Women secondary principals in Texas 1998 and 2011: movement toward equity

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Abstract

Purpose – The purpose of this paper is to analyze data gathered in 1998 and 2011 from representative samples of women secondary school principals in Texas to identify differences in personal, professional, leadership, and school characteristics.

Design/methodology/approach – Two proportionate, random samples were drawn of women secondary principals 13 years apart. The Texas Education Directory provided the sampling frame and school data were downloaded from the Public Education Information Management System. Principals were sent surveys including measures of situational and distributed leadership as well as demographic questions. Response rates of 65 percent and 42 percent were achieved on the 1998 and 2011 surveys respectively.

Findings – While the percentage of secondary schools led by women principals shows little change and is similar to previous research, a more nuanced examination of these women and their schools evidences progress. The diversity for women administrators has increased and women are more likely to hold positions in urban schools. Years of teaching experience has decreased and women appear to be entering the profession at a younger age. Change on both variables reflects averages for male principals. Leadership scores indicated lower adaptability and more directive styles for women in 2011; however, scores on the Distributed Leadership Inventory were high.

Originality/value – Schools led by women in 2011 possessed a larger proportion of students of poverty but no differences were noted in school enrollment or student passing rates on accountability tests. The authors encourage districts to continue fair hiring policies and argue women have become more competitive for the large urban high school principalships.

Keywords Principals, Women, Situational leadership, Distributed leadership, United States of America

Paper type Research paper

The low percentage of women principals at the secondary level (i.e. senior and high schools) in the USA has remained relatively unchanged for the past decade (Eckman, 2004; Loder, 2005; Kruger, 2008), in spite of the large quantity of literature available that speaks in support of the ability of women to be strong leaders (Barker, 2001; Brunner and Grogan, 2007; Christman and McClellan, 2008; Curley, 2007; Eagly and Carli, 2007; Kruger, 2008; Robinson and Lipman-Blumen, 2003; Roser *et al.*, 2009; Shakeshaft *et al.*, 1991). The underrepresentation of women in secondary school administration is an international phenomenon as well (Kaparou and Bush, 2007; Macha and Bauer, 2009; Moreau *et al.*, 2007). Researchers also find, however, that "There is now a general belief that equity issues for women are no longer a problem" (Coleman, 2005, p. 16). Perhaps some of this perception occurs as women have fared better in obtaining management positions in the business world than in education (Sherman *et al.*, 2008). Beliefs about improvement in gender equity are not without

support as many studies substantiate progress since civil rights policies and initiatives were enacted (Stainback and Tomaskovic-Devey, 2009).

Even though institution of fair hiring practices and awareness of civil rights is greater now than it has been in the past, women as education leaders continue to face an assortment of barriers (Berry and Beach, 2006; Brock, 2008; Grogan, 1999; Shields, 2003; Tallerico and Blount, 2004; Weber *et al.*, 1981; Young, 2005). For example, women tend to be hired into leadership positions and promoted at later ages, with more experience and with more education than men (Roser *et al.*, 2009; Shakeshaft *et al.*, 1991). The increased time as classroom teachers may partly explain findings that women principals tend to be better instructional leaders and that once in administrative positions they focus more on teaching and curriculum than their male counterparts. In addition to delayed hiring as administrators, women are found to experience fewer networking and mentoring opportunities than men (Sherman *et al.*, 2008). Reduced access to socialization opportunities is especially significant for women who aspire to the superintendency, since these are viewed as critical elements in acquiring and maintaining the position (Ortiz, 1982).

Scholarly interest in affirmative action and employment trends has grown since 2003, partly in response to assessments that earlier studies possessed limitations due to insufficient data (Shakeshaft, 1989) and partly due to the Supreme Court's decision regarding the University of Michigan's admission procedures (Crosby *et al.*, 2006). Researchers are interested in identifying the efficacy of affirmative action programs and related strategies that are intended to diminish or counter prejudicial attitudes and chauvinistic practices. Kalev *et al.* (2006) examined federal data taken on the private sector from 1971 to 2002 and concluded:

> Broadly speaking, our findings suggest that although inequality in attainment at work may be rooted in managerial bias and the social isolation of women and minorities, the best hope for remedying it may lie in practices that assign organizational responsibility for change […] Structures that embed accountability, authority, and expertise (affirmative action plans, diversity committees and taskforces, diversity managers and departments) are the most effective means of increasing the proportions of white women, black women and black men in private sector management […]. Practices that target managerial bias through feedback (diversity evaluation) and education (diversity training) show virtually no effect in the aggregate (p. 611).

In education, Mertz (2006) analyzed administrator employment data from 1972 to 2002 for the 50 largest urban school districts in the USA. She found a significant reduction in the gender gap in all positions except for that of the superintendent. Mertz attributed this outcome to be the result of differences in hiring processes between superintendents and other administrators. It is worth noting that while the imbalance in the proportion of men to women high school principals had grown smaller during this period time, it remained substantial with women holding 41 percent of these positions in urban districts.

Previous studies have shown that gender inequity is neither evident nor concerning given low numbers or percentages alone, but is manifest and substantive given the ways underrepresentation impacts norms, values, and beliefs both social and organizational. Researchers provide compelling arguments about how the lack of representation of women in managerial positions influences such diverse issues as who people think can lead organizations to how those who lead are rewarded (Eagly, 2007; Gollnick and Chinn, 2002; Kanter, 1977). Researchers are interested in observing indicators of cultural change such as new norms, modification of attitudes, and other related adaptations in social phenomena. Noting the implication of this research given increased access to positions in school administration, Mertz (2006) called for

investigation to assess how "increases in the numbers of female administrators have affected the culture of schools, what happens to students in those schools, or existing male-defined conceptions of leadership" (p. 556).

