A QUANTITATIVE ANALYSIS OF ECONOMIC DISPARITIES OF 2011-2013 RURAL MISSOURI PUBLIC SCHOOL DISTRICTS AND ENGLISH 1 EXAMINATION SCORES

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by

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

A QUANTITATIVE ANALYSIS OF ECONOMIC DISPARITIES OF 2011-2013 RURAL MISSOURI PUBLIC SCHOOL DISTRICTS AND ENGLISH 1 EXAMINATION SCORES

Presented by John C. Rinehart

A candidate for the degree of doctor of education

And hereby certify that, in their opinion, is worthy of acceptance.

Professor Timothy Wall

Professor Carole A. Edmonds

Dr. Bruce Johnson

Dr. Jan Glenn

DEDICATION

To Shana, always patient, who has endured countless days alone through football coaching, administration, and the doctoral process. Someday we will get to go home. Love always.

To daughters Raegan and Addison, you will go far if you dig in and do it.

For Mom, who passed away the day after our last doctoral class. She raised me on her own, through years of illness. She loved Northwest Missouri State, earning two degrees there. A doctorate degree was a goal of hers, a wish unfulfilled. This is for her.

For Tom and Loretta who taught so many lessons.

For West Platte, Albany, Centralia, South Nodaway, Clinton, Appleton City, North Callaway, and my alma mater, Worth County. The stories in this dissertation are told every day in these schools.

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ABSTRACT

The purpose of the study is to examine the impact of economic disparity, (using assessed valuation per student, household income, and free and reduced lunch percentage) upon the percentage of students who scored proficient and advanced on the English 1 end-of-course assessment in rural Missouri school districts. Missouri schools classified as rural and that administered the English 1 exam through the years 2011-2013 were included. Regression and ANOVA tests were employed to determine relationships between economic measures and student achievement. Regression analysis indicates a significant relationship between free and reduced lunch percentage and percentage of proficient and advanced scorers on the English 1 exam. ANOVA indicates significant and small effects exist between assessed valuation and household income upon English 1 scores. ANOVA reveals a significant and large effect between free and reduced lunch percentage and English 1 scores. Clear relationships between economic measures and student achievement in rural Missouri public schools were found.

SECTION ONE: INTRODUCTION

Two mostly rural Missouri school districts illustrate the point of this paper. Both are small, with K-12 student populations under 600 (both experiencing declining enrollment), surrounded by farmland; in similarly sized communities of less than 1,800 residents a piece; and, judging from the number of school-related entries in each local paper—the focal point of each community. However, despite those rather significant similarities, the day-to-day operations of each district are starkly different. The obvious contrasts are purely economic. The difference in day to day priorities and the conversations which accompany those priorities are as different as one would expect listening to rural versus suburban or urban versus rural.

District X has an assessed valuation of about $37,000,000. The property and personal tax levied by the district sit at a rate of approximately $4.48 per $100 of assessed valuation. That rate of levy delivers about $1.6 million in revenue out of a total budget of close to $4.9 million (District X FY 2015 Budget). The district has operated frugally, and years of careful management by the Board has allowed the fund balance (money in savings) to grow to $1.3 million, or approximately 28% of expected revenues.

The comparison district has an assessed valuation of $194 million, tax levy of about $4.10, and levy revenues of about $9 million (District Y FY 2015 Budget). The district expects to see approximately $11.5 million in total revenues in FY 2015, according to the official budget, and sports a fund balance of just over $23 million, or over 200% of expected revenues. This district could, in theory, not collect a dime for over two years, and maintain all staff and programs uninterrupted.

While a drive through each community, and surrounding agricultural land, would not obviously reveal great differences in the two communities, there are two glaring advantages District Y enjoys. The first is a coal-fired electrical generation plant, the second is geography.

The power plant site is adjacent to a tall river bluff just outside of town. The constant billows of white steam, and the almost endless parade of coal-loaded trains that supply the plant with fuel, are obvious and colossal reminders of a great economic engine that churns up prosperity for the school—as a great deal of the $194 million local assessed valuation, as detailed in the District Y FY 2015 Budget, sits beneath those white vapors which constantly and elegantly rise into the endless blue Missouri sky.

Geography is also a powerful advantage. While the community looks and feels much like countless other small Missouri towns, the village itself sits a mere six miles from a major interstate and within a thirty-minute drive of a major metropolitan area and two other large communities of 40,000 and 70,000 plus people, according to data from the US Census. Carr and Kefalas (2009), and Longworth (2008) cite proximity to metropolitan, or at least large towns, and their multiple employment opportunities, as economically advantageous for small rural communities.

These two advantages are the difference between educating 400 plus kids on $4.9 million, according to the District X FY 2015 budget, and 500 plus kids on $11 million, per the 2015 District Y budget. Some simple math reveals the typical District X student has about half spent on their education than the typical District Y student. Traditionally, District Y produces solid student achievement. District X often struggles. This is a study as to whether economics plays a central role in rural school student achievement.

Realities of rural communities and school districts

Carr and Kefalas (2009) and Longworth (2008) all lament the erosion of rural Midwestern communities. The increased mechanization of agriculture (requiring fewer farmers and hired hands) and the flight of industry (and attendant factory jobs) from the Midwest are highlighted by those authors as the two most common culprits of rural population recession. Certainly both communities mentioned thus far are experiencing declines in student populations, as a review of enrollment data on the Missouri Department of Elementary and Secondary Education (DESE) website will reveal.

However, one community has advantages the other does not. Especially as pertains to supporting the local public Pre K-12 school district. This contrast exposes, in real terms, the discrepancies which may exist in the mechanisms Missouri utilizes to fund public schools. These possible discrepancies may be the basis for a condition of inequity in state education funding.

Many states, Missouri among them, have been identified as perhaps too reliant upon localities to shoulder the burden of funding public schools. A long list of researchers including Roscigno, Tomaskovic-Devey, and Crowley (2006); Debertin, Clouser, and Hule (1986); Strange (2011); Christie (2001); Baker, Sciarra, and Farrie (2010); Johnson, Showalter, Klein, and Lester (2014); Maiden and Stearns (2007); Johnson and Maiden (2010); Moser and Rubinstein (2002); Strike (2008); Wallin (2007) and Giannini (2009) point to the idea that rural schools are generally left to their host communities to secure resources, and those resources are generally quite less than found in suburban or even urban areas.

Furthermore, the current system of funding, according to Roscigno, Tomaskovic-Devey, and Crowley (2006), produces an inequitable educational experience in rural schools versus their counterparts—especially in suburban areas. Concerns of the adequacy, as defined by Straub and Hoffman (2015), as a minimal baseline of resources required to educate a given student, of rural education are raised by Strike (2008). The conditions of inequity result in areas too poor to shoulder the heavy burden of providing a first class education to their children. Rural taxpayers, in impoverished areas, are required to dig deeper to maintain a semblance of modern education.

Education is a function of individual states. Rowe (2009) correctly notes the Missouri Constitution mandates state government provide mechanisms and funding for public schools within the state. However, Missouri, like many state governments, has seen litigation filed, especially by rural schools, in pursuit of equitable funding and attendant mechanisms. Rowe (2006), Buszin (2013); Lauver, Ritter, and Goertz (2001); and Grider and Verstegen (2000) all chronicle attempts of rural or non-urban schools to find judicial relief for a perceived dearth of educational resources.

Recruiting and retaining quality teachers is an acute challenge of rural schools. This condition is illuminated by Christie (2001) and Strange (2011). Substandard teaching talent may result in lower than optimal student achievement suggested Debertin, Clouser, and Hule (1986). Bradley, Werth Jr., and Hastings (2012); Roberts and Green (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Cuervo (2015); Wallin (2007); Israel, Beaulieu, and Hartless (2001); and Payne (2003) all lament a perceived achievement gap ensuing to resource-poor schools and resource-poor families.

Strange (2011) identifies the rural drop-out rate as higher than in suburban schools. Whether this condition is more influenced by deficient family support or from something lacking in resource deficient schools, or perhaps both, is a line of conjecture unfound in the literature. Certainly a case can be made rural schools do not deploy as many resources to bear as their suburban counterparts, and a case can be made that rural schools lose a higher percentage of students as drop-outs. However, a statistically significant relationship which would link those two conditions as resultant of one or the other influence is not apparent.

Importance of study

This study is important for the following reasons: one immediate, one more long-term. If rural Missouri schools are suffering from resource inadequacy perhaps we are inadvertently consigning a generation of our students to poor achievement—and perhaps a resultant lifetime of economic disadvantage or a continuation of what Payne (1996) terms "generational poverty" (p. 64). As Payne states "education is the key to getting out, and staying out, of generational poverty" (p. 79).

Missouri may contribute, inadvertently, to the rural "brain drain"—or the flight of educated and/or skilled people from rural areas, as Carr and Kefalas (2009) and Longworth (2008) have identified. The result of the "brain drain" is further erosion of local economies. As mentioned heretofore in the comparative examples of two rural Missouri school districts, an eroded local economy provides much less financial support than more prosperous communities.

Perhaps equitable resource allocation in Missouri rural public school districts can help to ameliorate generational poverty and the brain drain. The economic benefits of

such a result would undoubtedly prove beneficial to individual communities and the remainder of Missouri.

Statement of Problem

Relatively little is known about the connection between a local economy in a rural Missouri setting and the educational performance or achievement of school districts within that local economic context. Absence of local economic activity may correlate to resource inequities inherent in the state-wide educational system and fall to local communities to address adequacy and equity concerns as best they can. If rural Missouri schools are at a resource disadvantage compared with their suburban and urban peers, and their local economic activity does not allow for amelioration of those disadvantages, there may be in place a system which inadvertently perpetuates student performance at lower-than-desired levels.

Additionally, economically disadvantaged rural communities may come with numerous individuals who exhibit accompanying maladies that negatively influence academic achievement. Compromised resource availability at the family level contributes, as shown by Payne (1996), to a lack of achievement. As rural areas see an increase in impoverished students, systemic achievement will become harder to realize. If these factors can be compensated for within the local education system, the remedies may be beyond the fiscal reach of financially struggling school districts.

Finally, if a robust local economy is prerequisite, or positively influential in any manner upon rural student achievement, methods to stimulate rural economic activity may be necessary to study—however counterintuitive to the Pre K-12 establishment. If ubiquitously high student achievement is considered a worthy pursuit in Missouri, and

healthy economic activity somehow positively influences student achievement, then those who administer schools are duty bound to find ways to contribute to local economic well-being.

The problem under investigation is economic disparity and the impact upon student achievement in Missouri. If individual school districts are largely dependent upon local sources for revenue, as the literature suggests, then is there a difference in educational achievement between rural communities of differing levels of affluence? If certain schools can bring pertinent resources to bear due to their economic advantage, and those resources translate to increased student achievement, then the funding mechanism in Missouri may merit some revision.

Purpose of the Study

The problem under investigation is how dependent rural Missouri school districts are upon their surrounding local economic environment in terms of student achievement. The overarching purpose of Pre K-12 education is the stimulation of student learning. The challenges inherent to such an effort are many in number and diverse in impact. If such a link can be proven between local economics and corresponding local student achievement perhaps strategies to compensate can be devised.

Assuming disadvantages extant to a given locality exist, and strategies to ameliorate those disadvantages to stimulate student achievement exist, this study will attempt to identify rural Missouri school districts who may enjoy some success in this vein. While the effects of poverty upon individual students, and the impact a large percentage of impoverished students has upon the total achievement of local educational organizations, are topics which have received much examination—there are few

comparisons of advantaged rural communities to disadvantaged rural communities. According to DESE, the state of Missouri has in excess of 520 school districts. Johnson, Showalter, Klein, and Lester (2014) identify nearly 61% of those districts as "small rural districts" (p. 66). Hence six in ten of all superintendents in Missouri Pre K-12 education are immersed in the environments germane to this study. The purpose of this study is to provide superintendents with information to stimulate the best education possible to their charges.

More esoterically, perhaps this study will provide impetus for policymakers to consider equity issues when apportioning state aid. Imaginably, serious consideration of the conventional wisdom that rural school funding is largely left to localities to independently concern themselves with equity and adequacy will be examined more closely. Conceivably any policymaker interested in these issues can be better informed by the results and data unearthed by this study.

Research Questions

Given those thoughts and purposes three research questions emerge and beg answering.

RQ 1: What are the descriptive statistics of 2011-2013 Missouri rural public school student achievement and economic measures?

RQ 2: Is there a difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre K-12 rural school districts with low, moderate, and high economic resource levels.

H_O2: There is no difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre K-12 rural school districts with low, moderate, and high economic resource levels.

RQ 3: What economic factors relate to increased student achievement on the English 1 end-of-course examination in Missouri rural public schools?

If a difference does, in fact, exist, can academically high performing schools be found within a context of low local economic power?

Conceptual Framework

Economic disparity and impact on education

Economic disparity, in the many forms it can take in school and community, and the effects of such in rural areas upon educational achievement, are the lenses through which this study, and any results discovered from it, are to be viewed. Peters (2013) stated post-industrial capitalist countries often see an increase in income disparity. The dual factors of industry flight to cheaper surroundings and automation (requiring fewer workers) are listed by Peters (2013) as stimulants of economic woe by those displaced by these conditions. Longworth (2008) echoed those concerns specific to rural areas. As mentioned, DESE data tracks steady and significant progress in the percentage of Missouri students qualifying for free and reduced lunch.

