

Four-Frame Leadership and Students' Academic Achievement

Masoumeh Pourrajab and Muhammad Faizal Bin Ghani

University of Malaya, Malaysia

The aim of this study is to identify the relationship between principal leadership styles and students' academic achievement. The researchers applied a correlation survey with quantitative approach. The sample size included 150 school principals in Malaysia. The instrument used in this study was an adapted version of Bolman & Deal leadership orientation (1991a) survey and *Selangor Secondary School Exit Exam Report* as student achievement. The findings of this study show that there is a positive, direct and slight correlation between student academic achievement and Four-Frame leadership (structural, human resource, political, and symbolic frame). Thus, the results did, support the belief that principal leadership styles can have direct influence on student achievement. Additionally, in this study human resource frame can predict student achievement. With regard to the findings, this research presented suggestions to improve principal leadership style in Malaysia .

Key words: leadership styles, student academic achievement, structural frame. human resource frame

Educational researchers always looking for variables which have influence on student academic achievement. For example; school culture, positive school climate, and positive attitude of teachers and principals about teaching and learning influence on student academic achievement (Hallinger & Heck, 1998; Kruger, Witziers, & Slegers, 2007; Waters, Marzano, & McNulty, 2004; Witziers, Bosker, & Krüger, 2003). On the other hand, it is obvious that a school principal has an effect on school climate, teaching and learning environment, and implementing educational programs. One of the key factors for school improvement is principal leadership. The results of investigation on principal leadership support the significant role of school principal in guiding and supervising school reform and increase the level of student academic achievement. However, researches on the relationship between student academic achievement and leadership styles have suffered a similar results, typified by a dichotomy in studies which posit either that school leaders have a singular leadership style that determines how and to what they attend to in the environment, or that principal leadership style can be contextual, situational, and that school leaders can employ multiple leadership styles simultaneously. As school leader and manager, principals' capacity to identify and engage multiple leadership perspectives and the facility to respond with a repertoire of skills and behaviours has become critical to overall school success, as well as assisting administrators in bridging the gap "between noble aspirations and disappointing results" for individual students (Bolman & Deal, 2008, p. 17).

Bista (1994) mentioned that a "best" leadership style exists, that leadership styles are static and thus incompatible with one another, and that personality type is the primary determinant of principals' actions and behaviours. Murphy (1988) notes that research on principal leadership has had "a tendency to examine behaviours in isolation", failing to appreciate the nature of school organizations as dynamic system and that "leadership behaviours can be fully understood only within the context of specific organization" (p.122). Bolman and Deal (1984, 2008, 2013) focus on more overarching leadership orientations, suggesting that effective leadership is reliant on understanding how and when to apply leadership style (singularly or in concert), as well as accounting for both the personal characteristics of leaders such as experience and aptitudes, and the realities of the operational environment.

Bolman and Deal (2008) provide such a framework, exploring organizational leadership from the structural, human resource, political, and symbolic perspectives. Given the nature of the leadership, subsisting of both leadership and management roles, Bolman and Deal's (2008) model takes on even greater significance to administrators in light of findings that suggest possible connection between application of a multi-frame perspective to school governance and greater efficacy. For these reasons, Bolman and Deal's (2008) four frames of leadership will serve as the model through which assumptions regarding associations between principal leadership and student achievement outcomes will be tested in this study.

Background of the study

Malaysia is located in Southeast Asia with a population of about 30 million in 2014. In 1991, Malaysian government's vision for 2020 is to become a developed country by 2020. It has been recognized that education is one of the key important factors for social and economic development of every nation. In fact, education will provide current and previous generation with the skills, abilities, and knowledge which have growth each nation with it the prosperity.

Therefore, the education system in Malaysia should teach and guild students to be knowledgeable, critical thinker, and creative person with leadership style and also be able to communicate with other peoples. For this purpose, the Government consider 16% of its budget for education (Ministry of Education Malaysia, 2012). This proves the very high and real commitment of government for education as a national priority.

Student academic achievement is one of the major factors to determine the level of success in an education system. Improving student achievement is crucial to developing a more competitive workforce as Malaysia pushes towards becoming a developed nation by 2020. In fact, students define quality and, in turn, that quality creates student satisfaction which leads to an improved competitive position (Reed, Lemak, & Mero, 2000).

