Principal Turnover: Are There Different Types of Principals who Move From or Leave Their Schools? A Latent Class Analysis of the 2007-08 Schools and Staffing Survey and the 2008-09 Principal Follow-up Survey[1]

Jared Boyce[2]
SRI International
jared.boyce@sri.com

Alex J. Bowers[3]
Teachers College, Columbia University
Bowers@tc.edu

ABSTRACT:

The purpose of this study is to investigate the extent that there is a typology of principals who depart from their schools in the U.S. using the 2007-08 Schools and Staffing Survey and the 2008-09 Principal Follow-up Survey. Prior principal retention research has focused on identifying factors that predict principal turnover, however this research has not focused on understanding the extent to which there may potentially be different subgroups of principals who depart. This study uses Latent Class Analysis to identify and better understand the types of principals who exit their schools and discusses the implications of such findings.

Keywords: principals, principal turnover, principal retention, latent class analysis, schools and staffing survey, principal follow-up survey, surveys, mixture modeling

INTRODUCTION

The purpose of this study is to investigate the extent that there is a typology of principals who exit from their schools using the large United States nationally generalizable dataset, the 2007-08 Schools and Staffing Survey (SASS) and the subsequent 2008-09 Principal Follow-up Survey (PFS) from the National Center for Education Statistics (NCES). Principals, as the leaders of their schools, have significant influence on student achievement (Berrong, 2012; Heck & Hallinger, 2009; Robinson, Lloyd & Rowe, 2008; Seashore Louis, Dretzke & Wahlstrom, 2010). Principal turnover is defined as one principal exiting a school and being replaced by a new principal (Cullen & Mazzeo, 2008). Given the centrality of the principal within a school on performance, principal turnover is a significant problem and has been found to negatively impact student achievement (Béteille, Kalogrides & Loeb, 2012; Miller, 2013). One reason is that principal turnover appears to increase teacher turnover (Béteille et al., 2012; Fuller, Young & Orr, 2007; Kearny, Valdez & Garcia, 2012; Miller, 2009; Mitgang, 2003; Plecki, Elfers, Loeb, Zahir & Knapp, 2005), which in turn is associated with significant decreases in student achievement (Béteille et al., 2012; Fuller, Young & Orr, 2007; Ronfeldt, Loeb & Wyckoff, 2012; Miller 2009). A second reason is that principal turnover negatively impacts school climate through a decreased sense of respect and morale amongst teachers and staff, and lack of engagement within the school (Fauske & Ogawa, 1987; Leithwood, Harris & Hopkins, 2008; Macmillan, Meyer & Northfield, 2004; Ogawa, 1991). And third, the consequences of principal succession can extend beyond the teachers and staff in the school, impacting students and parents negatively as well through fear, detachment, and other negative school climate and environmental factors (Griffith, 1999; Jones & Webber, 2001). In terms of resource costs, recent investigations estimate that each instance of a principal exiting his/her school costs the school $75,000 (School Leaders Network, 2014).

The evidence that principal turnover has significant negative consequences on students, teachers, and schools highlights a need to understand the types of principals who exit their schools. Principal turnover is a growing concern nationwide. As an example, in the 2008-09 school year (Battle & Gruber, 2010) 18% of principals were classified either as "movers" (becoming the principal of a new school) or as "leavers" (leaving the principalship entirely). Principal turnover rates have been increasing recently (DeAngelis & White, 2011) with some schools having as many as five principals in a ten-year period of time (Weinstein, Jacobowitz, Ely, Landon & Schwartz, 2009).

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[2] Jared L. Boyce (jared.boyce@sri.com); SRI International. Menlo Park, CA. ORCID: 0000-0002-7030-6836

[3] Alex J. Bowers (bowers@tc.edu); Teachers College, Columbia University; Bowers@tc.edu; 525 W. 120th Street, New York, New York 10027. ORCID: 0000-0002-5140-6428

Examining the other side of principal turnover, principal persistence (having a principal stay in a given school for a longer period of time) is important for student achievement as significant periods of time are required for principals to have positive impacts on their schools. Recent research into the influence of principals has shown that principals' effects within schools increase over time (Bowers & White, 2014; Coelli & Green, 2012; Heck & Hallinger, 2014), including effects on student achievement in particular (Clark, Martorell & Rockoff, 2009; Miller, 2013), with some findings suggesting that principals require seven years or more before they are able to successfully implement change within a school (Vanderhaar, Muñoz & Rodosky, 2006). This is a particular struggle for low-income schools which are more likely to have less experienced principals (Béteille et al., 2012; Branch, Hanushek & Rivkin, 2012; Loeb, Kalogrides & Horng, 2010) and schools with high minority populations, which are more likely to experience higher rates of principal turnover (Baker, Punswick & Belt, 2010; Béteille et al., 2012; Gates et al. 2004).

Given the significant negative impacts of principal turnover, there is a need for designing interventions that will improve principal retention and persistence (Branch, Hanushek & Rivkin, 2012; Clotfelter, Ladd, Vigdor & Wheeler, 2006). One suggested intervention is using the model of market competition and providing principals with higher compensation based on higher student achievement and/or test scores (Cullen & Mazzeo, 2008). Along the same lines, others call for a restructuring of working conditions and incentives to make high-needs schools more attractive for principals to work in (Mitgang, 2003). Other policy-level research suggests that an eye toward salaries could assist with principal retention (Papa Jr., Lankford & Wyckoff, 2002). Another approach would redefine the role of the principalship to be focused on student learning, reassigning other tasks and responsibilities to other positions within schools to allow principals to act in alignment with their motivations for becoming principals (Mitgang, 2003; Ryan & Gallo, 2011).

However, these policy-level decisions do not distinguish between principals who leave for different reasons, and this focus can be problematic when attempting to ensure that policy-level decision-making is relevant to individual principals (Matthews, 2002). This is because managing principal turnover relies in part on building positive relationships and understanding the individual perceptions and beliefs of principals (Hart, 1992; Matthews, 2002; Lovely 2004). Specifically, one of the key relationships in promoting principal retention is with district officers, helping to acclimate new principals to the principalship and establishing a sense of continuity with the work that was already ongoing in that school (Mascall & Leithwood, 2010). Policy-level interventions that treat all principals equivalently are less likely to be in alignment with known principal retention strategies that involve connecting with principals as individuals.

LITERATURE REVIEW

Educational leadership literature contains a significant and growing body of principal turnover research. DeAngelis & White (2011) examined 7,075 Illinois principals from 2001 to 2008 using principal-level and school-level state and national data. Using multivariate regression and discrete-time hazard modeling, DeAngelis & White (2011) found that the rate of principal turnover in Illinois from 2001-2008 had significantly increased compared to 1987-2001, principal turnover outcomes (e.g. leaving the principalship for a non-principal school position) varied between Chicago and non-Chicago principals, and that various principal factors (age, race/ethnicity, principal experience, education) and school factors (urbanicity, school grade level, school size, student SES, student achievement, proportion of non-highly qualified teachers) affected principal turnover. This is one of the most recent and most robust quantitative studies into principal turnover to date, yet it does not include information about principals' perceptions, satisfaction, or other subjective experiences.

Béteille, Kalogrides & Loeb (2012) likewise conducted a longitudinal study of the Miami-Dade County Public School district using data from 2003-2009. Béteille et al. (2012) found that student socio-economic status and student achievement are two factors that influence principal turnover, with principals in general moving away from schools with more low-SES and low-achieving students to schools that had more affluent and higher achieving populations. In terms of how principal turnover influenced students and schools, Béteille et al. (2012) determined that principal turnover resulted in higher teacher turnover and lower levels of student achievement. This effect was more pronounced in schools with more low-SES and low-achieving students, overall painting a picture in which schools with students who have the highest needs also suffer more powerfully and more frequently due to principal turnover. As with DeAngelis & White (2011), the data analyzed in this study did not include any information related to the lived experiences of the principals themselves.

Fuller & Young (2009) similarly examined principal turnover in Texas using state data from 1995 through 2008. Fuller & Young (2009) summarized their findings as suggesting the following: principal turnover varies across grade levels, principal turnover is overall high (almost 50% of newly hired principals leave within three years and 70% leave within five years), the school factors of student achievement, student socio-economic status, and urbanicity influence principal turnover, the principal background factors of age, race, and gender have small influence over principal turnover, and certification test results have little influence on principal turnover. Their discussion ends with

several statements about their beliefs regarding the nature of principal turnover, however given the limitations of descriptive statistics they were limited in what specific conclusions, if any, they could draw from their analysis. As with the prior papers, the authors again did not incorporate principals' perceptions of their experiences into their analysis, an important issue to consider as recent research on principal leadership urges researchers to incorporate principals' own perceptions of their leadership into these types of studies (Leithwood and Jantzi, 2008; Urick & Bowers, 2011, 2014b, 2014c).

Unlike the three aforementioned studies, Tekleselassie & Villarreal (2011) utilized multilevel modeling with the NCES 2003-04 Schools and Staffing Survey in looking at a robust set of individual, school, and climate variables that included what they termed the emotional aspect of work and job satisfaction. One of their research questions was to determine whether or not there was a difference between the factors that predicted principal mover intention (i.e.: taking a principal job at another school) and factors that predicted principal leaver intention (i.e.: leaving the principalship). Certain emotional factors predicted both outcomes, as for example Tekleselassie & Villarreal (2011) found that principals' self-perceived degrees of leadership influence within a school influenced their intentions to either move or leave a school equally. However, several factors predicted mover intention yet not leaver intention, including working condition variables such as principal perceptions of disciplinary climate (Tekleselassie & Villarreal, 2011). This study highlights that the lived experiences of principals is relevant in distinguishing between different types of turnover intentions.

