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LEADERSHIP PROFILE AND SCHOOL IMPROVEMENT

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ABSTRACT: *Several research studies indicated that school leadership plays an important role in the improvement process of schools. However, the nature of this relationship is not clear and has been a blind spot in the corresponding literature (Harris, 2005). As such, the aim of this multiple case study is to shed light on the relationship between school improvement and school leadership. Eight Lebanese private schools principals constituted the participants of this study. Qualitative and quantitative data were collected from various sources. Qualitative data was analyzed using the procedures of the grounded theory. Quantitative data was collected to provide better interpretation of the collected qualitative data. A leadership profile for school improvement was suggested as a result of this study. A set of leadership attributes seems to be necessary for school improvement efforts to succeed. In particular, school leaders must be knowledgeable, systems thinkers, and data-driven, with a vision guided by student-centered values.*

KEYWORDS: Leadership, Systems Thinking, Data Driven Decision Making, School Improvement

INTRODUCTION

Most of school reform efforts have produced unsatisfactory outcomes in comparison to their designated goals or the results were short lived (Marzano, 2007). Moreover, Chapman and Miric (2009) found that students' achievement in the Middle East and North African countries is relatively low. Though many factors may have contributed to such undesirable outcomes, the focus of this study is on the leadership factors that are related to school improvement. Examining the leadership factors is essential because schools' principals play a pivotal role in the school improvement process. So, this research study aims to identify the nature of the relationship between leadership and school improvement. In particular, Systems thinking and Data-driven Decision-making will be examined in the context of school improvement. Although the concepts of Systems thinking and Data-driven Decision-making (DDDM) are well defined in the examined literature, only few schools seem to have embraced these concepts into their management processes.

In Lebanon, there are three main types of schools: tuition-free public schools, tuition-free private schools, and tuition-based private schools. The eight participating schools of this study were selected from the tuition-based private education sector. According to CERD (2011), 54% of schools in Lebanon are private schools and 46% of schools are public. Public schools are run by the Ministry of Education and Higher Education (MEHE); private schools are mainly run by religious or sectarian groups.

According to MEHE (2010), the achievement levels of students in Lebanon are lower in comparison to those of their peers in other countries. In 2007, Lebanese students ranked low on TIMSS international assessment. Lebanon was ranked 28th with a score of 449 in the classification of the results of Mathematics; and is ranked 40th with a score of 414 in the

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classification of the results of Science. Both scores are below the international achievement average which is 500 (TIMSS, 2007).

Statement of the Problem

After examining several types of schools that belong to the various strata of private schools in Lebanon, the researcher wondered why school improvement efforts tend to produce limited and unsatisfactory outcomes. Principals seem to complain that their efforts for school reform and improvement are not causing the desired change in the school environment. Although there are a lot of possible explanations for this issue, little information exists as to why this phenomenon occurs. As a matter of fact, The researcher is inclined to believe that the success of school improvement efforts is related to what he called Leadership Profile – knowledge, skills, beliefs, previous experience, and the leadership style of the school principal.

Purpose of the Study

This study seeks to explore the nature of the relationship between leadership and school improvement. In addition, the study attempts to identify the leadership factors (Systems thinker, Style, Decision-making, and Previous Experience) that contribute to the success or failure of school reform efforts. A multi-case study design is used to explore the profile and perceptions of a sample of school principals concerning sustainable school improvement. It is anticipated that, through a better understanding of the activities and experiences of those schools' principals, and the issues and challenges they face in implementing improvement plans in their schools, more informed decisions can be made regarding school improvement.

LITERATURE REVIEW

School Improvement

Heck and Hallinger (2008) stated that there is no common definition of the term *school improvement.* Among the various definitions, Heck and Hallinger chose to adopt the following four significant aspects of school improvement as valid definitions: "the transformation of the school's culture, the development of the school as a learning organization, the alteration of the school's system, and an increase in school effectiveness" (p. 2). Harris and Lambert (2003) defined school improvement as "a process of changing school culture" (p. 14). Hopkins (2005) provided the following definition of school improvement: "school improvement is a distinct approach to educational change that enhances student outcomes as well as strengthening the school's capacity for managing change" (p. 3).

The relationship between School Improvement and Leadership

According to Harris (2005), a relationship exists between school leadership and school improvement. However, the nature of this relationship is not clear. In particular, the form of leadership practice that is associated with sustained school improvement needs to be defined. Harris stated that many studies considered *capacity building* as the main approach towards sustained school improvement. And the cornerstone of a capacity building model is distributed leadership.

In an attempt to provide answers to what form of leadership practices is associated with successful school improvement, Lindahl (2007) identified three categories of contextual

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variables that are related to school improvement. First, consideration should be made to the *contextual variables related to the school* such as its location, size, socio-economic status, parental education and occupation levels, teacher turnover and experience. The culture of the school and its readiness for change are also considered significant school variables. The assumption is that for each set of contextual variables there is a corresponding appropriate form of school improvement and leadership. Second, attention should be made to the *contextual variables related to the proposed change*. For example, is the required change an incremental or foundational one? For each type of change, there is a corresponding appropriate type of learning such as single loop (simple change of behavior) or double loop learning (thoughtful reflection about our behaviors and their governing factors). Another factor is how the proposed change matches with the current school culture and structures. Each situation calls for a different type of leadership. Third, there are the *contextual variables related to leadership*; in particular, the style of leadership and the distribution of power in the school. For instance, transformational style of leadership is more appropriate for double-loop changes such as cultural changes. In addition, school improvement requires that power should be distributed or leadership must be shared across staff and teachers.

Though we know what school improvement requires, *why do reform efforts fail*?

