Internal and External Elementary Principal Hiring and Minimal Student Achievement: A 5-year Cohort Model

This manuscript has been peer-reviewed, accepted, and endorsed by the International Council of Professors of Educational Leadership (ICPEL) as a significant contribution to the scholarship and practice of school administration and K-12 education.

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The purpose of this study was to examine whether there exists a relationship between selection practices of school districts (i.e., whether the principal was hired from within the district as an internal hire or hired from outside the district as an external hire) and changes in minimal proficiency in school math and reading achievement. More pointedly, we examined whether the hiring type of principals bears any association with the percentage of low performers at the school. The units of analyses were all newly appointed elementary principals in the state of Wisconsin in 2010, who consecutively led a school in a principal role for five years (2010- 2014). Based on results obtained from the five-year panel regression analysis, hiring type was not found to be statistically significant. However, descriptive examination of trends indicate the performance of schools led by internal hires fare worse than those led by external hires and that the relationship between hiring type and minimal reading proficiency appears to change across time. Results are discussed.

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With the ever-growing principal turnover problem seen in the United States (Boyce & Bowers, 2016; Mascall & Leithwood, 2010), some school districts have begun to identify methods to better prepare for principal turnover. One such method is a formal plan for principal succession. Through formal succession planning, it is reported that schools may benefit by the inclusion of selection and reward systems, partnerships, and leadership development (Fink & Brayman, 2006). Although the recruitment and selection of leadership candidates often include a pool of internal and external candidates, the principal preparation strategies associated with principal succession planning utilizes only aspiring leaders from their district or schools. Buckman, Johnson, and Alexander (2017) imply this practice may be utilized to promote employee loyalty to the organization and remove potential risks associated with hiring unknown candidates. In addition, some school districts provide incentives for their employees to receive formal leadership training, and to receive a return on investment, these school districts recruit exclusively internally (Noremore, 2007).

Considering the assumption that internal promotion is a best practice for leadership succession, one would assume that the internal promotion of an assistant principal to principal would be most advantageous for school district outcomes. As schools in the United States continue to strive for success and adhere to accountability measures in a post No-Child-Left-Behind era of public education, school performance in terms of student achievement remains critical in evaluating school success (Noddings, 2005) and are further enforced by current national policies such as the Every Student Succeeds Act (ESSA) (2015), but to what extent this performance is influenced by the internal promotion of school principals is unknown. As schools continue to apply internal promotion strategies to address leadership vacancies, an empirical evaluation of the value of this practice is necessary.

We specifically seek to identify if there is a difference in the relationship between internally and externally promoted principals and their minimally proficient school math and reading scores. In addition to controlling for predictor variables empirically utilized in similar research, we also descriptively highlight trends in the population of newly promoted principals who consecutively led their schools over a five-year span to explore potential differences in student achievement and principal human capital (i.e., educational attainment and years of experience) between the two groups. Therefore, this study seeks to answer the following research question:

> *Is there a relationship between the internal and external promotion of assistant principals to principals and student achievement when controlling for human capital and school contextual variables?*

Literature Review

There is very little research supporting a direct relationship between principal behaviors and student achievement (Hallinger & Heck, 1998; Leithwood, Jantzi. & Steinbach, 1999; Louis, Dretzke & Wahlstrom, 2010; Witziers, Bosker, & Kruger, 2003), rather research supports that a principal's influence on student achievement is indirect through avenues such as the hiring of effective teachers (Horng, Klasik & Loeb, 2010; Grissom & Loeb, 2009) and instructional leadership practices that improve teaching and learning environments (Ross & Gray, 2006). It is through the selection of quality teachers and effective principal leadership practices, that a nurturing school culture and climate is developed which positively impacts a school atmosphere and ultimately improves student achievement.

The bulk of the literature concerning the relationship between principal performance and student achievement focuses on the characteristics of great leaders. For instance, in research conducted in the United States, Loeb, Kalogrides and Beteille (2012) found that high performing principals are better able to attract and retain high performing teachers than their lower performing counterparts. In their study, performance is operationally defined as improvements in value-added student achievement test scores. Relatedly, Jacobson (2011) found that the core school leadership practices (e.g., direction setting, developing people, and transforming the learning environment to meet student needs) were essential to improving student achievement. As educators understand, there is no one uniform approach to educate all students successfully; therefore, instructional differentiation is necessary. Similarly, there is no uniform method to lead a school successfully because school environments differ. Therefore, principal best practices and leadership styles must be adaptable to meet student and school needs.

There are many commonalities in the findings concerning the relationship between principal behaviors and student achievement. For instance, comparable to the findings of Jacobson (2011), when employing a mediating effects model on a sample of secondary schools in the Netherlands, Bruggencate, Luyten, Scheerens and Sleegers (2012) found school leadership practices affected student outcomes not only indirectly, but also directly. In the area of student promotion rates, the principal's ability to set rational goals resulted in both a significant and positive indirect effect.

