Decision-Making and Problem-Solving Practices of Superintendents Confronted by District Dilemmas

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The purpose of this study was to determine the decision-making and problem-solving approaches most frequently used by school superintendents in two mid-western states when confronted with district dilemmas. The research replicated a study conducted by Polka, Litchka, Caizi, Denig and Mete (2011) in five Mid-Atlantic states. The survey used in both studies was based on the work of Tarter and Hoy (1998). Results between the two regions were compared and significant differences were found in how superintendents manage dilemmas and their preferences for making decisions. In addition, significant differences were found between male and female superintendents in the mid-western states.

THE SUPERINTENDENCY

School superintendents confront a myriad of issues on a regular basis. National organizations such as American Association of School Administrators (AASA) have found that these issues are similar across the country (AASA, 2005). They include scarce resources, school board relations, partisan politics, divergent community beliefs and values, the privileged minority, the vocal majority, and a host of others—some more problematic than others depending on the context of the school district. These dilemmas are not new. T. O. Hall published "The Dilemmas of a School Superintendent" in the *Peabody Journal of Education* in 1941. Dilemmas Hall referred to include "political

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influences…unprepared but popular teachers, local teachers, and over-age teachers…, problems of revenues…matters of curriculum, supervision, and many situations in the promotion of education in general" (p. 241). In 2005, the American Association of School Administrators (AASA) invited the state superintendent winners to a leadership forum to discuss the challenges they face. Monte Moses, the 2005 AASA National Superintendent of the Year, summarized the dilemmas of today's superintendents as following:

- revenue and expenditure limitations;
- increasingly diverse and complex students and families;
- high public expectations and accountability for student achievement;
- rapid advances in knowledge and technology;
- business and political concerns about public education;
- international competition in education;
- more legal and law enforcement issues;
- violence, racism, and substance abuse;
- choice and vouchers;
- growing state control of education;
- increases in student enrollment;
- and erosion of public confidence and common agreement about public education. (p. 2)

Nearly sixty-four years later, the list remains very similar.

Because it is widely accepted that the public school superintendent position is inherently enmeshed in dilemmas, it creates a position similar to CEO positions in other major organizations (Houston & Eadie, 2000; Kowalski, 1995; Leithwood, 1997; Thody, 1997). According to Houston and Eadie, the superintendency is no longer limited to keeping the school district running smoothly by providing direction and oversight "The superintendents who in our experience are most effective...function as full-fledge, contemporary CEOs, seeing themselves more fully as leaders, not just chief administrators" (p. 19-20). Watkins and McCaw (2008) echoed a comparable finding when they wrote: "The dilemma for superintendents includes no shortage of critics, the ever-present need to analyze the politics and navigate the land mines, astute public relations skills, and constant preparation for and attention from the media" (p.148). These various challenges are what make the position of superintendent so fragile (Usdan, 2005). The ongoing joke at educational conferences is that there are two kinds of superintendents: those who have been terminated and those who are going to be. The "joke" becomes reality when considering a study of urban superintendents by Fuller et al. (2003) in which the researchers found that many superintendents described their positions as not only challenging but "undoable" (p. 11). This is not a new phenomenon. Research from the late 1990s described the school superintendency as a management position in which superintendents found themselves in the middle of various conflicts from multiple stakeholders (Kowalski, 1995; Leithwood, 1997; Thody, 1997).

Dilemmas

Dilemmas are generally considered as those situations in which individuals find themselves in which they have unsatisfactory choices for solving a problem. *The American Heritage Dictionary Online* (Houghton-Mifflin) defines a dilemma as "a situation that requires a choice between options that are or seem equally unfavorable or mutually exclusive." School district superintendents often find themselves caught in the middle of one type of dilemma or another (Hoy & Tarter, 2008). Ogawa, Crowson, and Goldring (1999) posit that these dilemmas school superintendents face are inherent within the institution of school itself. Therefore, decisions cannot bring forth a solution to the dilemma (dilemma is often used synonymously for problem) as the choices are not solutions, but merely the selection of one alternative over another.However, Lowy (2008) believes that "A critical task of leadership is recognizing, acknowledging and interpreting the enterprise's core dilemmas in a timely and useful fashion" (p. 33). This situational awareness is a key responsibility for the superintendent in order to manage the dilemmas within the context of the district.

Decision-Making

The text, *Administrators Solving the Problems of Practice: Decision-Making Cases, Concepts, and Consequence* (Hoy & Tarter, 2008), referenced administrator decision-making tasks as "dilemmas". Leadership dilemmas are obstacles or predicaments that require decisions which will move the organization forward with as little distress to the system as possible. However, dilemmas are complex and often resolved quickly to mitigate an uncomfortable situation or provide a short-term solution that creates satisfaction for the moment (Lowy, 2008). Optimal decision-making is defined by Tarter and Hoy (1998) as "rational, deliberate, purposeful action, beginning with the development of a decision strategy and moving through implementation and appraisal of results" (p. 212).

