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Predictors of principals' satisfaction with their schools

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Abstract

Purpose – Despite the importance of principals' satisfaction with their school's performance (PSS), few empirical studies have addressed the components and predictors of principals' satisfaction with their school. The purpose of this study is to identify the most salient components of PSS among school satisfaction indices, districts' characteristics, and principals' demographics.

Design/methodology/approach – This study was a secondary data analysis of a survey of 431 principals in 29 school districts across the USA conducted by Harris Interactive, Inc. The researchers first identified reliable indices of PSS from the survey instrument responses. PSS was then regressed on districts' characteristics, demographic variables of the principals, and school satisfaction indices.

Findings – A total of 11 reliable PSS indices were identified. Negative student behavior, decision-making involvement, and equipment and facilities indices significantly predicted PSS after district and demographic variables were controlled.

Originality/value – This study offers an explanation of the underlying dimensions of principals' satisfaction of their schools' performance. The findings suggest actions that principals should take in order to improve their school satisfaction and ultimately, school effectiveness.

Keywords Job satisfaction, Schools, Principals, United States of America

Paper type Research paper

Introduction

No Child Left Behind (NCLB) legislation was designed to promote educational excellence by increasing school accountability, enhancing parent and student choice, providing local flexibility in the use of federal dollars, and placing greater emphasis on reading and math performance (US Department of Education, 2004). The NCLB act requires that each state establish reading and math accountability standards. Standardized test scores serve as the primary measure to determine school performance. Failure to meet adequate yearly progress on state standards may result in consequences ranging from improvement plans to removal of key school personnel, including the principal. The means by which schools are held accountable for student learning has met with much constructive criticism by principals, teachers, and teacher unions. The National Educational Association (2007) argued that school effectiveness is multidimensional and that "one-shot" assessments using standardized tests be replaced with multiple sources of local evidence. The American Federation of Teachers (2007) also argued that NCLB standardized testing methodology is inadequate, and proposed a "learning environment index" that would serve as a more comprehensive measure of the school effectiveness domain, including such areas as facilities, safe conditions, and teacher

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retention. Most measures of school effectiveness uses narrow measures of student academic outcomes (Silins and Murray-Harvey, 1999; 2000; Sammons, 1996; Mortimore, 1996). Uline *et al.* (1998) found school effectiveness to be a multifaceted concept that includes both expressive (e.g. teacher trust in colleagues and the principal) and instrumental (e.g. test scores) dimensions. Uline *et al.* (1998) observed that research focuses predominantly on instrumental measures (test scores) at the expense of any broader strategies that focus on more comprehensive understanding of school effectiveness. According to Public Agenda (2003), a non-profit research organization that tracks public opinion, parents, students, and teachers see standard-based testing as necessary. Johnson *et al.* (2006) added that testing alone is not adequate for school reform. Silins and Murray-Harvey (2000) argue for a wider range of school effectiveness outcome measures beyond testing, such as student school completion and retention.

The movement towards centralized standardized testing to promote school accountability preceded the NCLB act. Standardized, high-stakes testing has played a noticeable role in public education since the educational reforms of the early twentieth-century (Angus and Mirel, 1999). There was a dramatic increase in emphasis for standardized tests and accountability following the federal government's linkage of Title I funds to improvement in test scores for low-achieving students (Haladyna *et al.*, 1998). Such educational policy has affected all stakeholders, including administrators and teachers, with respect to accountability and performance.

This era of accountability saw a culmination in the NCLB act. The school accountability/performance-based movement sparked debate regarding local school control and accountability. This debate extends to the very role schools play, including the preparation of students for broader roles in a democratic society versus meeting standards in a narrow range of cognitive abilities (Elmore, 2005a, b). The purpose of this paper is not to summarize or address this issue (see Elmore, 2005a, b for a comprehensive review), but to propose that school effectiveness is multidimensional, and that perspectives that complement and add value to standardized tests as a measure of school effectiveness be studied.