While the study did find direct effects, the researchers cautioned that the effects may not reflect "real" direct effects and could be easily misinterpreted without the inclusion of all relevant confounding variables. They also purport that principals' behaviors vary based on school achievement. For example, school leaders employed at a high performing school may be less inclined to establish immediate action plans with set goals as compared to leaders who are receiving pressure to increase performance in a poor performing school.

Using a qualitative case study approach, Brown (2016) further emphasizes the indirect effect of principal behaviors on student achievement. When investigating the practices of a 15-year principal at a high performing elementary school, the researcher suggested that the principal's behaviors could be an important factor of the school's academic success. Through interviews with the principal, teachers, and district office personnel as well as the triangulation of building plan documents and parent organization agendas, the leadership best practices themes identified in this study were: 1) data driven instruction, 2) parental involvement, 3) student behavior and intervention, and 4) budgeting and scheduling. These themes represented the areas in which the principal's efforts were directed and potentially contributed to the school's positive performance outcomes. This study is not generalizable because of the limitations of the research method; however, the findings are in alignment with the previously cited studies that employed inferential statistics and, therefore, provides further support of the indirect effect of principal behaviors on student outcomes.

Principal Longevity and Student Achievement

Although a principal's influence on student achievement is by and large indirect, research does support that principal longevity and its counterpart turnover, impacts overall school performance (Borg & Slate, 2014; Huff, Brockmeier, Leech, Martin, Pate, & Siegrist, 2011; Miller, 2013). When utilizing public and private school data in the United States, Azaiez and Slate (2017) found that principal tenure positively influenced student reading and mathematics scores. Specifically,

principals with six or more years of experience at a particular school campus produced significantly higher reading and mathematics performances among students as compared to principals with less than six years of experience.

Principal longevity is ideal in sustaining and increasing student achievement; however, a principal's propensity to turnover is not solely an intrinsic factor, but one that is at least partially influenced by a school's environment. Miller's (2013) study found that principal turnover was more prevalent in poor performing schools. In addition, the number of principal turnovers in a ten-year span is negatively related to student achievement and is also positively correlated with increased percentages of free/reduced lunch (i.e., a metric reflecting school socioeconomic status) and teacher turnover.

Miller (2013) indicated that for principals who turned over, their school test scores fell in the last four years prior to the principal's leaving and school achievement continued to fall within the first two years of the newly appointed principal's tenure. After two years, the newly appointed principal's school test scores began to rise and reached baseline levels within five years. This study demonstrates the importance of principal longevity and the indirect impact of a principal on student achievement.

The relationship between achievement and principal turnover, however, is more complicated than a unidirectional effect of one on the other. For instance, Béteille, Kalogrides, and Loeb (2012) found that low student achievement may be a major influence of principal turnover. Their study highlighted the fact that 30% of principals in Miami-Dade County Public Schools with high concentrations of low achieving students leave each year as compared to the 15% of principals that turnover from schools with lower concentrations of low performing students. In addition, the researchers also assert that students make lower achievement gains in math when there is a new principal. This suggests that the relationship between achievement and principal turnover is bi-directional in that low school achievement may effect principal turnover and principal turnover in turn may cause lower achievement.

To further address the impact of principal longevity on student achievement, a study administered upon over 1,000 elementary schools in the state of Georgia also found that principal longevity impacted student achievement (Brockmeier, Starr, Green, Pate, & Leech, 2013). Analogous to the findings of Miller's (2013) study, Brockmeier et al. (2013) detected schools with only one or two principal turnovers scored significantly higher than schools with three or four principal turnovers in the area of reading for third and fifth grade over a 10-year period. Their findings also support the importance of limiting principal turnover and retaining principals in efforts to promote school improvement.

Logically, if principal turnover impacts student achievement as noted heavily within the literature, principal behaviors and performance at large impact student achievement as well. Therefore, be it through direct or indirect effects, studying the relationship between principal performance and student achievement is just as vital as studying the direct effect of teacher performance on student achievement.

Principal Succession

Principal retention and its positive effect on the overall quality of a school is heavily supported by past research, yet unfortunately, principal turnover has not become any less common nationwide over the past few decades (Battle, 2010; Miller, 2013; Papa 2007; Stoelinga, Hart, & Schalliol, 2008). Within this review of literature, it has been documented that principal turnover influences

student achievement (Azaiez & Slate, 2017; Brockmeier, Starr, Green, Pate, & Leech, 2013), but it also influences a host of mediating factors as well. When reviewing factors beyond student achievement, principal turnover has been linked to the loss of promising leaders, loss of teachers, and increases in employee replacement costs (Tran, McCormick & Nguyen, 2017; Tran & Buckman, 2017; Trevor, Gerhart, & Boudreau, 1997). As a result, many school districts have become strategic by developing recruitment and training strategies that can assuage the negative impact of principal turnover and better prepare schools through succession planning.