The issues embedded in Mertz's (2006) request are multiple and can be broken out into the following as they apply to secondary schools. First, while researchers note improvement and continued underrepresentation of women in secondary school principal positions, much less is known about who these women are including their personal characteristics (e.g. ethnicity, age, marital status, etc.) and professional characteristics (e.g. level of education, years of teaching experience, years as assistant or vice principal, etc.). Further, little is known about how women have changed over time on these characteristics. The preponderance of studies on women school leaders that describes who they are have employed case study methodology with limited generalizability. Second, scholars have revised how they understand and define leadership (Barker, 2001; Rost, 1993; Yukl, 2010). Leadership theory has been challenged and stimulated by those in the field who have been concerned about or interested in gender. While researchers have redefined leadership as part of a response to description and analysis of women as education leaders, less is known about differences over time in the leadership styles and practices of women secondary school principals. Third, little attention has been given to identifying the organizational characteristics of the secondary schools that are headed by women. Although there is some indication that progress has been made in urban schools, less is known about the particulars of these schools. The diversity in schools is large and the nature of schools women provide leadership for matters. Student performance, school size, percentage of students qualified for free and reduced price meals, etc. are variables that contribute to visibility and prestige of the position. Without more detailed information, it is unclear where or what kinds of secondary schools women lead and how these schools are changing over time. These three problems can be simplified and stated as three general questions:

(1) What are the personal and professional characteristics of women secondary school principals and on which of these characteristics are differences over time observable?

(2) What are the leadership styles and practices of women secondary school principals and in what ways have how they lead changed? and

(3) What are the organizational characteristics of the secondary schools headed women and on which characteristics are differences over time evident?

In this study, we examine data gathered in 1998 and 2011 from proportionate representative samples of women secondary school principals in Texas to explore these issues. Our findings provide insight into the nature of social progress beyond the numbers that depict underrepresentation. In particular, we describe and compare differences on personal, professional, and organizational characteristics to suggest ways that women secondary school principals more closely resemble their male counterparts today than in the past. Further, observed differences in self-reported leadership styles are examined and discussed as possibly related to the increased proportion of women leading urban high schools in 2011 as compared to 1998 and as contributing to positive student outcomes identified for these most challenging schools. We draw encouragement from our results as they imply some degree of improvement in district hiring practices and support continued progress for women

in securing the position of principal in larger urban and suburban high schools, which may ultimately lead to greater representation of women in the superintendency.

Situational and distributed leadership

Leadership theories have changed and evolved over time. In this process, theorists have often selected and expanded on parts of previous theories as well as added new concepts to formulate, advance, and test hypotheses. Much of current leadership finds its roots in trait theory. Adherents of trait theory contended that leaders are endowed with superior qualities. The superior qualities included charisma, as well as mental and emotional intensity such that the leader was seen as able to inspire and convince followers to help with the leader's cause (Daft, 1999). Rost (1993) stated that "trait theories looked like great men caricatures in egalitarian dress" (p. 27), which ultimately fell into disuse given later models that more appropriately or authentically met the needs of a democratically oriented mentality. Attention shifted to contingency theory, along with its step child known as situational leadership, as trait theory failed to explain research findings.

Contingency theorists argued leader characteristics were not innate, which was the position held by trait theory, but suggested that they emerged or were developed over time as a result of place and circumstance (Yukl, 2010). Situational leadership, associated with the work of Hersey and Blanchard (1988), embraced this notion and asserted that leaders adapted their behavior based on the skills and willingness of the followers to perform tasks. They posited a four-quadrant model based on the nature of the task forming one dimension and nature of the follower forming the second. In situations understood to involve complex or difficult tasks with poorly motivated followers the model recommends more involvement on the part of leaders as opposed to situations where tasks are easy or followers are highly motivated. Leader behaviors or styles associated with situational leadership are telling, selling, participating, and delegating.

Telling is considered to be a style the leader should use if the employee is not competent or confident to complete the task without being directed and supervised. Telling is focussed on the task that needs to be completed more than the relationship between the leader and employee. Selling is the style recommended if the employee is willing to complete the task, but lacks the skills to do so. This leadership style is considered to be directive, but supportive. The premise of the selling style is that the employees will usually go along with a decision made by their leader if they understand the reason for the decision and if there is help and support offered by the leader. Selling is considered to be a high task and high relationship style. Participating is the style recommended if the employee has the skills to complete the task, but appears to be unwilling to do it. This is considered a motivational problem, so the leader needs to use a facilitative, supportive, nondirective style that includes shared decision making. Participating is a high relationship, low task style. The final leadership style posited by the theory is delegating. The delegating style is recommended when the employee is willing, able, and confident enough to take on responsibility with little or no guidance from the leader. Delegating is a low relationship and low task style of leadership.

Hersey and Blanchard (1988) suggested that individuals as leaders do tend toward or can rely more heavily on one style than on others. The model accounts for this and leaders are viewed as having a major leadership style (MLS). The model also describes how people exhibit multiple styles of leadership since it recommends one style as particularly effective given the contextual aspects involving the task and followers. Hersey and Blanchard stated that the ability of leaders to vary their leadership style, depending on the demands of the situation, is more predictive of their effectiveness as leaders than their MLS.

They refer to this flexibility in leadership behavior as adaptive leadership style. Leadership adaptability is the degree to which leaders possesses situational awareness in conjunction with the ability to change their behavior based on the situation.

Hersey and Blanchard (1988) developed a number of instruments to measure the four leadership styles and leadership adaptability posited in their theory. Leadership Effectiveness and Adaptability Description Self (LEAD Self) is the primary tool which has several versions such that followers, superiors, and the leaders themselves – a 360 degree perspective – can answer questions to identify how an individual leads. The LEAD Self is the tool leaders take to assess their own leadership style and adaptability.

Even though the situational leadership model has held wide appeal for many years, it is not without its critics. Yukl (1989) described situational leadership theory as being intuitively appealing, but along with Blank *et al.* (1990), concluded that the singular focus of situational leadership on subordinate maturity oversimplifies the complexity inherent to conditions. Thompson and Vecchio (2009) stated that even though situational leadership models have been modified over the years, there is still a lack of empirical evidence to support them. Further, they noted that as the model has been revised it has become less clear, providing the example that in the Situational Leadership-II instrument a number of cases fell outside of the model's definable constructs. Graeff (1997) posited that "consistency problems continue to plague all versions of Situational Leadership" (p. 161). Vroom and Jago (2007) stated that "viewing leadership in purely dispositional or purely situational terms is to miss a major portion of the phenomenon" (p. 23). They described leadership as a process of working collaboratively to achieve great things. Their view of leadership as a collaborative process aligns more closely with current thinking in regard to distributive leadership (Spillane, 2006; Louis *et al.*, 2010).