Tarter and Hoy (1998) analyzed six decision-making models in an attempt to determine which model was most effective: *classical, administrative, incremental, mixed scanning, garbage-can,* and *political.* The classical model is described by Tarter and Hoy as being an "optimizing" model, one that is straightforward: "there is one best solution to a problem; find it, select it and implement it" (p. 212). They define the *administrative* model as a modified version of the "optimizing" or classical model. Simon first identified this model in the 1930s as a result of finding that managers would often make decisions that were reasonable, but not ideal; in other words, the decision satisfied the situation but hardly maximized it (Brown, 2004). This *administrative* model is also referred to as the "satisficing" strategy.

The third model that Tarter and Hoy (1998) examined was the *incremental* model, "a strategy of successive limited comparisons" (p. 215). As the name implies, this decision-making model was made of up a series of "baby steps"—each step monitored to note the impact of the change, thus trying to avoid negative consequences on a larger scale. Tarter and Hoy noted that the model lacked direction or was not grounded in a focused outcome or objective. If a decision was made and nothing bad happened as a result, it was a good decision; likewise, if something bad resulted, it was not catastrophic

in that it had only been a small change. "To use Lindblom's (1959) phrase, they 'muddle through'" (p. 215).

The fourth model which Tarter and Hoy (1998) reviewed was the *mixed scanning* model defined by Thomas (1984) as "'a mixture of shallow and deep examination of data—generalized consideration of a broad range of facts and choices followed by detailed examination of a focused subset of facts and choices'" (p. 216). Tarter and Hoy also refer to this model as "experimental, reversible, limited, and typically not far from the problem" (p.217). *Mixed scanning* differs from the *incremental* model in that it is grounded in policy, but it mirrors the cautious, measured decisions of the *incremental* model.

The fifth model that Tarter and Hoy (1998) studied is referred to as the *garbage-can* model as well as "irrational decision making" (p. 217). In the *garbage-can* model, solutions are suggested for problems that don't yet exist, but that actually demand that a problem be found. Tarter and Hoy sum up the model by stating: "The model explains why solutions are proposed to problems that don't exist, why decisions are made that don't solve problems, why problems persist despite solutions, and why so few problems are solved" (p. 218). However, other researchers do not consider the *garbage-can* a model at all, but rather a way of describing irrational decision-making (Padgett, 1980). In short, within the bureaucracy of an organization it is easy for problems to become separated from appropriate choices due to ambiguity within the system, thus providing an image of someone rummaging around inside a garbage can hoping to find a solution.

The last decision-making model analyzed by Tarter and Hoy (1998) is the *political* model which they described as the model used in "organizations in which politics replaces the legitimate procedures for decision making, personal goals displace organizational ones" (p. 219). The *political* model, then, functions to satisfy an individual's goals and relies on power as opposed to organizational policy or objectives taking precedence. This model lies at the opposite end of the continuum of decision-making models with *classical* on one end and *political* on the other.

After reviewing the six models, Tarter and Hoy (1998) used the following seven standards to compare the models: "setting objectives, means-ends analysis, the test of a good decision, the decision process, the search for alternatives, guiding principles, and perspective" (p. 220). Their analyses resulted in the models lying on a continuum from organizational objectives and outcomes to personal objectives and outcomes—from normative to descriptive. Using the results of their analyses, Tarter and Hoy concluded that there was no one best way to make a decision, but rather it was the situation that determined which strategy was most likely to yield an acceptable result—a *contingency* theory. They further deduced that "decision-making theories…are probabilistic not deterministic" (p. 227). In subsequent work, Tarter and Hoy (2010) reinforced the idea that decision-making is important—as evidenced by the plethora of publications about decision-making and how to do it, but as in their 1998 work reinforced the idea that there is no one model. The best results are obtained by the thoughtful selection of the best model to fit the situation.

Preparing Superintendents for Dilemmas

Decision-making ideas are of great importance to educational leadership departments in universities across the United States charged with working to improve administrative preparation programs. Kowalski (2009) posits that the demands of the superintendency now lie in accountability, and, with accountability, the need to make sound decisions that have both social significance (school improvement) and professional significance (evidence-based administrative practices). The principles of leadership, management, finance, and law are foundational in most superintendent preparation programs. However, school administrators may complete advanced degrees and meet state licensure requirements without ever having taken a required course in decision-making (Wirasinghe, 2008).