Because of the shrinking applicant pools for principal candidates due to rigorous certification requirements, increased organizational responsibilities, and stress from accountability policy, school districts have found it necessary to begin developing leadership pipelines which prepare internal leadership candidates for future vacancies (Zepeda, Bengtson, & Parylo, 2012). Because formal leadership succession planning in the education setting is a fairly new practice, there is limited research explaining the practice and its impact. Due to the absence of leadership succession planning in education, research has provided support for the need to strategically plan for principal turnover (Hargreaves & Fink, 2006; Hart, 1991; Zepeda et al., 2012).

Although, succession planning should be a structured human resources event in the educational system, Hargreaves (2005) ascertained that principal succession in most cases resulted in a mix of unplanned discontinuity and continuity. He claimed this paradox resulted in, "discontinuity with the achievements of a leader's immediate predecessor [i.e., assistant principal], and continuity with the mediocre state of affairs preceding the predecessor (Hargreaves, 2005, p. 167). His statement identifies that the lack of planning for unexpected principal turnover in the education system often results in internal promotion of assistant principals that are not vetted at a high level and are assumed to be able to provide the same high-quality leadership as their predecessor.

Through anecdotal evidence and empirical research, many school districts do not devote effort into formal, ongoing recruiting processes and planning for school administration turnover (Myung, Loeb, & Horng, 2011). It is not until leaders have demonstrated their desire to leave or have informed their supervisor of their soon departure that the recruitment and planning process begins. Because of the sense of urgency and lack of time, school districts often show preference for informal recruiting processes, such as "tapping" in lieu of continuous formal recruitment or succession planning (Lortie, 2009; Myung et al., 2011).

Tapping is defined as the identification of candidates (i.e., teachers) in one's school that display leadership ability and are encouraged to become school leaders by their supervisors (Lortie, 2009). This practice can be a gamble because the principal's judgement is often based on the teacher's ability as an educator or their experiences supervising small quantities of students; contrarily, those competencies may not be transferable to successfully leading an entire school. Although "every teacher has the same opportunity to pursue a school leadership position by earning an administrative credential [without being tapped] (Myung et al., 2011, p. 69)," some state educator licensing agencies, for example Georgia, require that state accredited educator preparation programs at universities place admission restrictions on leadership candidates. Those that do not have a professional qualified supervisor (i.e., assistant principal or principal) agreement to serve as mentor throughout their leadership training, or cannot find a willing mentor, will not be accepted into the program by the university. This practice essentially can be viewed as a state level policy enforcing local leadership tapping.

Myung et al. (2011) specified teacher gender and race significantly influences a teacher's potential of being tapped. Specifically, male teachers were nearly two times as likely to be tapped

by their principal as female teachers, and Black and Hispanic teachers were more likely to be tapped than their White colleagues (66% and 37%, respectively). School factors prompting a teacher's likelihood of being tapped for principal preparation were: 1) high percentage of black students, 2) the race matching of teacher and principal, 3) high free and reduced lunch percentages, and 4) weak school performance (Myung et al., 2011). In addition to the findings of Myung et al. (2011) concerning tapping as an informal means of succession planning, Zepeda, Bengtson, and Parylo (2012) claimed that larger school districts were more likely to have a formal succession plan than smaller school districts. It was indicated that smaller school districts found formal succession planning to be problematic because of their limited number of leadership positions and turnovers. Thus, a formal succession plan would likely lead to their aspiring leaders departing the district for external leadership opportunities.

Internal and External Promotion

Promotion practices is not an area heavily studied in the field of education. However, in the private sector, researchers have identified the impact of internal and external promotion on organizations (DeVaro, 2006; Devaro & Morita, 2013; Rao & Drazin, 2002). Internal promotion is commonly defined as a move within an organization to a position that is traditionally higher in rank, pay, and skill requirements (Bidwell, 2011; DiPrete & Soule, 1988; Cohen, Broschak, & Haveman, 1998). Alternatively, external promotion is commonly defined as the hiring of a candidate that is entering the organization for the first time (Bidwell, 2011).

The purpose of internal promotion is often introduced as a mechanism organizations utilize to incentivize workers to increase their job performance (DeVaro, 2006). Moreover, when individuals have been recognized for performance excellence over an extended amount of time, these individuals are rewarded by promotion to a higher ranked position. This finding can be theoretically supported by Lazear and Rosen's (1981) *Tournament Theory* which acknowledges organizations introduce internal tournaments as an efficient way of labour compensation by ranking workers, setting goals to incentivize work effort, and utilizing raises and promotion as the reward for the winner.