As theories have grown from and built on one another, they have kept some elements, discarded others, and added new ones as the current knowledge and/or situation dictates. The earlier theories such as trait theory, situational leadership theory and to some degree transactional theory, looked most specifically at the behavior of the leader (as if the leader could move the organization forward all by him or herself) have evolved into theories with a more participatory, even distributed focus. The notion that progress rested solely on the shoulders of one person evolved into what Rost (1993) referred to as a post industrial definition of leadership. Relationships within organizations have become more important as pluralism, global concerns, and diversity have come to the foreground of attention (Lambert *et al.*, 2002; Shields, 2003). Indeed, analytic leaders who value collaboration are persistent questioners, speak uncomfortable truths about inequities, and are deeply reflective in order to create positive change are shown to contribute to organizational success (Reeves, 2006). Leadership is understood as being about influence, trust, and credibility (Kouzes and Posner, 1995). Much of current theory about school administration is connected to the distributive leadership model.

Distributive leadership theory takes situational variables into consideration, but looks at leadership through a broader lens. It is often linked with collective, shared, participatory, and collaborative leadership (Leithwood and Mascall, 2008). Distributive leadership is the ability of the principal to arrive at decisions through a collaborative process and his or her ability to share leadership responsibilities with teachers and other staff. Like situational awareness, distribution of leadership requires the leader to be aware of various situations involving employee skills and of employees' readiness for responsibility in order to lead effectively (Bennett *et al.*, 2003). Distributive leadership differs from situational leadership in that it focusses on a broader understanding of the exchange and interdependence of leaders and followers (Spillane, 2006), as opposed

to situational leadership, which focusses upon how leaders influences their employees based on awareness of the employees' skills and willingness to perform certain tasks.

Gronn (2002) viewed distribution of leadership from two broad perspectives: the additive and the holistic. The additive perspective notes that more than one person contributes to organizational success. The holistic perspective deems distributive leadership an all-inclusive phenomenon that includes delegation, collaboration, sharing of work and decisions. Distribution of leadership for improved learning is an organized system of people who share interests, knowledge, and skills, who at times exchange roles to work toward a common task or goal; it is a dispersed practice that has many contributors (Elmore, 2000; Hulpia *et al.*, 2010). Spillane (2001, 2006) too described distributive leadership as an activity that is constructed in the interactions of leaders, followers, and their situation as they work toward a specific outcome. MacBeath (2005) discussed the distribution of leadership as a developmental process that involves: culture as practicing leadership is a reflection of the school's norms and traditions; opportunity as capable teachers willingly extend their roles; incremental change as responsibility is shared as people demonstrate their capacity to lead; strategy in that it is planned; pragmatics as it is necessary in large schools to share the workload; and formality in that there are prescribed roles. The responsibility for leadership is gradually released and changes over time depending upon need.

Finally, distributive leadership theory is thought to be a good framework for increasing organizational effectiveness (Leithwood *et al.*, 2009; Spillane, 2006; Spillane and Diamond, 2007). Both situational awareness and distribution of leadership are important to apply in school organizations in order to meet current expectations for sustained educational reform (Gronn, 2008). Elmore (2000) also advocated for using distributed models of leadership in order to effectively provide guidance on curriculum, instruction, assessment, and all the other complex functions of a school. Copeland and Knapp (2006) described this participatory process as leading for learning. According to Louis *et al.* (2010), when principals and teachers share leadership, teachers' working relationships are stronger and student achievement is higher. Leadership effects on student achievement are present largely because effective leadership strengthens professional community. Increasing teacher influence may improve schools significantly (Leithwood *et al.*, 2009; Spillane *et al.*, 2004). These views differ from the original thinking behind site-based management, which advocated more community control of schools instead of interdependent and shared leadership among the principal, teachers, and parents. Strong leadership is needed to help establish collaborative partnerships and foster shared decision making, which in turn will enhance ownership and responsibility.

Methods

The data analyzed in this study come from two cross-sectional surveys of Texas women secondary school principals – the first occurred in the spring of 1998 and the second in the spring of 2011. The following explains our reasons for selecting these two points in time for conducting a descriptive comparison of differences between two samples of women secondary school principals, their leadership styles, and the nature of the schools they lead. The 1998 survey was part of a larger international initiative to study the collaborative leadership of principals (Parkay *et al.*, 1999; Krumm and Gates, 2000; Gates and Sisken, 2001). Texas was one of the first states to institute an education accountability system in 1994, which shifted the emphasis of policy away from site-based decision making that had guided reform efforts over the previous decade.

Federal education policy later adopted Texas style accountability when the No Child Left Behind Act of 2001 (NCLB) was signed into law. Within the most recently passed Race to the Top, however, many of the mandates and reforms that were seen as influencing administrator practice (Crum and Sherman, 2008; Daly, 2009) have been replaced. Following promises for change made in 2010 by the Department of Education, 19 states in 2012 (with others seen as soon to follow) were granted waivers from meeting NCLB's requirements. Although Texas was not among those granted such waiver, 2011 marks the end of an era in which "the goal of school improvement [was defined] around the concept of achievement status rather than effectiveness" (Forte, 2010, p. 77). We felt data gathered at these two points in time provided both sufficient time (i.e. spaced far enough apart) and alignment with reform (i.e. the first near the beginning and second near the end of the previous period of reform) to warrant attention. Furthermore, the limited annual turnover in principalships and general stability in leadership styles suggested rather small differences between adjoining years. Our interest, therefore, had less to do with gathering data for particular years or analysis of small effects given year-to-year changes and more the detection of moderate to large differences that may have developed over a longer period of time.

The 1998 administration of surveys followed the total design method (Dillman, 1978) using regular post. We distributed surveys in 2011 following the tailored design method (Dillman *et al.*, 2009) via the internet. The procedures for both methods included three contacts with respondents to achieve desired response rates. The methods section continues by discussing the particulars of the samples drawn, the instruments used and other data collected, the procedures employed to analyze data, and a discussion of the study's limitations.

The Texas Education Directory (TED) for 2011 and 1998 were used as sampling frames to draw two proportionate representative random samples. Principals identified in TED were stratified by gender and campus type for calculating percentages. In 2011, there were roughly 8,400 schools after eliminating buildings under construction, closed, duplicated, or listed as co-located alternative or charter schools (i.e. principals listed under two schools with same addresses). Of these campuses some 2,400 were high/senior/comprehensive schools and 1,600 were middle/junior high schools. Women were principals of 32 percent of the high/senior/comprehensive schools and 46 percent of middle/junior high schools. McNamara's (1994) formula for determining sample size using a margin of error of 5 percent and a confidence level of 99 percent resulted in a sample of 117 women secondary principals for 2011. Our procedures repeated those used earlier in sampling the 1998 TED in which 106 women secondary principals were selected for survey. The difference in the sample sizes occurred as there were fewer schools in 1998 in Texas (i.e. roughly 7,000). In addition, a smaller proportion of these schools were designated as secondary in 1998 and women were principals of 37 percent high/senior/comprehensive schools and 48 percent of middle/junior high schools.