Accumulated impact of economic disparity

The accumulated impact upon the local educational product, assumed to be less than positive, is the overarching quest of this study. Poverty, as elucidated by Payne (1996), can cripple the educational career of young people who find themselves in that condition. Educational attainment, of some sort, is presumably necessary to access some sort of economic opportunity. If poverty serves as a deterrent to educational achievement, as proffered by Jackson (2007) and Payne (1996); and poverty is symptomatic of economic inequality naturally generated by maturing capitalist systems,

as Peters (2013) stated, and rural areas, are hard hit with inequality by their susceptibility of those forces as Longworth (2008) insisted, then rural schools have their hands full.

The bottom line for any school district, regardless of resources, is student achievement. Payne (1996); Bradley, Werth, and Hastings (2012); and Roscigno, Tomaskovic-Devey, and Crowley (2006) all note poverty, and the accompanying sociological maladies associated with poverty, can prove provide drag on an impoverished student in terms of their academic achievement. Payne (1996), in particular, asserts children growing up in poverty may lack in attendant resources not necessarily related to money including: "emotional resources", "mental resources", "spiritual resources", "physical resources", "support system", "role models", and "knowledge of hidden rules" (p. 16). The dearth of these resources, which often accompany financial poverty, for whatever reason, contribute greatly to sub-par student achievement.

As such, those assumptions, gained from an understanding of the literature, are the lens to view the specific problem of rural economic inequality. If a rural economy is more likely than urban or suburban environs to succumb to negative economic forces and resultant drops in student achievement, then an understanding of those forces and their eventual impact upon local public schooling is imperative for a school administrator in such an environment to understand.

Disadvantages inherent to rural schools

Rural communities, as explained by Carr and Kefalas (2009) and Longworth (2008), are presented certain challenges of economics, talent flight, and geography. Certainly, it stands to reason, Pre-K-12 public school districts residing in rural areas are

confronted with the same challenges as their host communities. The local economy largely determines availability of locally sourced revenue—in Missouri by way of the tax levy. While some rural schools enjoy a tax base sufficient to fill in budgetary holes state and federal funding are incapable of filling, many rural schools have a tax base similar to their vacated town squares. Longworth (2008), in particular, bemoans the loss of economic activity in rural areas—particularly in manufacturing—long a bearer of substantial school funds.

All these separate sources explain a plight of rural education. As rural economies lost, and continue to lose, their diversity from receding manufacturing concerns and automation, those left behind can drift into poverty. As rural economies lost their diversity the tax base to support the local school also began to recede. As well-to-do (or at least the talented and educated) rural families fled to the suburbs, the suburbs became flush with families dedicated to educational success. Already poor families, native to rural areas, generally stayed behind. Their legions reinforced by the newly displaced manufacturing and agricultural workers whose livelihood was lost to globalization or automation.

Affluent rural families and support for achievement

Children born and raised into fortunate economic situations have certain advantages. Jackson (2007) insisted those children gain "more opportunity to garner positive developmental experiences" (p. 60) than children born into homes with modest opportunities. Academically, children of privilege, as a group, generally outperform their more hardscrabble schoolmates. Children from more modest backgrounds also tend to,

as lamented by Jackson (2007), "have more opportunity for negative" (p. 60) experiences, or experiences which detract from the ability to achieve.

Paucity of resources leads to inadequate familial investments in education. Roscigno, Tomaskovic-Devey, and Crowley (2006) note small investments may yield low achievement. Rural schools in Missouri are confronted with more poverty each year. A view of the DESE website reveals the free and reduced lunch rate (traditional measure of poverty) in Missouri public schools rose from 41.7% of school children in 2005 to 50.3% in 2014. As rural schools fill up with more impoverished children it would seem logical if student achievement began to recede in schools burdened with higher percentages of free and reduced lunch children. Certainly, an understanding of the phenomenon of increasing rates of free and reduced lunch qualifiers in rural Missouri schools, and the implications on student achievement, are important lenses with which to understand rural schools.

A compelling rationale for continued research into this topic is found in a line of logic emanating from Dupere, Levanthal, Crosnoe, and Dion (2010): stable and affluent families tend to coalesce around each other. Stable and affluent families, insist Dupere, et al (2010) and Konstantopoulus (2006), tend to produce children who prove to be successful students. Families may benefit from education as to best practices to adopt in the educational rearing of their children. Resources attendant to a family or cluster of families positively influence student achievement. Another significant influence on student achievement is the proficiency of the classroom teacher.

Affluent rural school districts and teacher quality

Rockoff (2004) stated empirically that teacher quality positively impacts student scores on achievement tests. School districts, like other industries, compete for the best talent. Where the best teachers choose to practice has been the subject of some scholarly investigation.

School districts who enjoy abundant financial resources can positively impact the educational experience of their students in fundamental ways. Economically prosperous schools, by attractive compensation packages, are competitive for top-shelf instructional talent. Christie (2001) and Strange (2011) note this phenomenon, as well as the success more affluent schools enjoy in retaining such talent. Quality teaching is responsible for quality education, and resource-poor schools struggle pairing great teachers with their neediest kids, as noted by Debertin, Clouser, and Hule (1986).

Rural schools often struggle to attract and retain instructional talent as Christie (2001); Debertin, Clouser, and Hule (1986); Gibbs (2005); and Strange (2011) observed—the rural school equivalent of the "brain drain" as identified by Carr and Kefalas (2009) so common to rural areas. The flight of top teaching talent to the suburbs certainly affects rural schools, as anyone who has been an administrator in such a school can attest. This phenomenon is tantamount to a rural community losing the town doctor, pharmacist, or veterinarian. Sometimes talented people simply cannot be replaced once they leave. Teachers are often replaced physically, if their talents are possibly unrealized by less gifted successors. Thus, rural students are sometimes placed into classes with subpar instructors as Debertin, Clouser, and Hule (1986) lamented.

Salary is often a driver of teacher relocation as stated by Guarino, Santibanez, and Daley (2006). Rural schools struggle to retain teachers as observed by Christie (2001) among others. These two statements, merged, would suggest rural schools are less lucrative and therefore struggle to attract and retain top-shelf instructors.

The Missouri State Teachers Association (MSTA) annually publishes salary information in the *Salary Schedule and Benefits Report*. A look at the 2015-2016 version reveals the St. Louis and Kansas City metro regions sport a base (or starting) salary of $36,992 when the two regions are combined. The metro areas include counties which encompass not only St. Louis and Kansas City proper, but also many of the suburban areas encircling those respective cities. The remainder of Missouri, consisting mostly of out-state areas, averages $30,304 for beginning teachers (MSTA, 2015).

Using those numbers, base salaries are 22% higher in the metro areas of Missouri. The differences in salary between a random rural school and a random suburban school, within the metro area as designated by MSTA, may be more pronounced. A new teacher, applying to a rural, northwest Missouri, school labeled Frank High School, with a base salary of $28,100 would make $35,500 as a first-year teacher in Jesse High School-located nearer the Kansas City metro area. That is a difference of $7,400 and 26%. Common sense would suggest Jesse High would attract and retain teachers with greater success than Frank High. Guarino, Santibanez, and Daley (2006) may state the case more flatly that Kearney enjoys advantages in the pursuit of instructional talent over less affluent and rural peers.

This research may be valuable in highlighting the ongoing struggle rural schools have in delivering quality education. If the logic suggested by Guarino, Santibaniz, and

Daley (2006) and Debertin, Clouser, and Hule (1986) holds, this would imply a funding discrepancy between rural schools and schools within more affluent regions. Addressing this discrepancy by equity or adequacy measures may be better justified by an understanding of the lessons of this research.

Great teachers may indeed gravitate towards wealthy suburbs. Once they ascend to suburban heights they may observe differences beyond a larger paycheck. The general program offered by larger and more affluent schools may be more varied, rigorous, and engaging than found in rural areas.

Affluent rural schools and curriculum

A varied and rigorous curriculum may correlate to increased post-secondary outcomes. Kelly and Sheppard (2009) found the mere inclusion of physics into the high school spate of course offerings increased the likelihood of the students of that school to eventually graduate and matriculate to college. In this small but apparently powerful example of diverse curricula Kelly and Sheppard (2009) illustrate one effect affluence has upon the curriculum and eventual outcomes.

Concurrent to the struggle to attract and retain the best teachers, resource-poor schools often offer a narrower curriculum than more affluent schools. Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich, Garcia, and Nolly (2004) all detail this tendency of resource-poor schools. Because students in those environments may not be exposed to as diverse and rigorous curriculum, as compared to more affluent school systems, achievement suffers. Students who do not have access to physics, for example, will have a difficult time scoring well on assessments which probe for knowledge in that content area.

A comparison of our two schools from the previous section may illustrate the differences in academic offerings. Jesse High School, per their website (http://khs.ksdr1.net/), sports ten courses classified as Advanced Placement and another eleven where students can earn dual high school and college credit. Frank High School has no mention of Advanced Placement in their online description of course offerings (http://wc.k12.mo.us/HIGH%20SCHOOL.html). There are six semester-long dual credit courses available at Frank High.

Certainly, suburban Jesse High School possesses a more comprehensive academic program when looking purely at college credit fare. Over three times as many opportunities exist for Kearney students to earn college credit while still in high school. Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich, Garcia, and Nolly (2004) explained the likelihood of just such a phenomenon. This increased fare of post-secondary offerings would suggest not only a more comprehensive academic program, but perhaps more rigorous as well.

Aikens and Barbarin (2006) lament that resource poor schools, populated with children from resource poor families, often inundate the remedial and intervention structures a given school has. The premium placed on remediation and intervention, suggest Aikens and Barbarin (2006), consume resources that could be used for broadening and enriching the curriculum. Such is the plight of poor schools.

The compelling argument for this study is the possible improvement of rural (especially rural and impoverished) programs of study, or the accumulated experiences of to which a given student may be exposed. Aikens and Barbarin (2006), Kelly and Sheppard (2009), Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich,

Garcia, and Nolly (2004) all detail the phenomena of increased academic opportunities sported by affluent schools. Improving the quality of all schools, including rural schools, is a worthwhile goal which may be informed by the findings of this study.

Long, Iatarola, and Conger (2009) found nearly a third of the lack of readiness, in some groups, for college level mathematics could be explained by the highest-level course taken in high school. Course availability, as explained, can be largely determined by the socio-economic status of a school. Long, Iatarola, and Conger seem to reinforce the thoughts of Kelly and Sheppard (2009) that the absence of certain advanced courses may inhibit the ceiling of academic achievement in high school and beyond.

Design of Study

Setting and Participants

Rural Missouri Pre-K-12 school districts and their host communities will serve as the setting for the study. Johnson, Showalter, Klein, and Lester (2014) identify nearly 61% of the 520 plus Missouri school districts as "small" and "rural" (p. 66)—constituting 29.2% of all Missouri K-12 students. This should provide fertile ground for data collection.

The National Center for Education Statistics (NCES) provides definitions of "rural" and identifies school districts as rural or not. These criteria are used to determine Rural Education Achievement Program (REAP) funding eligibility and will be used for this study to define a rural school district as one having a locale code of seven or eight and a student population under 600 or located in a county with a population density of less than ten people per square mile (REAP Manual, 2003).

Pre-K-12 school districts will also be the focus of the study. While Missouri has many K-8 districts, this study will be preoccupied with schools large enough for a full span of grades. This will allow for direct achievement data comparisons, as K-8 districts will not have end-of-course data extant to the period of the study—2011-2013.

Schools which meet criteria to be studied: located in Missouri, defined as rural, and span Pre K-12 will be the participants in this study. Data will be collected per the list of variables listed in the Conceptual Frameworks section. Primarily of interest will be data concerning indicators of relevant affluence or poverty; and measures of student performance.

Data Collection Tools

Data will be gleaned from three primary sources for this study: The Missouri Department of Elementary and Secondary education website, United States Census Data web database, and the National Center for Education Statistics web database. Data will be collected at the District level for the years 2011 through 2013. As such, there will be no individual identification of any student possible.

DESE (www.dese.mo.gov) will be the primary site to access student performance data. End-of-course English 1 test results will be utilized. English 1 is primarily given to sophomores. As juniors and seniors have reached an age of legal drop-out, the sophomore year in generally the last year most students in a cohort will all be tested. Unlike the ACT, which during the years extant to the study, which is mostly taken by college bound students, English 1 will capture data from all students regardless of post-secondary ambitions. Because the overwhelming majority of students will be represented English 1 test results will bring a general understanding of academic growth through the

latter portion of the freshman year. The freshman year is often the last year most students take essentially the same courses. The dizzying array of course choices that open up the last three years of high school can make direct comparisons difficult. The English 1 end-of-course test will be a good measure of overall proficiency in communication arts skills for Missouri rural public education students.

The DESE website (http://mcds.dese.mo.gov/quickfacts/Pages/District-and-School-Information.aspx) will also be utilized to collect data relevant to school finance. Assessed valuations for all school districts in each year of the study are available in the DESE database. Percentage of free and reduced lunch students can also be readily accessed from the DESE database.

U.S. Bureau of Economic Analysis (http://www.bea.gov/regional/bearfacts) will be used for gathering income data for relevant counties. This will help to paint a fuller picture of overall community economic health and to draw relationships between unemployment, income, and assessed valuations. One factor may be somewhat more impactful on eventual student achievement than others.