Problem statement

In Malaysia Vision 2020 assumed that economic and social development should be ashore in educational progress (Chia, 2008). Considering the high investment in education in Malaysia, the outcomes have been uneven (Ministry of Education Malaysia, 2012). Malaysian researchers have noted that the outcomes and results of education system have often unsuccessful to live up to the expected (Bajunid, 2008). In order to improve policy initiative, Malaysian policy makers have attempted to make balance between local needs, resources allocation, and national priorities (Chia, 2008; Malakolunthu, 2007; Malakolunthu, 2009). Low student achievement outcomes, demand for increased school and administrative accountability have led to examination of, and had a significant impact on, the role of principal (Sandfort, 2009).

The majority of the researches in the field of school leadership were focused on principals' leadership, because it was believed that the only single source of leadership in the school is principal (Harris, 2003). Many investigations have been conducted to prove the impact, influence and effect of principal leadership on student academic performance. Educational researchers have endeavoured to recognise links between leadership and student academic performance and achievement. Some researchers such as Edmonds (1979), Fuller (1987), Rutter, Maugham, Mortimore, and Outson (1979), Mortimore, Sammons, Stoll, Lewis, and Ecob (1988), Heck (1992), Cheng (1994), and Pashiardis (1998) prove the influence of leadership on student academic achievement. However, some scholars found an indirect effect (Hallinger & Heck, 1996; Leithwood & Jantzi, 1990; Witziers et al., 2003). Therefore, there is still an open door for more research in this area. However, while leadership styles have been investigated extensively in the western context, but empirical researches of leadership perceptions in eastern culture, especially those in Southeast Asia, are comparatively few. In this way, the purpose of this research is to investigate the relationship between principal leadership on student academic achievement in secondary school in Malaysia. Additionally, this study attempted to predict student academic achievement by Four-Frame leadership style.

The above discussion represent the need for more investigation that should examine the possible relationship between school's principal leadership and student academic achievement. For this reason, the aim of this research is to examine the relationship between principal leadership styles and student achievement in Malaysia. Therefore, the research questions in this research are as follows:

1. Is there any significant relationship between principals' leadership styles (structural, human resource, political, and symbolic) and students' academic achievement?
2. To what extent can student achievement be predicted by principals' leadership style?

Bolman and Deal Four-Frame theory of leadership

Bolman and Deal (1991b) introduced four-frame theory of leadership including structural, human resource, political, and symbolic. Each frame has a coherent and comprehensible set of ideas shaping that enable leaders to understand clearly what decisions they want to make (Bolman & Deal, 2008). This model also considers organization culture and context. The main assumption of this theory is that effective leadership should apply multiple perspectives as known as a "frame". The multiple perspective in this model included: rationality (the structural frame); satisfaction (the human resource frame); power and conflicts (the political frame); and culture (the symbolic frame) (Kythreotis, Pashiardis, & Kyriakides, 2010). According to the Bolman and Deal (1991b, 1992) the advantage of this model is a theory of leadership effectiveness.

The Structural Frame

This frame focused on structure in an organization. Classic and popular thinking about organizations are the base for structural frame. The main factor of this frame claimed that organizations should be designed in order to have maximum efficiency. The main idea of this frame came from Frederick Taylor and Max Weber (Bolman & Deal, 2008). Taylor believed in creating changes through establishing strategies for leaders and staffs to increase efficiencies and productivity, whereas Weber concentrated on bureaucracy concept (Robbins, 2003). It is necessary to mention that Taylor

and Weber focused on the relationship within the organizational structure, organizational effectiveness, and the effect of structure of organizations on productivity. This frame also emphasis on default authority and hierarchical position.

The Human Resource Frame

The second frame, human resource frame, focused on employee motivation by payment. The main roots of this frame came from Maslow Theory. Another theory is belonged to Douglas McGregor who believed that *"workers actually cared about doing good work"*. New theories also belong Parker Follett and Elton Mayo (Bolman & Deal, 2008). Follett mentioned that leaders and workers should work as partners (Robbins, 2003), while Mayo focused on group behaviour. The human resource frame concentrated on the relationship between organization and human nature. This frame is built by four assumptions: the aim of organization is to assist to human needs; workers and organizations need each other; poor fitness between workers and system let to sufferings of one or two; and good fit will benefit the workers and organization. This frame emphasises respect for feeling, attitude, skills and abilities of people.

The Political Frame

The political frame is related to realistic process of decision making with consideration of limited resources. Some of the assumption of this frame are: an organization is integration of skilful people and interest groups; the organization's members have different ideas, beliefs, knowledge, information, interests, value, opinion, and perceptions of reality; and success organization always consider allocating rare resources (Bolman and Deal, 2008).