Across the body of principal turnover literature, this prior research has identified three categories of factors that are associated with a principal's probability of departing a school: principal-level factors, school-level factors, and climate-level factors. The principal-level factors that have been identified as predicting principal turnover are: gender, age, race/ethnicity, teaching and/or principal experience, leadership and decision-making, influence, and education (Akiba & Reichardt, 2004; Battle & Gruber, 2010; Davis, 1998; DeAngelis & Young, 2011; DiPaola & Tschannen-Moran, 2003; Fuller, Baker & Young, 2007; Fuller & Young, 2009; Gates, Ringel, Santibanez, Ross & Chung, 2003; Goldring, Taie & Owens, 2014; Griffith, 1999; Lovely, 2004; Papa Jr., 2007; Sheppard, 2010; Stoelinga, Hart & Schalliol, 2008; Tekleselassie & Villarreal, 2011). The school-level factors which affect a principal's likelihood of exiting a school are: school size, student demographics, student socio-economic status, school grade level, school type (e.g.: public, charter, private, etc.), student achievement, urbanicity, representation under a collective bargaining agreement, and principal salary (Akiba & Reichardt, 2004; Baker et al., 2010; Battle & Gruber, 2010; Béteille et al., 2012; Cullen & Mazzeo, 2008; DiPaola & Tschannen-Moran, 2003; Fuller, Baker & Young, 2007; Fuller & Young, 2009; Gates et al., 2003; Gates, Guarino, Santibanez, & Ghosh-Dastidar, 2004; Griffith, 1999; Hart, 1990; Horng, Kalogrides & Loeb, 2009; Howley & Pendarvis, 2002; Lovely, 2004; Luebke, 2013; Papa Jr., 2007; Papa Jr., Lankford & Wyckoff, 2002; Partlow, 2007; Partlow & Ridenour, 2008; Sheppard, 2010). Lastly, the climate factors related to whether or not a principal will leave a school are: not building positive relationships with teachers, not establishing trust within the school, quality of rapport with students, school orderliness and discipline, conflict with the district office, school boards, and community members, students disrespecting teachers, and parent involvement (Davis, 1998; DiPaola & Tschannen-Moran, 2003; Goldring et al., 2014; Hart, 1990; Johnson, 2005; Luebke, 2013; Mascall & Leithwood, 2010). Climate in this context refers to the human element of schooling as demonstrated through factors such as relationships, morale, connectedness, and trust (Thapa, Cohen, Guffey & Higgins-D'Alessandro, 2013; Urick & Bowers, 2011, 2014b). In summary, the principal turnover literature has identified a great deal of information about factors that can help predict principal turnover. Given sets of data regarding two principals' personal factors, school factors, and climate factors, the existing research will suggest which of the two principals is more likely to leave his/her position before the other.

Different Types of Exiting Principals

The aforementioned quantitative research is very robust in examining different types of factors that predict principal turnover. Findings within the principal turnover literature from qualitative studies add a more complex understanding to what influences whether or not a principal will exit his/her position. In particular, the results of Tekleselassie & Villarreal (2011) in distinguishing between different types of turnover intention in part based on principals' subjective experiences begins to beg the question as to whether or not the difference is actually between different types of turnover; perhaps the difference is in the principals themselves. Two qualitative studies in particular work to address this question.

Johnson (2005) set out to understand why seemingly successful principals left their positions. While it is intuitive to understand why an ineffective principal would experience turnover through being fired, for example, it is not readily apparent why a respected principal at a school with high faculty morale and high student achievement would choose to leave the profession entirely. Toward exploring this question, Johnson (2005) interviewed twelve former principals and found that there were two different types of principals in her sample who exited the profession: "satisfied exiters" and "unsatisfied exiters" (p. 22). Within her $N = 12$ study she found that three principals were

satisfied (25%) and nine principals were unsatisfied (75%). The satisfied principals described themselves as not leaving their positions until a more appealing option presented itself. They were fundamentally content in their positions and did not leave because they were running from a position that they did not like. The second group, the unsatisfied principals, cited a variety of reasons for leaving their positions: hurdles to engaging in effective instructional leadership, the stress and workload of the position, having to constantly manage bureaucracy and student discipline problems, and more. The unsatisfied principals were moving from their current position given their negative experience of the position. Johnson's findings overall suggest that there are at least two types of principals based on why they leave: one group leaves for something better while another group leaves because being a principal isn't what they want to do. Moreover, in her discussion of possible principal retention interventions Johnson's work suggests that some interventions (for example, additional administrative support) might help retain only one group of exiting principals (the unsatisfied principals in this example) whereas other interventions (for example, working to reduce the sense of isolation that many principals report grappling with) may help retain both types of exiting principals.

Whereas Johnson's work suggests multiple types of principals who exit their schools given their differing personal experiences and preferences, Farley-Ripple, Raffel & Welch (2012) suggest multiple types of principals who exit their schools given different environmental influences. Farley-Ripple et al. (2012) conceive of administrative career paths as being at the intersection of personal, behavioral, and environmental factors that influence administrators' career decision-making and, by extension, principal retention and turnover. Across 48 interviews of principals and assistant principals who exited their schools, they found evidence for both (a) a number of environmental factors influencing how and when administrators exited their schools and (b) a sizeable majority of exiting principals experiencing being significantly influenced by one or more environmental factors (Farley-Ripple et al., 2012). The authors postulated that the range of interactions regarding an administrator's decision to stay in a school or leave a school worked as a system of pushes and pulls (p. 801): "As such, we found that these forces can serve as pushes – forces internal to the situation that encourage the administrator to move out – or pulls – forces outside of the position, perhaps in their personal life or in the larger system, which draw administrators away from their position." Some environmental factors, such as salary increases, were described as "pulling" someone into a new position at another school. Other factors, such as poor working relationships, could instead "push" someone out of a current position. This mirrors Johnson's (2005) findings regarding the existence of two different types of principals who leave their schools for different reasons: some to obtain a more desirable position and some to simply remove themselves from their current position. In a similar vein, Farley-Ripple et al. (2012) suggests that there are two types of principals who exit: those who are pulled out versus those who are pushed out, in other words – that there may be a typology, or subgroups, of principals who exit their current school.

Framework of the Study

The idea of investigating the extent to which there may be different subgroups within schools is a recently emerging domain in education research, often through the use of Latent Class Analysis (LCA). Latent Class Analysis is part of an emerging field of statistics called mixture modeling that seeks to identify a typology, or subgroups, within datasets (Jung & Wickrama, 2008; Masyn, 2003; Muthén, 2002, 2004; Samuelsen & Raczynski, 2013). The conceptual framework for these methods is an underlying hypothesis that any set of survey responses represent a heterogeneous mixture of homogenous subgroups of responders and the methods estimate the probability that the responses represent a single subgroup of responders or multiple statistically significantly different subgroups (Jung & Wickrama, 2008; Masyn, 2003; Muthén, 2002, 2004; Samuelsen & Raczynski, 2013).

These methods have been previously used within education to identify different subgroups of students, teachers, and principals. As an example, Bowers & Sprott (2012) investigated high school dropouts, examining 1,470 students who dropped out of high school to determine whether or not there is a typology of dropouts. They detailed three different subgroups of student dropouts who differed in part based on their responses as to how and why they left their schools. The Jaded dropouts were more likely to leave because they did not like school and did not getting along with teachers or students while Quiet dropouts were more likely to leave because of missing too much school when compared with Involved dropouts. Urick (2012) found that there were four different types of teachers in schools and that teacher turnover varied between these different groups. Two groups, Integrated and Transitioned, were less likely to leave their schools than the other group groups, Limited and Balkanized. Urick & Bowers (2014a) demonstrated three different types of principals in schools based on principal transformational, transactional, and shared instructional leadership styles.

Prior research into principal retention highlights both (a) the importance of principal perceptions in quantitatively distinguishing between different types of principal turnover (Tekleselassie & Villarreal, 2011) and (b) the existence of multiple types of principals who exit their schools (Farley-Ripple et al., 2012; Johnson, 2005). Thus, the present study aims to answer the following research questions:

(1) Using a nationally representative dataset, to what extent are there different types of principals who exit their schools?
(2) To what extent are previously identified control variables and different types of turnover outcomes associated with these subgroups of principals?

METHODS

Data

This study is a secondary data analysis of the National Center for Education Statistics' (NCES) 2007-08 Schools and Staffing Survey (SASS) restricted-use data and one of its companion surveys, the 2008-09 Principal Follow-up Survey (PFS) (Battle & Gruber, 2010; NCES, 2010). Administered seven times on behalf of the U.S. Department of Education since 1987-88, SASS and its companion instruments collect a variety of data including principal leadership, teacher working conditions, and school climate (Boyce & Bowers, 2013) from United States public schools (including public charter schools), private schools, and Bureau of Indian Education schools (NCES, 2010). The 2007-08 SASS provides one of the most comprehensive pictures of the United States' education systems through its use of a stratified sample frame based on the 2005-06 Common Core of Data, allowing for national-level generalizations from its dataset when sampling weights are applied (NCES, 2010). The PFS is administered to the same schools the year after the main SASS administration (NCES, 2010). The PFS measures principal turnover by asking current school principals whether or not they were the same principals from the prior year and, if not, what the previous year's principals were currently doing professionally.