To better prepare educational administrators for the challenges of school leadership positions, it is critical that higher education institutions are aware of the problems that are faced by superintendents on a regular basis and the dilemmas that require advanced skills in decision-making and problem solving. If, as Ogawa, Crowson, and Goldring (1999) propose, dilemmas are just part of the system of educational organizations and have no solutions, there is no reason to believe that school reform will even be a possibility or that higher education will be able to design a program to prepare superintendent candidates to confront dilemmas by selecting the most appropriate decision-making strategy. However, other works (Domenech, 2009; DiPaola & Stronge, 2003; Marzano, Waters, & McNulty, 2005; Glass, 2005) identified effective superintendents and then categorized the knowledge, skills, and dispositions that make them successful. The Educational Consultants and Research Associates (ECRA) (2010) identified six best practices from district leadership evaluation standards and principles derived from the research. These are 1) vision and values; 2) core knowledge competencies; 3) instructional leadership; 4) community and relationships; 5) communication and collaboration; and 6) management. These criteria are credible, but specific knowledge and skills need to be extrapolated for each to provide guidance for superintendent preparation programs. Direct instruction in specific strategies and behaviors required for thoughtful, rational decision-making is accomplished through modeling, guided practice, feedback, and application. Strategic instruction in decision-making models will better prepare candidates for the myriad of dilemma-type decision-making situations superintendents encounter today.

Issues of District Size and Superintendent Gender

There have been a number of studies of superintendent issues by location or district size: large urban districts (Fuller, Campbell, Celio, Harvey, Immerwahr, & Winger, 2003); small urban districts (Hentschke, Nayfact, & Wohlstetter, 2009), small districts (Acker-Hocevar & Touchton, 2011; Hyle, Ivory, McClellan, 2010); and rural districts. District size is defined by the National Center for Education Statics as follows: Large urban districts have a principle city of 250,000 or greater population; small urban districts have a principle city of less than 100,000 population; small districts have a population of less than 25,000; rural districts are located 5 to 25 miles from an urban cluster. Differences naturally exist in how decisions are made in small rural districts and large urban districts,

although many of the dilemmas faced by district leaders may be similar in nature (Patterson, Koenigs, Mohn, & Rasmussen, 2005). These dilemmas include declining enrollment, loss of resources, and local politics. In a study of a small, rural school district, Patterson, Koenigs, Mohn, and Rasmussen found three patterns that influenced decision-making characterized as the "normal operating procedure" here: 1) top-down decision-making; 2) limited communication to influence decisions; and 3) "success-to-the-successful" (Senge, 1990). Senge defined the third pattern as the inequitable distribution of resources. In other words, decisions are made in which one group continues to get more; the other groups continues to get less.

In a study of urban superintendents (Fuller, et al., 2003), researchers found that superintendents in large urban schools had a number of issues with decision-making. These ranged from school boards that micromanaged to site-based decision-making. Many of the superintendents who participated in the study felt that the structure of the system itself effectively removed them from making decisions in the best interest of "kids"—the role they were hired to do.

There are many differences between the ways in which men and women lead, and consequently, how they make decisions and face dilemmas (Bjork, 2000; Blount, 1998; Bruner, 1999; Tallerico & Blount, 2004). Women tend to be more collaborative, communicative, and relationship-oriented. These traits obviously align to decision-making models that favor those skills. Bruner (1999) found that women build power collaboratively. Men, on the other hand, tend to use the top-down power of the superintendent position. Again, some models of decision-making tend to align better to the management styles related to male leadership, often described as hierarchical, managerial in nature, and favoring bureaucratic systems (Lewis, 1998).

METHODS

The purpose of this study was to determine what decision-making and problem-solving approaches are currently being used by superintendents in two Midwestern states when faced with a dilemma. Both states have superintendent preparation programs that could benefit from the results of this study in redesigning their programs. The Educational Specialist degree (Ed.S.) is required in Illinois and the Certificate of Advanced Studies (C.A.S.) is required in Iowa for administrators to become superintendents. These programs require up to thirty-six semester hours of course work as well as a year-long internship component.

The current study reviewed the survey results of superintendents in the Midwestern states and then compared those results with the survey results of the superintendents in the Mid-Atlantic states (Polka, Litchka, Caizi, Denig, & Mete, 2011). The objective was to determine if the decision-making models of preference were similar in the two regions of the country, thus providing superintendent preparation programs with data to determine which approaches were more universally used.

Survey Instrument

Eight specific categories of decision-making in the text, *Administrators Solving the Problems of Practice: Decision-Making Cases, Concepts, and Consequence* (Hoy & Tarter, 2008), were reduced to seven by Polka, Litchka, Caizi, Denig and Mete (2011)

who used them to create a thirty-five question survey to determine which of the seven decision-making categories were most frequently used by school superintendents. Their original study surveyed superintendents in the Mid-Atlantic states of Delaware, Maryland, New Jersey, New York, and Pennsylvania.