Leadership succession planning in most cases employ tournament theory by endorsing the highest performing teachers for formal school leadership training (i.e., tapping). This practice is often only associated with internal leadership candidates. However, does this practice leave external leadership candidates at a disadvantage in terms of being hired for external leadership positions? When studying the promotion of teachers to administrators, Buckman et al. (2017) found that employability, as defined by the percentage of job offers a teacher received for assistant principal positions, was significantly lower for teachers applying as external candidates. This study provides evidence that internal promotion is a preferential practice in Georgia's public education system and the likelihood of receiving a promotion from teacher to assistant principal is more probable for internal candidates. It should be noted that when a district or school is designated "emergency status" or is taken over by the state, it is not uncommon that current school leadership is removed and replaced by external candidates.

The extent that school performance is related to the internal and external hiring of principals is an area with little to no empirical research. The closest relationship to this concept has been tied to school characteristics and other contextual factors that produce principal turnover and its associating effect on student achievement. Particular factors aligned with principal turnover

supported by literature have been principal pay and school performance (Baker, Punswick, & Belt, 2010; Béteille, Kalogrides, & Loeb, 2012; Tran, 2016).

In Tran and Buckman's (2017) study of elementary school principals, they found a positive association between elementary schools reading achievement scores and principals who were internally hired. This study, however, did not indicate if the principals were recently promoted to this role or if the school was high performing prior to the principal's tenure. Therefore, principal's experience was not addressed as an influence on school achievement, nor was student growth addressed within their longitudinal study. This is the only study in the education setting that incorporates internal and external hiring of principals as variables and analyzes its relationship with student achievement. The aforementioned limitations concerning promotion and the achievement was not within the scope of Tran and Buckman's (2017) study, but these questions do impose the need for more literature to address these inquiries.

Theoretical Framework

We applied the external recruitment and internal promotion paradox developed by Chan (1996) as the theoretical framework for this study. Chan's research advances Lazear and Rosen's (1981) Tournament Theory, by addressing the internal competition within an organization that rewards employees in the form of job promotion with the addition of opening the competition to external candidates. Chan also indicates internal candidates are often afforded a competitive handicap due to their pre-existing network with key players in the organization to increase the likelihood of internal candidates receiving the promotion over external candidates. Therefore, external candidates often need to be significantly "superior" to internal candidates in the form of human capital and professional performance in order to be selected. For example, in addition to needing to possess stronger human capital endowments than internal candidates to often be considered, external hires are often expected to bring about the potential of novel thinking, fresh ideas and the avoidance of group think (Irwanti & Muharman, 2015) that would deviate from the normative institutional thinking espoused by internal candidates.

When comparing individuals that are internally promoted to those promoted externally, one can assume based on this theory that external candidates will outperform internal candidates in the field. When applying this theory in an educational setting, this would suggest that assistant principals promoted externally to the role of principal will not only exceed internally promoted principals in the form of traditional human capital, but also in the area of principal performance as defined by lower minimal student achievement in this particular study.

Purpose and Significance

The purpose of this study is to increase the body of literature concerning the impact of leadership promotion practices in the education setting. This study explicitly addresses the potential relationship between internal and external promotion of principals and student reading and math achievement. Due to the paucity of research concerning this topic and because of the impact of human resources practices on district, school, and student outcomes, the finding of this study may be significant in impacting future recruitment and selection practices of school leaders. In addition, this study answers the call from Buckman et al.'s (2017) study concerning internal and external promotion of school leadership candidates that requested future research examining the relationship between internal and external hiring practices and student achievement. This study will provide empirical evidence concerning the academic impact of internal and external

promotion, in addition to determining if there is a significant difference in the human capital associated with the two types of candidates.

Methodology

Our sample consisted of all of the assistant principals in the state of Wisconsin who were hired as first-year traditional public elementary school principals (n=15) in the year 2010 and stayed at their respective schools in the position for at least five years. Five years is an important cutoff point because research has suggested that it takes at least five years for principals to mobilize their vision and see school change bear fruit from the efforts of their leadership (Fullan, 2001; Hall & Hord, 2001). Specifically, we removed from the dataset any principals who transitioned back to the assistant principal position and any principal who departed from their school within that timeframe.

It is important to focus on a particular school type (i.e., elementary) because the job responsibilities and state examinations vary by level of schooling. For instance, many elementary schools are often smaller than secondary schools and principals of these schools may not have the assistance of department chairs or assistant principals to help leadership efforts. Our sample came from 15 schools in 12 different districts, of the 15, eight of the principals were external hires from outside of the district and seven of the principals were internally promoted.

A descriptive statistics table of the variables that we analyzed is displayed in Table 1. Descriptive information is provided for principal, district, and school characteristics.

