



## Principal Effects in Illinois: A Research Brief

Bradford R. White and Alex J. Bowers

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### Executive Summary

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Much attention has been paid of late to teachers' contributions to student gains (Rivkin, Hanushek, & Kain, 2005; Bill & Melinda Gates Foundation, 2010), but how big of an impact do principals have on student achievement? Compared to the research on teacher quality, the literature on the characteristics of effective principals has remained relatively untapped until quite recently (Branch, Hanushek, & Rivkin, 2009; Clotfelter, Ladd, Vigdor, & Wheeler, 2007). However, the emerging research consensus is that principal effects are both measurable and consequential (though smaller than teacher effects) and that effective principals are at least a prerequisite for highly successful schools (Creemers & Reezigt, 1996; Brewer, 1993; Wheeler, 2006). Yet research has also found that there are substantial variations in principal effects (Rice, 2010). As a result, recent studies have begun to investigate in more depth what differentiates principals who are more effective from those who are less so. In this report, we summarize recent research on the characteristics associated with principal effectiveness and examine Illinois data on the relationship between principal characteristics, student proficiency, and teacher qualifications.

#### A Review of Previous Research

In general, the research findings indicate that principal education, training, and professional development have no consistent, direct impact on student achievement gains (Rice, 2010).

Researchers have found some evidence linking principal effectiveness to measures of experience—Clark, Martorell, and Rockoff (2009) and Branch et al. (2009) both found that more experienced principals produced higher student achievement gains, especially in math. Several studies have found that school tenure (a principal's experience as a principal at their current school) appears to matter at least as much as principal experience in general (Wheeler, 2006; Branch et al., 2009). Another study revealed that, for new principals, school tenure as an assistant principal (AP) also seems to matter with regard to student achievement (Clark et al., 2009). While the overall impact of the principals is substantial, the amount of variation in effectiveness that can be explained by observable principal characteristics is relatively small, with effect sizing ranging from about .01 to about .10 (Wheeler, 2006; Branch et al., 2009; Clotfelter et al., 2007; Clark et al., 2009).

The school leadership research generally concludes that principal effects are indirect—that is, principals influence student achievement through their influence on a school's curriculum, culture, and teachers (Hallinger & Heck, 1998; Leithwood & Riehl, 2003). Recently, researchers have started to hone in on principals' abilities to attract, develop, and retain effective teachers as the most prominent mechanism by which they can improve student achievement (Brewer, 1993, Leithwood, Seashore-Louis, Anderson, & Wahlstrom, 2004; Grissom &

Loeb, 2009; Rice, 2010). For example, Brewer (1993) found that the primary impact of principals stems from making effective hiring choices, and Jacob and Lefgren (2005) found that principals affect school performance through their abilities to assess teacher quality. Although principals' academic qualifications do not have a direct impact on student achievement outcomes, Baker and Cooper (2005) and Wheeler (2006) both found that principals with stronger academic credentials tend to hire teachers with stronger academic backgrounds, who, in turn, tend to be more effective at improving student learning (Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Rice 2003; Wayne & Youngs, 2003). Other studies have found that more effective principals are able to attract and hire teachers with higher tests scores, more teaching experience, and better track records of improving student achievement (Clotfelter et al., 2007; Beteille, Kalogrides, & Loeb, 2010). Principals also have an impact on teachers' satisfaction, decisions about where to work, motivation, and working conditions (Louis, Leithwood, Wahlstrom, & Anderson, 2010; Rice, 2010), and research shows that highly rated and more tenured principals can reduce teacher turnover and teacher absences (Clotfelter et al., 2007; Clark et al., 2009). Further, Beteille, Kalogrides, and Loeb (2010) found that more effective principals were able to retain higher-quality teachers, remove less-effective teachers, and improve teachers' skills more rapidly, compared to less effective principals.

### **Our Study**

In order to investigate the relationships between principal characteristics, teacher qualifications, and student achievements using Illinois data, we use two-level hierarchical linear growth models to measure the impact of principal characteristics on growth in student proficiency and teacher qualifications over time. In these models, the first level measures within school change over time and the second level measures differences between schools in initial school achievement or teacher qualifications status. The variables included in the statistical models represent three main categories—student, teacher, and principal variables—each aggregated to the school-level, and derive primarily from state administrative records maintained by the Illinois State Board of Education (ISBE). Our

principal variables measure academic background characteristics, professional experience in Illinois public schools, and principal race. Our teacher variables are school-level measures of experience and teacher academic background. Our student variables were selected based on previous evidence of impact on achievement and include school enrollment, attendance and mobility rates, and student race and poverty concentrations. We estimate these statistical models for all Illinois public schools over six academic years (from 2000-01 through 2005-06), and we use four separate statistical models for each analysis in this study (Chicago elementary/middle schools, non-Chicago elementary/middle schools; Chicago high schools, and non-Chicago high schools).