Marzano, Waters, and McNulty (2005) conducted a meta-analysis of selected leadership and improvement literature and concluded that school principals have profound effect on students' performance. Their analysis also provided two possible reasons for the failure of school improvement. One explanation is the misinterpretation of the required type of change. Marzano et al. (2005) stated that some innovations require changes that are gradual-- first-order change; other innovations require drastic changes-- second-order change. However, there is a natural inclination to address all changes as if they were first-order changes. Another possible explanation is the mismatch between the management style and the type of change. First-order change requires a set of leadership behaviors that is different from those required by second-order change. Marzano (2007) added another possible explanation for the failure of school improvement; reform efforts might have overlooked the systemic nature of the school.

Fullan (2005) attributed failure of the various educational reforms to the lack of understanding the process of change. According to Fullan, "the presence of change knowledge doesn't guarantee success, but its absence ensures failure" (p. 54).

When school improvement efforts are successful, schools will undergo profound cultural shifts. And by culture we mean – "the assumptions, beliefs, values, expectations, and habits that constitute the norm for the school" (Dufour et al., 2006, p. 94). However, cultural-based reforms are faced by the following barriers:

1. Educators have been conditioned to consider school improvement as certain programs or projects to be implemented rather than an ongoing process to build the collective capacity to achieve the purpose of the school.

2. "We don't see things as they are; we see things as we are" (Dufour, 2006, p. 95). Human beings develop patterns of thought or mental models that represent the webs of their ideas and assumptions about the world in which they live (Senge, 1990). These models filter our observations and experiences and help us make sense of them. Anything that is inconsistent with their mental models is likely to be ignored.

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In order to identify why school improvement fail, it is necessary to examine why school leaders behave the way they currently do. In the following section, the main factors that affect leadership behaviors will be examined. In particular, leaders' personal characteristics, previous experience and education, values and beliefs, and their theories of actions will be examined as they relate to school improvement.

Factors affecting Leadership Behaviors

Murphey, Elliot, Goldring, and Porter (2007) developed a leadership model that captures the various aspects of leadership behavior and its effect on student learning. Leadership behaviors affect school operations and classroom activities which, in turn, influence students' learning and outcomes. Leadership behaviors are shaped by four conditions: "the type of the previous experience of the leader, the knowledge base of the leader, the personal characteristics of the leader, and the values and beliefs of the leader" (p. 180).

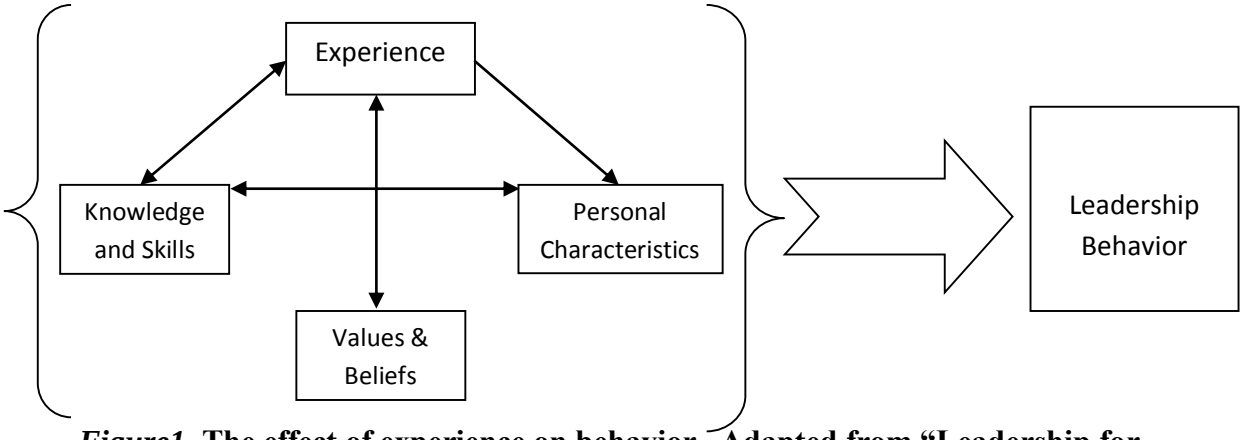

Figure1. **The effect of experience on behavior. Adapted from "Leadership for Learning: a research-based model and taxonomy of behaviors" by J. Murphy, S. Elliot, E. Goldring and A. Porter, 2007 School Leadership and Management, 27, p. 180.**

Hallinger's (2011) article "leadership for learning: lessons from 40 years of empirical research" mentioned three important aspects about leadership for learning. First the conditions or the characteristics that moderate leadership behaviors are the values, beliefs, knowledge and experience of the leader or the principal. Second, the study emphasized the role of the context in shaping leadership behaviors. In particular, effective leadership is shaped by the institutional system of the school and the societal culture of the community. Third, leadership indirectly affects student learning through school level processes such as vision, goals, professional development and other academic and structural processes. In fact, "leadership both influences and is influenced by these school-level conditions" (p. 127).

In addition, Fullan (2004) mentioned that behavior is shaped by the environment or context. For example, a person might behave differently based on the place he or she is in. Fullan considered behavior modification an emotional process rather than a rational one. That's why change leaders must create a process that allows people to see or feel the new possibilities – engage the emotions. They should also work on changing the context. "In many organizations, the problem is not the absence of innovations but the presence of too many disconnected, episodic, piecemeal projects with superficial implementation" (p. 159).

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Leadership Values. Gurr, Drysdal, and Mulford (2006) highlighted on the pivotal role that the principal play in relation to the quality of education in the school. Their study revealed that two main principal's traits or behaviors are associated with successful school principalship."The values and beliefs of the principal, and the capacity building at the school level, including school culture and structure" (p. 379). The values and beliefs of the principal along with those of other stakeholders in school contribute to the development of a shared vision that, in turn, shapes the learning and teaching processes. In particular, successful principalship models revealed the following values as being embraced by the participating principals: every student matters, every student can learn and succeed, and that students' interest should be the focal point of schools. Similar to the role of previous experience and past knowledge of an individual, values play a significant role in the decision-making process. In addition, values contribute to our perseverance span. For example, if a principal believes that all students are entitled to quality education, he or she will do all what it takes to achieve quality.