Table 1
Descriptive Statistics

	Variation	Mean	Standard Deviation	Minimum	Maximum
Principals' Total	Overall	17.46	8.39	1.5	33.6
Education	Between		8.01	5.9	31.78
Experience	Within		1.80	13.06	23.56
District total	Overall	2.61e+08	4.58e+08	10,972.2	1.30e+09
Revenue	Between		3.06e+08	56,654.23	7.60e+08
	Within		3.41e+08	-4.99e+08	9.36e+08
School's Percent	Overall	46.87%	23.92%	10%	98%
Free or Reduced	Between		24.49%	13.80%	94.75%
Lunch	Within		3.82%	35.67%	55.66%
School's	Overall	419.75	138.78	153	789
Enrollment	Between		145.42	184.33	773.8
	Within		25.98	336.147	483.15

School's % of students deemed minimal proficiency	Overall	32.14	15.84	12.37	71.22
	Between		15.72	15.73	63.06
	Within		4.31	21.73	41.01
School's % of students identified as disabled	Overall	14.97	6.14	4	28.95
	Between		6.70	4	26.89
	Within		1.42	11.23	18.77

Note: Number of observations: 67; Number of Principals: 15

As can be seen from the table, there is wide variation in the type of principals, districts, and schools captured by our study. For example, our sample includes relatively inexperienced principals (e.g., total education experience equaling approximately 1.5 years) as compared to those with many years of experience (i.e., over 33). Similarly, our sample included principals leading schools with relatively low levels of poverty (i.e., 10% free/reduced lunch) as compared to schools where almost all the students are on free and reduced lunch (i.e., 98%). The wide variation in our sample allows for increased generalizability of our findings.

In terms of observations over time, the highest degree obtained by our sample of principals were primarily Master's degree (n=62), with a handful holding bachelor's (n=5). Because some have argued that external candidates often have more human capital attributes, such as more years of experience and higher educational degrees (Chan, 1996), we stratified these variables by whether the principal was an external or internal hire and dummy coded them (i.e., 0 = not internal; 1 = internal). There were 39 external hire observations to the 28 internal observations. Almost all individuals possessed a Master's degree (34 for external observations and all 28 for internal observations).

When it comes to total education experience, principals ranged from 1.5 to 33.6 years. If we operationally define 10 years of experience as "more experienced" and less than 10 as "less experienced" and stratify these along the categories of internal and external hires, more experienced candidates would be distributed relatively evenly among external (n=26) and internal (n=28) principals' observations. This contrasts with the fact that all less experienced principals were external hires.

Taken together, these findings suggest that some external candidates were hired with lower degree obtainment than internal candidates and that external candidates had less experience than internal candidates, which contradicts the arguments of those who suggest the opposite to be true (Chan, 1996). However, these findings may be a function of the focus of this study being on elementary rather than middle or high school principals, where the former typically earns less than the latter (Tran, 2015), which likely influences the type of human capital that can be attracted to such positions.

We conducted a panel regression analysis on the group of new principals, tracking their schools' state examination performance from 2010 to 2014. Because of the increasing importance of focusing attention on low achievers (i.e., their long-term consequences; policy goals targeted at reducing their numbers; and the equity concerns, given that a disproportionate percentage of low performers are from disadvantaged socio-economic backgrounds (OECD, 2016)), our study

targeted low performance. Specifically, the dependent variable in our study is the percent of students scoring minimal proficiency (i.e., lowest performance group) on the Wisconsin Knowledge and Concept Examination (WKCE) in the areas of reading and math.

The main focus of our model is the relationship between hiring type (i.e., whether the principal was hired from within the district as an internal hire or hired from outside the district as an external hire) and changes in minimal proficient student achievement. More pointedly, we are examining whether the hiring type of principals bears any association with the percentage of low performers at the school through inferential statistics.

We control for a set of covariates that have been found in the literature to be related to student achievement. The covariates include district revenue (Mensah, Schoberek, & Sahay, 2013; Neymotin, 2010), percent of students with exceptionalities or "disabilities" (Schulte, Stevens, Elliot, Tindal, & Nese, 2016; Wei, 2012), percent of economically disadvantaged students as measured by the percent of free or reduced lunch (Lee & Slate, 2014; Perry & McConney, 2010), percent of English Language Learners (Polat, Zarecky-Hodge & Schreiber, 2016) and school's student enrollment (Egalite & Kisida, 2016; Buckman & Tran, 2015). In addition, we also controlled for observable traits of the principal such as their total education experience and highest degree obtained because they often server as proxies for quality in the hiring process. They have also been found to be related to student achievement (Rice, 2010; Valentine & Prater, 2011) and been suggested that internal candidates often differ from external candidates along these human capital dimensions (Chan, 1996).