The 2011 survey consisted of three major sections: participant demographic questions, LEAD Self (Hersey and Blanchard, 1988) and the Distributed Leadership Inventory (DLI) (Hulpia *et al.*, 2009). The 1998 survey contained only the first two sections. Demographic questions on the surveys gathered information regarding respondent age, ethnicity, years of teaching experience, years of experience in school administration, and years of experience in current position.

The LEAD Self instrument asked principals to respond to 12 questions by choosing one of four possible actions given a scenario presented in each question. The possible actions to choose from include those that are: high task/low relationship (telling), high

task/high relationship (selling), high relationship/low task (participating), and low relationship/low task (delegating). The raw scores on the 12 items were aggregated following the procedures provided by Hersey and Blanchard (1988) to generate self-assessed scores for MLS and style adaptability. Specifically, the MLS is determined by calculating the number of times a respondent selected each style on each of the 12 questions. The style that respondents used most frequently is their major style. Style adaptability refers to the ability of the respondent to use each style as appropriate to the scenario, which indicates both flexibility and effectiveness in leadership. The adaptability scores range from -24 to $+24$, least effective to most effective, respectively. The stability of scores was assessed by Greene (1980) as moderately reliable over a six-week period. Silverthorne and Wang (2001) concluded from their analysis of 79 managers and 234 subordinates in high-technology companies, "a consist pattern of the effects of leadership style. Adaptive leaders will have an impact on various measure of productivity, can be identified both at the subjective level (through self-reporting) scores and at the objective level (through subordinates' reports) using the LEAD instruments" (p. 410) to substantiate its validity. Bruno and Lay (2008) reported validity coefficients for data they gathered from 400 managers. Specifically, the correlation coefficients for each of the 12 items with adaptability ranged from 0.11 to 0.52 and 10 were 0.25 or higher. These observations are similar to those we calculated for both our samples of women secondary school principals. We found seven of the 12 coefficients ranged between 0.25 and 0.48 for the 1998 sample and eight coefficients ranged between 0.23 and 0.61 for the 2011 sample.

The DLI was developed by Belgium researchers to investigate leadership team characteristics, distribution of leadership functions, and participative decision making in schools (Hulpia *et al.*, 2010). Team characteristics assessed by the tool include role ambiguity, group cohesion, and the degree of goal consensus using a Likert-type scale that ranges from strongly disagree to strongly agree. The distribution of leadership functions measures strength of vision, supportive leadership behavior, instructional support, intellectual stimulation, supervision, and evaluation by the school's leadership team using a Likert-type scale ranging from never to always. Participation in decision making also uses the never to always response set for a series of questions on delegation, involvement, and communication. The DLI generates four factor scores – distribution of support, leadership supervision, leadership team collaboration, and participative decision making. Hulpia *et al.* (2009) provide validation of DLI scores using confirmatory factor analysis and report reliability coefficients that ranged from 0.81 to 0.93 given data they gathered from 951 secondary school administrators and teacher leaders in Belgium. We observed reliability coefficients of 0.94 for leadership team collaboration, 0.74 for participative decision making, 0.65 for support, and 0.65 for supervision using responses from the 2011 survey of women secondary school principals.

School-level data using the Public Education Information Management System (PEIMS) were obtained from the Texas Education Agency (TEA) web site. PEIMS procedures insure consistent and accurate gathering and housing of school information on student enrollment, students per teacher, percentage of students qualified for free and reduced price meals (percent LSES), accountability passing rates, expenditures per student, campus rating, and location.

The school-level data were merged with the principal responses into a single file for analysis. Principals' responses to the LEAD Self instrument were used to calculate leadership adaptability and MLS scores. The DLI data were used to calculate factor scores for distribution of support, supervision, participative decision making, and leadership team collaboration. Data were analyzed to describe and identify differences

in personal and professional characteristics, leadership styles, and organizational variables of the Texas secondary schools administered by women in 2011 as compared to 1998. Inferential statistics included χ^2, independent samples, and Kolmogorov-Smirnov's tests given the measurement scale and distribution of scores on the dependent variable. Effect sizes were calculated for each rejected null to assess the practicality of observed differences.

There are a number of limitations given the study's design, the 2011 sample response rate, and measurement error. First, we recognize that analysis of data gathered at two points in time cannot be used to expose a trend. Our findings are descriptive and exploratory to the degree that observed differences between the two samples can be related to contextual changes in education, social, and employment policies over this period of time. Second, the response rates of 65 and 42 percent were achieved on the 1998 and 2011 surveys, respectively. We examined the 2011 school data to compare the principals who respondents to all principals selected (see Table I). The schools of those who responded appeared similar to those of the larger sample. We elected not to increase our chance of making type I errors by engaging in hypothesis testing in making such comparisons (Huck, 2008). We recognize the low rate of response by principals in 2011 raises questions about the sample's representativeness. In addition, principals who responded to our survey answered all LEAD Self items, but questions on the DLI and demographics were left unanswered by a few principals. We decided not to replace missing data with average scores to provide more conservative estimates. Each of the above threats introduces the possibility of measurement error. Given these limitations, our findings of difference on the measured variables over this period of time while informative should not be considered conclusive. The study's observations and conclusion provide encouragement for further research.

Findings
Personal and professional characteristics
In 2011, the majority (53 percent) of the women who responded to the question on ethnicity selected the category of Anglo European, 20 percent identified as Latina, 18 percent as African–American, and 5 percent chose Native American. The majority (43 percent) of the respondents also shared that they were between the ages of 51 and 60. In all, 10 percent of the principals reported one to three years of teaching experience prior to becoming an administrator, 43 percent had taught for four to eight years, 22 percent for 9-15 years, 15 percent for 16-20 years, and 5 percent selected more than 20 years. The administrative experience of the respondents was 10 percent for one to three years, 25 percent for four to eight years, 43 percent for 9-15 years, 20 percent for 16-20 years, and 3 percent stated that they had been a principal for more than 20 years. On the number of years of experience as principal in current position, the most frequently selected response was four to eight years. Principals were also asked about their

	Selected	Responded
Enrollments	Mdn = 678	Mdn = 832
Students per teacher	$M = 13.4$ (3.7)	$M = 12.9$ (3.7)
Percent LSES	$M = 54.9\%$ (26.1)	$M = 56.4\%$ (26.4)
Accountability passing rate	$M = 70.5\%$ (17.7)	$M = 68.7\%$ (16.9)
Expenditures per student	Mdn = \$7,176	Mdn = \$7,376

Table I.
2011 school data for principals selected and responded

highest degree. In all, 3 percent of the women reported holding a bachelor's degree, 80 percent a master's, 5 percent a specialist, and 13 percent stated they held a doctorate.