Two areas of inquiry broaden our understanding of school effectiveness: multiple stakeholder assessment of schools and the job performance of key stakeholders. In educational contexts, parents, students, teachers and principals represent key stakeholders whose assessment of the school is important. In order to assess organizational effectiveness, Kaplan and Norton (2007) proposed a balanced scorecard approach that incorporates multiple assessments by key organizational stakeholders. Leaders use balanced scorecards to monitor metrics salient to stakeholders, and to monitor progress towards organizational objectives such as customer and employee satisfaction. These measurements are leading indictors of, and complement, more traditional financial results (Kaplan and Norton, 2007). Parent satisfaction of their childrens' school has been shown to be multidimensional and relevant to school choice (Friedman *et al.*, 2006; 2007). Gaziel (1996) found that parents', students', teachers', and principals' perspectives of school effectiveness differed. For example, parents focused on school outputs (e.g. graduation rates) and teachers focused on their own skills. Mulford (1989) identified ten school effectiveness criteria: teacher responsibility, system support, parent involvement, climate, great expectations, mission, administrative leadership, academic performance feedback, and positive motivational strategies.

Building administrators (principals and assistant principals) are important stakeholders whose school assessments are highly relevant and their performance influences school effectiveness (Whitaker, 1997; Hallinger and Heck, 1996; Dinham *et al.*, 1995). Building administrators influence school effectiveness through effective leadership behavior, communication, establishment of positive school climate (Halawah, 2005), optimism (Harris and Willower, 1998), teacher development (Guskey, 2003), and increased student achievement (Korir and Karr-Kidwell, 2000). Hallinger *et al.* (1996) found that principals impact school effectiveness indirectly when fostering a positive learning environment. Lyons and Algozzine (2006) surveyed school principals in North Carolina and found several behaviors of principals that account for school effectiveness, including the provision of student remedial opportunities, protection of instructional time, and school safety. Kelley *et al.* (2005) found a relationship between school leaders' behavior and school climate. O'Donnell and White (2005) found that teachers' assessment of principals' behaviors that improved school climate also positively influenced student achievement. Pashiardis *et al.* (2005) developed a school principal performance questionnaire that included school climate, student management and professional development. School leadership and values are important determinants of school effectiveness (Parkes and Thomas, 2007; Kelley *et al.*, 2005). It is reasonable to assume that principals' assessments of the schools they lead are potentially important measures of school effectiveness. Despite its significance, little research has been conducted that addresses predictors of principals' satisfaction with their schools' performance.

Research pertaining to principal job satisfaction and work performance represents a second approach that suggests domains of school assessment. On an individual employee level, the relationship between job satisfaction and performance is mixed (Jones, 2006; Iaffaldano and Muchinsky, 1985), but satisfied employees generally perform at higher levels than their dissatisfied counterparts (Chambers, 1999). Judge *et al.* (2001) concluded that there exists a moderate relationship between principals' job satisfaction and performance. Gibson *et al.* (2006) stated that factors such as rewards mediate the relationship between satisfaction and performance. However, on an organizational level, employee attitudes have been shown to be related to organizational performance. After analyzing data fro 35 companies over eight years, Schneider *et al.* (2003) found that job satisfaction predicted organizational performance in terms of return on investment and earnings per share. Wagner *et al.* (2003) found a relationship between employees' attitudes towards their work and psychological organizational ownership and organizational financial performance. Ostroff (1992) found that teacher attitudes such as job satisfaction and organizational commitment were related to school performance. Harter *et al.* (2002) conducted a meta-analysis and concluded that employee attitudes and organizational performance are positively related. Keiningham *et al.* (2006) found a positive relationship between employee satisfaction and organizational performance after controlling for organizational size. Working conditions, relationships with supervisors, co-workers and students, career opportunities, and school characteristics have been shown to predict high-school principal satisfaction and role conflict (Eckman, 2004). Johnson and Weiss (1971) reported that perceived participation in decision making was positively related to principal satisfaction. Chen *et al.* (2000) found two important facets of assistant principal job satisfaction to include student discipline, and the quality of their relationships with teachers, staff and parents. Wong *et al.* (2000) found that informational support from supervisors buffered the impact of job stress for principals in Hong Kong. Job stress often

results from such concerns as maintaining or increasing enrollment, balancing the budget, and motivating teachers. Wong *et al.* (2000) found job stress was negatively associated with lower job satisfaction. Daresh and Capasso (2002) found principals' career satisfaction to be an important element of how attractive a school was to applicants for principal positions.