The School's Culture. Stoll (1999) stated that school culture plays a significant role in the success or failure of school improvement efforts. Cultures in some schools, act like a "black hole" where improvement efforts disappear. One probable reason for this is that reformers often ignore the situational constraints and concentrate on the characteristics of the proposed change. It's not enough to show people how the proposed change would benefit them. And it is also not enough to provide professional development opportunities that facilitate the change. What is missing is tackling the essence of school culture-- the stakeholders' values, beliefs and norms. For instance, ensuring that the concerned stakeholders share the same attitude towards a certain initiative.

Learning. Argyris (1999) stated that success in the workplace depends, to a large extent, on learning. However, the majority of people do not know how to learn. Even "well-educated, high-powered, high-committed professionals" (p. 127), that occupy key leadership positions in an organization or school are not very good at learning. In addition, organizations are not aware that such a *learning dilemma* exists. Argyris defined learning as occurring under two conditions:

> First, learning occurs when an organization achieves what it intended; that is, there is a match between its design for action and the outcome. Second, learning occurs when a mismatch between intentions and outcomes is identified and corrected; that is, a mismatch is turned into a match. (p. 67)

Systems Thinking and School Improvement

System of Profound Knowledge. Deming (1984) stated that in order to improve quality, top managers must perceive their organization or school as a system of interrelated processes and people. They need to understand how the school functions as a system. In order to do so, leaders must learn and apply what Deming called a *System of Profound Knowledge*. Once they do that, transformation of management will take place that will lead to the adoption of a system view with a clear aim. As a result, quality is achieved by the optimization of the performance of the components relative to the aim of the system. "The system of profound knowledge is composed of four interrelated parts: appreciation for a system, knowledge of variation, theory of knowledge, and the psychology of change" (p. 4).

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The Learning Organization. Senge (2006) stated five disciplines that constitute the building blocks of a learning organization. These are Personal Mastery, Mental Models, Shared Vision, Team Learning, and Systems Thinking. He considered Systems Thinking as the fifth discipline that integrates the other four disciplines. "To practice a discipline is to be a lifelong learner" (Senge, 2006, p.10). A prominent feature of a learning organization is that the problems we encounter are caused by our actions and not by someone else. "A learning organization is a place where people are continually discovering how they create their reality. And how they can change it" (p.12).

Personal mastery is that discipline of constantly refining our personal vision and pursuing our aspirations. *Mental models* are those assumptions, inferences or beliefs that we hold about the world as we know it. *Shared vision* is the discipline that establishes a consensus about a shared vision of an organization. The discipline of *team learning* has to do with dialogue and collective thinking among the various members of an organization. The fifth discipline which is *Systems Thinking* is the discipline that integrates all the previous disciplines. It consists of a body of concepts and tools that allow people to perceive organization as systems and to better understand them accordingly (Senge, 2006).

Mental models. According to Senge et al. (2000), mental models are the assumptions, values, and beliefs that people hold. They are images that we have in our brain about any aspect of the world

Mental models are so powerful because they affect what we choose to attend to in any new experience. We tend to focus on aspects that reinforce our existing models; and this limits our ability to change. In other words, they shape our actions. The problem with mental models as identified by Senge (2006) is that they usually exist below the level of our awareness. This makes them unexamined and thus unchanged. "As the world changes, the gap widens between our mental models and reality, leading to increasingly counterproductive actions" (p.166).

The *ladder of inference* is a visual framework that facilitates how mental models are created and how they affect actions and behaviors (see Figure 2)

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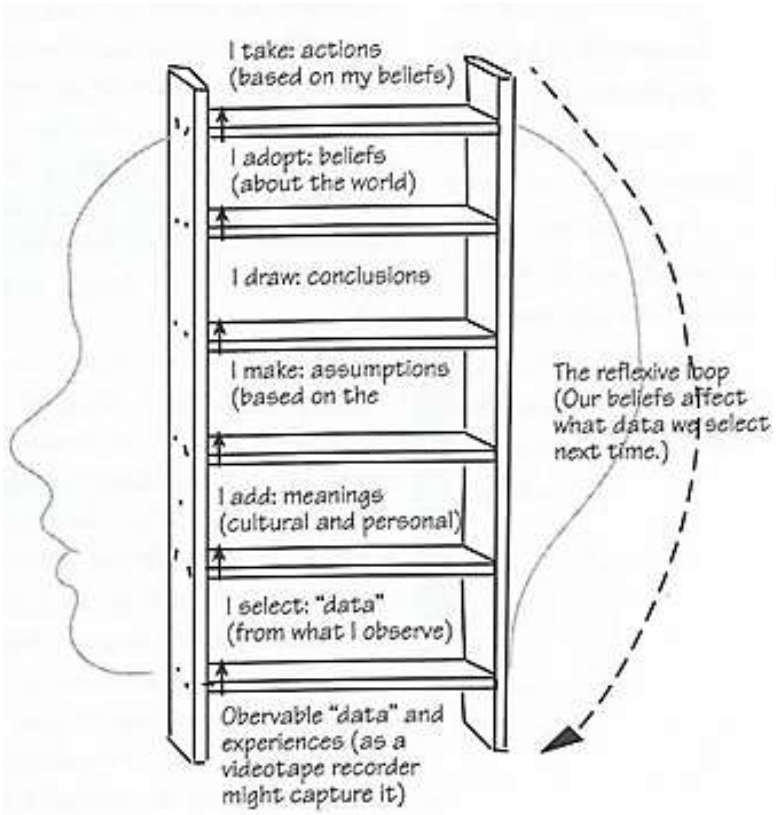

***Figure 2*. The Ladder of Inference. Adapted from "Schools That Learn", by Senge et al., 2000, p. 71**

Notice that the person's assumptions at any level may be wrong. However, the generated belief seems to that person as the absolute truth because the belief is based on what the person observed and on his or her past experience. In addition, that person believes that the truth is so obvious and based on real data (Senge et al., 2000).