There are two aspects for this frame: power and conflict. They occur during decision making with regard to limited resources. Bolman and Deal (2008) identified nine sources of power as follow: position or authority; reward control; coercive power; information or expertise; reputation; personal; alliance or network; agenda; and framing.

The Symbolic Frame

The last frame, symbolic frame, is considered as a "conceptual umbrella", which is combination of ideas from different fields such as social and cultural anthropology, political science, and organizational theory (Bolman & Deal, 2008). This frame considered an organization as a dynamic, non-linear entity that depends on symbolism to make sense of an irrational and ambiguous operational environment (Bolman & Deal, 2008). The symbolic frame is associated with human experience and stories.

Principal Leadership and Student Academic Achievement

There are many different definitions for leadership concept. Spillane, Halverson, and Diamond (2004) explained leadership in terms of its social and situational contexts and the principal perform task, claiming that its core is the *"identification, acquisition, allocation, co-ordination, and employ of social, material, and cultural resources in order to create situation for the possibility of teaching and learning"* (p.11). Lord and Maher (1993, p. 11) defined leadership as *"a process of being perceived as leader"*. On the other hand, Bolman and Deal (2008) believed that *"leadership is not tangible, nor is it predicted upon authority"*.

The findings of researches in the field of school effectiveness revealed the relationship between organization, leadership, culture, and student performance. For example, Edmonds (1979) claimed that strong leadership is one factor of school effectiveness, and this result was supported by Teddlie and Stringfield (2006). There is attention concerning the links between leadership and student performance and outcomes (Robinson, Lloyd, & Rowe, 2008). The findings of researches proved the direct and indirect effect of leadership on student performance (Bell, Bolam, & Cubillo, 2003; Leithwood, Harris, & Hopkins, 2008; Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004; Marzano, Waters, & McNulty, 2005; Witziers et al., 2003).

Method

A correlation survey was conducted to identify the relationship between principal leadership style and student academic achievement.

Participants

The target population in this study included all secondary school's principals in Selangor, Malaysia. Selangor has 230 national schools (excluding special schools). Considering each school has one principal, the total number of principals is 230. In order to estimate the sample size, Cochran (1977) equation was used. In total, 150 principals took part in this research.

A stratified sampling was used based on school location (urban and rural). Number of schools' principals selected by location was proportional to the percentage of urban and rural schools in Selangor. Therefore, divided by location, there were 120 principals from urban schools and 30 principals from rural schools.

Instrument

The instrument used in this study was an adapted version of Bolman and Deals' leadership orientation (1991a) survey. This questionnaire used in this study had two parts. The first part related to the demographic factors and the second part related to leadership frames. In order to measure student achievement, we used *Selangor Secondary School Exit Exam* (as known SPM in Malaysia). The data was collected by mail questionnaires to schools.

Validity and Reliability of the Instrument

The content validity of the instrument was certified by two lecturers as experts from faculty of education, University of Malaya (UM). A package prepared and sent to the expert person. The package was included of the title page, research questions, the sampling process, and questionnaire.

Based on the Bolman (n.d.) website, the total mean of Cronbach's Alpha for four frame of leadership was 0.924. In this study, for the reliability of the instrument, an internal consistency procedure was employed. A pilot study of 25 principals (which were not in the main sample) was conducted. The values of Alpha was 0.987 which show that the instrument has an excellent reliability (DeVellis, 1991; George & Mallery, 2001).

Results

This research was conducted on 150 school principals in Malaysia. The demographic variables in this research included: gender, age, school location, and administrating experience of principals. Table 1 presented the frequency distribution of participants' profile. As can be seen, 46 of the participants (30.7 percent) are male principals and 104 (69.3%) of them are female principals. The majority of principals, i.e. 97 (64.7%) are more than 50 years old. In terms of administration experience, the majority of principals have less than 5 years' experience. With regard to the school location, 120 schools (80%) were located in urban area and 30 schools (20%) were located in rural area.

Table 1

Frequency Distribution and Percentage of Respondent Profile

| Variable | Valid | Frequency | Percent |
|----------------------------------|--------|-----------|---------|
| Gender | Male | 46 | 30.7 |
| | Female | 104 | 69.3 |
| Age | <30 | 1 | 0.7 |
| | 30-40 | 7 | 4.6 |
| | 40-50 | 45 | 30.0 |
| | >50 | 97 | 64.7 |
| School Location | Urban | 120 | 80 |
| | Rural | 30 | 20 |
| Administrating Experience | <5 | 67 | 44.7 |
| | 5-10 | 37 | 24.7 |
| | 10-15 | 32 | 21.3 |
| | 15-20 | 9 | 6.0 |
| | >30 | 0 | 0 |
| Mean=8.48 | | | |
| SD=1.10 | | | |

Table 2 presents student academic achievement based on SPM report. As can be seen the mean score of student pass exam percentage (SPM) in Selangor state in 2014 was 82.26 percent with standard deviation 11.42 (SD).