The survey used in the study was developed by Polka, Litchka, Caizi, Denig, and Mete (2011). The seven decision-making categories used in the survey are from the work of Hoy and Tartar (2008) and include: 1) classical; 2) incremental; 3) garbage can; 4) shared; 5) satisficing; 6) mixed scanning; and 7) political. The five survey statements used to describe *classical* contain descriptors such as rational, factual, and connections between the means and the ends. *Incremental* decision-making descriptors focused on the process, procedures, and the use of data. Administrators utilizing the *garbage can c*ategory are those who "rummage around" for the choices available for solving the problems in a way that appears to lack rational thought. *Shared decision-making* is as the name implies, and other people are involved in the process of making the decisions. *Satisficing* is focused on making decisions that most people favor; that meet the needs of those affected; and that satisfy those impacted by the decision. The *mixed scanning* category is grounded in considering the school mission, vision, goals, and policies when making decisions. Descriptors in the survey statements used to define the *political* category include bargaining, compromise, power brokering, and administrator priorities. Permission was obtained to use the instrument to survey superintendents in the mid-western states of Iowa and Illinois. The survey contained three parts: A) demographic data, B) decision-making/problem-solving approaches, and C) personal and professional dilemmas. Part A, the demographic data section, collected information about respondents' background, experiences, and current school demographics. These included gender, years of educational and administrative experiences, years working in the current position, number of superintendencies held, school district setting, district student population, number of administrators and schools in the district, and number of schools currently on NCLB "needs improvement" list.

Part B of the survey focuses on superintendents' problem solving and decision making approaches. It gathered information about each individual's use of each of the seven problem solving and decision making approaches identified in the earlier studies (Hoy & Tarter, 2008,): classical, incremental, garbage can, shared decision-making, satisficing, mixed scanning, and political. Five statements were developed for each of the seven approaches making a total of 35 statements in this section. Each statement related to a specific problem solving or decision making approach and participants were asked to respond on a 10-point Likert-type scale that measured frequency of use of the identified approach. The Likert-type scale ranged from almost never (1-2), rarely (3-4), occasionally (5-6), frequently (7-9), to almost always (9-10).

Part C of the survey was designed to explore personal and professional dilemmas that superintendents encounter in district leadership. This part of the survey consisted of twelve dilemma questions with each question designed to examine one of the twelve leadership dilemmas that were identified in leadership literature. The twelve dilemmas were 1) centralized vs. decentralized decision-making, 2) personal life vs. professional life, 3) truth vs. varnished truth, 4) creativity vs. discipline of thought, 5) trust vs. change, 6) leadership vs. management, 7) long-term goals vs. short-term results, 8) motivation vs. manipulation, 9) independence vs. dependence, 10) conflict vs. compliance, 11)

commitment vs. compliance, and 12) problems vs. predicaments. Respondents were asked to rate their frequency of experience with each of the dilemmas using the 10-point Likert-type scale. The scale was the same as that used in Part B of the survey.

Participants

The survey was sent to superintendents in two mid-western states via email lists obtained from the State Boards of Education of both states. Survey data were collected through an online survey collection tool. The data collection was completed in three weeks. A total of 281 superintendents responded to the survey, representing approximately 24 percent of all superintendents in the two states. Among them, 79 percent were male and 21 percent were female. The majority of them (84% to 89%) had over 17 years of total educational experience and over 11 years of administrative experience, served ten years or less in their current position, and worked in districts with ten or fewer administrators. Most of them (61%) held only this current superintendency, whereas six percent identified that they had experienced three or more superintendencies.

The sample consisted mostly of rural superintendents (65%). Suburban superintendents accounted for 31 percent of the respondents, and three percent were urban superintendents. Eighty seven percent of the superintendents worked in districts with 3,000 or fewer students and 61 percent worked in smaller districts of 1,000 or fewer students. The remaining superintendents (13%) served in districts with over 3,000 students. Not surprisingly, over half of the respondents (67%) indicated that there were three or fewer schools in their districts, while four percent reported over ten schools in their districts. In terms of school performance, about half of the sample had one school in the district on the NCLB "Needs Improvement" list and another five percent reported five or more schools in their districts currently on the NCLB "Needs Improvement" list.

Data Analysis

Among those who took the survey, about three percent of the respondents didn't complete any of the items in Part B and roughly 6.5 percent completed none of the dilemma items in Part C. These incomplete cases were excluded from the study. The remaining missing data were scattered randomly across the items accounting for less than five percent for items in Part B and less than one percent for the dilemma items. These missing data were replaced with the respective mean values of the items.

To analyze the problem solving and decision making items in Part B, responses to items relating to each of the seven approaches were aggregated first and then the average aggregated responses were used to rank order each of the approaches. In the next step responses were linked to the demographic data to examine if demographic variables influenced the frequency of use of the decision-making and problem-solving approaches. A series of independent ANOVA tests were carried out with each of the demographic variables as the independent variable and the frequency of use of the decision-making and problem-solving approach as the dependent variable.