Argyris (2010) contributed to the concept of mental models by stating that although people do not always behave according to what they say, they do behave congruently with their mental models. In addition, they trap themselves in defensive routines that prevent their mental models from examination. They develop what Argyris called "skilled incompetents".

Senge (2006) concluded his discussion about mental models by saying that "in the traditional authoritarian organization, the dogma was managing, organizing, and controlling. In the learning organization, the new dogma will be vision, values, and mental models" (p. 171). In addition, the disciplines of systems thinking and mental models seem to be interrelated. The later one focuses on revealing hidden assumptions and the former focuses on how to restructure assumptions to identify causes of problems.

Systems Thinking. Senge (2006) considered systems thinking as "the discipline for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots" (p. 68). "A system is a collection of elements that interact with each other over time to function as a whole" (Waters Foundation, 2013). For instance, the school is considered to be a system; and a classroom full of students is a system.

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So, at the conceptual level, systems thinking is the adoption of a systems perspective. And at the technical level, it is the ability to use the tools that facilitate system dynamics. One of the available tools that allow leaders or principals to view things systemically is the *iceberg model* (Davidson & Yates, 2009). An iceberg model (See Figure 3) is a visual framework that illustrates levels of a system (Innovation Associates, 2010).

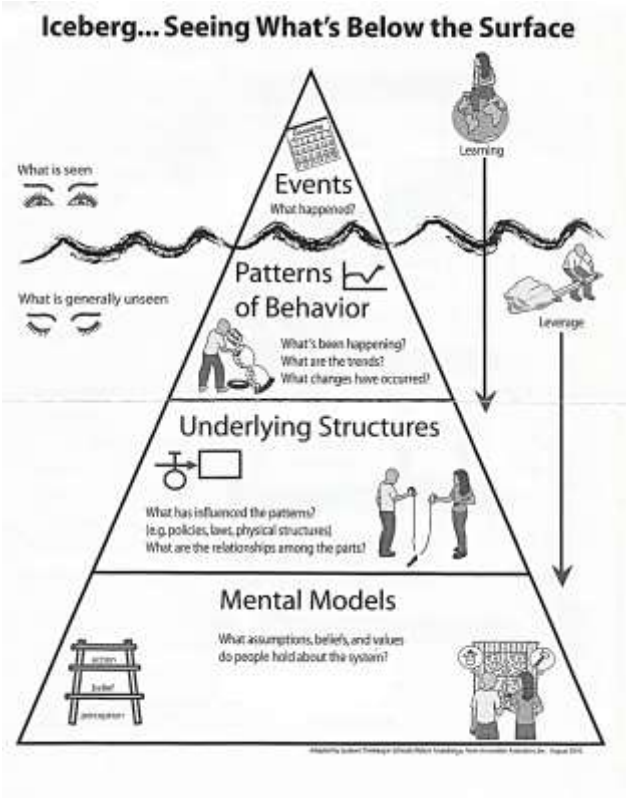

***Figure 3*. The Iceberg Model. Adapted from Systems Thinking in Schools. Waters Foundation (2010).**

Navigating through the various layers of the iceberg one can easily notice that the discrete events are an exemplification of existing trends and patterns. Those trends and patterns are caused by certain system structures. Systemic structures, in turn, are built upon the beliefs found in the mental models of those who created or managed the system (Ambler, 2006). "As we move down the iceberg we gain a deeper understanding of the system and at the same time gain increased leverage for changing the system or its results" (Ambler, 2006).

For example, if a teacher submits his or her resignation from a school, the principal must check whether this resignation is an isolated event or whether there is a pattern behind it. If a pattern or trend of resignations exists, the principal should attempt to identify the school structure that may have generated this trend of resignations. The principal must go further and examine his or her mental models or the mental models of the management team to see if there are certain assumptions or beliefs upon which those structures were built.

In his book "Leadership and Sustainability", Fullan (2005) emphasized the need to put systems thinking into practice. It is not enough to approach managerial issues from a systems perspective, a leader must acquire the habits of systems thinking and use them in practice. Systems thinking in practice and at the various levels of an organization are the key to

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sustainability. In addition, Fullan considered moral purpose as the link between systems thinking and sustainability. This is because sustainability depends on the collective effort of the persons at the various levels of a system, and sharing a moral purpose produces the kind of commitment needed throughout the system.

Data-driven Decision Making (DDDM)

Wagner et al. (2006) considered data as a change lever. They defined it as "all the quantitative and qualitative information that is related, directly or indirectly, to student success and well-being in a school" (p. 134).

Data driven decision-making in a school refers to the systemic collection and analysis of various types of data in order to inform or guide decision-making; and that this protocol is performed consistently by teachers, staff, and administrators (Marsh, Pane, & Hamilton, 2006). Another definition of data-driven decision-making is that of collecting data, analyzing data, using the data to increase school efficiency and enhance student achievement, and communicating decisions through data (Sagebrush, 2004).

The outcome of moving from *data* to *knowledge* is a *decision*. According to Marsh, Pane, and Hamilton (2006), decisions are informed by various types of data such as *input* data (demographic data…), *process* data (quality of instruction…), *outcome* data (students' grades…), and *satisfaction* data (parents perception surveys…).

Data that leads to knowledge has the power to inform essential school activities. In particular, data may help measure student progress, narrow achievement gaps, assess instructional effectiveness, guide curriculum development, find the root causes of problems, allocate resources, and communicate more effectively with stakeholders.

METHODOLOGY

A multiple case study design is used as the research approach of this study. In particular, eight cases or eight principals were interviewed to explore the essential leadership factors that are necessary for school improvement. That is, the leadership factors in the various schools (that differ in their degree of being a learning organization) were examined for pattern matching.