In 1998, the majority of the women secondary respondents self-identified as Anglo European (86 percent), 6 percent as Latina, 4 percent as African-American, and 3 percent as Native American. The majority (41 percent) of these principals shared that they were between the ages of 41 and 50. Professionally, these women possessed a high degree of experience. Their cumulative teaching and administrative experience (the question did not separate the two areas on this survey) possessed a mean score of 24 years (SD = 7.9). Principals were found to have been in their current position on average (i.e. modal category) for four to eight years. The breakdown of the highest degree held by the respondents in the 1998 study included: bachelor's degree, 1 percent; master's degree, 78 percent; specialist, 13 percent; and doctorate, 8 percent.

In order to assess whether the observed differences in the two samples occurred by chance, a χ^2 for two-way design was computed on several of these personal and professional characteristics. Specifically, the variables of ethnicity, age, highest degree, and years in current position were analyzed using this tool. A number of the cells on the variable of ethnicity were too small, so categories were combined to create a 2×2 analysis (i.e. Anglo European v. minority by the two years). The change in the proportion of minority women principals was found to be significant $\chi^2(1, n = 106) = 11.2, p = 0.00$ with a Cramer's $V = 0.36$. A value of 0.36 on Cramer's V indicated a moderately large effect size. Not only were the current women secondary administrators who responded to our survey more ethnically diverse than those of the past, but they were also found to be both slightly younger and older than previously observed. The distribution on age was such that principals in the youngest age category were merged with those in the adjacent group to form three groups including adult (i.e. 21-40), middle aged (i.e. 41-50), and mature (i.e. 51-60). Table II presents the results for the percentage of women for each category of age by year. The change in the age distribution was found to be significant $\chi^2(2, n = 105) = 5.9, p = 0.05$ with Cramer's $V = 0.24$. The current data reveal a pattern that reflects the dominance of the baby boom generation in the profession, as well as the beginnings of their replacement as they retire. While this finding is not clear in these numbers, the data do suggest that districts are hiring persons who are younger than 40 to assume the principalship as opposed to more seasoned or middle-aged educators.

Small expected cell sizes on highest degree held and years in current position were also observed requiring recategorization of scores. Principals with bachelor's degrees were merged with those who held a master's and specialists were merged with those holding the doctorate. Principals with the lengthiest tenure (i.e. 16 or more years) in their current position were merged with those who had been employed for between nine and 15 years in their current position. On neither of these variables were differences observed. The lack of a difference is indicated in the finding of $\chi^2(1, n = 107) = 0.18, p = 0.67$ for highest degree held and $\chi^2(2, n = 107) = 2.32, p = 0.31$ for years in current position.

	2011 (%)	1998 (%)
Adult	27	22
Middle-aged	20	43
Mature	53	34

Table II.
2011 and 1998
age of principal

Leadership styles
Table III offers the percentage of women in 2011 and 1998 who selected each leadership style on each of the LEAD Self items. The shaded area for each question (row) identifies the style that situational leadership defined as most adaptive of the four styles. The data are organized using the 2011 percentages and begins with the question principals were in most agreement and descends to that question on which there was least agreement. The selection of selling as the favored style of leading in both years is evident. Interestingly, there is much consistency across the years in terms of leadership style selected per item. For example, in both years on question 9 (Q9) principals preferred telling over selling (the most adaptive response given the situational context) and no one selected this style for question 6 (Q6). The percentage of women selecting telling, on each of the three situations defined by the theory as most adaptive, was highest for the 2011 sample. The percentage of respondents who selected the most adaptive responses for the other styles (i.e. selling, participating, or delegating) was largest for the 1998 women, except on question 2 (Q2) which was selling, or on eight of the nine remaining items.

The MLS of each participant is determined by identifying the quadrant in which the participant had the highest number of responses. The MLS is interpreted as the behavior that leaders most often use when attempting to influence followers. The percentage of respondents by quadrant for the 2011 and 1998 studies are displayed in Figure 1. In both years, the MLS appeared fairly constant in that roughly three-quarters of the respondents selected responses that demonstrated preference for those actions most parallel to the selling or coaching style of leadership. The second largest group of principals, however, were scored under a participating style in 1998 and telling style in 2011. In other words, it appears that a more directive mode of leading was practiced by a fifth of the women secondary school administrators in 2011 who answered the survey, which was not the case 13 years previously. None of the principals in either year surveyed were found to self-report delegation as their major style. As shown on Table III previously, principals did choose answers that indicated they delegated, but that choice was infrequent in the data collected using the LEAD Self instrument.

Analysis of differences in the MLS scores of principals in 2011 as compared with scores of principals in 1998 employed a χ^2 procedure. As may be expected given the distribution of scores shown on the figure above, a significant relationship between

Item	Telling (%) 2011	1998	Selling (%) 2011	1998	Participating (%) 2011	1998	Delegating (%) 2011	1998
Q9	79	65	21	30		3		1
Q3	2	7	78	63	20	27		2
Q1	20	13	74	75	6	12		
Q7	6	6	69	48	25	45		1
Q4	4	2	68	56	20	26	6	16
Q10	36	14	62	74		9	2	3
Q5	61	47	39	48		2		3
Q6			43	59	57	36		5
Q8	25	19	51	45	10	10	14	26
Q11	4		42	27	50	70	4	3
Q2	4	2	49	36	45	59	2	3
Q12	26	13	11	25	32	25	32	37