Prior to running ANOVA, sample size within each level of a demographic variable was examined to ensure each level has adequate sample size. When a level has two few observations, it was combined with another level to form a new level for the

analysis. Following ANOVA, post hoc tests were carried out with significant *F* results. In situations where the homogeneity of variance assumption was not met, the Games-Howell post hoc procedure was used to identify differences. When the assumption was met, Gabriel's procedure was used due to varied sample sizes between the levels (Field, 2009).

To analyze the dilemma items in Part C, descriptive statistics were obtained from responses to each of the twelve leadership dilemmas and the results were then rank ordered based on the average responses. Again, ANOVA and post hoc procedures, described above, were carried out to examine the influence of survey demographic data on frequency of experience with each of the dilemmas.

RESULTS

Problem Solving and Decision Making

Table 1 presents the aggregate mean score of the five items that measured the frequency use of each of the seven decision-making and problem-solving approaches. The mean scores were rank ordered from the highest to the lowest among the seven approaches. The three approaches most frequently used by superintendents in decision making and problem solving as identified by the study sample were *incremental*, *classical*, and *mixed-scanning* approaches. Comparatively, *political and garbage-can* approaches were reported as less frequently used. Cronbach alpha for all 35 items from this sample is .85.

Table 1
Rank Order of Decision Making Mean Scores of Part B (Polka-Denig PS/DM Survey) (n = 273)

Rank Order	Decision Making	*M*	*SD*
1	Incremental	39.87	4.98
2	Classical	39.60	4.41
3	Mixed Scanning	39.49	5.56
4	Shared Decision Making	36.52	5.23
5	Satisficing	32.59	5.98
6	Political	30.33	4.81
7	Garbage Can	29.57	5.42

To investigate whether demographic variables influenced the frequency of use of the decision-making and problem-solving approach, a series of independent ANOVA tests were carried out with each of the demographic variables as the independent variable and the frequency of use of the decision-making and problem-solving approaches as the dependent variable. Post hoc procedures were carried out when necessary. Significant ANOVA test results are presented in Table 2 and the test results are summarized below.

Table 2
ANOVA Results for Gender, District Location, District Setting, District Student Population, and Number of Schools on NCLB "Needs Improvement" List

Decision Making	Gender		District Location		District Setting		District Student Population		Number of Schools on NCLB "Needs Improvement"	
	F	*p*	*F*	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Incremental		n.s.	4.984	.026		n.s.	4.984	.026		n.s.
Classical		n.s.		n.s.		n.s.		n.s.		n.s.
Mixed Scanning	5.098	.025		n.s.	6.391	.012		n.s.		n.s.
Shared Decision Making		n.s.		n.s.		n.s.		n.s.		n.s.
Satisficing	3.888	.050*		n.s.		n.s.		n.s.		n.s.
Political		n.s.		n.s.		n.s.		n.s.	5.722	.017
Garbage Can		n.s.		n.s.	4.153	.043		n.s.		n.s.

Note. n.s. = non-significant; * *p* value was less than .05 but was rounded to .050.

There were significant differences in the decision-making and problem-solving approaches based on gender. Female superintendents on average reported more frequent use of the *mixed-scanning* approach, $F_{(1, 255)} = 5.098$, $p = .025$, and the *satisficing* approach, $F_{(1, 255)} = 3.888$, $p = .05$, than male superintendents. Significant differences were also found with regards to district setting. Rural superintendents reported less frequent use of the *mixed-scanning* approach, $F_{(1, 270)} = 6.391$, $p = .012$, but more frequent use of the *garbage can* approach, $F_{(1, 270)} = 4.153$, $p = .043$, than non-rural superintendents.

In addition, significant relationship was found between district student population and the *incremental* approach, $F_{(2, 269)} = 4.401$, $p = .013$. Significant relationship was also found between district student population and the *mixed-scanning* approach, $F_{(2, 269)} = 3.182$, $p = .043$. Post hoc tests (Games-Howell) revealed that superintendents in district with 1,000 or fewer students reported less frequent use of either of the two approaches than those in districts with student enrollment between 1,000 and 3,000. The number of schools on NCLB "Needs Improvement" list was found relating to the use of the *political* approach, $F_{(1, 264)} = 5.722$, $p = .017$. Superintendents who had two or more schools on the list reported more frequent use of this approach than those with only one school on the list.

Leadership Dilemmas

The means and standard deviation for each of the twelve personal and professional dilemmas are presented in Table 3. The study sample identified the dilemma that was faced most frequently was the issue of *leadership vs. management* ($M = 8.56$, $SD = 1.58$). The second most frequently encountered dilemma reported by the sample of superintendents was *motivation vs. manipulation* ($M = 7.70$, $SD = 2.31$). The third most

frequently experienced dilemma related to *creativity vs. discipline of thought* (M = 7.11, SD = 1.82). Other dilemmas that were frequently faced by superintendents were *commitment vs. compliance* (M = 6.71, SD = 1.82), *conflict vs. consensus* (M = 6.64, SD = 2.00), *independence vs. dependence* (M= 5.71, SD = 2.06), and *personal vs. professional* (M = 5.67, SD = 2.10).