Research that investigated the influence of school characteristics and demographics on principal job satisfaction is mixed. Daresh and Capasso (2002) found that applicants for principal positions rated schools with less minority students more favorably than schools with more minority enrollment. Brown (1973) found principals with a 20 percent or more minority enrollment enjoyed their positions less than principals with fewer minority students. Derlin and Schneider (1994) found that element of principals' job satisfaction differed with respect to urban- and suburban-based schools. Pay satisfaction was negatively weighted for suburban principals and positively weighted for urban principals, and organizational involvement was less important for suburban principals than urban principals (Derlin and Schneider, 1994). Chen *et al.* (2000) found no significant differences between principals' job satisfaction and student enrollment. Winter and Morgenthal (2001) found assistant principals rated their jobs lower in poorly achieving schools and rated their jobs higher achieving schools.

The influence of school and principal demographics on principal job satisfaction has also been mixed. The variables of principals' years worked, age, gender, and student enrollment in the schools have been examined as possible explanatory variables for principals' job satisfaction. Eckman (2004) proposed that personal attributes (i.e. age, gender and race) and professional attributes (i.e. aspirations, experience and mobility) influence role conflict and commitment, which in turn influence job satisfaction. Males and females differed with respect to personal attributes (e.g. males tend to be younger when they attain their first principalship), professional attributes (e.g. males had more experience as principals but less teaching experience than females), role conflict and commitment. Eckman (2004) found no gender differences for job satisfaction. Chen *et al.* (2000) found that years as a principal did not influence job satisfaction (Gunn and Holdaway, 1985).

Building on a parent school satisfaction model offered by Friedman *et al.* (2007) and previous research, a principal's school satisfaction model is shown in Figure 1. The model suggests that principals' satisfaction with their schools' effectiveness is based on their experiences in a number of areas. These areas include teacher/staff communication, school equipment and facilities, and support from a number of sources (e.g. superintendent and the school board). That is, principals' satisfaction with these particular areas may influence the principals' overall satisfaction with the school. Demographic variables and district characteristics may also influence the relative importance of these variables.

Of course, principals are but one stakeholder that assesses school effectiveness. Other stakeholders include teachers, students and parents (Friedman *et al.*, 2007). Accreditation and governmental agencies that impose formal school assessment criteria such as standardized test scores (US Department of Education, 2004, NCLB), grades, and graduation rates may also influence efforts to improve school effectiveness.

Research questions

This study seeks to identify components that best describe principals' overall satisfaction with their schools, and identify predictors of overall principal satisfaction. The specific research questions appear below:

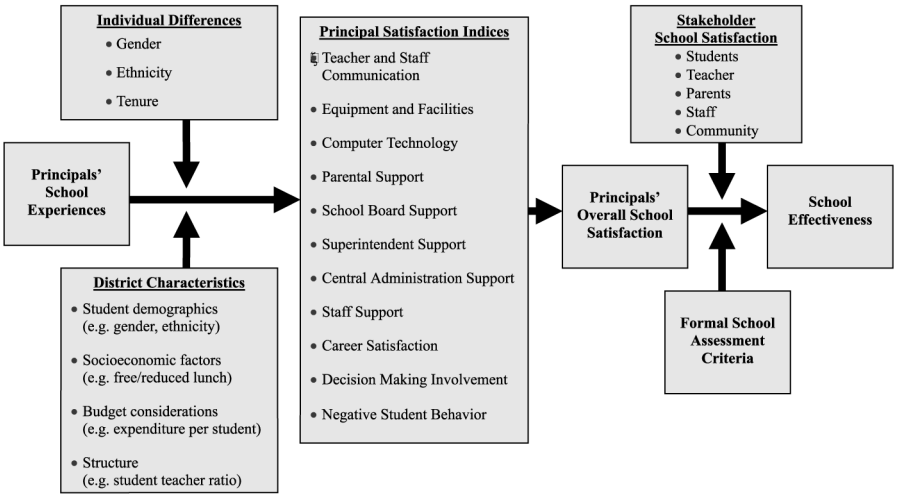

Figure 1.
Conceptual model of principal school satisfaction

RQ1. What components of satisfaction account for principals' overall school satisfaction?