National Center for Education Statistics data will be utilized to identify rural districts, per REAP criteria. The NCES website can pinpoint, by map, all rural districts within the state of Missouri. Once identified the above data sets can be accessed and data for variables collected.

Data Analysis

First rural Missouri Pre-K-12 school districts will be ranked using the various measures of student performance. Performance measures will be compared to national and state averages. Districts performing above those benchmarks will be considered high

performing. Districts performing under state and national averages will be considered low performing.

Rural Missouri Pre-K-12 school districts will also be ranked per measures of affluence. Lists will be constructed for assessed valuation, free and reduced lunch percentage, and median income. Districts will be grouped per low, moderate, and high economic status.

Reliance of a rural school district upon local revenue sources will be examined. Percentages as found on the Missouri DESE website, specifically on the Annual Secretary of the Board Report, of local revenue of the total budget. As Rowe (2009) maintains, Missouri prefers local districts to shoulder much of the financial burden. Perhaps wealthier districts are funded at higher percentages locally.

Once all the data are collected, data analysis software in Microsoft Excel will be utilized. Correlation and regression analyses will be performed. Field (2013) recommends using correlation analysis to determine mathematical influences of variables upon an outcome. Field (2013) also recommends utilizing a multiple regression calculation when attempting to determine the variable with the most statistical impact upon an outcome. Plotts (2011) utilized similar methods in a study to determine superintendent longevity upon student achievement.

Of great interest, will be to determine statistically if measures of local economic flowering translate into increased student achievement. While this study, if such relationships are indeed found, cannot identify with certainty any causation among variables, it can illuminate relationships that appear to correlate to high achievement. A

multiple regression, as recommended by Field (2013), will be utilized to discover and quantify those interactions.

Correlation analysis, suggested Field (2013) can find those relationships. Multiple regression analysis, in a manner consistent with recommendations made by Field (2013), will be performed to find which, if any, factors of relative affluence, or poverty, are most impactful. While no causation can be assumed or implied from the results of this analysis, the degree by which an economic variable appears to influence a specific student performance data point will be fascinating to uncover—should such a condition exist at a statistically significant level.

Field (2013) suggested an analysis of variance (ANOVA) test, or a comparison of means, may be an appropriate statistic. The study is attempting to determine which, if any, economic conditions, of the several mentioned, have a greater impact upon student achievement. Ashby, Sadera, and McNary (2011) utilized an ANOVA to study modes of mathematical instruction.

Wall (2008) stated there are correlations between results of standardized tests. Edmonds (2014) inferred the predictive nature of various standardized assessments to one another. Given these sentiments English 1 end-of-course scores will be assumed to be transferable to the general concept of student achievement, and somewhat predictive, as suggested by Wall (2008) and Edmonds (2014) of general student performance.

Variables

For this study the following variables will be used:

1. Assessed valuation per student (measured by average daily attendance). This is an independent variable.

2. Free and reduced lunch percentage (FRL) per district. Also an independent variable.
3. Median household income in rural Missouri counties which host Pre K-12 school districts. This is an independent variable.
4. End-of-course English 1 test results from Missouri Pre K-12 school districts inclusive to the years 2011-2013. This is the dependent variable.

Limitations, Assumptions, and Design Controls

Limitations

The use of English 1 examinations may prove limiting. Not all schools utilize the assessment, as it is not, extant to the period of the study, part of the required regimen of testing as stipulated by DESE. The English 1 exam does not, obviously, measure student proficiency in other subject areas, and may be a rather narrow view into achievement.

Assessed valuation infers the relative material wealth within a school district. Assessment does not reveal whether that wealth is concentrated or dispersed throughout the district population. It is possible for a school district to sport a rather high assessed valuation, but still serve a rather poor student population in terms of household income.

Assumptions

Uniform student effort and motivation is assumed. The use of three years of assessment data, which will be averaged, should help to equalize any differences in motivation among different groups of students. While some groups are likely more invested in achieving high scores than others, it is assumed all put forth the same general effort on the assessments.

Economic and demographic data collected will be district-level data. Three years of achievement data will be utilized—from three different sets of students, yet a guarantee cannot be made that the percentages of free and reduced lunch students, for example, will follow precisely the percentages of the entire district for that period. For this study the assumption will be the tested populations look like the entire district population.

Design controls

Three years of English I data will be used. Rural schools tend to have small student populations. Thus, achievement scores can see extreme volatility in rural schools as some grade cohorts include larger numbers of high achieving (or low achieving) students than cohorts within the same school. Three years of data should include enough students to reflect the actual proportions within the population of the district and provide an accurate picture of actual achievement occurring in each district.

Economic features of school district populations and valuations will be used to categorize schools. The data will be used to coalesce school districts into one of three economic categories. School districts will be classified as high, moderate, or low, per comparative economic health or strength.

Definitions of Key Terms

DESE. Acronym for the Department of Elementary and Secondary Education. DESE regulates education in the state of Missouri (DESE, 2015).

Assessed Valuation or AV. "The value of a property as determined by an appraisal conducted by a municipality (The Free Dictionary, 2016)". AV is composed of real property (e.g. land and buildings) and personal property (e.g. cars and tractors).

End-of-Course or EOC. "End-of-Course assessments are taken when a student has received instruction on the Missouri Learning Standards for an assessment (DESE, 2015)".

Analysis of Variance or ANOVA. "Statistical procedure that uses the F-ratio to test the overall fit of a linear model. In experimental research this linear model tends to be defined in terms of group means, and the resulting ANOVA is therefore an overall test of whether group means differ (Field, 2013)".

Multiple Regression. Statistical procedure "in which an outcome is predicted by a linear combination of two or more predictor variables (Field, 2013".

Disparity. "The condition or fact of being unequal (The Free Dictionary, 2016)".

Adequacy. "The total amount of local and state resources available for the education of children should be sufficient should be sufficient to give each child an opportunity to achieve state standards (Straub and Hoffman, 2015)".

Equity. "The quality of a child's education should not be solely determined by the level of resources available at the local level (Straub and Hoffman, 2015)".

Free and Reduced Lunch or FRL. "The number of children eligible to receive free or reduced price lunch at school (Kids Count Data Center, 2016)". FRL eligibility is generally an indicator of poverty.

Levy. Taxes collected locally by school districts, based upon assessed valuation and level of tax rate (Straub and Hoffman, 2015).

Significance of Study

Scholarship

Graduate institutions who seek to prepare those venturing into school administration may find the lessons of this study instructive. The overwhelming majority of Missouri school districts are rural. Logically, many of the school administrators in the state are located in rural areas. Nascent administrators who may seek to "move up", will be moving up from small, rural districts. Large numbers of school leaders are, or will, work in rural districts at some point in their career.

Preparing prospective administrators to thrive in rural environments will require an understanding of the rural condition. Many graduate school administration programs require (including this one), rightly, the advancing student to become acquainted with the diversity found in urban or even suburban environments. How many graduate level administrator preparation programs feature courses specific to rural education issues? How many rural administrators are cognizant of the rural condition, but are uninformed as to the causes and prescriptions of rural challenges?

Perhaps it is ironic that administrators-in-training study the craft in places such as Maryville, Cape Girardeau, and Joplin, often on campuses within sight of agricultural land, never really examine the localities in which they serve. A contention can be made in a state like Missouri, with wide expanses of countryside, that such information is essential to school administrators. In this manner, a study such as this may be useful as practical enrichment to graduate programs for aspiring school administrators.

Practice

This research could have far reaching impact on educational leaders who serve in rural Missouri Pre-K-12 school districts. As mentioned previous, most of the school districts in Missouri are classified as rural. Many more superintendents, who are charged with the financial and academic health of their school districts, work in rural schools than any other classification in Missouri. The sheer number of school leaders who can relate to this discussion will be large in this state.

Many states, including Missouri, have seen litigation brought by rural schools who seek to equalize state funding. If economic equality indeed translates to student achievement, the argument for equity in funding, and other attendant resources, becomes an easy case to make. Perhaps conversations to grow local economies could be stimulated by these discussions. At any rate a fair and adequate support system for Missouri public education, for rural, suburban, and urban, schools is a laudable goal. If such a goal could be accomplished without litigation, thereby enriching our students instead of a multitude of trial attorneys, then this study will truly prove beneficial to every resident of Missouri.

The institution of District Y will benefit from this study. While school funding concerns are not prevalent at the moment, declining enrollment is a problematic development for District Y. Also, as the student population declines, the percentage of free and reduced lunch qualifiers inches up, as it is all over Missouri. While school resources are not a worry, familial resource deprivation is pushing into concern in District Y. This research is important to any rural school in Missouri experiencing the same demographic shifting.

The body of educational literature can also be enriched. Volumes can be discovered comparing affluent versus poor and urban versus suburban. However, little is found germane to rural concerns exclusively. The nuances between rural schools, of which there are many, are largely unexplored. It would seem small, rural, schools would be the ideal laboratories for research. Gains or retreats due to certain variable influences would seem to be easier to find and control in smaller environments. Rural schools should and could be the hotbed for educational research instead of the backwaters they can sometimes be, in terms of application of educational innovation. More information about rural schools should be available—especially to Missouri superintendents, as most in that position will find themselves leading such a district at some point in their careers, in all probability.

Summary

This study will set out to explore the assumption that rural schools are largely reflections of the overall economic health of their host community. Economically ambitious, and advantaged people, may tend to raise children with the same characteristics and advantages. Those children may achieve at higher rates than their peers unburdened with such advantages as Payne (1996) and Jackson (2007) observed and suggested. Economic health may contribute to family stability—which may also have great impact on student achievement.

If resource scarcity is indeed negatively impactful upon student achievement, we are duty bound to explore methods to make our rural public schools equitable with each other in terms of resource availability, and to provide something beyond adequacy for all the students in Missouri. If resource scarcity is indeed negatively impactful upon student

achievement, we are duty bound to encourage rural communities to search for ways by which they can be the ground for fertile and innovative economic growth practices—perhaps the basis for future studies.

SECTION TWO: PRACTITIONER SETTING FOR THE STUDY

Johnson, Showalter, Klein, and Lester (2014); Baker, Sciarra, and Farrie (2010); and Moser and Rubinstein (2002) suggested the state of Missouri lags much of the nation in measures of educational equity, or the equal distribution of resources across the state pre-K- 12 educational system. An equitable system would mean each student in the state, and the schools they attend, would have roughly the same resources devoted for education.

According to fiscal year 2015 school budgets from District X and District Y funding for Missouri public school districts utilizes revenue from four sources: local tax levies; county taxes; revenue from state of Missouri; and federal revenues. Local and county revenues are largely dependent upon the relative economic heft of the political subdivision of the school district. Comparing District X and District Y reveals District Y has a much larger assessed valuation, or more real and personal property value available to assess. This results in District Y receiving several million dollars more local revenue than District X.

County revenues, according to Straub and Hoffman (2015) and a comparison of District X and District Y budgets, are generated by fines (i.e. speeding tickets), and a railroad and utility tax. District Y hosts a coal-fired electrical plant, the associated infrastructure (i.e. sub-stations and power lines) is assessed and generates revenue through this category. District Y also has an operational railroad line which adds to this calculation.

State revenues are distributed, in general terms, by enrollment, or the more students a school has enrolled, the more state funding the school receives. Straub and

Hoffman (2015) note the state funding formula, as enacted according to Senate Bill 287, considers enrollment, a state adequacy target—or minimum dollar amount deemed adequate to provide a basic education, and a dollar value modifier. The dollar value modifier (DVM) considers the relative expense of wages in a given county. A high DVM generally positively impacts state funding.

District X, despite a smaller enrollment, receives more money from the formula calculation than does District Y. The Missouri Department of Elementary and Secondary Education (DESE) accounts for District X having a higher percentage of free and reduced lunch participants and a higher percentage of special education students. These differences influence the formula and thereby the financial commitment from the state.

The bulk of federal revenues generally spring from three areas, per a comparison of District X and District Y 2015 budgets: food service, Title I (especially for schools with high populations of impoverished students), and special education. District X will receive significantly more federal money than District Y. The relative poverty of District X explains this phenomenon.

When examining the four revenue streams and comparing the two districts it can be discovered District X actually receives more revenue from the state and federal categories than District Y. However, the Missouri school funding system is primarily concerned with adequacy and local support. District Y has an overwhelming advantage in assessed valuation, and the resultant revenue. District X works within a budget that is dwarfed by the District Y budget despite similar size, similar rural setting, similar demographics (at least upon ethnic lines), and garnering more revenue from state and federal sources.

History of the Organization

Rowe (2009) notes Missouri, in the initial state constitution written in 1820, required free public education. Each township was mandated to install at least one school within township boundaries. A state funding mechanism was not discussed, suggesting those township schools were likely supported almost entirely by local means.

The Missouri Constitution was amended in 1865 to insist "all schools be funded equally" (Rowe, 2009, p.1104). This Civil War era dictum is interesting in that, at least early on in state history, a leaning towards equity in school funding was expressed constitutionally. Perhaps equity in funding was deemed unrealistic, even in the 19th century, as by 1875 such language was dropped from the state constitution.