Table 3
Ranking of Dilemmas by Mean Score (n = 255)

Rank	Dilemma	*M*	*SD*
1	Leadership vs. Management	8.56	1.58
2	Motivation vs. Manipulation	7.70	2.31
3	Creativity vs. Discipline of Thought	7.11	1.81
4	Commitment vs. Compliance	6.71	1.82
5	Conflict vs. Consensus	6.64	2.00
6	Independence vs. Dependence	5.71	2.06
7	Personal vs. Professional	5.67	2.10
8	Trust vs. Change	4.98	2.40
9	Centralized vs. Decentralized	4.81	1.97
10	Problems vs. Predicaments	4.81	2.182
11	Long-term Goals vs. Short-term Results	4.73	2.126
12	Truth vs. Varnished Truth	3.19	1.97

The dilemmas that were less frequently faced by superintendents were *trust vs. change, centralized vs. decentralized, problems vs. predicaments, long-term goals vs. short-term results*, and *truth vs. varnished truth*, with *truth vs. varnished truth* being the least frequently encountered dilemma as identified by the study sample.

Further investigation was conducted to explore if any of the demographic variables were related to each of the dilemmas. A series of ANOVA tests were carried out with each of the demographic variables as the independent variable and the dilemma as the dependent variable. Results from the ANOVA tests are presented in Tables 4-6. Significant findings are summarized below.

There was a significant difference in the reported use of the *conflict vs. consensus* dilemma based on gender, $F_{(1, 238)} = 6.689$, $p = .010$. Male superintendents reported more frequent experience of this dilemma than female superintendents. Years of total educational experience was found relating to the *problem vs. predicaments* dilemma, $F_{(3, 251)} = 2.643$, $p = .050$. Post hoc tests (Games-Howell) revealed that superintendents with a total of 18 to 24 years of educational experience encountered this dilemma less frequently than those with 32 or more years of educational experience.

Table 4
ANOVA Results for Gender, District Location, Years of Total Educational Experience, and Years of Administrative Experience

Dilemma	Gender		District Location		Years of Total Educational Experience		Years of Administrative Experience	
	F	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Leadership vs. Management		n.s.		n.s.		n.s.		n.s.
Motivation vs. Manipulation		n.s.	5.218	.023		n.s.		n.s.
Creativity vs. Discipline of Thought		n.s.		n.s.		n.s.		n.s.
Commitment vs. Compliance		n.s.		n.s.		n.s.	3.785	.011
Conflict vs. Consensus	6.689	.010		n.s.		n.s.		n.s.
Independence vs. Dependence		n.s.		n.s.		n.s.		n.s.
Personal vs. Professional		n.s.		n.s.		n.s.		n.s.
Trust vs. Change		n.s.		n.s.		n.s.		n.s.
Centralized vs. Decentralized		n.s.		n.s.		n.s.		n.s.
Problems vs. Predicaments		n.s.		n.s.	2.643	.050*		n.s.
Long-term goals vs. Short-term results		n.s.		n.s.		n.s.		n.s.
Truth vs. Varnished Truth		n.s.		n.s.		n.s.		n.s.

Note: n.s. = non-significant; * *p* value was less than .05 but was rounded to .050.

Years of administrative experience was related to the *commitment vs. compliance* dilemma, $F_{(3, 249)} = 3.785$, $p = .011$. Post hoc tests showed that superintendents with four to ten years of administrative experience reported encounters of this dilemma less frequently than superintendents with 18 to 24 years of administrative experiences. There was a significant difference in the frequency of encountering the *trust vs. change* dilemma based on the number of years in the current position, $F_{(2, 242)} = 4.868$, $p = .008$. Post hoc tests revealed that superintendents with less than three years serving in the current position experienced this dilemma of *trust vs. change* more frequently than superintendents with eleven or more years in the current position.

The number of superintendencies that the superintendents held was related to the *motivation vs. manipulation* dilemma, $F_{(1, 251)} = 5.327$, $p = .022$ is shown in Table 5. Those who held two or more superintendent positions, including the current one, reported encountering this dilemma more frequently than those holding only one superintendency. The number of administrators in school districts related to the use of two dilemmas – the *commitment vs. compliance* dilemma, $F_{(1, 253)} = 5.120$, $p = .024$, and the *independence vs. dependence* dilemma, $F_{(1, 253)} = 4.467$, $p = .036$. Superintendents in districts with ten or fewer administrators reported more frequent encounters with the *independence vs. dependence* dilemma but less frequent experiences with the *commitment vs. compliance* dilemma than those in districts with eleven or more administrators.