Results

Based on the theory that the impact of principal leadership and student outcomes depend on time and that it takes time for principal reform efforts to take fruition (Fullan, 2001; Hall & Hord, 2001), time and hiring type were interacted in the model to capture potential interaction effects. Figures 1 and 2 display the relationship between hiring type and student performance across the five years of the study, after statistically controlling for the aforementioned covariates. As can be seen from the figures, the relationship between hiring type and minimal reading
proficiency appears to change in the second half of the five-year period, with the schools led by internal hires initially performing better, but that pattern reverses in the middle of the third year. While we do not know whether this is a function of internal hires being assigned to worst performing schools or not, our sample data tracks the performance across five years, which indicates that the pattern appears relatively stable. In fact, the gap in performance between schools led by internal and external hires appears to widen by the fifth year.

Another trend noticeable in both figures was the dip in 2013, suggesting improvement in student performance. This could be due to state efforts to receive a waiver from the No Child Left Behind Act (NCBL). In 2013, the state of Wisconsin enhanced the rigor of the WKCE assessment by aligning it with standards set by the National Assessment of Educational Progress and increased the minimum scores needed to be assessed as "proficient" or "advanced;" however this change does not affect the result of this study because "minimal proficiency" and "basic proficiency" were not changed.

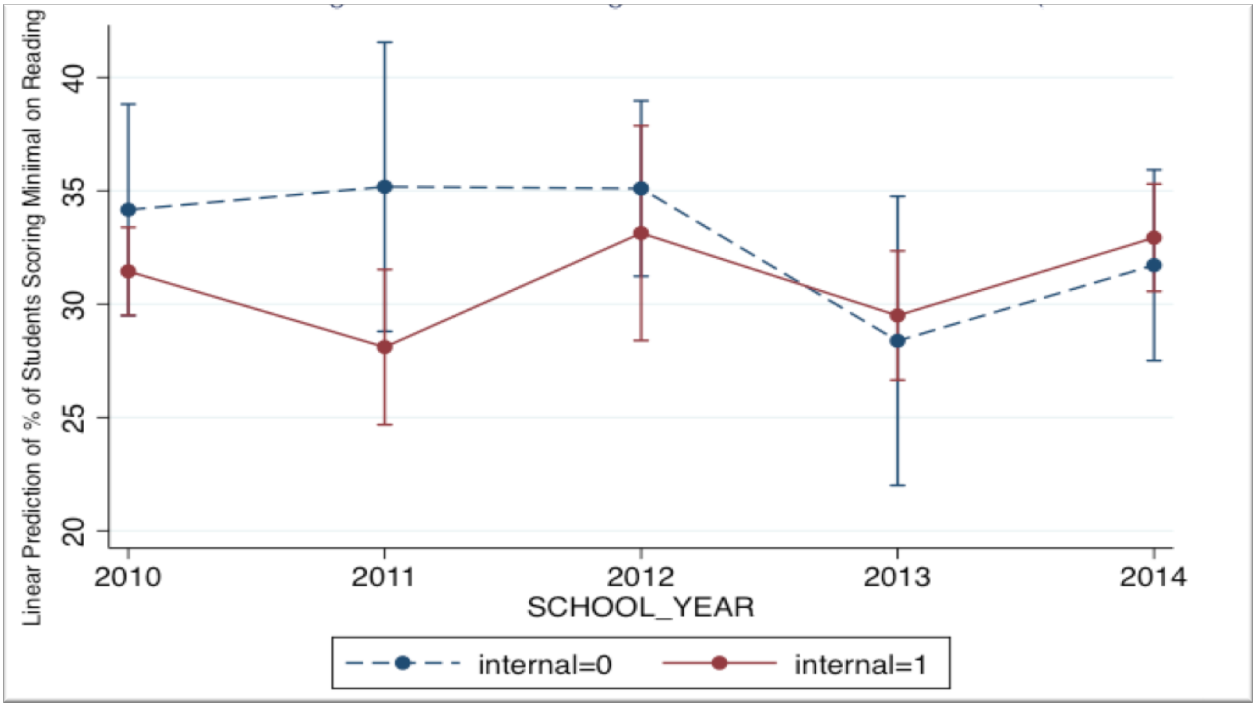

Figure 1. Percent of Students Scoring Minimal on Reading for Internal vs. External Hires (with 95% Confidence Intervals)