Table 2*Frequency Distribution of SPM in Urban and Rural Area*

| | Mean | S,D | Total |
|----------------|--------------|--------------|------------|
| Urban | 83.24 | 11.70 | 120 |
| Rural | 78.34 | 9.43 | 30 |
| Overall | 82.26 | 11.42 | 150 |

Table 2 also illustrates that the student academic achievement in urban areas ($M=83.24$; $SD=11.70$) is higher than student achievement in rural areas ($M=78.34$; $SD=9.43$).

Relationship between principal leadership and student academic achievement

The first research question of this study is 'Is there any significant relationship between principal leadership styles and student academic achievement?' To answer this research question, the Person Correlation was employed to determine the degree of relationship. Table 3 provides a number of correlations between principals' leadership styles (structural, human resources, political, and symbolic frames) and student academic achievement on the SPM.

Table 3*Pearson Correlation Matrix of Leadership Behaviours, Leadership Styles, and SPM*

| | Mean | 1 | 2 | 3 | 4 | 5 |
|---------------|------|---|--------|--------|--------|--------|
| 1 STRF | 4.15 | - | .747** | .778** | .855** | .339** |
| 2 HRF | 4.36 | | - | .719** | .775** | .364** |
| 3 POLF | 3.87 | | | - | .814** | .277** |
| 4 SYMF | 4.14 | | | | - | .264** |
| 5 SPM | | | | | | - |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

STRF: Structural Frame HRF: Human Resource Frame
POLF: Political Frame SYMF: Symbolic Frame

The data show the following results:

- There are positive correlation between SPM and structural frame, human resource frame, political frame, and symbolic frame ($r=.34$, $.36$, $.28$, and $.26$ respectively).
- There are positive correlations between each frame with other one.

Predict Student Achievement by Four-Frame Leadership

The first research question in this study tell us only the correlation between the variables without showing their predictive power. Thus, we employed multiple linear regression to fit a model to predict values of the student academic achievement (SPM) from Four-Frame leadership styles.

The regression analysis yielded a multiple correlation (R) of $.386$, which means that there was a positive and moderately strong (Lodico, Spaulding, & Voegtler, 2006) relationship between Four-Frame leadership styles and SPM (see Table 4).

Table 4*Predictors Model Summary^b: The Relationship between the SPM and the Set of Variables*

| Model | R | R^2 | Adjusted R^2 | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|-------|----------------|----------------------------|---------------|
| 1 | .386 ^a | .15 | .125 | 10.62 | 2.19 |

a. Predictors: (Constant), STRF, HRF, POLF, and SYMF
b. Dependent Variable: SPM

The derived multiple coefficient of determination (R^2) is $.15$, which means that 15% of variations in SPM are explained by the set of predictors. This also means that the accuracy of the Four-Frame leadership in prediction of SPM is only 15%. That means 85% of SPM result can be explain by other variables. The overall regression model is significant even at the $.01$ level ($p=.000$) with F -ratio of 6.257.

As shown in Table 5, the regression model has a constant of 36.99 and is significant at the 0.01 level ($p=0.000$). Parameter estimates for structural frame, human resource frame, political frame, and symbolic frame are 7.421, 8.286,

.368, and -5.576 respectively. The *t* statistics provide the significance of each parameter estimate and only human resource frame is the significant explanatory variable in predicting SPM ($p=.016$).

Table 5
Estimates of Coefficients for SPM

| | Unstandardized Coefficients | | Standardized Coe | t | Sig. | Collinearity Statistics | |
|----------|-----------------------------|------------|------------------|--------|------|-------------------------|-------|
| | B | Std. Error | Beta | | | Tolerance | VIF |
| Constant | 36.989 | 9.389 | | 3.94 | .000 | | |
| STRF | 7.421 | 4.434 | .288 | 1.674 | .096 | .201 | 4.97 |
| HRF | 8.286 | 3.386 | .312 | 2.447 | .016 | .365 | 2.74 |
| POLF | .368 | 3.832 | .014 | .096 | .92 | .290 | 3.454 |
| SYMF | -5.576 | 4.352 | -.231 | -1.281 | .202 | .184 | 5.44 |

Dependent Variable: SPM

Based on Table 5, the prediction equation of perceived SPM is as follows:

$$Y=b_0+ B_1X_1+ e$$

$$SMP=36.99+8.286* HRF + e$$

The model shows that for one unit increase in human resource frame (HRF), the SPM would be increased by 8.286. Thus, SPM has positive relationship only with HRF. The prediction equation depicts overall contribution of one out of four variables in predicting SPM in Malaysian secondary schools based on principals' perceptions.

