items), Student Engagement (4 items) and Instructional Strategies (4 items). Figure 2 shows the measurement model for Teacher Self-Efficacy built using 12 items. The Teacher Self-Efficacy measurement model above has also reached the appropriateness index that has been set. All the selected or set criteria ie the RMSEA value has reached the level of fit index that has been set which is 0.076 (<0.08), the CFI value is 0.97 (" > 0.90 is good; > " 0.85 is still accepted if the model is complex) and the Chi Sq/df value is 3.31 (<5.0). The weighting factor for is also found to have reached the required level which is above 0.60. Because the measurement model above has reached the set matching index, there is no need to carry out modification indices (Modification Indices or MI) or modification of the model.

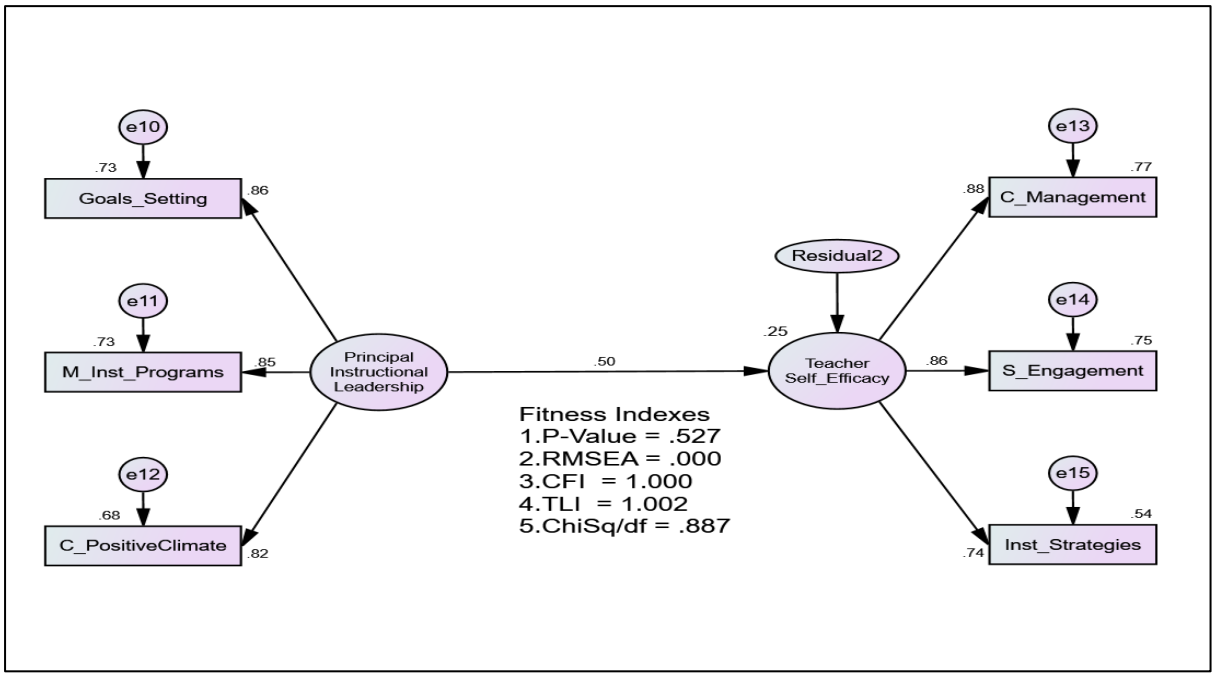

Figure 3: Structural Equation Model of the Relationship between Principal Instructional Leadership and Teacher Self-Efficacy

Next, a Structural Equation Modeling (SEM) to predict the appropriateness of the relationship between principals' instructional leadership and teachers' self-efficacy in MRSM throughout Malaysia was formed as shown in Figure 3 above. This structural equation model is represented by the independent variable (exogenous) which is the principal's instructional leadership and the dependent variable (endogenous) is the teacher's self-efficacy.

The SEM analysis that was carried out showed that the proposed model fits with the research data as well as being significant [χ^2 (N=304, df=0.88) = 0.88, p< .05] with the RMSEA index value= .00 (<.08), the CFI index value = 1.00 (>.90), TLI =1.00 (>.90) and Ratio Chi sq/df = 0.88(<5.0). Structural equation model fit statistics successfully show that all model fit indices meet the recommended values. Meanwhile, Table 4 below shows a statistically significant relationship path analysis for each variable involved in the study. The regression weight value (C.R) for the relationship path between the principal's instructional leadership and the teacher's self-efficacy meets the specified conditions, which is to have a C.R value exceeding the critical value of +1.96 (at the p = .05 level) and is statistically significant. The indicators measured for this study are also predictors of latent variables as shown by the results of the Squared Multiple Correlation (R^2) analysis. R^2 analysis shows that the indicators (items) tested are predictors of independent and dependent factors with values ranging from .142 to .780. This proves that the evaluation index of this model has compatibility with the studied data.