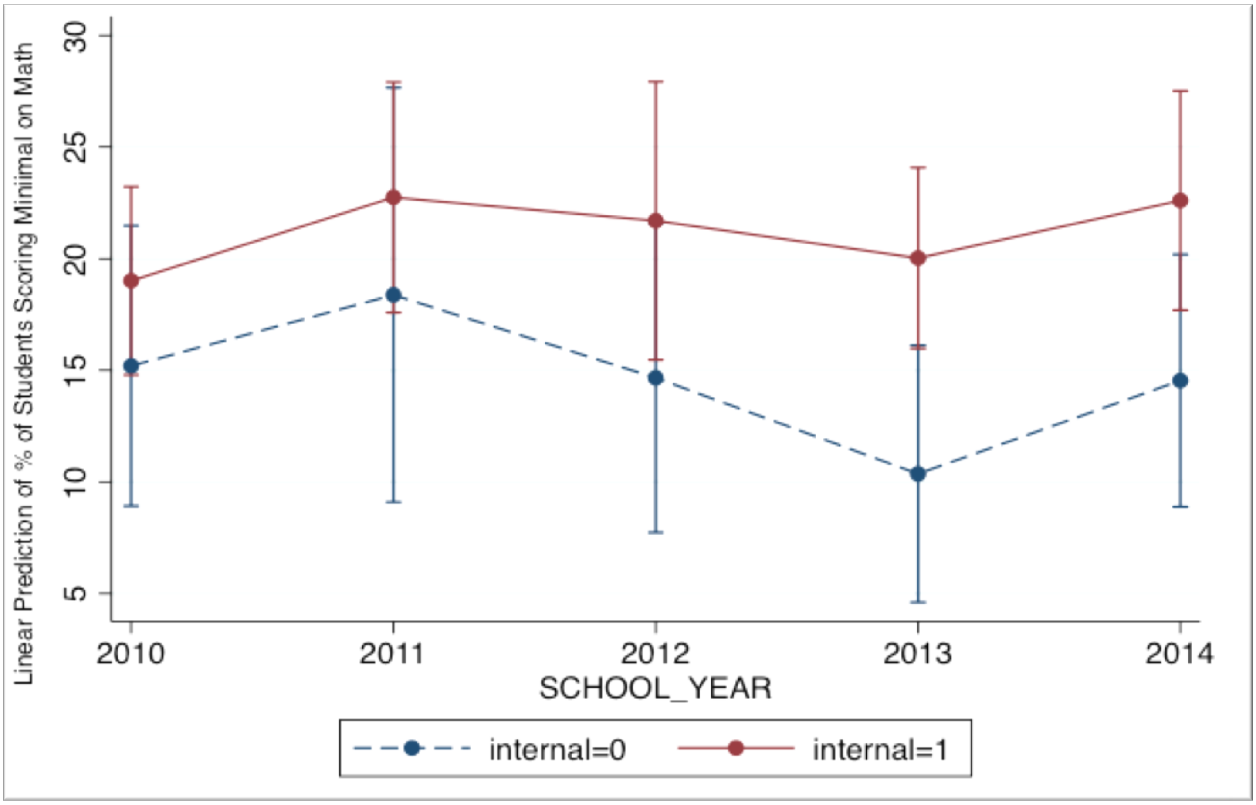

Figure 2. Percent of Students Scoring Minimal on Math for Internal vs. External Hires (with 95% Confidence Intervals)

Although schools led by internal principals and external principals experienced considerable improvement in 2013, external principals experienced more success in this given year than internal principals. For example, in the area of reading, internal principals began with a lower percentage of student categorized as minimum performers; however, in 2013, schools led by external principals experienced a percentage decrease of students identified as minimal performers and fell below the schools led by internal principals. Considering the increase in rigor of the assessment and the increase in student performance at these schools, one might assume efforts were made to ensure students were prepared for the changes to the state assessment.

The full results of our examination between hiring type and school achievement in reading and math, are displayed in Table 2. Variables that were found to statistically predict the percent of minimal reading and math at $p<0.05$ included free and reduced lunch and the percent of students with disability for both minimal performance in reading and math. While the results were in the predicted direction for free and reduced lunch in that more students from impoverished backgrounds performed worse, the percent of the school's students identified as disabled was negatively related to minimal performance, which differs from the literature.

This finding may be due to the impact of federal and public policy on the instruction of student with disabilities. The guidelines under the No Child Left Behind Act (NCLB) (2001) and the Individuals with Disabilities Education Act (2004) both provided accountability measures for student with disabilities to succeed academically or schools risked penalization (Hardman & Dawson, 2008). Therefore, one might infer that the significant achievement gains for students with disability could be due to success from efforts made to meet federal public policy, at least towards the lower end of the performance spectrum.