### **Results: Principal Characteristics and Student Proficiency**

Taken together, our results indicate that principal race, school principal tenure, and graduate program Carnegie classification help to explain initial differences in student proficiency in elementary and middle schools statewide, and in non-Chicago high schools. School principal and assistant principal tenure and undergraduate college competitiveness for first year principals also explain some of the differences in school proficiency growth rates for elementary and middle schools, especially those not in Chicago. Proficiency growth rates in high schools appear to be unrelated to principal characteristics, which may be partly explained by the fact that year-to-year changes in high school proficiency during this time period were small and statistically insignificant. While most of these findings from this analysis are consistent with prior research in both size and direction of impact, the negative relationship observed between long school principal tenure (six or more years) and proficiency growth is noteworthy, and could suggest diminishing returns to extended principal school tenure spells or to age.

### **Results: Principal Characteristics and Teacher Qualifications**

Our analyses reveal significant relationships between principal graduate program Carnegie classification and both initial teacher qualifications and teacher qualification growth rates for non-Chicago elementary and middle schools. In particular, we find that

non-Chicago elementary and middle schools with principals who received their advanced degrees from research institutions have higher initial ITACs (IERC’s Index of Teacher Academic Capital) and also increase their ITAC at greater rates compared to non-Chicago elementary/middle schools with principals from masters-level institutions. These findings are consistent with prior research showing that principal academics are associated with teacher qualifications.

**Conclusions**

In sum, we find that principal characteristics have a small, but statistically significant, impact on student proficiency and teacher characteristics and, in general, our analyses of Illinois data using an HLM framework support the existing research evidence suggesting that principal experience and academic qualifications play a role in this relationship. In particular, our findings indicate that

Illinois principals’ effects on student achievement derive partially through experience as principal or assistant principal at their current school, and also that principals who obtained their advanced degrees from research universities (as opposed to masters-level institutions) have a positive association with study proficiency. Furthermore, our evidence also supports the notion that principals play a large indirect role in improving student achievement via their impact on the teaching corps. Our analyses of Illinois data suggest that principals with advanced degrees from research institutions have a positive association with improved teacher qualifications, which in turn, have a strong relationship with student proficiency. The table below summarizes our findings regarding the impact of principal characteristics on student proficiency and teacher academic qualifications.

*Summary of Findings: Impact of Principal Characteristics on Student Proficiency and Teacher Academic Qualifications*

Principal Characteristics		Impact on Student Achievement	Impact on Student Achievement Growth	Impact on ITAC (teacher qualifications)	Impact on Growth of ITAC (teacher qualifications)
Principal Experience	First Year at School (vs. 2 <sup>nd</sup> –5 <sup>th</sup> year at school)	No significant effects	Negative effect in non-CPS elem/mid schools	No significant effects	No significant effects
	6+ Years at School (vs. 2 <sup>nd</sup> –5 <sup>th</sup> year at school)	Positive effects in elem/mid schools	Negative effect in non-CPS elem/mid schools	No significant effects	No significant effects
	Years as Assistant Principal at School	No significant effects	Positive effects in elem/mid schools	No significant effects	No significant effects
Principal Academics	More Competitive Undergrad (vs. competitive)	No significant effects	No significant effects	No significant effects	No significant effects
	Less Competitive Undergrad (vs. competitive)	No significant effects	No significant effects	No significant effects	No significant effects
	Grad Degree from Research Institution (vs. masters-level institution)	Positive effect in non-CPS high schools	No significant effects	Positive effect in non-CPS elem/mid schools	Positive effect in non-CPS elem/mid schools

## Implications

With so much recent research and policy attention on teachers and teacher quality, it may be easy to overlook the fact that principals also play a vital role in the success of our schools. Because principals are so important, it is essential to focus more intently on principal quality and work to ensure that our school leaders are both adequately supported and held accountable for their effectiveness. One promising development already underway in Illinois is recently passed legislation that will encourage frequent and high-quality evaluations for all principals in the state. However, the knowledge base on effective principal evaluation is relatively slim and most districts have little experience with the task. Two recent reviews of instruments for measuring principal performance suggest that few existing assessment systems are sufficiently valid, reliable, and comprehensive (Condon & Clifford, 2010; Davis, Kearney, Sanders, Thomas, & Leon, 2011).

One possible new direction for research lays in our results indicating principals who received their graduate degrees from research institutions (as opposed to masters-level institutions) have an impact on both student proficiency levels and teacher qualifications. These initial findings

suggest that the Carnegie classification of principals' advanced degree-granting institutions could serve as a potential indicator of the quality of principal preparation programs. Further investigation is warranted to determine whether, for example, doctoral-level institutions are more effective than masters-level institutions at imparting strategies that lead to improved school outcomes, or whether research institutions simply attract candidates who are more qualified or tend to seek out more rigorous educational experiences, and that these qualities are associated with principal effectiveness.

Finally, our findings on the importance of the assistance principalship, combined with earlier findings on the increasing utilization of the AP position across Illinois (Brown & White, 2010), suggest that principal quality is improving in the state and bodes well for future success. Although rural and small-town schools may have limited capacity to justify these positions, opportunities for teacher leadership, new principal mentoring, and pre-service residencies and internships are some potential strategies that can improve future principals' chances for success, and policymakers should consider funding such capacity-building efforts to help new principals hit the ground running.

The full report is available at <http://ierc.siue.edu/iercpublication.asp>

For further information, contact the IERC toll-free at 1-866-799-IERC (4372)  
or by email at [ierc@siue.edu](mailto:ierc@siue.edu).

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