Table 4

Structural Equation Model relationship paths between each study variable

Variables			Estimate (β)	S.E.	C.R.	P
Teacher_Self_Efficacy	<---	Principal_Instructional_Leadership	.512	.065	7.931	***
C_Management	<---	Teacher_Self_Efficacy	1.000			
S_Engagement	<---	Teacher_Self_Efficacy	.926	.055	16.855	***
Inst__Strategy	<---	Teacher_Self_Efficacy	.725	.051	14.308	***
C_Positive Climate	<---	Principal_Instructional_Leadership	1.000			
M_Inst_Programs	<---	Principal_Instructional_Leadership	.981	.060	16.419	***
Goals_Setting	<---	Principal_Instructional_Leadership	1.051	.064	16.436	***

Note: *** Significant at p<.001

C_ Management -Classroom Management, S_Engagement -Student Engagement, Inst_ Strategy-Instructional Strategy, C_Positive Climate -Creating a Positive Climate, M_Inst Programs- Managing Instructional Programs

The results of the study analysis found that the effect of the direct influence of the principal's instructional leadership variable on the teacher's self-efficacy is statistically significant. The effect of this direct influence is shown through a significant beta value (β = .51) as in Table 4. The beta value is a standard regression coefficient that shows the direct effect of the independent variable (instructional leadership) on the dependent variable (self-efficacy). This means that when β = .51 shows an increase of 1unit in the principal's instructional leadership will increase the teacher's self-efficacy by 0.51 units. The analysis reveals a significant positive estimate of 0.51, indicating that strong principal leadership effectively enhances teachers' beliefs in their capabilities. This suggests that principals who actively support and guide their teachers contribute to a more confident teaching staff. In addition, the critical ratio (CR) is the ratio between the estimate and the standard error (Estimate/SE). This is used to assess statistical significance (z-score). If CR ≥ 1.96 (for a significance level of 0.05), the relationship is significant. CR value ≥ 1.96 shows that there is a significant relationship between instructional leadership and self-efficacy. The CR value in the table exceeds the threshold value (Threshold) which is CR ≥ 1.96. The analysis presents strong evidence that Principal Instructional Leadership positively influences Teacher Self-Efficacy, which in turn affects several key educational outcomes, including Classroom Management, Student Engagement, and Instructional Strategies. All statistically significant relationships (indicated by high C.R. values and low p-values) demonstrate the robustness of the model, underscoring the importance of effective leadership in enhancing teacher capabilities and, ultimately, student success.

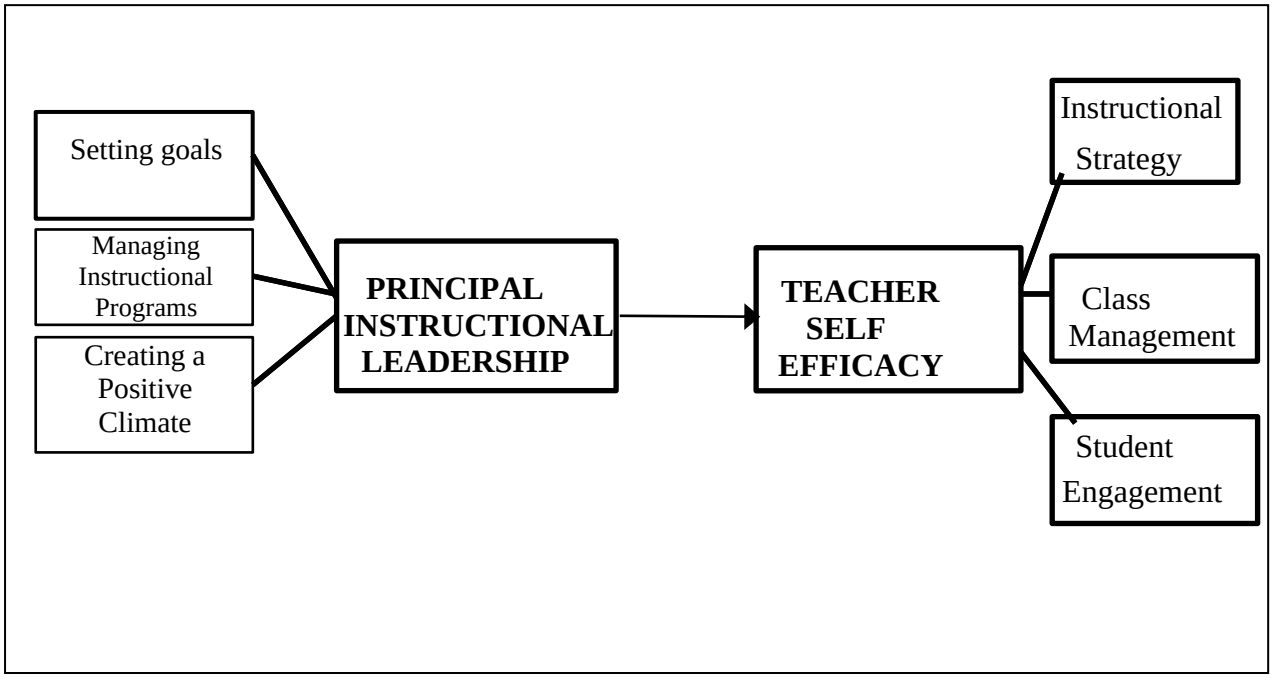

Figure 4: Model of the Relationship between Principal Instructional Leadership and Teacher Self-Efficacy among teachers at MJSC