We selected this dataset for four reasons. First, the PFS was designed to enable research into principal retention (Battle & Gruber, 2010), meaning the data are directly applicable to the research questions of this study. Second, with the statistical weights applied, SASS and PFS are nationally generalizable (NCES, 2010), which supports the generalizability and usefulness of the results of this study. Third, SASS and PFS include variables related to many of the factors that are related to principal turnover as detailed above. Fourth, this dataset is the most recent national-level principal retention data that was readily available at the time the analysis was conducted.

The data used in this study are a subset of the full SASS PFS. Given our research questions, we specifically wanted to analyze principals who either moved to another school or left the profession entirely. The overall size of the 2008-09 public sector PFS is 7,460 principals. Sample sizes are rounded to the tens place to maintain the confidentiality of the respondents and their schools. Of these 7,460 principals, we examined a subset of n = 1,470 principals who exited their schools between the 2007-08 administration of SASS and the 2008-09 administration of PFS. We relied on NCES' categorization of principals' current professional status information into "Stayers," "Leavers," "Movers," or "Other" (variable: STATUS_P4) to remove principals who 'stayed' in their schools from our model sample. We also removed principals who were coded as "missing" current professional status information (under 1% of the principals were missing this data).

The final sampling weights (AFNLWGT) from SASS were applied to the LCA to allow the results to be generalized to the national population of principals in the United States.

Variables Included in the Analysis

We relied on the prior literature reviewed above to inform our selection of variables for this study. Our indicator variables focused on principals' self-perceptions and attitudes based on Johnson's (2005) findings of there being two groups of principals based on their self-reported level of satisfaction with the principalship and Tekleselassie & Villarreal's (2011) findings of principals' subjective perceptions having different effects in predicting different types of turnover. Our covariates were selected based on the principal factors, school factors, and climate factors that past literature had already identified as being significant in predicting principal turnover. Our distal outcomes represent the four most common specific ways in which principals exit their schools.

Principal self-perceptions of influence: The 2007-08 SASS included seven questions that asked principals to report on their self-perceived amount of influence on what SASS describes as multiple "leadership activities" (NCES, 2008). These activities are: establishing curriculum, setting performance standards, determining the content of professional development programs for teachers, deciding on how the school budget will be spent, setting discipline policy, hiring teachers, and evaluating teachers. We included these seven questions as indicators in our statistical model based on prior research (Davis, 1998; Goldring et al., 2014). Principals were asked to rate their influence on each activity on a four-point scale, and for the purposes of this study their responses were dichotomized into either high (1 = *Major influence*) or low (0 = *Moderate influence* or less) self-perceptions of principal influence. Information regarding the specific survey questions used, response coding, and descriptive statistics for these and other indicator variables can be found in Appendix A.

Frequency of school climate problems: The 2007-08 SASS included thirteen questions asking principals for self-reports of the frequency of particular school climate problems in their schools. We decided not to include all thirteen questions as indicators for two reasons. First, prior research into principal retention indicates that some of these

problems are associated with principal retention (e.g.: disrespect for teachers; Goldring et al., 2014) while for other problems we did not find literature indicating an association between the problem and principal retention (e.g.: student alcohol use). Second, given concerns regarding statistical power (Dziak, Lanza, & Tan, 2014), we wanted to keep the model described below as parsimonious as possible while maintaining fidelity with the literature. The four questions for frequencies of problems included in our analysis are (Goldring et al., 2014; Hart, 1990): student physical conflicts, incidents of student bullying, disrespect for teachers, and disorder in the classroom. Principals were asked to rate the frequencies of these problems on a five-point scale, and for the purposes of this analysis their responses were dichotomized into either infrequent (1 = *Happens at least once a month* or less often) or frequent (0 = *Happens at least once a week* or more often) rates of occurrence.

Principal attitudes: The 2007-08 SASS included six questions asking principals for self-reports about a variety of different principal attitudes. These were included as indicators in our model based on Johnson's (2005) findings. Principals were asked to rate their agreement or disagreement of different statements on a four-point scale. Some of these questions were framed in a positive manner (e.g.: "The faculty and staff at this school like being here; I would describe them as a satisfied group.") while others were framed in a negative manner (e.g.: "I think about transferring to another school."). We reverse-coded the questions with negative framings to allow for consistent positive interpretation of the responses across this section. For the purposes of this analysis the principals' responses were dichotomized into either positive (1 = *Somewhat agree* or *Strongly agree*) or negative (0 = *Somewhat disagree* or *Strongly disagree*).

Salary disposition: The 2007-08 SASS included one question asking principals for self-reports of their salary disposition: "If I could get a higher paying job I'd leave education as soon as possible." Given the robust research around principal salary predicting principal turnover (including Akiba & Reichardt, 2004; Cullen & Mazzeo, 2008) we included this self-perception of principals' satisfaction with their salaries. This question was rated on the same four-point agreement scale as the principal attitude questions. We decided to reverse-code this question to allow for consistent interpretation with the principal attitude questions, and we similarly dichotomized the responses into either positive (1 = *Somewhat agree* or *Strongly agree*) or negative (0 = *Somewhat disagree* or *Strongly disagree*).

Covariates: Principal turnover literature has identified a variety of different principal and school factors that influence whether or not a principal will exit his/her school (including Akiba & Reichardt, 2004; Fuller, Baker & Young, 2007; Gates et al., 2003; Lovely, 2004; Papa Jr. et al., 2002). Many of these factors were included in our model as covariates to test whether or not they predicted which type of exiting principal any given principal would be. The principal factors that were included as covariates are age, gender, race/ethnicity, experience, education, salary, and whether or not the principal was represented under a collective bargaining agreement. The school factors that were included as covariates are parent involvement in the school, student enrollment, school grade level, percent of students approved for free or reduced-price lunch, and school urbanicity. Information regarding the specific survey questions used, variable recodes/transforms, and descriptive statistics for the covariates can be found in Appendix B.

We had difficulties in coding five of the covariates. The four parent involvement questions allowed respondents to select "Not applicable" as one of their response options. The question asking for the percent of students approved for free or reduced-price lunch had a "Valid skip" option based on other questions in the survey. For the purposes of this study we coded these responses as missing data to allow principals with these responses to be included in our analysis through the use of multiple imputation (Cox, McIntosh, Reason & Terenzini, 2014; Graham, Cumsille & Elek-Fisk, 2003; Little & Rubin, 1987). The reason for our decision to do this is because these responses are likely not randomly distributed across schools, meaning that using list-wise deletion would likely create a biased dataset (Cox et al., 2014; Graham et al., 2003; Little & Rubin, 1987). Out of the 1,470 principals in the sample, 290 (19.8%) principals had at least one missing value, which is considered within the literature to be a significant amount of data with respect to list-wise deletion and to be avoided if possible to reduce the chance of significant bias (Graham et al., 2003). Out of the 32,270 covariate data points in the entire model, only 490 (1.5%) were missing.

Distal outcomes: The distal outcomes for our analysis are the different ways in which principals exited their schools. The 2008-09 PFS asked schools if the principal who completed the 2007-08 SASS was still the principal of the school (i.e.: were "Stayers") or if the current principal is different from the past principal. If the school had a new principal, the PFS asked for which of twenty-two different coded ways the prior principal left the school (e.g.: "Retired – not working outside the home"). For the purposes of this study, we created dichotomous variables from 13 of the codes to label four of the most common ways that principals could have exited their schools (1 = the principal exited in this way, 0 = otherwise): other principal position, non-principal school position, district office position, or retired. These four variables accounted for 83% of the principals who exited their schools. Following the recommendations from the literature for testing distal outcomes in the latent class analysis framework detailed below (Lanza, Tan &

Bray, 2013), the remaining 17% of principals who left their school for the other 9 exit codes made up the distal outcomes references group. Information regarding the specific survey questions used, variable recodes, and descriptive statistics for the distal outcomes examined in this study can be found in Appendix C.

There was technically no missing data from the distal outcomes. However, one of the response options of the status of the previous principal was "Left school, status unknown." There were 120 (8.2%) principals in this dataset whose status was indicated as "Left school, status unknown." Estimating missing binary outcome data is problematic when it is the sole outcome measure and when it is only measured at one time point (Jackson, White, Mason & Sutton, 2014) and outcome estimation (as opposed to covariate estimate) can create statistical inaccuracies (Sterne, White, Carlin, Spratt, Royston, Kenward, Wood & Carpenter, 2009; Wood, White & Thompson, 2004). Additionally, traditional tests for whether or not the outcomes are missing completely at random (MCAR) or missing at random (MAR) are not suited to this study because our model separates the indicators from the outcomes. Given this background, we included "Left school, status unknown" in the distal outcomes reference category.

Analytic Model

We used Latent Class Analysis (LCA) to analyze our data and investigate whether or not there are different types of principals who exit their schools. LCA is one statistical method from a larger statistical body of mixture modeling that is designed to examine whether or not there are multiple subgroups within a larger body of data (Jung & Wickrama, 2008; Masyn, 2003; Muthén, 2002, 2004; Muthén & Asparouhov, 2002, 2008; Samuelsen & Raczynski, 2013). This method is being used with increasing frequency in areas such as school leadership (Urick, 2012; Urick & Bowers, 2014a), teacher influence (Everitt, 2005), high school dropouts (Bowers & Sprott, 2012; Muthén, 2004), and higher education (Denson & Ing, 2014). LCA looks at a set of data (indicator variables) and tests whether or not there are multiple groups within the model sample.