Rowe (2009) observed the post-1875 version of the constitution continued to guarantee free public education. However, equity of funding, was not a concern large enough to merit inclusion in constitutional language. The constitution, regarding public education, remained unchanged for the next 70 years.

The Missouri Constitution was revised in 1945. Mandatory public education was again featured. Rowe (2009) again observed a constitutional insistence of free public education for individuals up to age 21. However, funding mechanisms were not mentioned, nor where terms such as adequacy, equity, or any related synonyms. Rowe (2009) noted, the 1945 constitution did require that no less than twenty-five percent of state revenue go towards the funding of public education. How the 25% was to be distributed was not mentioned. This provision guarantees some monetary emphasis regarding public education, and suggests an evolving sensibility regarding state responsibility for education. It is interesting to note, according to Rowe (2009), that

some interpret that clause to also mean that no more than twenty-five percent of state revenues can be allocated to the funding of public education.

Missouri, and her citizens, are to have free public education, as promised in the state constitution, and noted by Rowe (2009). Concerns regarding the overall quality and funding of which were assumedly under the control of local authorities. Another 60 years passed, as Rowe (2009) observed, before Senate Bill 287 was adopted by the Missouri General Assembly.

Senate Bill 287, the legislative underpinning for the current funding formula, was passed by the legislature in 2005, and was challenged in the courts almost immediately. The litigation was unsuccessful. According to Rowe (2009), the decision rendered by the Missouri Supreme Court ignored the state constitution in two areas: the constitutional requirement of equal treatment and that "tax assessment procedures" (p. 1038) are constitutionally obedient.

The lawsuit, which was brought by the Committee for Educational Equality, noted by Rowe (2009), shows in the name of the organization, and the legal logic of their case, that concerns of equality and equitable funding are tangible in 21st century Missouri. Straub and Hoffman (2015) noted the current state funding formula—the tangible manifestation of Senate Bill 287—is designed to provide Missouri students with an *adequate* education. Adequacy, however intended, is not equality or equity as discussed by Straub and Hoffman (2015). Hence the intellectual and legal leg upon which the Committee for Educational Equality stood, however unsuccessfully, illustrates the ideal of equal education for all Missouri citizens survives, although not constitutionally validated for over 150 years.

The Missouri Supreme Court, recounted Rowe (2009), held the Missouri Constitution, under Articles IX and X, guarantees neither adequacy nor equality per funding of state public schools. The State of Missouri does guarantee the availability of a free education to all her students. Concerns of adequacy, equality, and/or equity are constitutionally irrelevant, as the state constitution is currently written.

Consistent throughout the nearly 200-year history of Missouri as a state is the overall burden of support for education is largely borne locally. Litigation regarding school funding adequacy and/or equality goes back to 1877 and the *State ex rel. Sharp v. Miller* case as Rowe (2009) mentioned. The court affirmed in *Sharp* the state could indeed collect tax revenue for the purpose of educating the populace.

The issue of relying rather heavily on local tax levies was challenged in 1994. While a circuit court held for the plaintiffs (the Committee for Educational Equality in their first permutation), higher courts refused to hear the case. According to Rowe (2009) the case did not travel to appellate courts or the Missouri Supreme Court because the legislature had passed the Outstanding Schools Act of 1993. The Outstanding Schools Act was a paradigm shift in Missouri funding as local property taxes were de-emphasized in state funding mechanisms in lieu of a formula more concerned with issues of "equality and adequacy of funding" (p. 1050).

As the constitutional and legislative history of public education in Missouri is reviewed two ideas are apparent: first, Missouri has mandated, since inception, free public education; second, Missouri has never assumed, at a state level, financial responsibility for the education mandate.

Organizational Analysis

The Missouri Department of Elementary and Secondary Education (DESE) is charged with overseeing Pre-K-12 public education in the state. Part of that duty involved the distribution of money to each of the state's public school districts. Senate Bill 287, per Straub and Hoffman (2015), was adopted by the General Assembly in 2005. Senate Bill 287 was primarily concerned with adequacy, or a baseline of financial backing to which all Missouri students are entitled.

The formula which determines the share of each individual district prioritizes, by design, adequacy over equity (Straub and Hoffman, 2015). Given the performance of the state in equity measures the lack of emphasis on equity is not surprising. Adequacy, as defined by DESE, and explained by Straub and Hoffman (2015), sets a financial floor by which each Missouri student can receive a minimal, or adequate, education. Equity is concerned with providing each student with essentially the same experience.

Based upon examples cited in the constitutional and educational history of the state, perhaps DESE decided adequacy was a more realistic target to achieve. Given the wide disparity between school districts per their relative economic worth, the daunting costs to achieve equality, and granting Missouri has a long history of sourcing the aegis for education to localities, were surely considerations. Such may have been the calculus guiding DESE officials, and whomever else consulted, when construction of the current formula—which although puts a premium on adequacy, is nonetheless underfunded by several hundred million dollars of its modest target. Doubtless this condition does not help either issue of adequacy or equity.

Organization of the Missouri Department of Elementary and Secondary Education

Taylor (1916) may recognize DESE as an adherent to principles of scientific management. Certainly, DESE creates areas of specialization for various administrators to focus upon, thereby fulfilling the division of labor principle Taylor (1916) suggests as a hallmark of those who practice scientific management. As Figure 1 suggests the department indeed contains several sub-divisions responsible for the myriad of tasks which require state supervision.

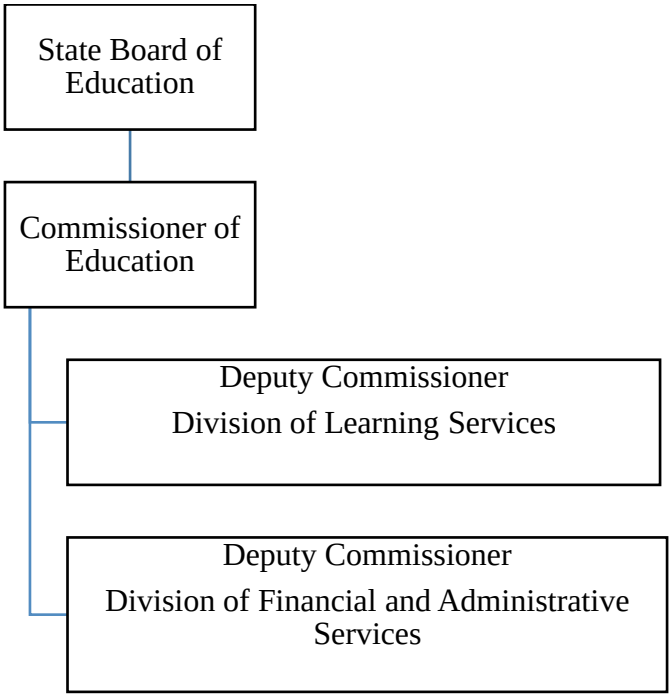


Figure 1. Organization Chart of the Missouri Department of Elementary and Secondary Education from www.dese.mo.gov.

The Commissioner of Education is the chief educational officer for the state. The Commissioner reports to a State Board of Education. DESE consists of two divisions, each led by a deputy commissioner. The division of learning services is concerned with the various modes of knowledge delivery in the state. The division of financial and administrative services is concerned with the business side of public education, as a study

of Figure 1 reveals. This study will focus predominately on this side of DESE operations, as the distribution of state revenue to schools, and the formula appropriating those funds is a primary focus of the study.

A look at Figure 1 might prompt Merton (1957) to label the DESE organization as a bureaucracy. Certainly, DESE has the appearance of a "formal", "rationally organized", and "hierarchized" organization (p. 103) cited as harbingers of bureaucracies. DESE is a bureaucracy, as defined by Merton (1957), and an example, in terms of organizational structure, of scientific management as described by Taylor (1916).

Organizational Models

Each district employs a superintendent. The superintendent, per respective District X and District Y board policy handbooks, serves as the chief executive of the school district. Chief among the duties of a superintendent is the financial management of the district. District X and District Y policies confer responsibility for the creation of an annual budget to the superintendent. The superintendent creates a budget by estimating revenues and expenditures for the upcoming fiscal year. Each district policy handbook mandates the budget is balanced, or forbids spending more money than the district has ability to recompense.

District administrators, aside from the superintendent, have limited purchase power, and thereby, some limited influence upon the expenditure side of the district budget. Purchasing and budget responsibilities, per each respective board policy handbook, underpin the hierarchy in regards to fiscal issues. Building level administrators are most often the first line of approval for requested purchases from the general staff. The following figure explains the hierarchy by which purchasing decisions

are made. The superintendent answers to the Board of Education per relevant board policies. All other school officials report to the superintendent.

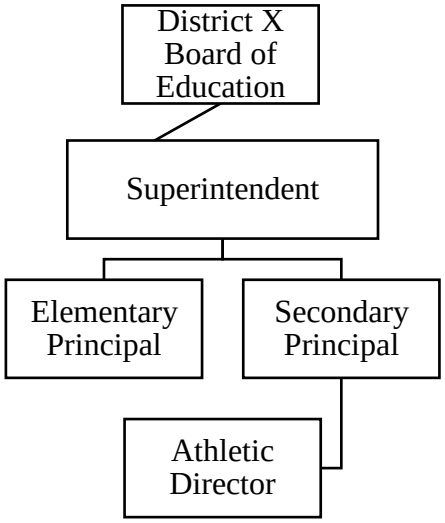


Figure 2. Organization of District X.

As illustrated in Figure 2, District X has a rather small cadre of administrators who occupy positions granted purchase ability. Based upon District X board policy the building principals can authorize purchases, and are often the first level of permission an employee must garner in order to make a purchase. General purchases for sports activities run through the athletic director, who has a separate budget. Athletic purchases must still be approved by the principal and superintendent after athletic director approval.

District Y, despite a similar size, employs more administrators with limited latitude to authorize purchases per District Y board policy. It has been established, through a comparison of district budgets, that District Y sports a larger budget. It stands to reason District Y would, with more money to account for, employ more people to monitor expenditures by way of more permissions to secure for a given purchase.

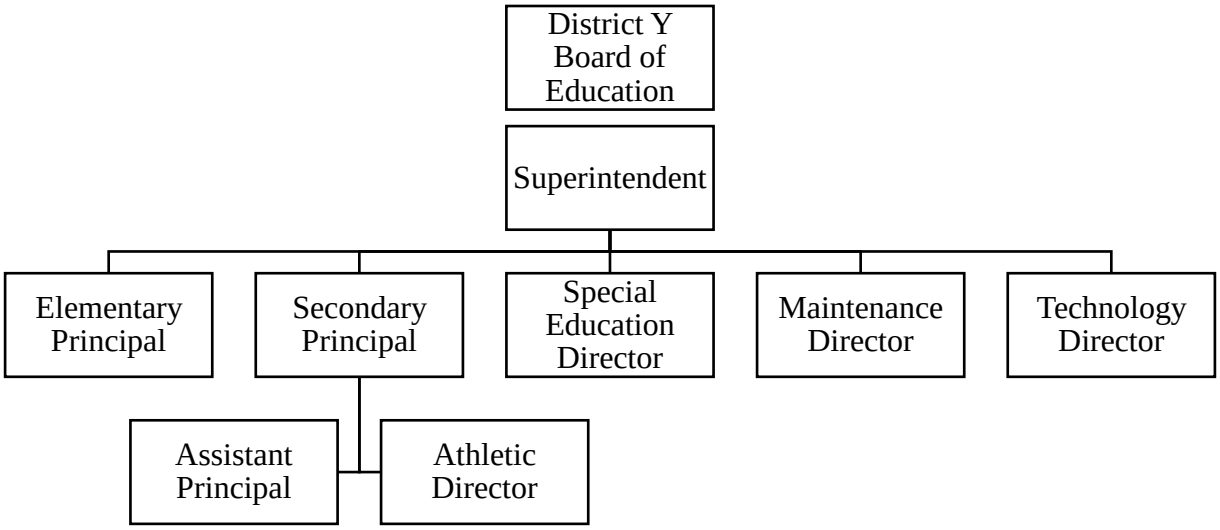


Figure 3. District Y Organization Chart.

The building principals are joined by a special education director and maintenance director who are empowered to approve limited purchases within the constraints of board policy. An assistant principal and athletic director may also make limited purchases, or authorize approval of such purchases, under the supervision of the building principal.

All district purchases are made under the supervision and with approval of the superintendent. The superintendent reports to the board. Expenditures are monitored by the board, per respective district policy, and a general expectation to follow the board adopted annual budget. Policy mandates the district hire an independent auditor, annually, to review district finances and practices. The audit report is presented and approved by the board annually at the conclusion of the fiscal year.

Leadership Analysis

The leadership of District X and District Y will be compared and contrasted. In general terms both school districts are organized similarly. There are some superficial differences, but the following paragraphs will detail how the districts are organized along the same model.

Both districts, as all school districts in Missouri, are overseen by an elected board of directors. District X and District Y Board of Education policy states the district will have seven directors who serve three year terms on the local board of education. District X and District Y policy both state the board is to elect a president and vice-president.

The board president, per District X and District Y policy, leads the board during meetings. The board president helps the superintendent to set the agenda for upcoming meetings to insure topical issues are included in formal discussions. The board president is the point of contact for the superintendent when consultation with the board becomes necessary as matters arise.