RQ2. What district characteristics predict principal school satisfaction?

RQ3. What principal demographic characteristics predict school satisfaction?

Methodology

Harris Interactive Inc., a market research firm located in Rochester, NY, that conducts nationwide polls and specializes in educational research, collected the data as part of school improvement projects on behalf of school districts during 2005 and 2006. Prior to questionnaire administration, principals of elementary, middle schools, and high schools received a letter that explained the purpose of the study and expressed district superintendents' support. Completed questionnaires were collected from 29 school districts across the USA. A total of 431 ($N = 431$) building administrators (i.e. principals and assistant principals) voluntarily and anonymously completed questionnaires.

Questionnaire

Questionnaire development began in 1993 with extensive focus groups conducted with school stakeholder principals, teachers, children, and teachers (Friedman *et al.*, 2006). These focus groups identified general categories of school satisfaction. This information, combined with literature reviews conducted by Harris Interactive, Inc., produced experiential and attitudinal questionnaire items that were then refined over the last 14 years to increase reliability and minimize multicollinearity between items. The questionnaire contained 136 items divided into 15 areas of principals' school experience. The questionnaire employed a dichotomous response scale format. Dichotomous scales minimize multicollinearity and maximize the actionability of the recommendations made to clients (Wittink and Bayer, 1994). The dichotomous scales measured events, circumstances, and conditions experienced by principals as they

relate to the schools. Experiential measures are important because they provide specific feedback to schools for decision-making purposes. Dichotomous scales allow subsequent analyses about which principals' experiences contribute most to school satisfaction. For example, one questionnaire item was "How would you rate parental involvement in their child's education?" which requires an inadequate/adequate response. Likewise, another questionnaire item was "Do school computers support and extend the learning process?" which uses a yes/no response.

In total, 12 multi-item indices measuring aspects of principals' experience were developed:

(1) school atmosphere;
(2) teacher and staff communication;
(3) equipment and facilities;
(4) computer technology;
(5) parental support;
(6) school board support;
(7) superintendent support;
(8) central administration support;
(9) staff support;
(10) career satisfaction;
(11) decision-making involvement; and
(12) negative student behavior.

Principals' overall satisfaction consisted of four items: whether they (building administrators) were proud of their school, if they would recommend the school to potential staff, if they would recommend the school to their friends and neighbors, and would they want their own child to attend this school. This overall satisfaction index served as the dependent variable. The purpose of having multiple indices is to ensure that the variance in factors that affect the primary dependent variable is sufficiently rich.

Three principal demographic variables, nine district variables, and 12 satisfaction indices were included in the analysis. The questionnaire contained items that measured principals' minority status (dummy coded as 0 – minority, 1 – non-minority), gender (dummy coded as 0 – female, 1 – male), and years as a school employee. School level was coded as two dummy variables: elementary and high school (0 – no, 1 – yes, where middle school served as the base category variable).

The Department of Education in National Center for Educational Statistics – NCES (2007) database provided district percent minority (students), percent female (students), enrollment, student/teacher ratio, expenditure per student, percent free or reduced lunch eligibility, urbanicity, percent of students in special education programs, percent of students in English as a second language programs, and the percent of students who received diplomas. District urbanicity was considered a continuous variable using the NCES coding based on population attributes such as density, where 1 – large city, 2 – mid-size city, 3 – fringe of large city, 4 – fringe of mid-size city, 5 – large town, 6 – small town, 7 – rural, outside core-based statistical area (CBSA)/metropolitan statistical area (MSA), and 8 – rural, inside CBSA/MSA.