We selected LCA to employ in the present study as it is "person-centric." LCA is a people-centric statistic in two ways: it aims to answer a question about the principals themselves, and it places the principals at the center of the model and defines all of the other factors in how they relate to the principals. Instead of using indicators to attempt to directly predict principal turnover using a logistic regression as has been often done in past literature (Akiba & Reichardt, 2004; DeAngelis & White, 2011; Fuller, Young & Orr 2007; Horng, Kalogrides & Loeb, 2009), LCA focuses on the respondents themselves. The LCA method assesses the extent to which principals who exited their schools may differ or group together, rather than relating different indicators to one another as other mixture modeling methodologies would (e.g.: factor analysis). As our research questions are focused on the principals themselves, LCA is the most appropriate method.

An LCA model incorporates three different elements (Jung & Wickrama, 2008; Masyn, 2003; Muthén, 2002, 2004; Muthén & Asparouhov, 2002, 2008; Samuelsen & Raczynski, 2013). First, we use the LCA to perform hypothesis testing for the number of subgroups in a dataset based on a set of indicator variables. In other words, the first process is determining the number of statistically different groups of principals within the data. Second, the LCA includes a multinomial logistic regression to determine if a set of covariates predicts an individual's membership in a subgroup. This aims to answer questions along the lines of "does working in a rural school predict what type of principal you are likely to be when you exit a school?" Lastly, the LCA incorporates chi-square testing to determine if distal outcomes vary across different subgroups. This aims to answer questions along the lines of "does being a different type of principal when you exit your school influence whether or not you are more or less likely to be retiring from your school?" We used Mplus Version 7.11 to perform our LCA analysis (Muthén & Muthén, 1998-2012).

We followed the recommendations from the recent literature on latent class analysis modeling (Masyn, 2013; Nylund-Gibson et al., 2014; Nylund-Gibson & Masyn, 2011; Vermunt, 2010), performing our covariate and distal outcome testing using a three-step LCA modeling framework (Asparouhov & Muthén, 2013, 2014). The first step in this process is to perform the LCA with only the indicator variables to ensure that the other variables do not influence the specification of the subgroups of principals. Second, a "most likely class" variable is created based on the LCA, assigning each individual to the class with the highest likelihood. Third, the auxiliary variables (covariates and distal outcomes) are then included for testing after individuals have been assigned to classes to prevent the model from changing based on the auxiliary variables. Specifically, we used the R3STEP and DE3STEP functionality in Mplus to perform our covariate and distal outcome testing as is recommended for models of this type (Muthén & Muthén, 2013).

Following the recommendations for specifying an LCA of this type, we present the model tested here in Figure 1. The subgroups of principals (labeled in the model as "Latent Classes C") who exit their schools are defined in terms of the four types of indicator variables: principal influence, school climate, principal attitudes, and salary disposition. Given our literature review, we hypothesize that these factors may distinguish between different types of principals who exit their schools. Other factors that the literature has shown to predict principal turnover have been included as

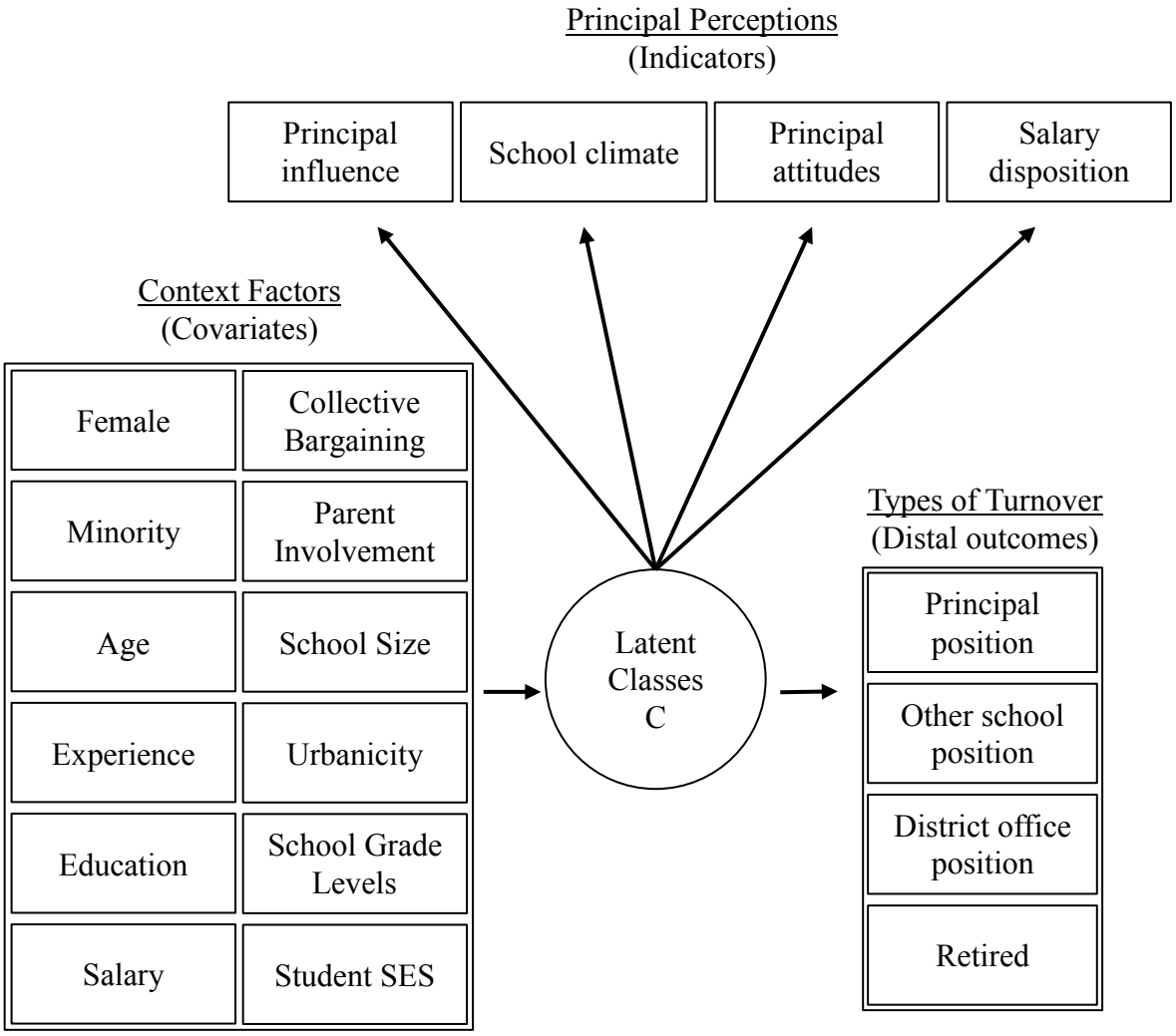

Figure 1: Statistical and Conceptual Model of the Latent Class Analysis (LCA) of Principal Turnover. The subgroups of principals who exit their schools ("Latent Classes C") are estimated in terms of their self-perceptions of their influence, school climate, principal attitudes, and salary disposition. Covariates are used to predict principal subgroups while the subgroups are used to predict the type of principal turnover.

covariates. Since the literature has suggested that these are predictive of principal turnover, we hypothesize that these factors may predict which subgroups different principals belong to. Due to the three-step method of covariate testing, the covariates will not bias the estimating of the subgroups. Four different kinds of principal turnover are included as distal outcomes in our model: other principal position, non-principal school position, district office position, and retired.

One of the important decision points when performing an LCA is deciding on the correct number of classes within a dataset and the overall fit of the model. This is an active area of research in mixture modeling and to date there is no single method that is viewed as the best method (Bauer & Curran, 2003; Jung & Wickrama, 2008; Lo, 2005; Lo, Mendell & Rubin, 2001; Magidson & Vermunt, 2004; Muthén & Asparouhov, 2006; Nylund, Asparouhov & Muthén, 2007; Tofighi & Enders, 2008). Some researchers recommend the Bayesian information criterion (BIC) (Magidson & Vermunt, 2004; Muthén & Asparouhov, 2006; Nylund, Asparouhov & Muthén, 2007). BIC is a relative comparison statistic in which the BIC of the current *k*-class model is compared against that of the (k – 1) class model. Models are estimated with an increasing number of classes until one of the comparisons results in a larger BIC than the previous model. The previous model in this case is considered to be the best model. (E.g.: if the four-class model has a higher BIC than the three-class model, then

TABLE 1: Latent Class Analysis Results and Fit Statistics for Principals Who Exit

Model	AIC	BIC	-Log likelihood	LMR Test for $k-1$ classes	p	Entropy
Two classes	23510.6	23706.4	11718.3	1001.4	0.015	0.690
Three classes	23089.7	23386.0	11488.9	455.6	0.383	0.741
Four classes	22895.3	23292.1	11372.6	230.8	0.547	0.780
Five classes	22731.3	23228.7	11271.7	200.5	0.779	0.740
Six classes	22602.7	23200.6	11188.4	165.4	0.783	0.760
Seven classes	22492.2	23190.6	11114.1	147.4	0.751	0.810
Eight classes	22424.7	23223.7	11061.4	104.7	0.760	0.788

Note: AIC = Akaike information criterion; BIC = Bayesian information criterion; LMR = Lo-Mendell-Rubin adjusted likelihood ratio test.

BIC indicates that the three-class model is the best model.) Other researchers recommend the Lo-Mendell-Rubin (LMR) adjusted likelihood ratio test (Jung & Wickrama, 2008; Lo, 2005; Lo, Mendell & Rubin, 2001; Tofighi & Enders, 2008). LMR provides a hypothesis test of the current *k*-class model with respect to whether or not it provides a statistically significantly better model fit than the ($k-1$) class model. Models are estimated with an increasing number of classes until the *p*-value of the test is no longer significant. The previous model is then considered to be the best model. (E.g.: if the four-class model is the first model to have a non-significant *p*-value, then LMR indicates that the three-class model is the best model.) Based on the current literature and concerns regarding selecting too many classes (Bauer & Curran, 2003; Tofighi & Enders, 2008), we decided to rely on both BIC and LMR, accepting whichever of these selection methods provided the more conservative result for the number of subgroups (i.e.: the smaller number of subgroups).