Table 5
ANOVA Results for Years in Current Position, Number of Superintendencies Held, Number of Administrators in District, and District Setting

Dilemma	Years in Current Position		Number of Supintendencies Held		Number of Administrators in District		District Setting	
	F	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Leadership vs. Management		n.s.		n.s.		n.s.	5.623	.018
Motivation vs. Manipulation		n.s.	5.327	.022		n.s.		n.s.
Creativity vs. Discipline of Thought		n.s.		n.s.		n.s.		n.s.
Commitment vs. Compliance		n.s.		n.s.	5.120	.024		n.s.
Conflict vs. Consensus		n.s.		n.s.		n.s.		n.s.
Independence vs. Dependence		n.s.		n.s.	4.467	.036	6.143	.014
Personal vs. Professional		n.s.		n.s.		n.s.		n.s.
Trust vs. Change	4.868	.008		n.s.		n.s.		n.s.
Centralized vs. Decentralized		n.s.		n.s.		n.s.		n.s.
Problems vs. Predicaments		n.s.		n.s.		n.s.		n.s.
Long-term goals vs. Short-term results		n.s.		n.s.		n.s.		n.s.
Truth vs. Varnished Truth		n.s.		n.s.		n.s.		n.s.

Note: n.s. = non-significant.

District setting was related to two dilemmas: *leadership vs. management* $F_{(1, 252)} = 5.623$, $p = .018$, and *independence vs. dependence*, $F_{(1, 252)} = 6.143$, $p = .014$. Rural superintendents reported fewer encounters with the *leadership vs. management* dilemma but more frequent encounters with the *independence vs. dependence* dilemma than non-rural superintendents. District student population was related to the *creativity vs. discipline of thought* dilemma, $F_{(2, 251)} = 6.317$, $p = .002$, and the *independence vs. dependence* dilemma, $F_{(2, 251)} = 4.764$, $p = .009$. Post hoc tests revealed that superintendents in districts with 1,000 or fewer students reported fewer experiences with the *creativity v. discipline of thought* dilemma than those in districts with enrollments

over 1,000 but less than 3,000 students. These superintendents reported more frequent encounters with the *independence vs. dependence* dilemma than those in districts with over 3,000 students.

The number of schools in districts was also found to relate to two dilemmas: *creativity vs. discipline of thought*, $F_{(1, 250)} = 7.876$, $p = .005$, and *independence vs. dependence*, $F_{(1, 250)} = 12.419$, $p = .001$ as shown in Table 6. Post hoc tests showed that superintendents who had fewer than three schools in their district reported fewer experiences with the *creativity vs. discipline of thought* dilemma but more frequent encounters of the *independence vs. dependence* dilemma than superintendents in districts with four or more schools. The number of schools on NCLB "Needs Improvement" list was found relating to the *long-term goals vs. short-term results* dilemma, $F_{(1, 246)} = 8.042$, $p = .005$. Post hoc tests showed that superintendents in districts with one school on NCLB "Needs Improvement" list reported less frequent occurrences of this dilemma than districts with two or more schools on NCLB "Needs Improvement" list.

Table 6
ANOVA Results for District Student Population, Number of Schools in District, and Number of Schools on NCLB "Needs Improvement" List

Dilemma	District Student Population		Number of School in District		Number of Schools on NCLB "Needs Improvement" List	
	F	*p*	*F*	*p*	*F*	*p*
Leadership vs. Management		n.s.		n.s.		n.s.
Motivation vs. Manipulation		n.s.		n.s.		n.s.
Creativity vs. Discipline of Thought	6.317	.002	7.876	.005		n.s.
Commitment vs. Compliance		n.s.		n.s.		n.s.
Conflict vs. Consensus		n.s.		n.s.		n.s.
Independence vs. Dependence	4.764	.009	12.419	.001		n.s.
Personal vs. Professional		n.s.		n.s.		n.s.
Trust vs. Change		n.s.		n.s.		n.s.
Centralized vs. Decentralized		n.s.		n.s.		n.s.
Problems vs. Predicaments		n.s.		n.s.		n.s.
Long-term goals vs. Short-term results		n.s.		n.s.	8.042	.005
Truth vs. Varnished Truth		n.s.		n.s.		n.s.

Note: n.s. = non-significant.

DISCUSSION

The participants of this study consisted of 281 superintendents from two Midwestern states with over half the sample from rural districts with student enrollment less than

1,000 students. Most of the superintendents worked in districts with ten or fewer administrators. A majority reported there were ten or fewer schools in their districts with only four percent having more than this number. Over half of the superintendents reported having at least one school in their district on the NCLB "Needs Improvement" list. Superintendents universally are faced with problems or dilemmas that challenge their leadership literally on a daily basis, and they must draw upon well-developed skills to make decisions or solve problems in a timely, appropriate, and responsible fashion. Their success as the chief administrator in the school district depends on these honed skills.