Table III.
2011 and 1998 percentage of principals who selected each leadership style per item
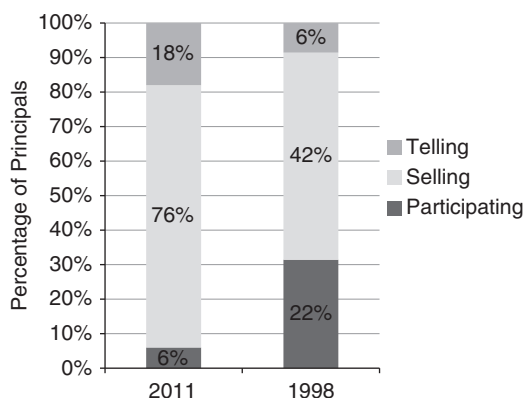
the variables of MLS and year was observed $\chi^2(2, n = 118) = 8.72$, $p = 0.01$, Cramer's $V = 0.27$. The observed difference between how principals scored in 2011 as compared to 1998 is not attributable to chance and is an effect of moderate size. The major style of leading exhibited in the choices of respondents suggests a noticeable shift in the proportion of administrators who reported engaging in supportive-like behaviors to those who employed a more directive style with their staff. Such findings may speak to differences in how these practicing administrators perceived their role given the demands for continuous improvement embedded in NCLB's adequate yearly progress (AYP) requirement. By 2013-2014 all schools were to possess student passing rates of 100 percent.

The LEAD Self also generates a leadership adaptability score (ALS). Hersey and Blanchard discuss this score as a measure of both flexible and appropriate selection of leadership action given important situational cues. Table IV offers the mean and standard deviation on the ALS for both samples. The average adaptability score of women principals for the 1998 sample was approximately 10 while for the 2011 sample a mean of 5 was observed. Table IV provides the results of the independent samples t-test. The results indicate there is a statistically significant difference in the scores and a large effect size $d = 1.0$ was calculated. The direction of change is toward less effective strategies given the context provided in the scenarios.

The DLI has four measures for assessing the degree to which principals' distribute leadership: cooperation of the leadership team, participative decision making, support, and supervision. A lower score indicates higher centralization of leadership for that function; conversely, a high score indicates more equal distribution of responsibilities among the members of the leadership team. Cooperation and participation are on a five-point scale while support and supervision are on a four-point scale. Tables V-VIII offer the mean, mode, and standard deviation on each item and factor score for each of the factors.

The DLI item with the highest score for cooperation, as shown on Table V, indicated principals felt their leadership team members were highly competent. They also scored

	n	M	SD	p	t	df	Cohen's d
2011	49	4.7	5				
1998	69	9.8	5				
				0.000	5.39	116	1.0

Item	n	M	Mode	SD
Composed of people who are highly competent	47	4.6	5	0.5
Willing to execute a good idea	48	4.5	5	0.8
Acts in the best interests of students and staff	48	4.5	5	0.8
Know which tasks they have to perform	47	4.5	5	0.8
Supports the staff in order to achieve the school's goals	48	4.4	5	0.6
Responsibilities are clear to its members	48	4.4	5	0.9
All members work together on the school's core objectives	48	4.4	5	0.6
Clearly defined roles	48	4.2	5	1
Divide their time appropriately	46	4.2	4	0.9
Well-functioning	48	3.5	4	0.9
Cooperation of leadership team total		4.4		0.8

Table V.
2011 cooperation of
the leadership team

Item	n	M	Mode	SD
Effective communication among staff	48	4.4	4	0.5
Teachers have adequate involvement in decision making	48	4.2	4	0.6
Appropriate level of autonomy in decision making	47	4.2	4	0.5
Leadership is delegated for critical activities	48	4.2	4	0.9
Effective committee structure for decision making	47	4.2	4	0.7
Leadership is broadly distributed among the staff	48	3.9	4	0.8
Participative decision-making total		4.2		0.7

Table VI.
2011 participative
decision making

Item	n	M	Mode	SD
Look out for the personal welfare of teachers	47	3.7	4	0.4
Available after school to assist teachers	48	3.6	4	0.4
Encourage teachers to pursue professional learning goals	47	3.6	4	0.4
Encourage teachers to try new practices	48	3.5	4	0.6
Help teachers	47	3.4	3	0.5
Compliment teachers	46	3.4	3	0.5
Provide collaborative time for teachers	48	3.3	4	0.6
Explain your rationale for feedback to teachers	48	3.2	3	0.6
Share the vision of the school	48	3.2	3	0.6
Reevaluate the school vision	48	2.9	3	0.7
Distribution of support total		3.4		0.6

Table VII.
2011 support

Item	n	M	Mode	SD
Involved in summative evaluation of teachers	45	3.6	4	0.5
Involved in formative evaluation of teachers	48	3.5	4	0.7
Evaluate the performance of the staff	48	3.1	3	0.5
Distribution of supervision total		3.4		0.6

Table VIII.
2011 supervision

well their team knowing which tasks to perform and willingness to execute a good idea. The items on which these women rated their cooperation lowest pertained to the functioning of the team, defined roles, and appropriate use of time. It would seem logical to assume that with the high levels of cooperation reported on the DLI, there would be would be a higher percentage of principals who reported a participating style of leadership through the LEAD Self instrument. However, the assumptions of the leader when using a participating style as described in situational leadership theory is quite different from the notion of cooperative or collaborative leadership as described through a distributed leadership lens. As stated earlier, distributed leadership theory assumes all members will pool their resources and expertise for the common good of the school. Situational leadership theory presumes a participatory style of leadership is necessary when an employee is not motivated, or lacks confidence to complete a task. Therefore, we argue the counterintuitive findings may be interpreted as supportive rather than contradictory.

In the area of participative decision making, presented on Table VI, principals perceived high levels of involvement particularly in communication. Teacher involvement, autonomy, delegation, and structure were also given modal responses of agree in all categories by those who responded. The lowest score was on the broad distribution of leadership among the staff. Spillane (2006) referred to participative and distributed practices of decision making and collaboration between leaders and followers as co-leadership. Interestingly, Short and Rinehart (1993) reported that participation of teachers in decision making can have negative outcomes, such as increasing the potential for conflicts and miscommunication. Conversely, Crum and Sherman (2008), Leithwood and Mascall (2008), and Reeves (2006) among others conclude that administrators and teachers making decisions jointly is related to positive school outcomes.

The highest item mean scores in the support factor assessed by the DLI, as presented on Table VII, occurred on questions that were related to taking care of teachers. Taking care of the welfare of teachers, being available to them, and encouraging teachers to pursue goals for professional learning received high scores with providing help occurring less frequently. The lowest item mean score on this factor pertained to reevaluating the school vision. These results suggested that these principals were available to help more often than they actually provided help. Hulpia *et al.* (2010) and Locke (2003) interpreted support to include motivating and stimulating teachers, tasks that are considered to be easily distributed to other members of the team.