The grounded theory methodology guided the selection of the sampling procedures used. In such methodology, participants' selection must be aligned with "theoretical sampling". As such, purposeful sampling was used to select the sample of this study. The purposeful selection of the research participants allowed the researcher to capture the heterogeneity in the population, and to select the typical case and to establish comparisons that clarify the reasons for differences between settings or individuals. Table 1 below includes the essential demographic information of the interviewed principals.

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Table 1: Demographic information of the participants

Site #	School Type	Chain Belonging	Status	Level	# of Students
1	Private	Y^1	Accredited	K12	1200
2	Private	Y^1	Not Accredited	K6	300
3	Private	Y^1	Not Accredited	K6	150
4	Private	N	Not Accredited	K12	700
5	Private	Y^2	Not Accredited	K12	750
6	Private	Y^2	Not Accredited	K12	400
7	Private	N	Accredited	K12	1300
8	Private	N	Accredited	K12	800

Site #	Principal's Gender	Principal's Degree	Administrative Experience
1	Female	BA History, MA modern Islam	8 years
2	Female	MA TEFL Education	7 years
3	Female	BA Psychology, TD Elementary	8 years
4	Male	BS Mathematics	36 years
5	Male	PhD in Education	7 years
6	Male	MA in Education	7 years
7	Female	MA Education Management	3 years
8	Male	BS Finance, MA International Educational Development	2 years

The multiple-case design that is used in this study is a simple one. A set of cases were selected that are believed to exhibit literal replications of certain conditions from case to case (Yin, 2009). First, a pair of accredited and non-accredited schools was studied. Selecting schools of different accreditation status serve the purpose of selecting schools of various conditions or contexts. The researcher aims at studying the leadership profile of those two schools in relation to school improvement. In particular, the researcher aims to study the leadership conditions or find a pattern among those leadership factors that are related to the outcomes of school improvement in the selected schools. Then, another pair of schools was examined to provide evidence for literal replication from case to case.

The interview was the primary method of data collection in this study. This provided rich and detailed information about principals' experiences and perceptions as they relate to school improvement. Questionnaires were used to collect information about the school, principal, and teachers. In addition, documentary information is likely to be relevant to every case study topic. Minutes of meetings, written reports, action plans, evaluations of students and teachers, archival records of previous plans or data analysis reports, and other administrative documents were examined when available. Those constituted valuable source of information for cross examination of data.

Triangulation was used to enhance the credibility of the study. For instance, transcriptions were cross examined against submitted documents. In addition, the various questionnaires provided better understanding of certain constructs that were mentioned in the interview.

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Data analysis started by the transcription of the collected data to provide an accurate verbatim record of the interviews. The researcher used the grounded theory procedures as the vehicle to data analysis and theory generation. The analysis phase started immediately after the collection of data from two different schools. In particular, recorded data from the conducted interviews were transcribed and classified using the relevant coding processes. The preliminary analysis of data at this stage allowed the researcher to refine the interview questions for enhanced clarity in responses. Once a set of codes or categories were generated, a second wave of data collection was initiated. The new data was transcribed, coded and then compared with the existing data and categories in an attempt to achieve a fit between data and categories. Then connections among relevant categories were established and more abstract codes were developed around single categories or axes. The data collection and analysis continued until there was enough data to describe what was going on.

FINDINGS

Finding 1: The systems thinking level of all interviewed principals was primitive or basic.

Though there may not be a ready-made tool that easily measures the level of systems thinking a person might have, identifying such level is not a hard thing to do. One can identify a systems thinker by the way he / she speaks or behaves. However, for the sake of this study, the researcher chooses to examine the systems thinking indicators that are depicted by Figure 4.

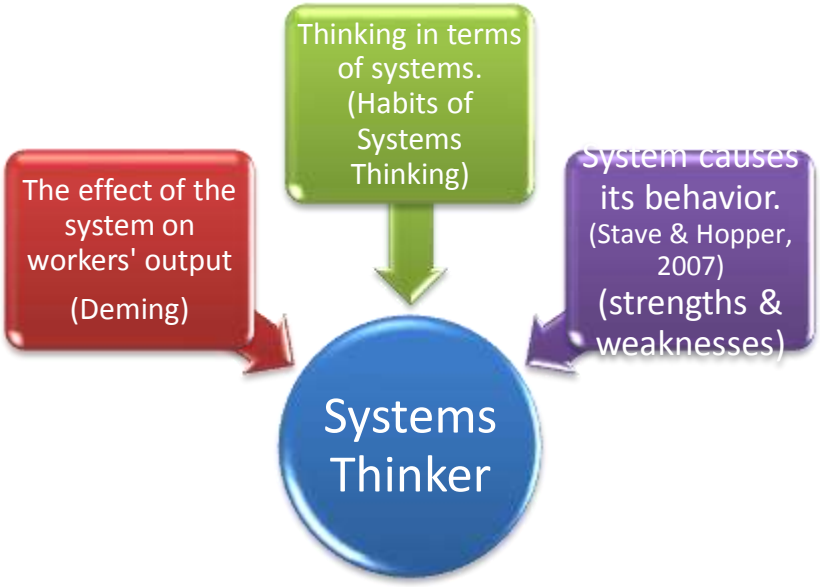

Figure 4. Indicators of a Systems Thinker

Senge (2006) considered systems thinking as "the discipline for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots" (p. 68). According to Stave and Hopper (2007), a systems thinker is a person who thinks in terms of "wholes" rather than "parts". Another important aspect of a systems thinker is his or her ability to see system behavior as a function of the internal structure rather than external effects. In addition, a systems thinker is a person who has internalized the habits of systems thinking and uses the tools that facilitate systems dynamics (Waters Foundation, 2013). So a school principal may

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be considered as a systems thinker if he or she fits the above stated profile, and have the habits of systems thinking and act accordingly.

Throughout *all* the conducted interviews, the word "system" was mentioned by the principals only ten times, knowing that the interviews transcripts consist of around twenty thousand words. And it is worth mentioning that most of these ten instances were brought up by one principal, P7.