Additionally, we conducted an *a priori* power analysis (Cohen, 1977, 2013). Recent developments in LCA have produced the first set of baseline sample sizes for use in performing power analyses with this type of mixture modeling (Dziak, Lanza & Tan, 2014). Similar to prior power analysis work (Cohen, 1977, 2013), Dziak et al. (2014) provide recommended sample sizes in terms of effect size and the number of variables. Given our eighteen dichotomous indicator variables, Dziak et al. (2014) suggests that our sample size of N = 1,470 should be sufficient for a latent class analysis measuring a medium effect size.

RESULTS

In the present study we set out to investigate principal turnover through the lens of whether or not there were different types of principals who leave their schools. We performed a Latent Class Analysis (LCA) on data from the 2007-08 Schools and Staffing Survey (SASS) and the 2008-09 Principal Follow-up Survey (PFS) of 1,470 principals who exited their schools. In this section we begin by presenting our model fit statistics, then we proceed to describe the two different subgroups of principals who exit their schools as identified by our LCA model. We conclude this section by reviewing which covariates are statistically significant in predicting the type of principal someone is likely to be when exiting and how different groups of principals who exit their schools experience different types of turnover.

As recommended by the literature on mixture modeling (Jung & Wickrama, 2008; Masyn, 2003; Muthén, 2002, 2004), we began our LCA with the two-class model and continued with iterative testing until both BIC and LMR had indicated best fits for the data, which resulted in an eight-class model. Table 1 presents the model fit statistics for each estimated model following the recommendations of the iterative analysis procedure as discussed in the methods. The first non-significant *p*-value for the LMR test occurred at the three-class model (p = 0.383), indicating that the best fit according to LMR is the two-class model. The two-class model fit the data well with fit statistics of AIC = 231510.6, BIC = 23706.4, -Log likelihood = 11718.3, LMR p = 0.015, and entropy = 0.690. The classification probabilities for latent class membership were 0.953 for group 1 being assigned to group 1 and 0.831 for group 2 being assigned to group 2. The first positive change in BIC occurred between the seven-class (BIC = 23190.6) and eight-class models (BIC 23223.7), indicating that the best fit according to BIC is the seven-class model. As described previously, we decided to select the more conservative of the BIC and LMR methods of determining the best number of classes given the LCA literature to avoid over-interpreting the model (Bauer & Curran, 2003; Tofighi & Enders, 2008). As the LMR test provides the more conservative solution, we selected the two-class model to interpret while acknowledging that additional classes may exist in the data.

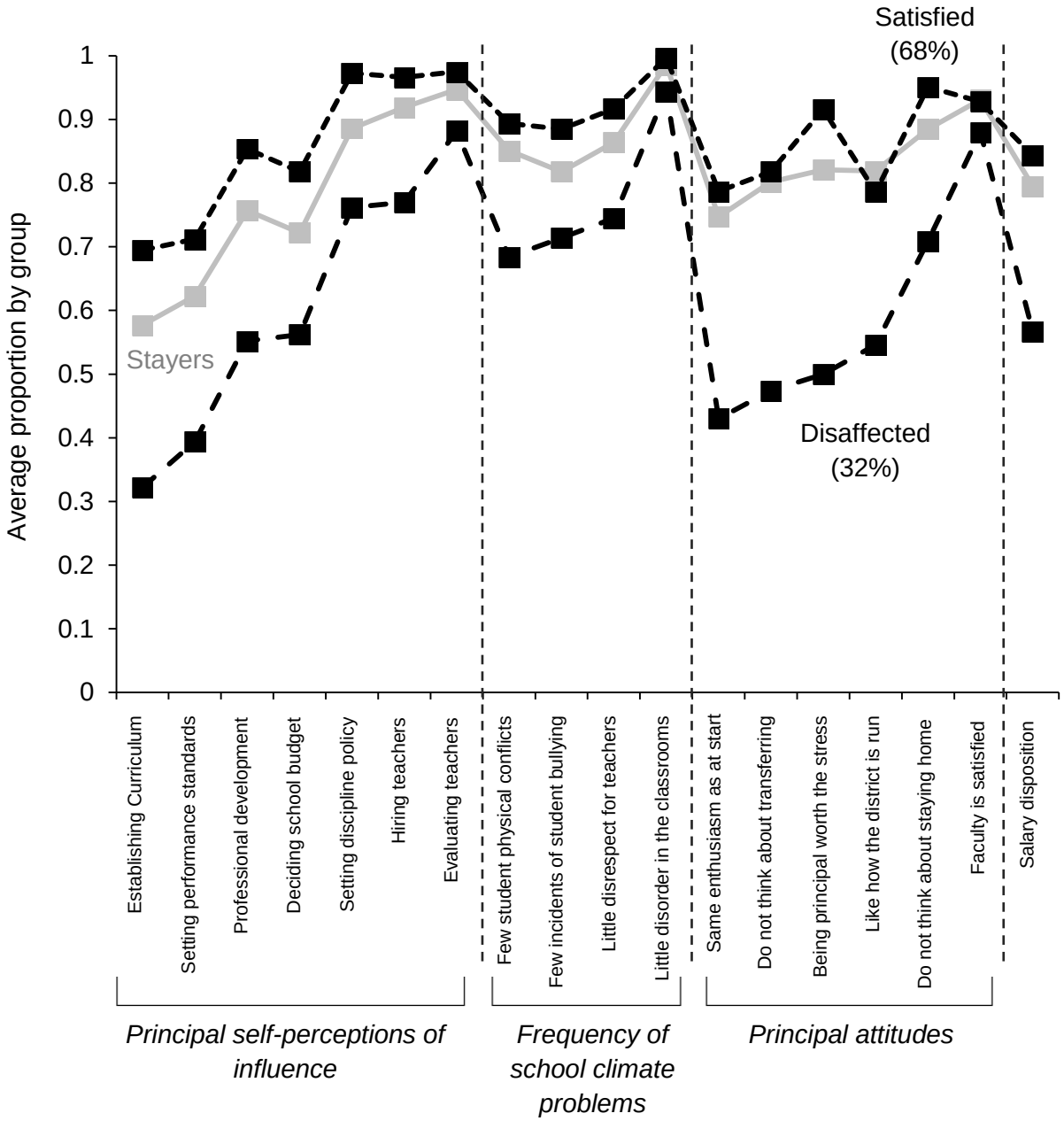

Figure 2: Statistical indicator plots of the two groups of principals who exit their schools. The larger subgroup of *Satisfied* principals (68%) reports overall higher levels of self-perceptions of their influence, school climate, principal attitudes, and salary dispositions than *Disaffected* principals (32%).

Our results indicate that there are at least two types of principals who exit their schools, confirming prior qualitative research into principal turnover that suggested the existence of more than one type of exiting principal (Farley-Ripple et al.; 2012; Johnson, 2005). At the time of this writing, this is the first study to quantitatively investigate different types of exiting principals from a nationally generalizable dataset in the U.S.

The model identified two significantly different types of principals who depart their current position as principal; here we name them "Satisfied" (68% of the sample) and "Disaffected" (32% of the sample). We detail the indicator plots for the two groups of exiting principals in Figure 2. While the model includes data only from principals who exited their schools, for comparison purposes only we include in Figure 2 and Table 2 the means of the indicator variables and covariates for the principals who did not exit

TABLE 2: Means and Odds Ratios for Covariates Using Satisfied Principals as the Reference Group

	Satisfied (68%)		Disaffected (32%)			Stayers
Variable	Mean	Odds Ratio	Mean	Odds Ratio	*p*	Mean
Age	50.43	—	49.61		0.426	48.57
Female	0.36	—	0.43	1.87**	0.009	0.43
Minority	0.19	—	0.22		0.246	0.16
Years principal at any school	8.81	—	7.88		0.783	7.55
Years principal at this school	4.71	—	4.05		0.159	4.27
Years teaching before principal	12.59	—	12.77		0.929	12.46
Program for aspiring principals	0.53	—	0.49	0.65~	0.061	0.54
Beyond master's education	0.40	—	0.39		0.114	0.37
Salary (in thousands)	83.91	—	81.70		0.972	84.18
Represented under agreement	0.47	—	0.45		0.161	0.49
Parent Involvement:						
Open house or back-to-school	2.02	—	1.75	0.72*	0.041	2.00
Parent-teacher conferences	1.99	—	1.77		0.640	2.01
One or more Subject-area events	1.77	—	1.50		0.141	1.75
Volunteering regularly	0.56	—	0.36		0.634	0.52
Student enrollment (transformed)	2.62	—	2.59		0.133	2.66
School grade level:						
Middle school	0.13	—	0.14		0.485	0.14
High school	0.34	—	0.33		0.977	0.35
Combined school	0.15	—	0.16		0.343	0.12
Percent of students approved for free or reduced-price lunch	46.42	—	52.46		0.134	43.36
School urbanicity:						
City	0.22	—	0.27	1.83~	0.069	0.21
Town	0.16	—	0.19	2.12~	0.060	0.19
Rural	0.39	—	0.37		0.339	0.37

Note: Means do not include imputed data. Significance tests are logistic regressions.
~$p \leq 0.10$. *$p \leq .05$. **$p \leq .01$.

their schools (i.e.: stayers) (n = 5,950). In Figure 2 the grey line represents these means.