After the analysis was carried out, a form of model was developed to predict the appropriateness of the relationship between the principal's instructional leadership and teacher self-efficacy among MJSC teachers across the country shown in Figure 4. This relationship model clearly shows that the principal's instructional leadership consists of three dimensions that setting goals, managing instructional programs and creating a positive school climate, able to influence teachers' self-efficacy. Next, teacher self-efficacy consists of three dimensions, namely instructional strategies, classroom management and student engagement. Principals who practice all instructional practices are able to influence teachers to perform teaching tasks and manage classrooms efficiently and effectively. So it can be concluded that through this relationship the quality of teaching and learning in the classroom is more effective to ensure the excellence, success and achievement of students.

The findings of this study indicate that, based on the perceptions of teachers from MARA Junior Science College across the country, there is a statistically significant and positive relationship between the principal's instructional leadership and the three dimensions of instructional leadership with teacher self-efficacy. However, the strength of the correlation is at a moderate level. The principal's instructional leadership has been found to influence teacher self-efficacy. These findings imply that a principal with a high level of instructional leadership can also enhance the self-efficacy of teachers in MARA Junior Science College throughout Malaysia.

The study by Xiaorong Ma and Russ Marion (2021), which explores the influence of instructional leadership on teacher self-efficacy, shows that instructional leadership develops a positive school learning climate and directly and positively affects teacher self-efficacy. The findings of the study by Shengnan Liu and Philip Hallinger (2020) indicate that principals influence teacher self-efficacy by articulating an inspiring vision for learning in the school, setting achievable challenge goals, clarifying performance standards for teachers and students, fostering teacher learning and development, and training teachers for success (Calik, Sezgin, Kavgaci, & Cagatay Kilinc, 2012;Domsch, 2009; Leithwood & Jantzi, 2008; McGuigan & Hoy, 2006; Tschannen Moran & Hoy, 2001). Based on Bandura's (1997) social cognitive theory, instructional leaders have the capacity to enhance teacher

self-efficacy through the provision of vicarious experiences (direct modeling) and verbal persuasion (feedback and encouragement). Therefore, instructional leadership can influence teachers' beliefs, classroom behavior, and teaching practices (Blasé and Blasé, 2000). Alanoglu (2022) conducted a meta-analysis that confirms the positive relationship between instructional leadership by principals and teacher self-efficacy. Previous research by Ross and Gray (2006) believes that school leaders can indirectly promote student learning performance through teacher self-efficacy.

Teacher self-efficacy, or teachers' confidence in their ability to effectively manage responsibilities, obligations, and challenges related to their professional activities, is crucial in influencing critical academic outcomes such as student achievement and motivation, as well as workplace well-being (Barni et al., 2019; Klassen et al., 2009; Klassen & Tze, 2014). When teacher efficacy is analyzed in the context of the classroom, it reaches a very high level, meaning that teachers believe their teaching has a positive impact on their students' lives. Additionally, they feel that in the classroom, students willingly meet demands and comply with their teachers' instructions (Markóczy & Xin, 2004). Moreover, according to Hallinger (2012, 2008, 1998, 1996), the quality of teachers' instruction and the learning outcomes achieved by students have both direct and indirect relationships with the leadership practices of principals. Furthermore, Marzano, R. J., Waters, T., & McNulty, B. A. (2005) and Tschannen-Moran and Gareis (2015) found that principals significantly influence school quality, student achievement, and teacher commitment levels. Principals need to skillfully influence teachers to be committed at the highest levels to ensure that student excellence can be achieved and sustained. For this purpose, principals must "manipulate" all their skills as instructional leaders to ensure that teachers implement the most effective and efficient teaching practices through enhancing teacher self-efficacy. The findings of this study also support previous research, such as that by Masitah et al. (2013), which found that principals' instructional leadership plays a significant role in increasing teacher self-efficacy in the implementation of environmental education.

CONCLUSION AND RECOMMENDATION

The importance of principals' instructional leadership cannot be overlooked, as interpersonal relationships in schools help create a conducive learning environment for both teachers and students. Therefore, it can be concluded that the findings of this study and previous studies share a commonality: principals' instructional leadership plays a crucial role in enhancing teacher self-efficacy. Principals or instructional leaders should practice all the characteristics and practices of instructional leadership to ensure that teachers remain maximally motivated in their classroom instruction. If teachers possess the highest level of self-efficacy, the missions and visions outlined by the school can be achieved more easily, ultimately realizing the nation's aspiration to ensure student success and development as the core goal of national education. It is hoped that the findings of this study will contribute further to the body of knowledge, particularly in the field of educational leadership.

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