Table 2: Frequency Table of the lexical term "System"

Document	Preview	Paragraph
Site1	And we informed them that the things that are not operational or functional in our school are related to the budget or the SYSTEM and we can't really do anything about it at that time.	3
Site2	P: Frankly speaking, we don't have a systematic approach to measure or follow up on reform efforts.	21
Site3	Now I will tell you about the policy of the school because maybe my system is more flexible.	30
Site7	P: The main benefit of accreditation is in systemizing what we were doing.	24
Site7	It allowed us to build a system and be able to evaluate it in a scientific way.	24
Site7	So we have many intervention systems (support team, remedial, special education, and afterschool study program) in place to assist weak students.	26
Site7	We also have what is called mentoring system.	40
Site7	By the way, the accreditation agency helped us to systemize the collection of medical data for all of our students.	52
Site7	P: That is why there should be differentiated instruction in the classroom, and there should be a support system for the students.	56
Site8	Everything follows a certain guideline so that we may able to systemize our activities.	19

In addition, none of the participants revealed that s/he possesses the habits of systems thinking such as surfacing and testing assumptions. And no reference was mentioned to any of the tools that may be used to facilitate systems dynamics such as the *causal loop diagrams or behavior over time graphs.*

The participants' data and the researcher memos didn't show that principals take into consideration that the system causes its behavior. For instance, most of the principals perceived the strengths of their schools as the things that they think are important and as such are the focus of their concern; and they perceived the weaknesses as those things in school over which they have no control such as the location of the school.

> "P1: Our main strength is the name, the history and the image of our school. The second strength that you may find in our school is commitment. Commitment to excellence…"

And when she was asked about the weaknesses, P1 replied:

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> Money issues; we couldn't attract or sustain good people because we can't afford to pay them what they deserve. Another weakness has to do with marketing. I am not a person that can market the school, or conduct fund-raising for the school it is simply not my style to ask people for money. I think we have a problem in marketing ourselves.

If P1 was a systems thinker, she would have known that the system (the school and the stakeholders) generates its behavior and as such will attribute the strengths and weaknesses to the mental models of the stakeholders or the structures and policies of the school. In addition, she will perceive improvement as the improvement of the whole school system not a sporadic improvement of certain components within the school. Similar instances from other principals are presented below:

> R: "In your opinion, what are the components or areas in your school that need improvement the most?"
>
> P7: "We need to improve internal communication among each other. And we need to improve our physical campus in order to provide a research center for our students for example".
>
> P6: I think we need to integrate technology more often in the learning process. There are some attempts in this direction, but they are not enough. Some classrooms have interactive whiteboards installed in them. However, there are some fears from the teachers, especially the old ones, from using technology more often.

Systems thinkers concentrate on the improvement of the whole school system through a comprehensive improvement plan.

Another indicator that exemplifies the low level of systems thinking of the principals has to do with the factors that affect student's performance; none of the participants mentioned the school as a system or any of the stakeholders and the processes in the school. Most of the participants (7 of 8 [87.5%]), considered teachers and parents as the sole factors that affect students' performance (see Table 3). What about the effect of the school system on the teachers and students?

Table 3: Sample of Performance Factors

R: In your opinion, what are the factors other than students' individual skills and efforts that contribute to the differences in students' performance?
P8: Access to quality resources.
P7: It is the teacher and the resources that you are using in the class.
P5: The main factor is the role of parents. Parents are the major players in the field of skills development of their children. Wise intervention and follow up from the parents could lead student to success.
P4: The school is not the principal and the teacher. The students and the parents play an important role in the learning process. The parents should follow up on their children. They should ask them what you did today. What do you have to do as homework? ... Also the teacher might be the cause of poor performance. We might ask the teacher about the underachieving students and to what do you attribute such poor performance.
P3: The way teachers treat the kids affect the students' performance….

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P2: There is the learning style of the student, and there is also the way of delivery. Is the teacher catering to the different needs of the students, the use of motivation techniques... the way the administration treat or deals with the teachers affect his/her productivity. When I was appointed as a head of this school, I worked on developing an award system for the teachers to boost motivation.
P1: The educational background of the student, the SES of the student's parents, the marital status of the parents, the development stage of the student and other factors...might affect the academic achievement and performance of the students. R: What about the school system? Isn't a factor? P1: Do you mean the school here? R: Does the school affect the academic performance of the students? P1: The teacher affects the academic achievement of the student. If the student doesn't like the teacher, then he/she will not perform well, especially the small kids.

A systems thinker would have mentioned all the school and home factors that affect students' performance. That is, parents, the principal, teachers, resources, classrooms, culture …

In addition, when principals were asked who to blame when professional development activities fail to achieve its targets, the principals of the accredited schools replied that they will blame themselves or their expectations. Most principals of the other schools replied that they will blame "the teacher".

> "P3: Those who conducted the workshops have nothing to do with it. They have done their job. I will blame the teachers and I will blame myself for not following up on them properly."
>
> "P5: Usually we ask for reflections from the person in charge; and then we sit with him and we analyze what went wrong."

"P7: I will blame myself first. That is my planning and expectations."

A systems thinker would never blame others for failures. Such failures are not technical or trivial errors, so their source ought to be systemic.

In addition, the absence of a school improvement plan in some schools and the content of the available plans confirm the fact that the participating principals are not systems thinkers. The plans are not comprehensive and they didn't take into consideration all aspects of the school system and its interrelationships.

Finding 2: Limited use of data for decision making was apparent in all examined schools.

Data-driven decision making is about collecting data, analyzing data, communicating through data, and using the data for enhancing student achievement and school improvement (AASA, 2006). For instance, if a school principal wants to improve the culture in the school, he or she must first collect data that pertains to the current status of the culture. This can be done by conducting a certain specialized survey. The collected data will then serve as the baseline upon which improvement can be measured. In addition, the analysis of the collected data will reveal most of the strengths and weaknesses of the school culture. Based on such information, the decisions that will be taken for the improvement of the culture is now data-driven; not based on intuition or speculations. Also the consequences of such decisions maybe benchmarked

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against the baseline to measure improvement. It is worth mentioning that data-driven decision-making requires the use of certain technology tools that facilitate the analysis of the collected data. In a similar manner, collecting and analyzing data about the various aspects of the school system will aid in the improvement of the whole system.