Data analysis

The researchers computed indices for all questionnaire categories. Index reliability was determined using Cronbach's α, and items that reduced scale reliability were omitted. As the indices varied in the number of items, indices were standardized using z scores.

In order to identify predictors of principals' school satisfaction, the researchers conducted a multiple regression analysis. The overall satisfaction index was regressed on the principal demographic characteristics, district characteristics, and the school satisfaction index scores. About 28 district dummy variables were also regressed on the overall satisfaction index to determine the percent of variance in the dependent variable accounted for by the school district. All control variables were entered into the equation in the first stage of a two stage regression analysis. The satisfaction indices were then entered at stage two. At the second stage of the regression, some control variables were statistically dropped from the analysis because they failed to satisfy either the F-ratio statistic to enter or leave the regression equation.

Sample

A total of 431 ($N = 431$) building administrators completed questionnaires, representing a 69 percent response rate. About 16 percent (16.5 percent) of the respondents were minorities, 50.6 percent were female, and the average number of years for the principals as a school employee was 7.15 (SD = 3.00) (Table I).

Regarding the district characteristics, the average enrollment was 14,806 with a teacher/student ratio of 16.71, 34 percent student minority population, 48 percent female, and an expenditure of $10,153 per student. On average, 40 percent of the students were eligible for free/reduced lunches, 14 percent received individual (special) education, 13 percent received English as a second language programs, and 72 percent received diplomas. About 38 percent (38 percent) of the principals administered schools located in large- or mid-size cities, while only 1.4 percent worked in schools located in small towns or rural settings. Regarding school level, 43 percent of the sample was elementary school, 25 percent was middle school and 29 percent was high-school principals, respectively.

	Mean	SD
Percent minority	0.34	0.29
Percent female	0.48	0.01
Enrollment	14,806	12,073
Student teacher ratio	16.71	1.96
Expenditure per student	10,153	3,261
Percent free or reduced lunch	0.40	0.28
Urbancity[a]	3.09	2.15
Percent individual education	0.14	0.02
Percent English as a second language	0.13	0.12
Percent receiving diplomas	0.72	0.39

Notes: $N = 431$. All district variables were obtained from the Department of Education NCES database. [a]District Urbanicity was considered a continuous variable using the NCES coding based on population attributes such as density, where 1 – large city, 2 – mid-size city, 3 – fringe of large city, 4 – fringe of mid-size city, 5 – large town, 6 – small town, 7 – rural, outside CBSA/MSA, and 8 – rural, inside CBSA/MSA

Table I.
District descriptive statistics

Results

Table II describes the indices used in the study with respect to reliability, number of items, definition, and a representative item. The indices are heterogeneous in that the items sample different aspects within each index, and thus represent a rich variety of experiences. Each index exhibited a diversity of behaviors and viewpoints. For example, "Involvement in decision making" contained involvement in a number of domains, including budgeting, hiring, and self-performance appraisal. The overall satisfaction index reliability was 0.78. The school atmosphere satisfaction index reliability was 0.45 and was dropped from subsequent analyses because of the low reliability. Cronbach's α reliabilities for the other 11 indices ranged between 0.57 and 0.88 and were generally acceptable to use in further analyses.

Table III reports the results of the principals' satisfaction with their school's performance (PSS) regressed on the school satisfaction indices, demographic variables, district dummy variables, and district characteristics. The resultant squared multiple correlation (R^2) was 0.27 ($F_{(23,398)} = 4.77, p < 0.001$). The principals' minority status β weight achieved statistical significance, and the district variable standardized β weights did not achieve significance. Three of the satisfaction indices were significantly related to principals' overall satisfaction: negative student behavior, decision-making involvement, and school equipment and facilities. The negative student behavior satisfaction index had the largest standardized β weight ($\beta = 0.22, t = 3.80, p < 0.001$), followed by decision-making involvement ($\beta = 0.20, t = 3.60, p < 0.01$), and equipment and facilities ($\beta = 0.12,\ t = 2.58,\ p < 0.01$). Three district characteristics, urbanicity, enrolled in English as a second language, and the elementary school dummy variable were not included in the multiple regression equation as their F values to include or remove in the regression equation did not meet the $p < 0.05$ or $p > 0.10$ criteria.