The supervision of teachers is a leadership function that focusses predominantly on the ability of the principal to direct, control, and monitor teachers (Hallinger and Murphy, 1985). The three items forming this factor are presented on Table VIII. The principals' responses suggested high levels of involvement in summative and formative evaluation of teachers, with formal evaluations taking place less often. Respondents reported being always involved in evaluation when evaluation takes place, but the frequency of involvement in evaluation of staff was reported as often.

School characteristics
Public education in Texas has probably been most heavily influenced, as compared with educational systems in other states, by the accountability movement. One of the key features of educational accountability in Texas has been the Academic Excellence Indicator System (AEIS). Schools and districts in Texas are ranked according to student performance measures gathered by the state as compared against established standards. The standards have changed over the years, as have the tests that are administered to students. The school ratings were examined to begin the description of

the kind of secondary campuses where women have been given primary responsibility and oversight of student learning. Table IX provides the percent of secondary schools administered by women in both 2011 and 1998 who responded by their campus ratings. Five campuses were not rated in 1998 because they were alternative schools with too few students. These five campuses were excluded from the analysis. Campuses that meet the highest measures of performance are rated as exemplary, with decreasing distinction as evident in the labels of recognized, academically acceptable, and academically unacceptable. The shift in the majority of campuses from academically acceptable in 1998 to recognized in 2011 was found to be significant $\chi^2(2, n = 113) = 18.39, p = 0.00$, Cramer's $V = 0.40$. The magnitude of the effect is moderate to large. Although there is a larger proportion of campuses that were rated as exemplary in 1998 as compared with 2011, for the majority of these schools, student outcomes have improved, at least as they are measured or represented overall by the accountability system.

Table X provides further description about the campuses of the principals who responded by sharing the median student enrollment and expenditures per student for both samples, as well as means and standard deviations for the number of students per teacher, percent of students qualified for free and reduced price meals (percent LSES), and accountability passing ratings. The descriptive statistics showed that the secondary schools administered by women in 2011 appeared to be larger than schools lead by women in 1998. However, results of Kolmogorov-Smirnov's two independent samples test suggested that such difference was more likely a product of chance Kolmogorov-Smirnov $Z(118) = 1.09, p = 0.19$. While the student body may not be larger, the schools had on average become increasingly populated by students qualified for free and reduced price meals $t(116) = 3.96, p = 0.00, d = 0.74$, which indicated a large non-chance effect. Despite large increases in the poverty rates and more rigorous tests (i.e. the Texas Assessment of Knowledge and Skills (TAKS) was administered in 2011 and is a more difficult test than the Texas Assessment of Academic Skills (TAAS) which it replaced in 2003) the percentage of students meeting standard on the accountability passing rate for all tests and all students remained on average unchanged $t(116) = 1.3, p = 0.19$. No differences were observed for the number of students per teacher $t(116) = 0.04, p = 0.91$ either. The last variable on Table X shows the cost of education has increased significantly, Kolmogorov-Smirnov $Z(118) = 4.09, p = 0.00$, as seen in the median expenditures per pupil.

	2011 (%)	1998 (%)	
Exemplary	12	16	**Table IX.**
Recognized	53	16	Comparison of 2011 and
Academically acceptable	35	54	1998 campus ratings

	2011	1998	
Enrollments	Mdn = 832	Mdn = 572	
Students per teacher	$M = 12.9$ (3.7)	$M = 13.4$ (3.5)	
Percent LSES	$M = 56.4\%$ (26.4)	$M = 37.6\%$ (24.5)	
Accountability passing rate	$M = 68.7\%$ (16.9)	$M = 73.4\%$ (19.7)	**Table X.**
Expenditures per student	Mdn = \$7,376	Mdn = \$4,025	2011 and 1998 school data

In 2011, the average secondary school administered by women possessed a cumulative expenditure per student that surpassed six million dollars annually.

The final school-level variable examined pertains to location. In the 1998 study, the majority (62 percent) of women who responded were principals of schools located in suburban and rural locations. The responses from the 2011 study indicated that the majority (86 percent) of the women were principals of schools located in urban and suburban areas (see Table XI). The locations of the schools the women were leading in 2011 compared with 1998 were found to be significantly different $\chi^2(2, n = 116) = 9.31$, $p = 0.01$, Cramer's $V = 0.28$. There is a small to moderate effect given the shift of women from rural to urban schools in these samples; however, in both years, suburban secondary schools can be seen as providing many of their positions, indicating there is limited practical significance to this finding. Nonetheless, the shift from rural locations to urban locations may contribute to the larger school enrollments and higher rates of poverty observed for the schools of the women who responded to the 2011survey.

Discussion

Women make up the majority of the teacher work force, yet they are the minority of school administrators (Grogan and Brunner, 2005). In spite of various policy and institutional changes aimed at encouraging women to go into administration, there has been little improvement in the past two decades in terms of the number or percentage of women who hold these critical leadership positions at the secondary level (Coleman, 2005; Eckman, 2004; Loder, 2005; Kruger, 2008). Yet, the above longitudinal analysis of data from women secondary school principals in Texas suggests some progress in several important areas. We recognize in making such assertion that Texas is only one state and our analysis employs only two points in time, but Texas is a large and influential state and what happens here reflects attitudes and changes present in many states.

First, we found evidence that supports the argument that women leading secondary schools in 2011 may be more ethnically diverse than women principals of the past. The moderately large effect size associated with this finding suggests the observation was not likely to have occurred by chance. It is possible that the increase in diversity of those who responded to our inquiries is connected to an increase during this period of time in the proportion of women who were leading urban schools. Interesting, both of these observations are evident in analysis of data on Illinois principals (White and Agarwal, 2011). Urban locations tend to be more ethnically diverse; therefore, the increase in diversity of the women principals may be an indication of hiring practices that reflect a desire to create a staff whose demographics better mirror that of their communities. Adherence to affirmative action requirements insures that fair hiring practices are being followed, which has been found to increase the leadership opportunities for women of color (Crosby et al., 2006; Kalev et al., 2006). Urban districts with their larger size and specialized departments including human resources may be carrying out this function with greater attention to regulations.