Though the accredited schools seem to appreciate the role of data in decision making more than the other schools, none seemed to incorporate the tools that facilitate data-driven decision-making. This was evident in their responses and in the absence of data-driven generated reports. The comprehensive and systematic collection, analysis, and use of data for decision making was almost absent in all the schools I visited except for one school. That school, S7, has started to develop a department for the assessment of students' learning. The principal of that school believes that the consistent analysis of the data that pertains to students' achievement will lead to better decisions that in turn will enhance students' performance. The other schools used data occasionally or for certain tasks such as trivial analysis of students' grades or parents' perceptions.

R: What is the role of data in decision making?

> P2: Frankly speaking, we don't have a systematic approach to measure or follow up on reform efforts. However, there are some activities that can easily be observed for sustainability.
>
> P3: I don't give the necessary time for writing reports and documentation.
>
> R: How do you follow up on your students, especially the underachievers? And do you conduct reteaching or remedial teaching sessions?
>
> P4: The school is not the principal and the teacher. The students and the parents play an important role in the learning process. The parents should follow up on their children.

R: What is the role of data in such decisions? What type of data do you collect?

P6: We collect data about our students and about our needs.

> R: Do you use parents' questionnaires to get their perception about a certain issue?

P6: No. We send letters to the parents and we get informal feedbacks.

> P7: Very important. You can't do without. All the decisions that are not based on data are called opinions.
>
> P8: Data plays the pivotal role in decision making. Everything we have and do is documented. Technically, we are not like a bank where there is profit and loss. For example, what to spend on PD for teachers depend on how much do we have and what is the ROI. At the end of the day, you need a lot of heart in an educational institution. Because if you want to base your decision based solely on data, then the school will be transformed into a factory.

Since technology facilitates the use of data driven decision making, and since the majority of schools suffered from limited use of technology as an assessment and analysis tool, this fact serves as another indicator on the limited use of data as the basis of decision making.

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The above findings converge with the findings that were collected via the P3DMI instrument. This questionnaire is specially designed to measure leadership constructs of Data-driven decision making (DDDM) practices. These constructs are school vision, school instruction, school organizational operation, and collaborative partnerships. Although these questionnaires were filled by the principals themselves, the results showed low to moderate use of data as the basis of decision making (see Table 4).

Table 4: The use of data in decision-making

		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8
Use of data to support leadership in school vision	Out of 5	3.17	2.83	2.83	2.83	3	3.50	3.5	3.5
Use of data to support leadership in school instruction	Out of 5	3.75	2.88	2.5	3.50	3.13	3.50	3.88	3.75
Use of data to support leadership in school organization operation	Out of 5	3.69	2.38	3.38	2.62	3.31	3.54	3.15	3.31
Use of data to support leadership in collaborative partnerships	Out of 5	3.89	3.44	3.22	2.89	2.67	3.11	4.22	4

The above table, the data collected from the interviews, and the data extracted from the analysis of the provided documents revealed that most schools, if not all, don't use hard data in most of their decisions. In fact, two sites only, site1 and site7, provided the researcher with enough documents that shows their use of data in multiple forms and for multiple purposes. In the absence of data, common sense, intuition, and logic become the main denominators in the decision making process.

In addition, the data collected from the administration of the Dimensions of the Learning Organization Questionnaire (DLOQ) showed that most schools received relatively low scores on almost all the dimensions of a learning organization.

Synthesis

The first finding revealed that the systems thinking level of all interviewed principals is basic or primitive. This may be due to the type of their formal education. Systems thinking is a concept that is usually taught in management or leadership courses. Though few principals have an advanced degree in education, none seemed to act according to the systems thinking protocols. Again this may be due to the structure or the emphasis of the programs that are associated with those degrees. Whatever the reason, the participants of this study didn't treat their schools as systems; something that will make substantial improvement a challenging task.

The limited reliance on data as the basis for decision making reveals that most principals depend on their intuition or common sense to make decisions. As such, they will not be able to identify trends and patterns concerning school events and this will make them reactive to events and not proactive to upcoming threats or opportunities. In addition, relying on intuition and not

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on data is an attribute that is associated with autocratic types of leadership. Failing to identify the trends and patterns of the daily events will prevent principals from identifying the school's structures that affect stakeholders' behaviors. Change, reform or improvement is again challenged due to this lack of data.

This finding is in harmony with what was found in a research study about the role and work context of the school principals in Lebanon. In particular, Akkary (2013) stated that principals' decisions and actions are based on their "own judgment, wisdom, and experience" (p. 20).

So, principals who are not systems thinkers who utilize data-driven decision-making approach will fail in their improvement efforts and will not be able to transform their schools into learning organizations. This is because they will fail to see patterns and trends in the performance of the various components of the school system. In turn, they will not be able to attribute those performances to the underlying structure of the school system which they are part of (See Figure 3 on page 17).

This may also lead to a failure in the design of any substantial improvement initiative because the principal or the school leadership team will not take into consideration the interrelation among the various people and processes of the school system. School leadership will not be able to identify the leverage points in the school. In addition, the principal will not be able to identify or acknowledge the impact of the system on the performance of the individuals that are working in the system. So, he or she will blame people for mistakes or reward them for actions that they are not responsible for. In all such cases where quality assurance measures (Systems thinking and DDDM) are absent, the decisions or actions that the principal will take will produce short-lived, unintended or unseen consequences.