Discussion

This study empirically examined predictors of principals' school satisfaction. Past research has delineated variables related to teacher satisfaction and parent satisfaction (Friedman *et al.*, 2006; Friedman *et al.*, 2007), yet few studies address the components and predictors of principal satisfaction. This study increases our understanding of how principals view school satisfaction by identifying 11 satisfaction indices, three of which significantly predicted overall satisfaction after controlling for principals' demographic and district characteristics. The negative student behavior index reflected whether students displayed apathy that affects learning, absenteeism, disorderly conduct, and supported one another. The involvement in decision-making index contained items related to principals' involvement in the budget process, hiring decisions, and establishing student activities. The school equipment and facilities index reflected whether the school buildings, grounds, and equipment adequately met the students' needs.

These findings support the assertion that school effectiveness is multi-faceted as viewed by principals, an important stakeholder, for school effectiveness. It is argued here that assessments reflecting perspectives that complement standardized test scores provide a more comprehensive assessment of school effectiveness. School administrators should prioritize limited resources among competing demands that include equipment, facilities, teacher needs, student learning, and safety. Principals should work to build involvement in decisions that impact school functioning. Finally, disruptive student behavior that interferes with learning should be addressed.

Table II.
Independent and dependent variable reliability

Index	Cronbach's α	Items	Definition	Representative items
Overall satisfaction	0.78	4	Principals' overall satisfaction with their school	Are you proud of your school? Would you recommend your school to potential staff?
Teacher/staff communication	0.67	9	The extent that communication with teachers and staff is adequate	How would you rate your communication with teachers? How would you rate your communication with your direct supervisor?
Equipment and facilities	0.62	9	School equipment, resources, and grounds, including safety is adequate	Are school buildings and grounds in good condition? Does the equipment in your area meet the needs of students?
Computer technology	0.73	8	Extent that computers meet students' needs	Do school computers meet your needs? Do computers allow students to become better learners?
Parental support	0.88	9	Extent that the school allows parents to be involved in their child's education, and get involved in decision-making	How would you rate parental involvement in their child's education? How would you rate parental support of the school discipline policy?
School board support	0.88	11	Extent that the school board provides direction, seeks input, provides feedback, and provides support	Does the school board provide you with support for your work? Does the school board show appreciation for your work?
Superintendent support	0.88	11	Extent that the superintendent provides direction, seeks input, provides feedback, and provides support	Does the superintendent provide you with support for your work? Does the superintendent reward outstanding performance?
Central administration support	0.89	11	Extent that central administration provides direction, seeks input, provides feedback, and provides support	Does central administration provide you with support for your work? Does the central administration ask for your suggestions and opinions?

(*continued*)

Index	Cronbach's α	Items	Definition	Representative items
Staff support	0.62	8	Extent that teacher, school psychologists and other staff support is adequate	How would you rate the level of support from teachers? How would you rate the level of support from school counseling staff?
Career satisfaction	0.57	8	Extent that principals' view their job and career as secure, valuable and rewarding	Are you challenged to continually improve? Do you enjoy your work?
Decision-making involvement	0.79	9	The extent that principals' involvement in budget setting, hiring, and other decisions that affect their work is adequate	How would you rate your level of involvement in the budget development process? How would you rate your level of involvement in making hiring decisions?
Negative student behavior	0.75	7	The extent that students engage in disruptive or otherwise undesirable behavior	Is disorderly student behavior a problem at your school? Are treats to teachers or staff a problem at your school?

Table II.