	2011 (%)	1998 (%)
Urban	43	22
Suburban	43	40
Rural	14	37

Table XI.
Comparison of 2011 and 1998 school location

Second, we found that women who responded to our inquiries in 2011 had spent an average of four to eight years teaching before becoming administrators instead of the average of 13 years reported in previous studies (Eckman, 2004; Grogan and Brunner, 2005). The amount of experience in the classroom reflects that observed for men entering administration. This question was not asked on the 1998 survey. Further, the finding that there is a greater span in the distribution of ages for the women principals (younger and older), suggests that women may be entering the principalship at younger ages, which is again more comparable to data for men (Eckman, 2004). The data gathered in 2011 revealed a pattern that reflects the dominance of the baby boom generation in the profession, as well as the beginnings of their replacements as they retire. Women entering administration appeared to be largely under the age of 40. Again, the Illinois study reported comparable findings regarding years of experience and age. It should be noted that the Illinois data included elementary school principals, which limits insight on secondary school administrators since greater parity between men and women elementary principals has been noted for some time.

Analysis of the LEAD Self data found a number of changes between the responses of women secondary principals over this period of time. Hersey and Blanchard (1988) discuss the ALS as a measure of both flexible and appropriate selection of leadership action given important situational cues. The women secondary school principals in 2011 who answered our questions possessed an average score of 5, which reflected a significantly and practically lower score as compared to the 1998 respondents. Investigation of the MLS, DLI, and school data provided information that augments and deepens understanding of the identified difference.

The MLS is the behavior that is most often used when attempting to influence followers. The MLS selected by principals appeared fairly constant across both years. Specifically, approximately three-quarters of the respondents in both 2011 and 1998 marked choices that demonstrated preference for those actions that most parallel a selling or coaching style of leadership. The second largest group of principals, however, shifted from participating in 1998 to telling in 2011. In other words, it appears that a fair percentage of respondents in 2011 reported a directive mode for leading their schools. Yet, the women self-reported on the DLI high levels of distributed leadership in their schools for all four areas measured (supervision, support, cooperation, and participative decision making). The counterintuitive nature of these findings may arise as situational leadership theory presumes a participatory style of leadership is necessary when employees are not motivated and principals reported on the DLI that this not the case in their schools. Furthermore, data on school-level variables provide insight into the context of the work, responsibilities, and problems that these principals face daily. The increase in the percentage of urban secondary schools with higher rates of student poverty being headed by women can be seen as potentially influencing these observations. Previous researchers (Haycock and Hanushek, 2010; Touchton and Acker-Hocevar, 2006) have discussed the shortage of highly qualified teachers in high poverty urban areas. Researchers note that many teachers in these schools are inexperienced and under-resourced. According to situational leadership theory a more directive style (including telling and selling) of leadership is needed when employees do not have the necessary skills to complete tasks (in this case effective instruction). Interestingly, the lowest scores on the participative decision-making section of the DLI was for the question about leadership being broadly distributed among the staff.

What is revealing about school leadership as assessed by the LEAD Self may not be what changed over this period of time, but what stayed constant. In both 2011 and 1998

few principals were found to self-report delegation as a preferred style for leading and in neither year were any principals found to possess delegation as their major style. Such findings may provide an important qualification about the nature of leading schools, or speak to how these practicing administrators perceive their jobs. Certainly, the extreme pressure for academic accountability has created a tremendous sense of responsibility for school performance in principals at all levels. It remains to be seen how the recent federal turn around model that advocates for the removal of the school principal from a persistently low performing school will influence leadership given the strong message it sends about who is ultimately responsible for organizational success. There are many important management activities (e.g. discipline, scheduling, athletics, and co-curricular activities) involved with leading a large comprehensive secondary school that are delegated, but principal responses to the LEAD Self did not appear to reflect such practice. Further research is needed to determine how principals delegate to better understand this aspect of their leadership. Delegation can be seen as a principle mechanism in distributing leadership along with shared decision making, collaborative planning, and pooled expertise for problem solving. The lack of identification with delegation as a leadership tool exposes an interesting phenomenon in need of further explication.

Although there is a larger proportion of campuses that were rated as exemplary in 1998 as compared to 2011, for the majority of these schools, student outcomes have improved as they are measured or represented overall by the State's accountability system. The increase in overall achievement (as measured by the accountability passing rate and campus accountability rating) despite higher poverty levels is suggestive of effective teaching. Since the modal response for length of time in the current position of the principals who responded was four to eight years on both the 1998 and 2011 surveys, the campus ratings for these schools can be considered to have been achieved, to some degree, due to the leadership skills of these women. This position is stated recognizing the caveat that there remains debate over the relationship of principal leadership with student performance. Marzano *et al.* (2005) conducted a meta analysis of studies between 1970 and 2004 and found a 0.25 correlation between principals' leadership behavior and student achievement. On the contrary, a study by Witziers *et al.* (2003) found almost no relationship between leadership and achievement.

In addition to the potential of measurement error due to the study's design, response rate, and reliability of scores, our findings are limited by use of self-reported data. Respondents may have attempted to present themselves favorably by trying to match their responses to current literature or situational norms and expectations (Wiersma and Jurs, 2005; Rea and Parker, 2005; Gay and Airasian, 2003). We have no reason to suspect differences in this pressure over time, which suggest observed changes (the feature of the analysis we were particularly interested in) were not threatened by such competing explanation. Indeed, if anything, the literature has increased in its praise of shared, collaborative practices offered in distributed leadership, yet the direction of change in the responses of principals was toward more directive leadership.

Conclusion
Findings offered from this study suggest that while the percentage secondary schools in Texas lead by women principals may have remained constant, a more nuanced examination of these women and the schools for which they hold responsibility provide evidence of progress. An increase of women in urban schools can be seen as related to the significant and large effect size evident in the increased percentage of

students qualified for free and reduced price meals. What is interesting is that movement into urban schools has not resulted in women leading schools with large enrollments. It will be interesting to observe in the future whether the younger women hired to lead these urban schools can successfully compete for promotion to the larger, more prestigious high schools. We are encouraged by their prospects. We found that despite higher student performance standards set by the State and increased student poverty rates in 2011 as compared to 1998, the campus ratings of the schools administered by these women who responded to our survey improved during this period of time. High levels of poverty are generally negatively correlated with achievement. Our findings add further evidence to arguments about effective leadership of women. Public school systems are under extreme pressure to reform in ways that will increase student achievement, close the achievement gap, and reduce dropout rates. It is time for educational personnel and hiring committees to let go of stereotypes and biases during hiring and give serious attention to the qualified women applicants for high school principalships.

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