The purpose of this study was to gain knowledge into the decision-making and problem-solving approaches superintendents used in their leadership. Additionally, this study in the mid-west compared results from survey data obtained from these superintendents with those from a similar study of superintendents for the Mid-Atlantic region (Polka, Litchka, Caizi, Denig, and Mete, 2011). Results yielded some similarities and some noteworthy differences between the two regions represented in these research projects. The study found regional influences impact significantly the problem-solving strategies superintendents employ to solve their decision-making tasks or dilemmas. Regional influences may be derived from the preponderance of rural settings in the mid-west having frequent low and declining student enrollments, citizens striving to protect small community schools, and pressures pushing for school district consolidation.

Problem-solving approaches and decision-making strategies by school superintendents surveyed were those studied in previous research (Hoy & Tarter, 2008). This study found the same rank order of decision-making approaches as prior research (Polka, Litchka, Caizi, Denig, & Mete, 2011). *Incremental* and *classical* approaches were those approaches most frequently used by superintendents. However, *mixed scanning* approaches were used less often by superintendents in rural and small enrollment districts in this study. Unlike previous research in the Mid-Atlantic states, this study found that the *garbage can* approach was used significantly more often by superintendents from smaller rural districts compared to superintendents in larger urban settings. Additionally, this study found that female superintendents in the Midwest more often used the *satisficing* approach to problem-solving more often than their male counterparts which was not found in the Mid-Atlantic states. Female superintendents in the Midwest region may feel pressure to satisfy the majority of constituents when deciding solutions to problems versus utilizing other strategies which might divide opposing groups of people impacted. Females in Mid-Atlantic regions tend to be more like their male counterparts in the problem solving solutions they use. This could be attributed to local community/cultural views toward females in leadership positions.

Participants of this sample reported that they encountered the same 12 dilemmas as documented in previous research (Polka, Litchka, Caizi, Denig, & Mete, 2011) and presented in school leadership literature for nearly a century (Hall, 1941). Additionally, the rank order of the most frequent dilemmas faced by school superintendents was the same as reported in previous research. There were significant differences between superintendents who held one superintendency compared to those with multiple superintendencies. Those in their first superintendency experienced the *motivation versus manipulation* less often than those with multiple superintendency experiences. This finding may be related to the need for trust building between leadership and constituents. Until trust is built, constituents may view leaders as being more

manipulative. Superintendents from small rural districts encountered less often the *leadership versus management* dilemma. This may be attributed to decisions being made more frequently without a lot of involvement from those impacted by the decisions. In districts with fewer administrators, superintendents reported facing the *commitment versus compliance* dilemma less often, but more often the *independence versus dependence* dilemma. Also, superintendents in rural and smaller districts also faced this dilemma more often than superintendents in larger districts. Superintendents in larger districts may be viewed more frequently as demanding compliance rather than shaping change decisions to be viewed as a common unified commitment to change. Superintendents with fewer years of service compared to superintendents with many years of service encountered the *trust versus change* dilemma more often than those with more years of service. Again, this may be attributed to new superintendents being viewed as making quick-fix changes as opposed to taking the time to build trust and use shared-decision making strategies. Finally, and unlike findings from previous research, this study found that superintendents with schools on the NCLB Needs Improvement List confronted the *long-term goals versus short-term results* dilemma significantly more often than those superintendents with schools not on the watch list. Also, superintendents who had two or more schools on the improvement list used the *political* approach more often than superintendents with fewer than two schools on academic watch lists. These findings could be linked to school boards, community groups, and employee groups demanding short-term, quick-fix solutions to improve student achievement. Frequently, media reports of poor student achievement to the public cause a knee-jerk reaction by school boards and school leaders to respond quickly and make bold statements to improve student achievement.

Recommendations

More research is clearly needed to investigate the problem-solving and decision-making approaches used by superintendents from other regions in the United States. Also, the differences in how these approaches are used by superintendents from smaller rural and larger urban districts warrants further study. Similarly, the common dilemmas faced by all superintendents must be further investigated. Specifically, the differences in dilemmas encountered between superintendents from smaller rural districts as well by female and male superintendents must be further researched. Additionally, dilemmas confronted by superintendents with schools on academic watch lists demands further and deeper research. Finally, there is a need to directly connect the most common dilemmas encountered by superintendents with the common problem-solving approaches used when resolving the dilemmas. A qualitative study should be conducted by asking superintendents from the Midwest region about the dilemmas that cause them the most stress and compare these findings to findings from other regions. Finally, researchers should compare problem-solving approaches to specific dilemmas within the various demographic categories and regions in the United States. As a clear outcome, this research will help shape superintendent preparation programs and should be used by professors of educational leadership as they work to better prepare their students for the world that today's superintendents must face and in which they must be productive.

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