	β	t
Principal demographics		
Gender	−0.05	−1.123
Minority status	−0.10	−2.150
Years employed	0.02	0.538
District characteristics		
Percent minority	−0.09	−0.147
Percent female	−0.02	−0.161
Enrollment	−0.10	−0.394
Student teacher ratio	0.10	0.669
Expenditure per student	−0.09	−0.915
Percent free or reduced lunch	−0.06	−0.085
Percent special education	0.10	0.783
Percent receiving diplomas	0.08	0.336
High school	0.01	0.272
Satisfaction indices		
Teacher and staff communication	0.06	1.075
Equipment and facilities	0.12	2.583
Computer technology	0.01	0.007
Parental support	0.01	0.277
School board support	0.05	0.847
Superintendent support	−0.04	−0.688
Central administration support	0.01	0.015
Staff support	0.03	0.590
Career satisfaction	0.06	1.045
Decision-making involvement	0.20	3.603
Negative student behavior	0.22	3.801

Table III.
Principal overall school satisfaction correlations with predictors and regressed on district characteristics, principal demographics and school satisfaction indices

Notes: $^{*}p < 0.05$; $^{**}p > 0.01$; $^{***}p > 0.001$. $N = 431$. To simplify presentation of the model in Table III, only the second stage of the regression model was reported. Overall satisfaction was regressed on the 28 district dummy variables, and was not significant. For purposes of clarity, the first regression stage and the district dummy variable β weights were omitted, but can be obtained from the first author

Limitations of the current research pertain to the nature of the sample, the use of dichotomous variables, and the degree to which the principal school satisfaction conceptual model was tested. Questionnaire responses were part of a convenience sample obtained through school improvement efforts conducted across the USA. The use of dichotomous variables may reduce reliability. The reduction in multicollinearity, and subsequent unambiguous interpretation of the regression coefficients in the original problem space, is a reasonable trade-off over reliability (especially considering large sample sizes). Though dichotomous measures force responses to one or the other side of an issue, we have found no evidence that dichotomous measures greatly suppress or distort variations in the aggregate representation of respondents' experiences. Even if, grouping an underlying continuous variable into only two categories reduces variation in the underlying latent variable, this would serve to make the reliability estimates conservative (and the reliabilities of the indices were quite respectable). Multiple items that constitute each index also tend to smooth the variance distributions so that a multiple-item index composed of a number of dichotomous measures will have a response surface comparable to a finely-grained scale. In other

words, summing across measure makes the measure more an interval scale rather than a dichotomous scale.

The study only partially tested the school satisfaction conceptual model. Future research should explore the linkages between principal school satisfaction, the perceptions of other school stakeholders (e.g. teachers, students, and parents), and objective assessment criteria of school effectiveness. For example, do the various stakeholders view school performance differently? What similarities and differences exist between teachers, parents, students and principals with respect to school satisfaction? In the present study, the percent of students that received diplomas was not significantly weighted in the regression equation that predicted PSS; however, its bivariate correlation with PSS was a modest $r = 0.12$ ($p < 0.01$). The relationship between PSS and other objective measures of school effectiveness should be explored. The role of stakeholder satisfaction within the context of NCLB guidelines needs to be explored.

The present findings could help school administrators identify areas to improve school effectiveness by identifying problem areas. School administrators should first diagnose areas that they, and other important stakeholders, perceive as school strengths and areas needing improvement. Additional research can ascertain whether such stakeholder assessments are leading or lagging indictors of school effectiveness.

The present findings also suggest another practical application: principal performance appraisal. The components of school satisfaction with which the principal has most influence, and are in turn related to school effectiveness, may be used to appraise principal performance and generate development action plans (Pashiardis *et al.*, 2005; Bracken *et al.*, 2001; Leithwood, 1993). On a school level, the satisfaction components identified in the present study may be used as part of a 360° school appraisal, where multiple stakeholder assessments form a comprehensive school assessment. Different stakeholders view school effectiveness differently with respect to what elements are deemed important, and the level that similar elements are rated. For example, Bingham *et al.* (1993) found that principals rate their schools higher than teachers do, and that this discrepancy can, in part, be explained by how principals and teachers view school discipline. School administrators need to measure multiple satisfaction indices from multiple stakeholders, and take actions that ultimately, school effectiveness.

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