DISCUSSION

Though many definitions exist for school improvement, a common attribute of these various definitions has to do with some sort of change (Heck & Hallinger, 2008). School improvement may include a change in teachers' behavior or motivation, a change in the curriculum or a change in the school's routines, procedures or climate. Transforming a school into a learning organization is also considered an improvement attempt (Senge, 2006). So, when we talk about school improvement, we aim to change the status quo regarding certain school aspects. And since school principals play a pivotal role in the school improvement process (Marzano, 2005), they are in a way or another held responsible for the initiation or facilitation of reform efforts.

A school improvement journey, like any other journey, needs the following minimum requirements:

- A car or bus ⟶ (Resources)
- A driver (Principal / Leadership) with a driving license (ISLLC)
- Destination point ⟶ (School Improvement domains or goals)
- A map to that destination ⟶ (School Improvement process or cycle)

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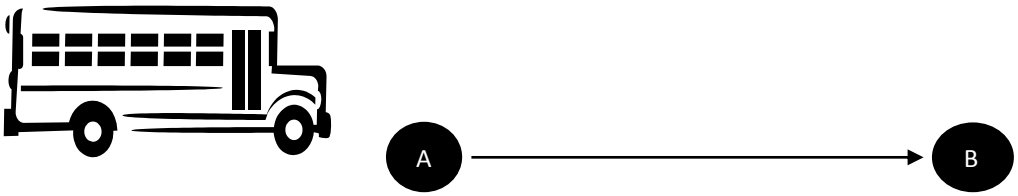

Let's assume that the school has the necessary resources for improvement. As for the improvement domains or goals, research studies, accreditation organizations and quality assurance agencies have developed those domains standards, frameworks and plans for school improvement. As for the school improvement process, though well defined as described in the diagram below, principals seeking reform might have faced difficulties in going through the various phases of the school improvement process.

School improvement process is cyclic and continuous (Neuroth, 1992).

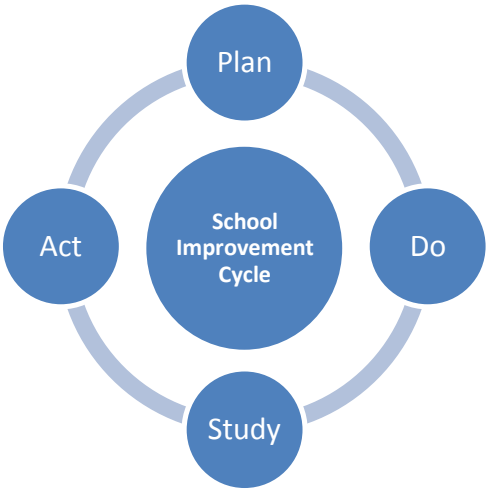

Figure 5. School improvement process

The Plan-Do-Study-Act cycle for school improvement shown above contains four main activities:

- "Plan: Develop a plan for improvement.
- Do: Implement the plan.
- Study: Evaluate the impact according to certain criteria
- Act: Adjust strategies to better meet the criteria"

Systems thinking and data driven decision-making are the keys to successful and sustained improvement. First, when principals write their plan, they must use systems thinking so that every part of the school system is taken into consideration. In addition, data is needed to identify the school needs and to set goals. Data patterns reveal strengths and weaknesses in the system. Second, when the school team implements the school improvement plan, systems thinking allows them to properly deal with the interrelated factors of the system. In addition, collected data will inform principals about the impact of their strategies. Finally, when the principal evaluates the implemented plan, the feedback offered by data through a systems thinking perspective will allow them to identify failures and success and what updates are needed.

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Implications to Research and Practice

What adds to the rationale of this study is that upon examining various local and international research studies that are related to educational leadership, it turns out that there were several studies that are related to school improvement and leadership, however, there is an apparent gap in literature regarding the nature of this relationship between school improvement and school leadership (Harris, 2005).

In addition, this study will provide researchers, educators and policy makers with valuable data that they may use for further development or research. In particular, the researcher hopes that the findings from this study will have significant impact on the preparation programs of future principals; hoping for more emphasis on clarifying the system's nature of the school along with the system dynamics tools.

CONCLUSION

God created the world as a perfect system of interrelated subsystems. For instance, there is the biological system, the social system, the ecological system, the solar system… Each of those systems operates in a certain perfect way, and some of those systems are interconnected. And this is how our schools should be perceived. The classroom should also be perceived as a system. The teacher is the leader of the classroom system just as the principal is the leader of the school system. According to Fullan (2001), "the world is not chaotic, it is a complex system that constantly generates overload and fragmentation" (p. 108). That is why leaders should attempt to foster coherence by making sense of things.

The review and critique of the literature, combined with this study, has led the researcher to believe that principals, who are NOT *system thinkers* who utilize a *Data-driven decision making* approach, will fail to achieve the goals of their improvement efforts. And they will not be able to transform their schools into fully functional learning organizations.

This was clearly demonstrated in this study by the associated low levels of principals being systems thinkers and their schools being considered a Learning Organization.

In the absence of systems thinking and reliable data, the leadership team in the school will not be able to see patterns and trends in the components of their school, and in turn, they will not attribute these patterns of behavior to the underlying system structure which they are part of. Consequently, they will not be able to develop and implement a viable improvement plan because they will be busy dealing with the daily events.

Since the aim of this study is to identify the essential leadership factors that are necessary for the success of school improvement, a preliminary *leadership profile* (a set of leadership characteristics and practices) for school improvement is generated as a result of this study. In particular, principals must, at least, be systems thinkers and data-driven decision makers in order to get their driving license for school improvement.

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FUTURE RESEARCH

In order to gain a comprehensive understanding of why school improvement efforts fail; and of the relationship between leadership and school improvement, the researcher recommends that further studies be conducted. In particular, a quantitative approach will be more suitable as a compliment to this qualitative study. In this manner, data generated from this study will feed a quantitative study in terms of constructing better research instruments and procedures. This way, the limitations imposed by qualitative studies will be overcome and generalizations to other participants or populations may start to evolve.

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