District X Leadership Analysis

The District X board president works for the local hospital as a director of various non-medical functions. University educated, the District X president has, excepting brief interludes, lived in District X throughout life. The president has three children attend the district and the spouse of the president (another District X graduate) is employed as a teacher there. Serving in a second three-year term, the District X president was elected president for the first time in April, 2015. As such the leadership style of the president is embryonic and evolving, at least in terms of leading the board.

The District X board president strives to include all opinions on the board and works to make all feel included and consulted for input. Northouse (2013) might recognize this trait as part of the style approach. As a lifelong local the president has little trouble soliciting (or absorbing) patron feedback. A careful and patient listener the board president is also restrained to promises—a great relief to any school person working at District X. The president sees himself as a sounding board for the community while avoiding a perception as activist on behalf of various interests. Consensus building on the board is among the strengths exhibited by the president.

Given these characteristics Northouse (2013) may classify the District X president as a style approach leader. The board president performs better with what Northouse (2013) labels as the relationship behaviors side of style leadership—by understanding leadership is principally a function of dealing with people. Goleman (1996) may describe the board president as possessing emotional intelligence, especially in the area of social skill. The task behavior side, as described by Northouse (2013), is the weaker of the two, although a propensity for goal setting has been shown. The president can be goal oriented, but a greater strength is likability and insistence on listening to all with a cogent point.

Generally, an agenda, outside of stated board goals is not pursued. The preference is for the district administration to direct the district. Of course, work is done to temper administrative ambitions with the realities and preference of the district populace. In this manner some qualities of servant leadership as Northouse (2013) illustrated can be identified. The District X board president wishes to help the district achieve and serves out of a sense of civic obligation.

District X board meetings are generally tranquil, if rambling. The district has aspirations which are constrained principally by a tight budget. The conservative leanings of the community are also a consideration when operating the school.

The remainder of the District X board of education is largely local in origination. Five of the seven graduated from District X. Five also have children in attendance in school there. Four are college graduates and two own business concerns. Two have spouses employed by the district. Two are female, the remaining five are male.

Collectively the board values stability. Given the isolation of District X, attracting and keeping talented administrators and educators is at a premium. A decade old financial crisis, as viewed in the District X FY 2005 budget, has also led to a fixation with finances. The financial predicament District X has slowly dug itself out of certainly influences the decisions made by the board. Bennis and Thomas (2011) may opine this critical event continues to inform decisions and attitudes. Stability in the budget is also at a premium—as is finding a superintendent who can manage their limited resources.

District Y Leadership Analysis

The District Y board president is a vice-president of a large, well-known, national corporation. Accustomed to balancing competing interests which swirl within a corporate world, managing a small-town school board is well within the deft and sophisticated political skill-set of the District Y board president. The president has sent three children to District Y, one child in the district and two who are relatively recent graduates. A several year resident of District Y, the president is not native. College educated, and a military veteran, he brings a wealth of experiences to the school board.

A corporate and military background leads to an appreciation of hierarchy. The board president also believes the school administration should direct the district. Encouragement and support in that vein are obvious. An eclectic experience and world view lead to a situational approach to leadership, as described by Northouse (2013). The president adapts quickly and seamlessly from deliberative to directive if the environment demands varying facets of leadership. This happens in both obvious and nuanced actions.

The board of District Y is constituted of two natives, or graduates of the district. Six of the seven are college educated—four of those six hold graduate degrees. Six of the seven have children enrolled in the district, the seventh has recent graduates. One has a spouse employed by the district in a part-time arrangement. One female joins six males on the board.

The District Y board of education also values stability, albeit for different motivations. A previous superintendent was terminated in the spring of 2014. The following school year saw two interim superintendents, each one retired and restricted to 550 hours of service, guide the school. Given those events the board covets stability in the context of avoidance of controversy and turmoil. Again, Bennis and Thomas (2011) may argue this event would forge certain behaviors. The board expresses a desire for longevity in the superintendent position. The District Y board president is careful to grant open discussion, but is also quick to mediate if passions appear to rise. The board president is likely guided by prior experience and shaped by the still fresh superintendent crisis, as Bennis and Thomas (2011) imply is a natural outcome from such an event.

Financial stability is not a concern for District Y. Their advantages in that realm are well documented by viewing the current budget. Having said that, a chief executive who appreciates and stewards those resources towards high achievement is very much desired. In that sense the longing for stability is manifested.

Implications for Research in the Practitioner Setting

The state of Missouri, per DESE data, has well over 500 school districts. Most of these school districts are in rural settings, as defined by the DESE and guidance from the Rural Education Achievement Program (REAP). Following that logic, if a practitioner in educational administration wishes to operate in Missouri chances are they will work in a rural setting at some point in their career. This research could be pertinent to a large swath of the pre K-12 educational professionals in the state.

Possible Relationship Between Level of Local Economic Power and High Student Achievement

If such a relationship can be statistically correlated, following methods prescribed by Field (2013) the implications will be quite pertinent to the practice of rural school education. Along the same lines a regression will be performed, again, per the guidance offered by Field (2013). If this variable is found to exert substantial gravity among all tested factors influencing student achievement, this will be quite useful to those in rural pre-K-12 settings throughout the state.

Possible High Performing Schools Found Within a Context of Low Economic Power

Assuming the answer to the previous question is affirmative—a correlation exists between local economic health and academic achievement—do outliers exist who resist that trend? Finding such schools may lead to further research, as to how to defy the local

economic environment to spur student achievement. Perhaps further research may lead to a discovery that educational practices will trump whatever disadvantages are placed in front of a school district. In that case, identifying and emulating those practices would be useful information for school districts of all kinds.

Summary

Equity in education funding is not a guiding principle in Missouri, nor has it been throughout the history of the state. School funding is largely left up to the economic heft of a given locality. Funding from state sources largely is used to insure adequacy. In fact, longtime observers of the state funding mechanism (primarily the funding formula) note the state strives to provide adequacy, while equality or equity is secondary.

The differences in District X and District Y budgets are largely explained in terms of gigantic differences in local resources. In a nod to adequacy, District X does garner more state revenue and federal revenue in aggregate. The total budgets of Districts X and Y are not equal, with District Y expecting revenues roughly two-and-a-quarter times greater than District X.

If, as Skrla, Scheurich, Garcia, and Nolly (2004), suggest, that, schools with plentiful resources are adept at attracting superior instructors than poorer schools, then does that provide a built-in and insurmountable advantage. Skrla, et al, (2004) address the teacher quality advantage by stating "if this quality is distributed inequitably…then we cannot expect equity in achievement outcomes" (p. 143). Skrla, et al, go on to observe that "the result is a systemic distribution of teacher quality that will likely yield inequity in achievement" (p. 143).

Whether the advantages of District Y translate to greater academic achievement, or, on a larger scale, whether relatively affluent school districts achieve to a greater degree than poorer districts is a question that begs to be answered. If the schools represented by District X and of related ilk out-perform more advantaged schools, the how and why will demand further investigation.

Each district is organized in a similar fashion, with each utilizing nearly identical policy handbooks. Each district has decision-making influenced by relatively recent crises. Those crises affect current administrative practitioners in their day-to-day operations.

SECTION THREE: SCHOLARLY REVIEW

Introduction

Rural economies have been in decline for decades. Carr and Kefalas (2009) and Longworth (2008) have poignantly chronicled the sagging economic fortunes of the rural Midwest and the flight of population, especially intellectual talent, from those areas. While the conditions are well documented and easily observed—especially to those who inhabit rural communities—the answers to combat the declining fortunes of the rural Midwest are less than clear.

Situated within such environments are rural Missouri pre-K-12 public school districts. As the already indigent economy declines rural schools struggle to provide an adequate education to their students. These rural school districts may be disadvantaged relative to more affluent peers closer to urban or suburban areas. Equity of resources, as defined by Scott (2001), may be an issue for students attending rural Missouri school districts. The suggestion rural schools are placed at some disadvantage with respect to funding or availability of supplemental resources is an observation made by Bradley, Werth, Jr, and Hastings (2012); Roberts and Green (2013); Roscigno Tomaskovic-Devey, and Crowley (2006); Strike (2008); Cuervo (2014); Debertin, Clousert, and Hule (1986) and Wallin (2007).

Review of Extant Literature

Economic disparity and impact on education

Johnson and Maiden (2010) and Maiden and Stearns (2007) lamented the inequity in capital spending in rural schools juxtaposed to more urban and suburban counterparts. The suggestion implicit that not only do rural students experience inequities in

educational delivery, but also attend school in buildings that are aging or receive less than desirable maintenance.

Moser and Rubinstein (2002); Johnson, Showalter, Klein, and Lester (2014); and Baker, Sciarra, and Farrie (2010) all studied funding equity on a national level using a variety of measures. Each study found Missouri among the laggards nationally in equity and adequacy issues. These findings suggest leading a rural school anywhere in the United States comes with inherent challenges, but these challenges may be amplified in Missouri. Missouri is a state which relies heavily upon local revenue to fund local public schools. Since local funding is completely dependent upon local economic health, some rural areas benefit accordingly. The discrepancies among assessed valuation of rural areas may perhaps contribute to any funding inequity found in Missouri.

The perception that rural schools are not receiving adequate support has prompted litigation in many states. Buszin (2013); Rowe (2009); Lauver, Ritter, and Goertz (2001); Jordan and Jordan (2004); and Grider and Verstegen (2000) all chronicle various forays into legal proceedings of rural public schools seeking judicial relief from alleged legislative failures to address perceived funding inequities.

Meanwhile, Payne (1996); Roberts and Geen (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Buszin (2013); and Cuervo (2014) all point out resource deficits may translate to low student performance. Debertin, Clouser, and Hule (1986) and Gibbs (2006) may stop short of declaring resource deficits synonymous with low student achievement, but all point out rural schools often compensate teachers at lower rates than suburban and urban districts, which may result less experienced and decorated instructors in rural schools. Those authors also draw attention to the fact that rural

schools often have narrower curricula, thereby restricting access to more advanced courses to many rural students. Skrla, Sheurich, Garcia, and Nolly (2004) contend the achievement gap of impoverished students is fueled by differences in teacher and program quality.

Extant to Missouri, Johnson, Showalter, Klein, and Lester (2014) reported the state was slightly below average on certain measures of academic performance, such as the National Assessment for Educational Progress (NAEP) test. Strange (2011) suggested another symptom ailing rural school districts is the lack of political power to change resource allocation at the state level. Rural voices can be drowned out due to lack of numbers and lack of resources which can be utilized to project a rural-friendly agenda into state legislatures.

The question of how to best encourage academic achievement in rural Missouri pre-K-12 school districts is viewed through the lens of equity, as defined by Scott (2001). Students may be granted certain advantages due to geography and the relative affluence of their surrounding community. If a statistical relationship can be found between academic performance and resource equity, the impetus may exist to provide more equitable circumstances for all students.

Overall there is a suspicion, supported by Payne (1996); Roberts and Geen (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Buszin (2013); and Cuervo (2014), that inequitable economic circumstances may influence discrepancies in student achievement. Further there is a suspicion, supported by Rowe (2009), that any inequities are tolerated and perhaps preserved by the public-school education funding mechanisms utilized in Missouri.

Rural Missouri public schools faced with less than equitable resource allocation are not burdened with a plethora of options resulting in amelioration. The literature is peppered with examples of litigation. Buszin (2013); Rowe (2009); Jordan and Jordan (2004); and Grider and Verstegen (2000) all chronicle various lawsuits brought by rural schools seeking judicial remedies to resource inequity.

Gibbs (2006); Goetz and Rupasingha (2005); Barkley, Henry, and Li (2005); Woods, Doeksen, and St. Clair (2005); and Lyson (2005) all suggest public schools can, in various ways, contribute to the economic health of rural communities. Perhaps an understanding and adoption of the tenets prescribed would help rural school districts assist their resident communities in the search for long-term prescriptions for the malady of scarce resources.

Evidence equity has not been achieved

Several authors cite lack of equity in funding and other resources as problematic in our education system. Bradley, Werth, Jr., and Hastings (2012); Roberts and Green (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Strike (2008); Cuervo (2013); Debertin, Clouser, and Hule (1986); Wallin (2007); and Sklra, Scheurich, Garcia, and Nolly (2004) all point to various inequities in the education system—many specific to rural areas. The literature abounds with evidence of the uneven dispersion of resources in the support of public education. Certainly, the preponderance of evidence suggests there are noticeable and significant discrepancies between the resources available to various public schools. Some schools enjoy access to plentiful and diverse resources which may be brought to bear to ameliorate a host of deficiencies. Many schools struggle in their acquisition of resources due to brokered availability.

Giannini (2009) points out the root of inequity in funding may be fueled by a lack of strong federal role in American education. Dispersed powers, according to Giannini (2009), allow pockets of great wealth and great poverty to develop. This may seem to explain how great inequity is a result of the natural progression of our system of governance.

The question of whether this resource allocation can explain why some schools tend to achieve, in aggregate, at higher levels than others is unclear. Certain segments of school life are easier to quantify as deficient due to limited resources. At best, some of the literature is contradictory to the point of student performance and the reliance upon resources to achieve.

Authors such as Payne (1996); Roberts and Green (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Buszin (2013); and Cuervo (2014) all suggest dearth of resources are responsible for minimally achieving students or schools. Resources other than money are often to blame, per this set of authors, for low achievement in impoverished populations. Social supports outside of school are often highly deficient, which may negatively influence achievement at a degree hard to compensate for at the school level.