The Satisfied group of principals had significantly higher levels of influence in establishing curriculum (p = 0.030), setting performance standards (p = 0.014), professional development of teachers (p = 0.005), deciding how to spend the school budget (p < 0.001) and hiring teachers (p = 0.010). These principals also had significantly higher principal attitudes than the lower group ($p \leq 0.017$ for all six principal attitude variables). Satisfied principals also reported higher salary dispositions (p = 0.011) and lower occurrences for three of the four indicator variables related to school climate problems: physical conflicts between students (p = 0.001), student bullying (p = 0.005), and disrespect for teachers (p = 0.008).

The largest differences on the influence variables between the satisfied principals and disaffected principals are in "setting performance standards" and "establishing curriculum within their schools" (Figure 2, left). These are also the two areas of influence in which the disaffected principal subgroup has more than 50% of principals reporting low levels of influence. Over two-thirds of both groups of principals report infrequent occurrences of the four school climate variables included in this model (Figure 2, center). The schools with disaffected principals had more instances of student physical conflicts, bullying, and disrespect for teachers. Both groups had very high proportions of principals who reported infrequent occurrences of classroom disorder. The largest differences between the two groups of principals in the principal attitude variables were on their enthusiasm, thinking about transferring to another school, and feeling that the stress of being a principal is worthwhile (Figure 2, right). These are also the three principal attitudes in which half or more of the disaffected principals reported a negative principal attitude.

We present the means and odds ratios for the covariates in Table 2. The odds ratios use the satisfied principals as the reference group (as they are the larger of the two groups) and are reported only for significant differences as an indication of effect size. In comparing the disaffected principals to the satisfied principals, females are 1.87 times

TABLE 3: Means for Distal Outcomes

Variable	Satisfied (68%)	Disaffected (32%)	*p*
Other principal position	0.36	0.29	0.179
School position, non-principal	0.07	0.14*	0.043
District office position	0.18	0.17	0.751
Retired	0.28	0.23	0.319

Note: Significance tests are Pearson chi-square.
*$p \leq .05$.

more likely to be in the disaffected group than the satisfied group ($p = 0.009$). Inverting the odds ratios for odds below 1.0, disaffected principals are 1.54 times less likely to have attended an aspiring principals program ($p = 0.061$). There is a lower level of parent involvement in open houses and back-to-school events reported for disaffected principals (1.75 on a 0-3 scale) than for satisfied principals (2.02) ($p = 0.041$). Relative to working in suburban schools, disaffected principals were 1.83 times more likely to work in cities ($p = 0.069$) and over two times more likely to work in small towns ($p = 0.060$) than satisfied principals who exited.

And finally, we present the differences in what kind of position these principals transitioned to the year after responding to the survey items above. We detail the findings in Table 3. The two groups of exiting principals differed only in one type of subsequent position, with the disaffected subgroup (14%) moving to a non-principal school position (e.g.: assistant principal or teacher) much more often than the satisfied principals (7%) ($p = 0.043$). We turn next to a discussion of the results.

DISCUSSION:

The purpose of the present study was to investigate the extent to which there are different types of principals who exit their schools, whether or not different individual- and school-level factors predicted what subgroup an exiting principal might belong to, and whether or not different subgroups of principals exited in different ways. The present study informs the current principal retention literature by using a nationally generalizable dataset to explore how previously identified factors that predict principal turnover overlap between different subgroups of exiting principals, with a focus on studying the individuals who are exiting their schools. Using Latent Class Analysis (LCA) to examine the four domains of principal self-perception variables of principal influence, frequency of school climate problems, principal attitudes, and salary disposition we identified two statistically significantly different types of principals who exit their schools: satisfied principals and disaffected principals.

These findings add to principal retention literature in three ways. First, this study is the first to examine the extent to which there may be different types of principals who exit their schools, identifying two statistically different types of principals who exit their schools. Second, our findings describe the differences between the two types of principals in their self-perceptions of their influence, their schools, and their experience of the principalship. Beyond this, the results incorporate principal turnover predictors, indicators, and outcomes all within the same statistical model, the first time this type of analysis has been used in the principal retention literature. Third, performing an LCA on a nationally generalizable dataset allows the results to be generalized to the population of principals who exit their schools in the United States. With the weights applied, the results generalize to the entire population of 18,480 U.S. principals who exited their schools in 2008-09.

Our findings are in complete alignment with Johnson's (2005) qualitative work in uncovering two different types of exiting principals as both studies concluded that there were two different types of exiting principals and that the subgroups differed based on their self-reports of how satisfied the principals were with serving as a principal (modeled in the present study through attitudinal survey response variables). The present study differs from Johnson's work in two ways. First, while Johnson (2005) focused mostly on principal satisfaction, our use of the full LCA model including not only principal self-perceptions of their leadership in the school, but also school climate, attitude towards the job of the principalship, and salary disposition allowed us to identify two statistically significantly different subgroups, the *satisfied* and *disaffected* principals. These two groups differ in significantly more ways than just their satisfaction with the principalship. These differences between the two groups uncovered in this study are thus a much larger set of differences than those proposed by Johnson (2005). The second difference between the present study and Johnson (2005) is with respect to the relative sizes of the two groups. In the present study we found that 68% of principals were satisfied and 32% were disaffected. Almost opposite to our findings are Johnson's with 25% of principals being satisfied and 75% of principals being unsatisfied. While Johnson's study more deeply investigates and describes the lived experiences of the principals who exit, in the present study we are able to extend this work to a nationally generalizable sample, finding that the majority of the

principals are satisfied. This again highlights the importance of the present study in using a significantly larger sample size (N = 1,470) from a nationally generalizable dataset.

Our findings also speak to the principal turnover theory of "pushes" and "pulls" from Farley-Ripple et al. (2012) as the *disaffected* exiting principals seem to be same principals who would be pushed out of the principalship. The push/pull theory is that principals are motivated to leave their current position by one or more pulls into a new position or are motivated by one or more pushes out of their current position. In their model, the pulls are primarily positive in nature: salary increases, more opportunities, more challenges, and more retirement benefits. In contrast, the pushes are primarily negative in nature: politics, interpersonal conflict, poor working relationships, and personal or family issues. In particular, the negative pushes seem to align with the attitudes of the disaffected principals identified in the present study. Disaffected principals report lower levels of influence in schools, which may be reflective of the negative pushes around politics, interpersonal conflicts, and poor working relationships. Similarly, disaffected principals' decreased principal attitudes with respect to being a principal may parallel what Farley-Ripple et al. (2012) describe as personal issues. Also, Farley-Ripple et al. (2012) suggest that principals who are pulled out of their positions through recruitment, tapping, and increased salary have different turnover outcomes than principals who are pushed out. Specifically, they found that principal movers (leaving one principal position for another in a different school or district) were often pulled into their positions. In contrast, principals who had been pushed out of their position were the ones more likely to leave the principalship entirely or to go back into teaching. The particular difference of principals who were pushed out being more likely to go back into teaching is also in alignment with the two groups identified in the present study as the disaffected exiting principals are significantly more likely to take a non-principal school position than satisfied exiting principals. Our results suggest that there may be a significant connection between Farley-Ripple et al.'s (2012) two groups of principals and the two groups identified in the present study: satisfied principals may be more likely to have been pulled out of their positions and disaffected principals may be more likely to have been pushed out of their positions.

The present study was motivated in part based on the findings of Tekleselassie & Villarreal (2011), with our findings differing from the past study in interesting and useful ways. First, one of their findings was that lower levels of principal perceptions of "Learning Climate 1" (the closest analogue in their model to our frequency of school climate variables) resulted in increased intentions to move yet not increased intentions to leave (Tekleselassie & Villarreal, 2011). In the present study we found that the frequency of school climate variables were significant in distinguishing between satisfied and disaffected principals who exited their schools. However, both satisfied and disaffected principals are equally likely to move between schools and only differ with respect to one manner of leaving the principalship (i.e.: disaffected principals are more likely to exit into a non-principal school position). Findings between these two studies differ similarly with respect to school urbanicity as well as Tekleselassie & Villarreal (2011) found that urbanicity influenced mover intentions yet not leaver intentions and the present study found that urbanicity did not distinguish between moving and leaving principals as *satisfied* and *disaffected* exiting principals were equally likely to be movers or leavers. There are several possibilities that could explain why different variables are relevant for the present study yet not Tekleselassie & Villarreal (2011) or vice versa. For example, Tekleselassie & Villarreal (2011) utilized multilevel modeling and included an overall larger collection of variables in their analysis than we did in the present study. The differences in our findings may be due to the differences in modeling techniques as their larger collection of variables and multilevel data structuring may reveal different relationships from our findings. Additionally, our LCA model does not allow for direct effects between our indicator variables and covariates on different types of turnover whereas Tekleselassie & Villarreal (2011) include only direct effects. It is possible that the difference in how the effects are modeled could produce different findings in how the variables do or don't predict different types of turnover. Another possible explanation is that Tekleselassie & Villarreal (2011) relied on principals' stated intentions to move or leave whereas in the present study we incorporated actual principal turnover behaviors. Given that turnover intentions do not always closely reflect turnover behaviors (Podsakoff, LePine & LePine, 2007; Steel & Ovalle, 1984), this could explain the differences in our findings. A third important difference to note is that Tekleselassie & Villarreal (2011) analyzed a dataset that included principals who intended to stay, not only principals who decided to exit their schools. In the present study we only examined data from principals who exited their schools as our research questions were focused in identifying a typology of exiting principals, not a typology of all principals in the United States. It is possible that factors relevant to predicting whether or not a principal will exit his/her school will differ from the factors that help to distinguish between exiting principals whom we already know to have exited their schools because the principals who staying may be different types of principals from those who exit.