Table 2
Fixed Effects Regression Models of Hiring Type on Percent of School Scoring "Minimal" in Reading and Math

Variables	*Reading Coefficients*	*Math Coefficients*
Hiring Type (Internal Hire)	-2.71	3.81
	(-2.558)	(-3.996)
Enrollment	0.01	0
	(-0.007)	(-0.01)
Percent on Free/Reduced Lunch	65.00****	64.66****
	(-5.662)	(-9.939)
Percent of ELL Students	0.18*	-0.22
	(-0.091)	(-0.142)
Total Education Experience	-0.12	-0.11
	(-0.138)	(-0.238)
Highest Degree (Masters)	3.23	0.75
	(-9.45)	(3.31)
Percent of Students w/ Disabilities	-0.25**	-0.67****
	(-0.094)	(-0.125)
Total District Revenue	2.19E-09	1.22E-09
	(1.63E-09)	(2.40E-09)
2011.year	1.01	3.18
	(-2.44)	(-2.642)

2012.year	0.94	-0.54
	(-2.049)	(-2.706)
2013.year	-5.78	-4.84
	(-3.972)	(-2.926)
2014.year	-2.44	-0.66
	(-2.931)	(-2.564)
internalhire#2011.year	-4.35	0.56
	(-2.726)	(-3.16)
internalhire#2012.year	0.74	3.23
	(-2.383)	(-3.838)
internalhire#2013.year	3.83	5.86*
	(-4.122)	(-2.776)
internalhire#2014.year	3.93	4.26
	(-2.64)	(-3.152)
Constant	14.41	7.48
	(-12.912)	(-15.866)
Observations	67	67
R-squared	0.93	0.89
Adj. R-squared	0.9	0.85

Note: Robust standard errors in parentheses
**** p<0.001, *** p<0.01, ** p<0.05, * p<0.10

Discussion

While hiring type was not found to be statistically significant, this may be a function of the small sample size (e.g., 15 principals) of our study, which reduced the statistical power of our tests. That said, our sample included all elementary first-year principals in the state that were hired in 2010 and who stayed at their school for five consecutive years. Considering only 15 newly promoted elementary principals out of 26 refrained from turning over in the state, this equates to a 42% turnover rate. The statistic is noteworthy in better understanding the plight of school leaders, providing further evidence of principal sustainability issues, and indicating the need for effective administrative succession planning.

In terms of support for tournament theory, as associated with Lazear and Rosen (1981) and Chan's (1996) studies, the findings of this study provides confounding results. Considering large quantities of applicant pool data is often unobtainable, determining the number of internal candidates versus external candidates in the hiring pool to compare each candidate's level of human capital would have enabled us to better analyze this theory. In doing so, we would have been able to capture the internal tournament within an organization; however, we were able to determine the nuances between internal and external elementary principal hires who displayed sustainability (i.e., 5 years as a principal).

Dissimilar to Chan's study, this study found that within the population of new elementary principals hired in the state of Wisconsin in 2010 who remained leading at the helm of the school during the 5-year observation period, internally hired principals displayed more human capital in the areas of educational attainment and years of experience. Considering years of experience and educational attainment can influence principal performance and indirectly impact student

achievement, one would expect internally hired principals to have higher performing schools over time than external candidates in terms of lower percentages of minimally performing students. The descriptive statistics from this study supports the notion that externally hired principals had a fewer number of minimal performing students in the area math throughout the five-year study; however, in the area of reading, internally hired principals had a fewer number of minimally performing students within the first three years, but externally hired principals were able to surpass the internally led schools by 2013.

Miller (2013) indicated that after a principal turnover, new leaders can expect a decrease in student achievement for about two years before seeing a positive impact. The results of minimal math achievement for both internally and externally promoted principals as well as the results for minimal reading achievement for externally promoted principals support this phenomenon. After the two-year window, academic gains were substantial for externally promoted principals in the areas of math and reading. Although, internally promoted principals did see some improvement after year two, their growth was not as sizeable as the externally hired candidates.

Although the only statistically significant variables captured in our regression models were free/reduced lunch and students with disabilities, which is not uncommon, the trends found within our descriptive statistics concerning internal and external promotion of principals and their impact on student achievement should not be dismissed. While some can view this from the perspective that this data represents a sample in time, from a different perspective, one could argue this is population data which mitigates the relevance of a statistical significance. Nonetheless, the data from this cohort of effective principals can be used to inform hiring agents and school district decision makers. Stakeholders should know in terms of succession planning and the internal nature of leader promotion, this study found externally promoted principals demonstrated more progress in increasing student achievement in low performers than the internally promoted elementary principals. In addition, although the internal and external component was not statistically significant at or below a 0.05 alpha level, the 2013 data does indicate a marginally significant positive association ($p<.10$) between internally promoted principals and math achievement.

Future Research and Recommendations

In either perspective (i.e., population vs. sample), the descriptive data provided from this study is enlightening and provides guidance for future research. For instance, it may be beneficial for researchers to elongate the time from our study to determine whether the trends we identified in the five-year period continue afterwards. Future research should also consider increasing the sample size to all first-year principals across the nation and follow them for a designated time period. By doing this, the statistical power will increase to better identify potential statistically significant relationships between hiring type and school outcomes. Finally, to further evaluate the Tournament Theory, applicant pool data from newly promoted principals can be analyzed to capture the internal tournament between co-workers.

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