Johnson and Maiden (2010) and Maiden and Stearns (2007) focus on the physical plants of rural schools. Their studies, conducted in Oklahoma, suggest the infrastructure of rural education is decaying. While they do not suggest any linkages between funding and achievement or infrastructure and achievement, they do find rather obvious correlations between funding and infrastructure. They suggest the lack of funding for physical upkeep of rural school facilities signals a lack of equity in monetary resources of

rural schools versus their more urbane counterparts. Johnson and Maiden (2010) and Maiden and Stearns (2007) opt for tangible evidence in the resource discrepancies between rural and urban or suburban districts. At the least this research highlights, in easily visual terms, the idea rural schools are funded inequitably juxtaposed to their non-rural peers.

Further suggesting the idea that resource inequity exists are the numerous legal challenges brought by rural schools, including some in Missouri. Buszin (2013); Rowe (2009); Jordan and Jordan (2004); and Grider and Verstegen (2000) all describe various attempts in several states to coerce legislative and executive branches into a posture more supportive of rural public schools.

Johnson, Showalter, Klein, and Lester (2014); Baker, Sciarra, and Ferrie (2010); and Moser and Rubinstein (2002) all look at various measures of funding equity at a national level by comparing states. Missouri specifically does not show particularly well in any of these studies. Moser and Rubinstein (2002), using data from the 1990's, find Missouri in the bottom quartile in equity measures. Baker, Sciarra, and Ferrie (2010) assign Missouri a grade of "D" in terms of funding distribution and effort. Johnson, Showalter, Klein, and Lester (2014) place Missouri in the top third of states who need to address rural funding issues. Johnson et al. also, using NAEP data for fourth graders, point out Missouri is slightly below national average in achievement, while observing the state does little to equalize funding for rural schools.

Affluent rural families and support for education

Payne (1996), Roscigno, Tomaskovic-Devey, and Crowley (2006); Bradley, Werth, Jr., and Hastings (2012); Israel, Beaulieu, and Harltless (2001); and Cuervo (2014) all cite attendant resources as negative influences on student achievement. Payne (2003) cited resource deficiencies in the areas of "emotional, mental, spiritual, physical, support systems, relationships/role models, and knowledge of hidden rules" (p.16) as important hindrances to success. Roscigno et al. (2006) observed impoverished families are not able to make investments in the education of their children. Shortcomings regarding rural students are especially exacerbated for "household educational items, cultural capital and parental involvement" (p. 2131). Inhabitants of rural areas may have "scarce resources, high rates of poverty, less formal education, higher illiteracy rates, limited insurance coverage, higher rates of disabilities, fewer mental health resources, and less access to employment" (p. 365) insisted Bradley et al. (2012). Cuervo (2014) summed up rural resource scarcity by simply stating rural areas lack access to financial and social resources. Israel et al. (2001) spoke of the importance of creating a support system for impoverished students in order for them to overcome resource deficits at home to succeed at school.

The literature is replete with evidence that rural residents are at distinct disadvantages, especially those consigned to poverty. These conditions follow students into the school. Perhaps these attached challenges are the reason school funding singularly is hard to pin down in the literature as a prime determinant of student success. Payne (1996); Roscigno et al. (2006); Bradley et al. (2012); and Cuervo (2014) all suggest impoverished rural students have obstacles which may be difficult for public

schools to assist them in overcoming. The dearth of reaped by support rural schools at best may add to the list of hindrances of rural students in poverty, at worst, lack of support for rural schools may be the final nail in the achievement coffin, as suggested by the literature.

The neighborhood surrounding a family, the resources and human capital available, also impact the advantages accessible to a family. Educational outcomes are influenced by the relative affluence or resources nearby. Dupere, Levanthal, Crosnoe, and Dion (2010), Reeves (2012), Chiu (2010), Barr (2015), Sampson, Morenoff, and Earls (1999), Konstantopoulus (2006), and Aikens and Barbarin (2008) all suggest the community surrounding a family, as well as resources within the family, greatly influences academic achievement at school. There are a few strands of that influence that merit exploration.

Dupere, et al (2010) suggest more affluent families tend to coalesce around each other. This phenomenon produces several advantages. School composition, or the likelihood of a child pushed by parents to be successful to be accompanied by other such children, is an advantage cited by Dupere, et al (2010) as well as Konstantopoulus (2006) that may lead to increased achievement. Aikens and Barbarin (2008) espouse the saturation of high achieving students within a school has a positive effect on reading acumen in terms of lofty expectations. Dupere, et al (2010) echo a positive context within the school environment may help to create achievement.

Outside of school, the mere presence within a community or neighborhood, of highly educated and highly successful (in a financial sense) people would seem to spur academic achievement in the local school opined Dupere, et al (2010). Dupere, et al

(2010) go on to explain children growing up in those neighborhoods tend to have access to better child care in pre-school years. When reaching school age, Dupere, et al (2010) observe, the schools those children enroll in tend to be populated with other advantaged kids, and enjoy abundant resources. This sentiment is echoed by Sampson, Morenoff, and Earls (1999) who state academically successful children can be identified in neighborhoods that are well populated by prosperous families, not too densely populated, and are consistent population-wise over time.

Brazeale (2014) found that even though Missouri schools were unequally funded, many schools did well. Looking at all school districts in the state, Brazeale (2014) found assessed valuation obviously helped funding, but also found many schools with low assessments scored quite well on the state performance report. While, according to Brazeale (2014), student achievement is part of school performance, there are other factors considered. This study did not focus on rural schools nor did it confine itself strictly to achievement.

Reeves (2012), contemplating the math achievement gap evident in poor, rural schools, observed rural areas tend to sport suppressed standards of living, economic and cultural opportunities. Reeves (2012) finds agreement with Dupere, et al (2010) by identifying the influence of the surrounding community as a discouraging agent for students to take advanced mathematics courses in rural schools. Academic achievement, not being prized in those environments, is manifested in a lack of interest in advanced mathematics. Reeves (2012) goes on to state the rural mathematics achievement gap is due to forces beyond the local school.

Chiu (2010), also studying mathematics achievement, stated flatly the most impactful family resource upon student math achievement, is a student living with both parents. Chiu (2010) went on to observe family characteristics appeared to be more powerful than school factors upon student achievement. Barr (2015), concerned with the influence family economics and family health may have upon mathematics achievement, insisted such a relationship exists. In fact, Barr (2015) unequivocally specified the socio-economic status of the families of individual ninth grade students was highly prophetic of math achievement. Konstantopoulus (2006) further offered that the effects of growing up in an affluent family accumulated over time.

Affluent rural school districts and teacher quality

Other authors point to inequity among schools but do not insist lower achievement scores are directly related to funding. Debertin, Clouser, and Hule (1986); Gibbs (2006); Skrla, Sheurich, Garcia, and Nolly (2004), Strange (2011); and Christie (2001) all point to the challenges of rural and/or socioeconomically disadvantaged schools to attract and retain top individual instructors, not to mention assembling an entire staff of competent teachers. The impact of good teaching on achievement is cited as unarguable. The literature, extant to this specific topic, while stopping short of declaring low resources equal low achievement, does insist low resources equals less skilled teachers. Here, in an indirect manner, the literature links low resources to low achievement.

Neighborhoods or communities with a healthy population of financially stable families tend to sport better human capital, as explained by Dupere, et al (2010), this human capital includes accomplished teachers. Guarnino, Santibanez, and Daley (2006)

insisted economically advantaged schools are better equipped to attract good teachers, and perform well at retaining them. Small towns as stated by Guarnino, Santibanez, and Daley (2006), replaced new-to-the-profession teachers more often than larger towns; as did schools exhibiting high minority and low income students. Dupere, et al (2010) do go on to mention that teacher quality seems to have negligible impact upon first grade reading acumen, yet cite school quality as a reckoning force. How Dupere, et al (2010) separate teacher quality from school quality is curious.

Chiu (2010) observed high achieving schools sported advantageous student to teacher ratios and tended to employ more highly trained teachers. While Chiu (2010) did not address specific issues or nuances of quality instruction it was observed teacher experience was greatly impactful upon student learning. Like Chiu (2010), Rockoff (2004), did not explore individual classroom techniques, however, the assumption that experienced teachers will stimulate more learning than inexperienced teachers. Harris and Sass (2011) agree teacher experience can positively impact student achievement, but found those effects were strongest at the elementary and middle school levels. Harris and Sass (2011) were clear that no such relationship could be found in secondary schools. Counter to Chiu (2010), Harris and Sass (2011) found no relationship between teacher degree attainment and achievement.

Salary often makes a difference in whether teachers choose to move. This sentiment is supported by Guarino, Santibanez, and Daley (2006). Relatedly, Guarino, Santibanez, and Daley (2006) found states who expanded teacher salaries compared with other professions requiring college education enjoyed lower dropout rates than

comparative states. Teacher quality and positive student outcomes, according to Guarino, Santibanez, and Daley (2006), are directly impacted by competitive teacher salaries.

Affluent rural school districts and curriculum

The same can be said for the program of study available to students attending impoverished schools. Debertin, Clouser, and Hule (1986); Gibbs (2005); and Skrla, Sheurich, Garcia, and Nolly (2004) all cite narrow curricula as restrictive for those students in low socioeconomic schools who desire or deserve opportunities at more advanced study. Debertin, Clouser, and Hule (1986); Gibbs (2005); and Skrla, Sheurich, Garcia, and Nolly (2004) further suggest that since students are limited by course offerings, they do not get the opportunity to achieve in each discipline because their school may not have a mechanism to study advanced concepts. Certainly, this condition would lend to the appearance of low achievement when those students are juxtaposed against peers who have accessed those advanced opportunities.

While the authors do not attempt to connect pure monetary availability with performance, they do point out that dearth of financial resources contributes to a lack of diverse curriculum. Logically, if a given student in an impoverished school does not take, say, physics, they cannot score as well on a physics test as a student from the suburbs who has enrolled in a physics course. Money alone was not a causation of low achievement in physics, but money played a role in the availability of the course for a student in a school with the means. In this indirect way, Debertin, Clouser, and Hule (1986); Gibbs (2005); and Skrla, Sheurich, Garcia, and Nolly (2004) all suggest resources do have a bearing on achievement.

Looking at an achievement gap in mathematics instruction, Reeves (2012) noted the gap in rural areas may be ascribed to lesser opportunities for study. Reeves (2012) also contends even when rural students are presented with the opportunity to pursue mathematics, those opportunities are often eschewed. Kelly and Sheppard (2009), concerned with the availability of secondary physics courses in New York City, found impoverished students, and their impoverished schools, were much less apt to enjoy access to physics. Kelly and Sheppard (2009) found students who merely attended a school who featured physics were more apt to graduate high school and eventually enroll in college.

Aikens and Barbarin (2008) implied narrow curricula in poor schools is not only the result of resource scarcity, but also linked to deficiencies in socioeconomic status and family stability. Students who grow up in disadvantaged families, argue Aikens and Barbarin (2006), are much more apt to require remediation or intervention in their K-12 experience. Remediation and intervention programs are costly in time and resources—the sheer number of students requiring extra help, suggest Aikens and Barbarin (2006), may overcome a school and thereby prevent the development of more enriching curricula.

Public school impact on rural economies

Given the evidence in the literature suggests that rural schools often suffer from few resources. Given the evidence that rural Missouri schools, specifically, are examples of resource scarcity and factoring in Missouri has been shown to reside in the lower quartiles of equity when compared with other states. Allowing for the condition that education funding in Missouri is largely dependent upon local revenue streams, a

discussion of how a local economy can be supported by a public school may be appropriate for this study.

Gibbs (2006) cites workforce development by the local public school as key to rural economic health. Creating opportunities for high-skilled labor can have the effect of improving a local economy. Gibbs (2006) indicates a relationship between good schools, high achievement, and better wages. Improving "human capital" (p. 6) as Gibbs (2006) terms it, can improve opportunities for many in a local workforce. Barkley, Henry, and Li (2005) echo the call for human capital development. Increased education and skill by individuals will increase their economic opportunity. Another benefit as cited by Barkley et al. is the increase in social capital as workers climb the economic ladder. This benefit would suggest a shoring up of a particular area mentioned by Payne (1996) as imperative to a support system for students in poverty.

The literature extant to the concept of rural schools and economic development may suggest schools can deploy some strategies to improve the lot of students. If rural economic health either directly or indirectly impacts student achievement, as suggested by the literature, schools may have a lever to improve their communities.

Summary

Several themes have emerged from a study of the literature. Chief among the emergent themes, as observed by Bradley, Werth, Jr, and Hastings (2012); Roberts and Green (2013); Roscigno Tomaskovic-Devey, and Crowley (2006); Strike (2008); Cuervo (2014); Debertin, Clousert, and Hule (1986); Wallin (2007); Johnson and Maiden (2010); Maiden and Stearns (2007); Moser and Rubinstein (2002); Johnson, Showalter, Klein, and Lester (2014); and Baker, Sciarra, and Farrie (2010), is an overwhelming consensus

that public school financial equity is not apparent in the United States when schools are compared among each other, in a variety of measures and through a variety of prisms. Financial health of a school district is often a function of relative affluence of the individual community. States do not have mechanisms in place to even out school funding. Rural schools specifically are often examples of inequitable funding.