This last difference brings us to an important point, which is that there is a difference between analyzing a dataset that is representative of only exiting principals (as we did in the present study) versus analyzing a dataset that is

representative of all principals. In order to provide some sense of comparison to the larger body of all principals in the United States, we included indicator variable and covariate means in Figure 2 and Table 2 for principals who stayed at the same school. While a comparison between the two groups of exiting principals and the stayer principals is beyond the scope of the present study, the descriptive comparisons suggest several questions for future research. For example, the stayer principal indicator plot appears to closely parallel the satisfied exiting principal plot. Since the satisfied principal group contains the majority of the principals who exit their schools (68%), this may indicate that most principals who exit their schools are the same type of principal as stayer principals. If so, this may have strong implications as to the difficulty of identifying principals who are likely to exit their schools, as if the *satisfied* exiting principals look the same as staying principals then distinguishing between them may be quite difficult. This also raises the possibility that prior research into using factors to predict principal turnover may be good at predicting *disaffected* principal turnover yet not *satisfied* principal turnover. We strongly encourage further research into principal typologies targeted at distinguishing between staying and exiting principals.

Comparing the staying principals to the two types of exiting principals at a descriptive level relates to important questions regarding policy-level interventions to reduce principal turnover. For example, one of the suggested policy-level interventions for reducing principal turnover is to increase principal salaries. In examining Figure 2, the average exiting principal may have a lower salary disposition compared to the average staying principal, so it seems plausible to suggest that increasing principal salaries may reduce principal turnover. However, this logic relies on treating all exiting principals as a single group, something that the present study directly challenges. While it may be true on average that exiting principals as a single group have lower salary dispositions than saying principals, we now know that the majority of exiting principals (the 68% of exiting principals who are satisfied) have roughly equivalent (if not higher) salary dispositions to staying principals. This suggests that raising principal salaries might cause the minority of principals (the 32% of exiting principals who are disaffected) with lower salary dispositions to stay in their positions longer, but not exiting principals writ large.

And this begs yet another question: are these the principals that we would want to stay? Given that the disaffected principals not only have lower salary dispositions but also lower attitudes and lower perceptions of their ability to influence their schools, we must ask ourselves whether or not these are the type of principals we want to have in our schools. In fact, on some level our findings may be indicative that there are forces in play that are counseling the disaffected principals out of the principalship given that they are more likely to exit into a non-principal school position, possibly in alignment with Farley-Ripple et al.'s (2012) pull-push theory as described above. If true, the appropriate policy-level intervention might be to try to keep the satisfied exiting principals in their schools longer in a way that does not similarly encourage disaffected principals to stay in their positions.

Additionally, it is possible that some policies pull satisfied principals out of their schools who otherwise would not exit. One example would be how some larger districts enact policies designed to rotate principals between schools, creating a systemic body of "movers" who might stay in their schools absent this policy (Anderson, 2006; Seashore Louis, Leithwood, Wahlstrom, & Anderson, 2010). Another example could be hiring practices in which principals are actively recruited into a new school by a neighboring district.

Given the above, we encourage more research of this type to be conducted using a larger sample of principals, preferably one that is representative of all principals across the nation. In addition to providing insight into the above issues, such research would also enable more connections to be made between existing principal typology literature and existing principal retention literature.

Limitations

While we argue that our results are robust, this study is limited in three main ways. First, the sample size for this study is relatively small. $N = 1{,}470$ is not a sufficient sample size to detect small differences between groups using LCA models (Dziak et al.; 2014). In specifying the model, we relied on the literature that indicated a moderate relationship between the majority of the variables included. However, much of this literature pertained to principal turnover generally, rather than on the probability of a principal who leaves their school belonging to a specific subgroup of exiting principals. One option for trying to improve the model's ability to detect smaller differences between groups would have been to reduce the number of indicators from eighteen to a lower number, however this still may have been insufficient in relation to our sample size given the recent literature on this (Dziak et al.; 2014). However, as noted above, the latent class analysis modeling literature continues to develop, with studies on these issues emerging as we fit the models. Working to construct a dataset with a larger sample of principals who have exited their schools would be helpful in addressing possible issues with having potentially insufficient power in this study to detect smaller differences between groups, possibly through the analysis of new NCES surveys such as the National Teacher and Principal Survey. We look forward to future research in this area.

The second major limitation of this study is that all of the indicators are self-perceptions of the principals who exited their schools. This is in alignment with the research aims of this study as it allows us to distinguish between different types of principals based on how they conceive of their influence in schools, how they assess their school climate, their attitudes as principals, and how important salary considerations are to them. While this provides a valuable lens into understanding different types of principals who exit their schools, the study relies solely on self-reported data with respect to defining the subgroups of principals who exit their schools. A future study that defines groups in terms of data beyond self-reports would provide further valuable insight into different types of exiting principals. For example, SASS measures both principal- and teacher-level data, making it possible to describe principals' influence within schools from the teachers' perceptions rather than the principals' self-perceptions. Current efforts into multi-rater principal evaluation systems such as VAL-ED (Porter, Polikoff, Goldring, Murphy, Elliott & May, 2010) and CALL (Kelley, Halverson, Camburn, Blitz, Salsbury, Bikkers & Clifford, 2012) may also support more research into this area.

The third major limitation of this study is that the LCA model assumes that the covariates only predict the type of exiting principal any given individual is likely to be when he/she exits school. The model does not account for the possibility of a direct effect between the covariates and the type of principal turnover. It is possible that the covariates have both direct and indirect effects (mediated through exiting principal subgroups) on the specific ways in which principals experience turnover. This area of mixture modeling is an active area of research and at the time of this writing there is no clear recommendation within the literature for how to perform this type of analysis. We look forward to future research that accounts for these types of effects in their models.

Additionally with respect to the covariates, we included a robust set of covariates in our analysis based on the prior principal turnover literature. It is possible that the set of covariates have multi-collinear relationships influencing the precision of our results between the covariates and exiting principal subgroups. However, this would not affect the definition of the two subgroups themselves or the relationships between the subgroups and the distal outcomes (i.e.: turnover types) because of the three-step LCA modeling process used to perform this analysis (Asparouhov & Muthén, 2013, 2014; Masyn, 2013; Nylund-Gibson et al., 2014). In fact, this type of issue is exactly what the three-step LCA modeling process was designed to address. We look forward to future research that will further investigate predictors of the type of exiting principal one is likely to be.

Conclusions

In conclusion, for principals who exit their schools, our findings suggest that there is not a single type of principal who exits their schools. Instead, we provide evidence for the existence of at least two different types of principals who exit their schools based on their self-perceptions of their degree of influence, school climate, attitudes, and salary dispositions. One group of principals, the satisfied principals, reported significantly higher levels of influence, lower levels of school climate problems, more positive attitudes of the principalship, and more positive attitudes of their salary disposition. Principals who were female, did not attend an aspiring principals program, led schools with lower parent participation in open houses and back-to-school events, and/or worked in schools in cities or towns were more likely to be disaffected principals. Disaffected principals were more likely to leave the principalship for a non-principal school position than satisfied principals.

Given the need to have principal retention interventions that are tailored to the principals themselves (Hart, 1992; Lovely, 2004; Mascall & Leithwood, 2010), the present study's investigation into different subgroups suggests that a "one size fits all" approach to reducing principal turnover may not be a fruitful endeavor. Even though there exists a strong call for policy-level interventions in reducing principal turnover (Branch, Hanushek & Rivkin, 2012; Cullen & Mazzeo, 2008; Clotfelter, Ladd, Vigdor & Wheeler, 2006; Mitgang, 2003; Papa Jr., Lankford & Wyckoff, 2002), the lack of a single type of principal who exits schools may make such interventions problematic. In conjunction with prior literature (Akiba & Reichardt, 2004; Stevenson, 2006; Tekleselassie & Villarreal, 2011), the results of the present study highlight the need for more research into different types of principals who exit their schools to allow for better understandings of how policy- and individual-level principal turnover factors interact with one another. A middle ground between blanket policy interventions and individual-level interventions may be through district-level analysis, blending the pragmatics of policy-level interventions with the importance of context (Bowers, 2010, in press; Honig, 2012; Trujillo, 2013). We encourage further quantitative analysis in this area using multilevel latent class analysis (Bowers, Halverson, Blitz, Modeste, & Salisbury, in press; Urick, 2012) that nests individual principals within their districts, allowing dissimilar school contexts to have a statistical effect on otherwise similar exiting principals.

Continuing with the discussion of the importance of school context, prior literature has shown that urban schools communities have higher rates of principal turnover (Béteille et al., 2012; DeAngelis & White, 2011; Fuller & Young, 2009). Our results show that urban schools are more likely to have dissatisfied exiting principals relative to suburban schools. Given this finding, policy-level research

into providing more incentives for high-needs schools, improving salaries and working conditions, etc. (Mitgang, 2003; Papa Jr. et al., 2002; Ryan & Gallo, 2011) may be more effective at retaining high quality principals in urban contexts than these interventions would be in other contexts. This would mirror prior research showing that retaining urban teachers may require interventions specific to that context (Stotko, Ingram & Beaty-O'Ferrall, 2007), such as improving teacher salaries (Claycomb & Hawley, 2000).