Discussion and conclusion

The main finding of this study show that there is a positive and moderate correlation between SPM and human resource frame (.36) and structural frame (.34). Additionally, there is a positive and slight correlation between SPM and political frame (.28) and symbolic frame (.26). These findings support the direct effect of principal leadership styles on student achievement. However, the value of Pearson correlation coefficients are very small value, which means these type of relationships between student achievement and principal leadership styles are not so strong. In regards to comparing the relationship between leadership frame and student academic achievement in this study, the strong frame is human resource frame, followed by structural frame, political frame, and symbolic frame. Thompson (2000) asserted that "*the structural and human resource frames are associated with managerial effectiveness, while the political and symbolic frames are related to leadership effectiveness*". The participants identified apply human resource frame most, followed by structural, symbolic, and political frame respectively. In this regard, Malaysian principals are more focused on managerial effectiveness than leadership effectiveness. To be effective manager or leader requires an understanding of multiple frame and know how to implement them in school by principals (Bolman & Deal, 1991b).

Leithwood and Duck (1999) claimed that we cannot tell whether "right" or "best" leadership styles exist, however successful leaders have the ability to implement leadership behaviours and styles in an appropriate way. The findings of this study support the idea of Litewood and Duck (1999). Murphy (1988) believed that behaviours are rooted in principals and leaders' beliefs and may be considered obvious expression of leadership styles. This study found that each principal leadership frame positively correlated with each other. School principal as the leader should have the ability to motivate teachers and staff to work together in order to achieve school vision and mission that will likely result in the success of the school. Therefore, the leaders' responsibilities and tasks will not be easily faced and how to accomplish the desired results must be carefully determined.

On the other hand, Bolman and Deal's (1991b, 2008) report, the structural frame emphasized efficiency and effectiveness. Structural leaders attempt to obtain organizational goals via control and proportion. The second frame (human resource) emphasized the individual and leaders try to attain organizational aims via meaningful and satisfying work. The third frame (political) emphasized on competition. The political leaders try to obtain organizational goals via negotiation, consultation and compromise. Finally, the last frame (symbolic) emphasized on meaning. The symbolic leaders attempt to obtain organizational aims by interpretative rituals and ceremonies.

Based on the findings of this study, the school principals apply human resource and structural frame rather than political and symbolic frames. Bolman and Deal (2010) highlighted that, the majority of principals apply human resource and structural frames than political and symbolic frames. However, many challenging situation are highly deal with political and symbolic frames.

Based on the main score of four frames of leadership, the more utilized frame is human resource frame, which means that Malaysian principals understood the needs of teachers and staff. They found that the impact of teachers and staff satisfaction on school effectiveness. In this way, school leaders place greater emphasis on respect to the feelings of teachers and staff rather than emphasis on authority and hierarchical position in their schools. The second utilized frame is structural frame. Based on the characteristic of this frame, Malaysian principals focused on structure in their schools. They apply school structure in order to allocate work according to their responsibilities. The bureaucracy system can be observed in their schools. However, principals are perceived to utilize political frame less in their schools. With regards to this point, this frame emphasized realistic process of decision making, therefore, we can infer that Malaysian principals made less decisions in a realistic manner.

Leader should be able to create relationship, be ready for news changes, have transformation skills, and understand financial accountability (Boggs, 2003). Bolman and Deal (2008) claimed that the leadership frames are the ways that leaders interprets what is occurring and how they should determine the appropriate action in different situations.

With regard to the regression result, at this moment only human resource frame can increase the student academic achievement in Malaysia. Based on above discussion and this evidence that effective leaders and principals should utilize four frames at the same time, it is suggested that principals and leaders should apply these frames in their schools. The first step to increase student academic achievement is to give more authority to principals. Therefore, it is suggested that leadership institute in Malaysia prepare pre-service and in-service courses in order to increase the principal's authority in the education system. On the other hand it is suggested to policy makers to design the education system with more room for principal authority.

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- Acknowledgment: This research was funded by the grant of Fundamental Research Grant Scheme (FRGS), the Ministry of Education, Malaysia (FP019-2104A)

Received: March 4th, 2016

Revisions Received: June 17th, 2016

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