Missouri is of interest regarding school finance equity. Missouri, as cited by Moser and Rubinstein (2002); Johnson, Showalter, Klein, and Lester (2014); and Baker, Sciarra, and Farrie (2010), is not as adept as many states in promoting equity. The findings in literature of inequity in public school resources seem particularly acute in Missouri.

Assigning quantitative factors to low student achievement is a complicated endeavor. School funding alone is not an infallible predictor of student success. Funding can influence a multitude of factors that do impact student achievement according to authors such as Payne (1996); Roberts and Geen (2013); Roscigno, Tomaskovic-Devey, and Crowley (2006); Buszin (2013); and Cuervo (2014). However, funding shortages directly influence the ability of a school to attract and retain instructional talent, as suggested by Debertin, Clouser, and Hule (1986) and Gibbs (2006) and alluded to by Skrla, Sheurich, Garcia, and Nolly (2004). Those same authors contend quality teaching can be shown to have a direct impact on student achievement. Low funding also inhibits the curricular offerings a school may utilize according to Debertin, Clouser, and Hule (1986) and Gibbs (2006). Inability to provide advanced or comprehensive offerings can serve as an inhibitor of high end achievement.

Resources other than school funding are important impacts on achievement. Those resources are often germane to the home life of students and outside of the control of the school. Lack of school financial resources limits the ability of a school to compensate for any resource shortcomings a student may have. Resource deficiencies in enough quantity are hard for students to overcome. These conventions are confirmed by Debertin, Clouser, and Hule (1986) and Gibbs (2006) and Skrla, Sheurich, Garcia, and Nolly (2004).

Schools may have some influence on the economic health of the resident community. Encouragement of skill attainment within the populace can help improve the local economy. Whether this alludes to adult learning, and/or more vocational-technical training is unclear. The benefits of an improved local economy are inarguable in the context of a local public school district. However, more specifics are needed for the suggestions within the literature can be used as anything practicable. Gibbs (2006); Goetz and Rupasingha (2005); Barkley, Henry, and Li (2005); Woods, Doeksen, and St. Clair; and Lyson (2005) all describe these relationships of local economy to local school in some depth.

The question of improving student achievement is complicated without a singular obvious answer. Economics seem to wield some influence to student achievement, however indirectly. However, it is unclear from the literature if schools can compensate for disadvantages students accumulate at home. The categories of resource depravity are easily identified. The amelioration of those depravities is not so readily apparent. There is an avalanche of literature decrying resource deficiency. There is not much literature to guide those interested in providing respite from resource scarcity. There certainly is not a

body of literature concerned with methods by which rural schools can overcome their own resource deficits much less the deficits of their students—without the expectation of outside resources alleviating those inequalities. An exploration as to how a school district may help to solve its finance problems in a long-term and comprehensive way has not been undertaken and represents a gap in the literature.

Conclusion

There is little doubt, based on an analysis of the literature, equity in public school funding and resource allocation is, at best, hard to truthfully illustrate, and at worst, impossible to find. Missouri well represents the states which, inadvertently or not, exhibit and perpetuate those imbalances, according to numerous sources. Rural school districts, according to the literature, are highly represented insofar as school districts who are not treated equitably in terms of finance and resource allocation.

School districts across the nation, and Missouri in particular, are highly dependent upon the strength of the economy in the local community. The literature points out this condition and assigns the reason for resource discrepancy at the feet of this fact of school finance. While the effects of this practice, and the history behind it, are easily seen, the literature does not have consensus for viable strategies to combat or improve finance or resource equalization in public schools.

This study will attempt to fill in some gaps relative to Missouri rural schools—as far as what happens to student achievement, if anything, when rural schools are appropriately funded (if such a school exists). Also of interest is whether rural schools on the short end of resource allocation can overcome those shortcomings in terms of student achievement. Perhaps this study can add to the discussion of resource allocation and

discover places which overcome a dearth of resources both in the school but within the home lives of their respective student bodies.

SECTION FOUR: CONTRIBUTION TO PRACTICE

Plan for Dissemination of Practitioner Contribution

Contribution to practice at the state level will be realized at the 2017 Missouri Association of School Administrators (MASA) Spring Conference held annually at the Lake of the Ozarks. The organization serves superintendents and other central office personnel throughout 500 plus Missouri public school districts. The conference is generally well attended by executive level administration from throughout the state. Many of the attendees represent rural districts, who may find the substance of the presentation interesting.

Type of Dissemination

A fifty-minute oral presentation accompanied by a Microsoft Power Point slideshow to fellow pre-K-12 central office and building level administrators from throughout the state of Missouri. The slides will feature visuals of data discovered during the study. Full reports will be available to attendees upon request. Additionally, MASA often electronically posts presentation information provided by the presenters.

Rationale for this Contribution Type

MASA is an affiliate of the American Association of School Administrators (AASA). The MASA conference organizers annually invite administrative practitioners throughout Missouri to exchange ideas in this forum. The mission of MASA is to develop and support effective public school leaders who positively impact the lives of Missouri students. The contents of this study and resultant presentation may be of some interest to central office personnel throughout the state, many of whom practice in rural areas.

This presentation will help administrators state-wide understand the breadth of the uneven nature of public school funding in rural areas and the impact upon student achievement. The clear majority of the 500 plus Missouri school districts lie in rural areas. Districts who manage to overcome deficient resource allocation—and the characteristics thereof—will be great models for schools who may struggle resource-wise and student achievement-wise.

The information presented may help the intrepid school leader define the parameters of whatever similar situations they find themselves in. Bolman and Deal (2008) term this process framing—or finding the original frame a problem resides in, and from there devise strategies to ameliorate problems of deficient student achievement which may be rooted in deficient resources.

Presentation

The Power Point presentation to be delivered can be found in Appendix A.

SECTION FIVE: CONTRIBUTION TO SCHOLARSHIP

Target Journal

AASA *Journal of Scholarship and Practice*. This is the peer-reviewed journal of the American Association of School Administrators.

Rationale for this Target

The *Journal of Scholarship and Practice* is intended to provide a focus on research and evidence-based practice to pre-K-12 central office and building-level administrators throughout the country.

Plan for Submission

Per the AASA website, submission guidelines for the *Journal of Scholarship and Practice* follow:

> Length of manuscripts should be as follows: Research and evidence-based practice articles between 2,800 and 4,800 words; commentaries between 1,600 and 3,800 words; book and media reviews between 400 and 800 words. Articles, commentaries, book and media reviews, citations and references are to follow the Publication Manual of the American Psychological Association, latest edition. Permission to use previously copyrighted materials is the responsibility of the author, not the AASA Journal of Scholarship and Practice.
>
> Potential contributors should include in a cover sheet that contains (a) the title of the article, (b) contributor's name, (c) terminal degree, (d) academic rank, (e) department and affiliation (for inclusion on the title page and in the author note), (f) address, (g) telephone and fax numbers, and (h) e-mail address. Authors must also provide a 120-word abstract that conforms to APA style and a 40-word

biographical sketch. The contributor must indicate whether the submission is to be considered original research, evidence-based practice article, commentary, or book or media review. The type of submission must be indicated on the cover sheet in order to be considered. Articles are to be submitted to the editor by e-mail as an electronic attachment in Microsoft Word (AASA, 2016).

Submission Ready Journal Article

Abstract

The purpose of the study is to examine the impact of economic disparity, (using assessed valuation per student, household income, and free and reduced lunch percentage) upon the percentage of students who scored proficient and advanced on the English 1 end-of-course assessment in rural Missouri school districts. Missouri schools classified as rural and that administered the English 1 exam through the years 2011-2013 were included. Regression and ANOVA tests were employed to determine relationships between economic measures and student achievement. Regression analysis indicates a significant relationship between free and reduced lunch percentage and percentage of proficient and advanced scorers on the English 1 exam. ANOVA indicates significant and small effects exist between assessed valuation and household income upon English 1 scores. ANOVA reveals a significant and large effect between free and reduced lunch percentage and English 1 scores. Clear relationships between economic measures and student achievement in rural Missouri public schools were found.

Introduction

Two rural Missouri school districts illustrate the point of this paper. Both are small, with K-12 student populations under 600 (both experiencing declining enrollment), surrounded by farmland; in similarly sized communities of less than 1,800 residents a piece; and, judging from the number of school-related entries in each local paper—the focal point of each community. However, despite those rather significant similarities, the day-to-day operations of each district are starkly different. The obvious contrasts are purely economic. The difference in day to day priorities and the conversations which accompany those priorities are as different as one would expect listening to rural versus suburban or urban versus rural.

District X has an assessed valuation of about $37,000,000. The property and personal tax levied by the district sit at a rate of approximately $4.48 per $100 of assessed valuation. That rate of levy delivers about $1.6 million in revenue out of a total budget of close to $4.9 million (District X FY 2015 Budget). The district has operated frugally, and years of careful management by the Board has allowed the fund balance (money in savings) to grow to $1.3 million, or approximately 28% of expected revenues.

The comparison district has an assessed valuation of $194 million, tax levy of $4.10, and levy revenues of about $9 million (District Y FY 2015 Budget). The district expects to see approximately $11.5 million in total revenues in FY 2015, according to the official budget, and sports a fund balance of just over $23 million, or over 200% of expected revenues. This district could, in theory, not collect a dime for over two years, and maintain all staff and programs uninterrupted.

While a drive through each community, and surrounding agricultural land, would not obviously reveal great differences in the two communities, there are two glaring advantages District Y enjoys. The first is a coal-fired electrical generation plant, the second is geography. The power plant impacts the local tax base, geographical proximity to population centers allows patrons of District Y to commute for jobs.

Importance of study

This study is important for the following reasons: one immediate, one more long-term. If rural Missouri schools are suffering from resource inadequacy perhaps we are inadvertently consigning a generation of our students to poor achievement—and perhaps a resultant lifetime of economic disadvantage or a continuation of what Payne (1996) terms "generational poverty" (p. 64). As Payne states "education is the key to getting out, and staying out, of generational poverty" (p. 79).

Missouri may contribute, inadvertently, to the rural "brain drain"—or the flight of educated and/or skilled people from rural areas, as Carr and Kefalas (2009) and Longworth (2008) have identified. The result of the "brain drain" is further erosion of local economies. As mentioned heretofore in the comparative examples of two rural Missouri school districts, an eroded local economy provides much less financial support than more prosperous communities.

Perhaps equitable resource allocation in Missouri rural public school districts can help to ameliorate generational poverty and the brain drain. The economic benefits of such a result would undoubtedly prove beneficial to individual communities and the remainder of Missouri.

Statement of Problem

Relatively little is known about the connection between a local economy in a rural Missouri setting and the educational performance or achievement of school districts within that local economic context. Absence of local economic activity may correlate to resource inequities inherent in the state-wide educational system and fall to local communities to address adequacy and equity concerns as best they can. If rural Missouri schools are at a resource disadvantage compared with their suburban and urban peers, and their local economic activity does not allow for amelioration of those disadvantages, there may be in place a system which inadvertently perpetuates student performance at lower-than-desired levels.

Additionally, economically disadvantaged rural communities may come with numerous individuals who exhibit accompanying maladies that negatively influence academic achievement. Compromised resource availability at the family level contributes, as shown by Payne (1996), to a lack of achievement. As rural areas see an increase in impoverished students, systemic achievement will become harder to realize. If these factors can be compensated for within the local education system, the remedies may be beyond the fiscal reach of financially struggling school districts.

The problem under investigation is economic disparity and the impact upon student achievement in rural Missouri. If individual school districts are largely dependent upon local sources for revenue, as the literature suggests, then is there a difference in educational achievement between rural communities of differing levels of affluence? If certain schools can bring pertinent resources to bear due to their economic

advantage, and those resources translate to increased student achievement, then the funding mechanism in Missouri may merit some revision.

Purpose of the Study

The problem under investigation is how dependent rural Missouri school districts are upon their surrounding local economic environment in terms of student achievement. The overarching purpose of Pre-K-12 education is the stimulation of student learning. The challenges inherent to such an effort are many in number and diverse in impact. If such a link can be proven between local economics and corresponding local student achievement perhaps strategies to compensate can be devised.

Assuming disadvantages extant to a given locality exist, and strategies to ameliorate those disadvantages to stimulate student achievement exist, this study will attempt to identify rural Missouri school districts who may enjoy some success in this vein. While the effects of poverty upon individual students, and the impact a large percentage of impoverished students has upon the total achievement of local educational organizations, are topics which have received much examination—there are few comparisons of advantaged rural communities to disadvantaged rural communities. According to DESE, the state of Missouri has in excess of 520 school districts. Johnson, Showalter, Klein, and Lester (2014) identify nearly 61% of those districts as "small rural districts" (p. 66). Hence six in ten of all superintendents in Missouri Pre-K-12 education are immersed in the environments germane to this study. The purpose of this study is to provide superintendents with information to stimulate the best education possible to their charges.

More esoterically, perhaps this study will provide impetus for policymakers to consider equity issues when apportioning state aid. Imaginably, serious consideration of the conventional wisdom that rural school funding is largely left to localities to independently concern themselves with equity and adequacy will be examined more closely. Conceivably any policymaker interested in these issues can be better informed by the results and data unearthed by this study.

Research Questions

RQ 1: What are the descriptive statistics of 2011-2013 Missouri rural public school student achievement and economic measures?