In framing future research into different types of principals who exit their schools, we believe that the present study supports Farley-Ripple et al.'s (2012) conceptual framework of three different types of influences on principals' career transitions: personal, behavioral, and environmental. Johnson's (2005) work examines personal and environmental characteristics relating to different types of principals exiting their schools and Farley-Ripple et al. (2012) touches on all types while focusing mostly on environmental factors. The present study incorporates all three types of influences in identifying two groups of principals who exit their schools. However, as discussed in Farley-Ripple et al. (2012), our quantitative analysis of these factors is imperfect at modeling the complexity of school contexts and how these different factors relate to one another. In particular, our analysis can describe *what* the two groups look like but neither the *why* as to how these two groups emerged within schools nor *how* the different variables interact to influence principals toward being satisfied exiters or disaffected exiters. We maintain that the present study is an important addition to the field as the first of its kind to investigate different types of exiting principals using a nationally representative sample while also supporting Farley-Ripple et al.'s (2012) call for more in-depth qualitative research in this area to uncover what cannot be easily measured through survey data.

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APPENDIX A: Descriptive Statistics of Indicator Variables for Principals Who Exit

Variable	Min	Max	*M*	*SD*	SASS Variable
Self-perception of influence of:					
Setting performance standards	0	1	0.58	0.49	A0046, 1 = Major Influence
Establishing curriculum	0	1	0.56	0.50	A0053, 1 = Major Influence
Professional development	0	1	0.74	0.44	A0060, 1 = Major Influence
Evaluating teachers	0	1	0.94	0.23	A0068, 1 = Major Influence
Hiring teachers	0	1	0.89	0.31	A0075, 1 = Major Influence
Setting discipline policy	0	1	0.88	0.32	A0082, 1 = Major Influence
Deciding school budget	0	1	0.68	0.47	A0089, 1 = Major Influence
Frequency of problems:					
Student physical conflicts	0	1	0.82	0.38	A0140, 1 = At least once a month or less often
Student bullying	0	1	0.81	0.39	A0148, 1 = At least once a month or less often
Disorder in the classrooms	0	1	0.97	0.16	A0150, 1 = At least once a month or less often
Disrespect for teachers	0	1	0.83	0.38	A0151, 1 = At least once a month or less often
Principal attitudes:					
Stress as principal not worth it	0	1	0.74	0.44	A0229, 1 = disagree or strongly disagree
Faculty is satisfied	0	1	0.90	0.31	A0230, 1 = agree or strongly agree
Like how the district is run	0	1	0.69	0.46	A0231, 1 = agree or strongly agree
Think about transferring	0	1	0.68	0.47	A0233, 1 = disagree or strongly disagree
Less enthusiasm than at start	0	1	0.85	0.36	A0234, 1 = disagree or strongly disagree
Think about staying home	0	1	0.71	0.45	A0235, 1 = disagree or strongly disagree
Salary disposition	0	1	0.73	0.45	A0232, 1 = disagree or strongly disagree

Note: N = 1470 (unweighted).

APPENDIX B: Descriptive Statistics of Covariates for Principals Who Exit

Variable	*N*	Min	Max	*M*	*SD*	SASS Variable
Age	1470	25	86	50.14	9.30	AGE_P
Female	1470	0	1	0.39	0.49	A0240, 1 = Female
Minority	1470	0	1	0.20	0.40	RACETH_P, 0 = non-Hispanic White
Years principal at any school	1470	0	43	8.48	7.70	A0025
Years principal at this school	1470	0	37	4.48	4.97	A0026
Years teaching before principal	1470	0	40	12.65	7.18	A0027
Program for aspiring principals	1470	0	1	0.52	0.50	A0030, 1 = Yes
Beyond master's education	1470	0	1	0.40	0.49	A0032, 1 = At least one year beyond master's or more
Salary (in thousands)	1470	21	164	83.14	20.39	A0249, divided by 1,000
Represented under agreement	1470	0	1	0.46	0.50	A0228, 1 = Yes
Parent Involvement:						
Open house or back-to-school	1380	0	3	1.93	0.98	A0153, 0-3 based on quartiles of parent participation
Parent-teacher conferences	1360	0	3	1.91	1.05	A0154, 0-3 based on quartiles of parent participation
One or more Subject-area events	1350	0	3	1.68	1.04	A0155, 0-3 based on quartiles of parent participation
Volunteering regularly	1350	0	3	0.49	0.81	A0156, 0-3 based on quartiles of parent participation
Student enrollment (transformed)	1470	0	3.56	2.61	0.43	ENRK12UG, log10 transformed
School grade level:						
Middle school	1470	0	1	0.13	0.34	SCHLEVE2, 1 = Middle
High school	1470	0	1	0.34	0.47	SCHLEVE2, 1 = High
Combined school	1470	0	1	0.16	0.36	SCHLEVE2, 1 = Combined
Percent of students approved for free or reduced-price lunch	1400	0	100	48.57	28.19	NSLAPP_S
School urbanicity:						
City	1470	0	1	0.24	0.43	URBANS12, 1 = City
Town	1470	0	1	0.17	0.38	URBANS12, 1 = Town
Rural	1470	0	1	0.38	0.49	URBANS12, 1 = Rural

Note: Descriptive statistics do not include imputed data. Sample sizes are unweighted.

APPENDIX C: Descriptive Statistics of Distal Outcomes for Principals Who Exit

Variable	Min	Max	*M*	*SD*	SASS Variable
Other principal position	0	1	0.31	0.46	STATUS, 1 = codes 21-25, 38
School position, non-principal	0	1	0.11	0.31	STATUS, 1 = codes 26-28, 39
District office position	0	1	0.18	0.39	STATUS, 1 = codes 29-30
Retired	0	1	0.23	0.42	STATUS, 1 = code 33

Note: Means do not add to 1.0 as 17% of the sample forms the reference group. N = 1470 (unweighted).

APPENDIX D: Latent Class Analysis Results and Fit Statistics for All Principals

Model	AIC	BIC	-Log likelihood	LMR Test for $k-1$ classes	*p*	Entropy
Two classes	112687.6	112943.6	56306.8	4797.4	0.248	0.669
Three classes	110190.0	110577.3	55039.0	2520.8	0.086	0.736
Four classes	109334.4	109853.2	54592.2	888.3	0.278	0.738
Five classes	108432.9	109083.1	54122.5	934.0	0.499	0.721
Six classes	107990.0	108771.7	53882.0	478.1	0.228	0.715
Seven classes	107662.5	108575.6	53699.3	363.4	0.281	0.745
Eight classes	107441.4	108485.9	53569.7	257.6	0.680	0.746
Nine classes	107285.9	108461.8	53473.0	192.4	0.777	0.752

Note: AIC = Akaike information criterion; BIC = Bayesian information criterion; LMR = Lo-Mendell-Rubin adjusted likelihood ratio test.

APPENDIX E: Mplus Code

```
TITLE:      Principal Retention LCA, SASS 2007-08 and PFS 2008-09

DATA:       FILE = N:\WorkingMplusData\CombinedPFS08.dat ;

VARIABLE:   NAMES =      A0046 A0053 A0060 A0068 A0075 A0082 A0089
                         A0140 A0148 A0150 A0151 A0229 A0230 A0233
                         A0234 A0235 A0231 A0232 AGE_P A0240 RACETHP
                         A0025 A0026 A0027 A0030 A0032 A0249 A0228
                         A0153 A0154 A0155 A0156 ENRK12U SECTOR
                         PRIMARY MIDDLE HIGH COMBINE NSLAPPS SUBURBS
                         CITY TOWN RURAL STATUS STATUSP3 STATUSP4
                         CNTLNUMP CNTLNUMS AFNLWGT PRINCIP OTHRSCH
                         DISTOFF RETIRED ;
            MISSING =        ALL(9999) ;
            IDVARIABLE =     CNTLNUMP ;
            WEIGHT =         AFNLWGT ;
            USEVARIABLES =   A0046 A0053 A0060 A0068 A0075 A0082 A0089
                             A0140 A0148 A0150 A0151 A0229 A0230 A0231
                             A0233 A0234 A0235 A0232 ;
            CATEGORICAL =    A0046 A0053 A0060 A0068 A0075 A0082 A0089
                             A0140 A0148 A0150 A0151 A0229 A0230 A0231
                             A0233 A0234 A0235 A0232 ;
            CLASSES =        c(2) ;
            AUXILIARY =      (R3STEP) AGE_P
                             A0240 RACETHP A0025 A0026 A0027 A0030 A0032
                             A0249 A0228 A0153 A0154 A0155 A0156 ENRK12U
                             SECTOR MIDDLE HIGH COMBINE NSLAPPS CITY
                             TOWN RURAL ;
                             !Command Syntax for Step 2;
            AUXILIARY =      (DE3STEP) PRINCIP OTHRSCH DISTOFF RETIRED ;
                             !Command Syntax for Step 3;

ANALYSIS:   TYPE =           MIXTURE ;
            PROCESSORS =     8 (STARTS);
            MITERATION =     5000 ;
            STARTS =         25000 250 ;
            STITERATIONS =   100 ;

OUTPUT:     SAMPSTAT STANDARDIZED TECH11 ;

PLOT:       TYPE =           plot3 ;
            SERIES =         A0046 A0053 A0060 A0068 A0075 A0082 A0089
                             A0140 A0148 A0150 A0151 A0229 A0230 A0231
                             A0233 A0234 A0235 A0232 (*) ;

SAVEDATA:   SAVE =           CPROBABILITIES ;
            FILE =           CPROBS-001.DAT ;
            FORMAT =         FREE ;
            ESTIMATES =      MIXEST-001.DAT ;
```