RQ 2: Is there a difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre-K-12 rural school districts with low, moderate, and high economic resource levels.

H_O2: There is no difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre-K-12 rural school districts with low, moderate, and high economic levels.

RQ 3: What economic factors relate to increased student achievement on the English 1 end-of-course examination in Missouri rural public schools?

Conceptual Framework

Economic disparity is the conceptual framework of this study. The literature being replete with evidence that economic advantages translate into increased academic performance. The conceptual framework is supported by three pillars. A study of the literature suggests affluent families provide abundant resources for education, affluent school districts attract and retain superior teachers, and affluent schools feature a broader

curriculum. The pillars, as played out in practice, manifest as economic disparity and may translate as a drag on academic performance.

Economic disparity and impact on education

Economic disparity, in the many forms it can take in school and community, and the effects of such in rural areas upon educational achievement, are the lenses through which this study, and any results discovered from it, are to be viewed. Peters (2013) stated post-industrial capitalist countries often see an increase in income disparity. The dual factors of industry flight to cheaper surroundings and automation (requiring fewer workers) are listed by Peters (2013) as stimulants of economic woe by those displaced by these conditions. Longworth (2008) echoed those concerns specific to rural areas. As mentioned, DESE data tracks steady and significant progress in the percentage of Missouri students qualifying for free and reduced lunch.

Affluent rural families and support for achievement

Children born and raised into fortunate economic situations have certain advantages. Jackson (2007) insisted those children gain "more opportunity to garner positive developmental experiences" (p. 60) than children born into homes with modest opportunities. Academically, children of privilege, as a group, generally outperform their more hardscrabble schoolmates. Children from more modest backgrounds also tend to, as lamented by Jackson (2007), "have more opportunity for negative" (p. 60) experiences, or experiences which detract from the ability to achieve.

Paucity of resources leads to inadequate familial investments in education. Roscigno, Tomaskovic-Devey, and Crowley (2006) note small investments may yield low achievement. Rural schools in Missouri are confronted with more poverty each year.

A view of the DESE website reveals the free and reduced lunch rate (traditional measure of poverty) in Missouri public schools rose from 41.7% of school children in 2005 to 50.3% in 2014. As rural schools fill up with more impoverished children it would seem logical if student achievement began to recede in schools burdened with higher percentages of free and reduced lunch children. Certainly, an understanding of the phenomenon of increasing rates of free and reduced lunch qualifiers in rural Missouri schools, and the implications on student achievement, are important lenses with which to understand rural schools.

A compelling rationale for continued research into this topic is found in a line of logic emanating from Dupere, Levanthal, Crosnoe, and Dion (2010): stable and affluent families tend to coalesce around each other. Stable and affluent families, insist Dupere, et al (2010) and Konstantopoulus (2006), tend to produce children who prove to be successful students. Families may benefit from education as to best practices to adopt in the educational rearing of their children. Resources attendant to a family or cluster of families positively influence student achievement. Another significant influence on student achievement is the proficiency of the classroom teacher.

Affluent rural school districts and teacher quality

Rockoff (2004) stated empirically that teacher quality positively impacts student scores on achievement tests. School districts, like other industries, compete for the best talent. Where the best teachers choose to practice has been the subject of some scholarly investigation.

School districts who enjoy abundant financial resources can positively impact the educational experience of their students in fundamental ways. Economically prosperous

schools, by attractive compensation packages, are competitive for top-shelf instructional talent. Christie (2001) and Strange (2011) note this phenomenon, as well as the success more affluent schools enjoy in retaining such talent. Quality teaching is responsible for quality education, and resource-poor schools struggle pairing great teachers with their neediest kids, as noted by Debertin, Clouser, and Hule (1986).

Rural schools often struggle to attract and retain instructional talent as Christie (2001); Debertin, Clouser, and Hule (1986); Gibbs (2005); and Strange (2011) observed—the rural school equivalent of the "brain drain" as identified by Carr and Kefalas (2009) so common to rural areas. The flight of top teaching talent to the suburbs certainly affects rural schools, as anyone who has been an administrator in such a school can attest. This phenomenon is tantamount to a rural community losing the town doctor, pharmacist, or veterinarian. Sometimes talented people simply cannot be replaced once they leave. Teachers are often replaced physically, if their talents are possibly unrealized by less gifted successors. Thus, rural students are sometimes placed into classes with subpar instructors as Debertin, Clouser, and Hule (1986) lamented.

Salary is often a driver of teacher relocation as stated by Guarino, Santibanez, and Daley (2006). Rural schools struggle to retain teachers as observed by Christie (2001) among others. These two statements, merged, would suggest rural schools are less lucrative and therefore struggle to attract and retain top-shelf instructors.

The Missouri State Teachers Association (MSTA) annually publishes salary information in the *Salary Schedule and Benefits Report*. A look at the 2015-2016 version reveals the St. Louis and Kansas City metro regions sport a base (or starting) salary of $36,992 when the two regions are combined. The metro areas include counties which

encompass not only St. Louis and Kansas City proper, but also many of the suburban areas encircling those respective cities. The remainder of Missouri, consisting mostly of out-state areas, averages $30,304 for beginning teachers (MSTA, 2015).

Using those numbers, base salaries are 22% higher in the metro areas of Missouri. The differences in salary between a random rural school and a random suburban school, within the metro area as designated by MSTA, may be more pronounced. A new teacher, applying to a typical rural school, in northwest Missouri, labeled Frank High School, with a base salary of $28,100 would make $35,500 as a first-year teacher in Jesse High School-located nearer the Kansas City metro area. That is a difference of $7,400 and 26%. Common sense would suggest Jesse High would attract and retain teachers with greater success than Frank High. Guarino, Santibanez, and Daley (2006) may state the case more flatly that Jesse High enjoys advantages in the pursuit of instructional talent over less affluent and rural peers.

This research may be valuable in highlighting the ongoing struggle rural schools have in delivering quality education. If the logic suggested by Guarino, Santibaniz, and Daley (2006) and Debertin, Clouser, and Hule (1986) holds, this would imply a funding discrepancy between rural schools and schools within more affluent regions. Addressing this discrepancy by equity or adequacy measures may be better justified by an understanding of the lessons of this research.

Great teachers may indeed gravitate towards wealthy suburbs. Once they ascend to suburban heights they may observe differences beyond a larger paycheck. The general program offered by larger and more affluent schools may be more varied, rigorous, and engaging than found in rural areas.

Affluent rural schools and curriculum

A varied and rigorous curriculum may correlate to increased post-secondary outcomes. Kelly and Sheppard (2009) found the mere inclusion of physics into the high school spate of course offerings increased the likelihood of the students of that school to eventually graduate and matriculate to college. In this small but apparently powerful example of diverse curricula Kelly and Sheppard (2009) illustrate one effect affluence has upon the curriculum and eventual outcomes.

Concurrent to the struggle to attract and retain the best teachers, resource-poor schools often offer a narrower curriculum than more affluent schools. Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich, Garcia, and Nolly (2004) all detail this tendency of resource-poor schools. Because students in those environments may not be exposed to as diverse and rigorous curriculum, as compared to more affluent school systems, achievement suffers. Students who do not have access to physics, for example, will have a difficult time scoring well on assessments which probe for knowledge in that content area.

A comparison of our two schools from the previous section may illustrate the differences in academic offerings. Jesse High School, per their website (http://khs.ksdr1.net/), sports ten courses classified as Advanced Placement and another eleven where students can earn dual high school and college credit. Frank High School has no mention of Advanced Placement in their online description of course offerings (http://wc.k12.mo.us/HIGH%20SCHOOL.html). There are six semester-long dual credit courses available at Frank High.

Certainly, suburban Jesse High School possesses a more comprehensive academic program when looking purely at college credit fare. Over three times as many opportunities exist for Jesse High students to earn college credit while still in high school. Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich, Garcia, and Nolly (2004) explained the likelihood of just such a phenomenon. This increased fare of post-secondary offerings would suggest not only a more comprehensive academic program, but perhaps more rigorous as well.

Aikens and Barbarin (2006) lament that resource poor schools, populated with children from resource poor families, often inundate the remedial and intervention structures a given school has. The premium placed on remediation and intervention, suggest Aikens and Barbarin (2006), consume resources that could be used for broadening and enriching the curriculum. Such is the plight of poor schools.

The compelling argument for this study is the possible improvement of rural (especially rural and impoverished) programs of study, or the accumulated experiences of to which a given student may be exposed. Aikens and Barbarin (2006), Kelly and Sheppard (2009), Debertin, Clouser, and Hule (1986); Gibbs (2005); Skrla, Sheurich, Garcia, and Nolly (2004) all detail the phenomena of increased academic opportunities sported by affluent schools. Improving the quality of all schools, including rural schools, is a worthwhile goal which may be informed by the findings of this study.

Long, Iatarola, and Conger (2009) found nearly a third of the lack of readiness, in some groups, for college level mathematics could be explained by the highest-level course taken in high school. Course availability, as explained, can be largely determined by the socio-economic status of a school. Long, Iatarola, and Conger seem to reinforce

the thoughts of Kelly and Sheppard (2009) that the absence of certain advanced courses may inhibit the ceiling of academic achievement in high school and beyond.

Design of Study

Setting and Participants

Rural Missouri Pre-K-12 school districts and their host communities will serve as the setting for the study. Johnson, Showalter, Klein, and Lester (2014) identify nearly 61% of the 520 plus Missouri school districts as "small" and "rural" (p. 66)—constituting 29.2% of all Missouri K-12 students. This should provide fertile ground for data collection.

The National Center for Education Statistics (NCES) provides definitions of "rural" and identifies school districts as rural or not. These criteria are used to determine Rural Education Achievement Program (REAP) funding eligibility and will be used for this study to define a rural school district as one having a locale code of seven or eight and a student population under 600 or located in a county with a population density of less than ten people per square mile (REAP Manual, 2003).

Pre-K-12 school districts will also be the focus of the study. While Missouri has many K-8 districts, this study will be preoccupied with schools large enough for a full span of grades. This will allow for direct achievement data comparisons, as K-8 districts will not have end-of-course data extant to the period of the study—2011-2013.

Schools which meet criteria to be studied: located in Missouri, defined as rural, and span Pre K-12 will be the participants in this study. Data will be collected per the list of variables listed in the Conceptual Frameworks section. Primarily of interest will be

data concerning indicators of relevant affluence or poverty; and measures of student performance.

Data Analysis

First rural Missouri Pre-K-12 school districts will be ranked using the various measures of student performance. Performance measures will be compared to national and state averages. Districts performing above those benchmarks will be considered high performing. Districts performing under state and national averages will be considered low performing.

Rural Missouri Pre-K-12 school districts will also be ranked per measures of affluence. Lists will be constructed for assessed valuation, free and reduced lunch percentage, and median income. Districts will be grouped per low, moderate, and high economic status.

Reliance of a rural school district upon local revenue sources will be examined. Percentages as found on the Missouri DESE website, specifically on the Annual Secretary of the Board Report, of local revenue of the total budget. As Rowe (2009) maintains, Missouri prefers local districts to shoulder much of the financial burden. Perhaps wealthier districts are funded at higher percentages locally.

Once all the data are collected, data analysis software in Microsoft Excel will be utilized. Correlation and regression analyses will be performed. Field (2013) recommends using correlation analysis to determine mathematical influences of variables upon an outcome. Field (2013) also recommends utilizing a multiple regression calculation when attempting to determine the variable with the most statistical impact

upon an outcome. Plotts (2011) utilized similar methods in a study to determine superintendent longevity upon student achievement.

Of great interest, will be to determine statistically if measures of local economic flowering translate into increased student achievement. While this study, if such relationships are indeed found, cannot identify with certainty any causation among variables, it can illuminate relationships that appear to correlate to high achievement. A multiple regression, as recommended by Field (2013), will be utilized to discover and quantify those interactions.

Correlation analysis, suggested Field (2013) can find those relationships. Multiple regression analysis, in a manner consistent with recommendations made by Field (2013), will be performed to find which, if any, factors of relative affluence, or poverty, are most impactful. While no causation can be assumed or implied from the results of this analysis, the degree by which an economic variable appears to influence a specific student performance data point will be fascinating to uncover—should such a condition exist at a statistically significant level.

Field (2013) suggested an analysis of variance (ANOVA) test, or a comparison of means, may be an appropriate statistic. The study is attempting to determine which, if any, economic conditions, of the several mentioned, have a greater impact upon student achievement. Ashby, Sadera, and McNary (2011) utilized an ANOVA to study modes of mathematical instruction.

Wall (2008) stated there are correlations between results of standardized tests. Edmonds (2014) inferred the predictive nature of various standardized assessments to one another. Given these sentiments English 1 end-of-course scores will be assumed to be

transferable to the general concept of student achievement, and somewhat predictive, as suggested by Wall (2008) and Edmonds (2014) of general student performance.

Variables

For this study the following variables will be used:

1. Assessed valuation per student (measured by average daily attendance). This is an independent variable.
2. Free and reduced lunch percentage (FRL) per district. Also, an independent variable.
3. Median household income in rural Missouri counties which host Pre-K-12 school districts. This is an independent variable.
4. End-of-course English 1 test results from Missouri Pre-K-12 school districts inclusive to the years 2011-2013. This is the dependent variable.

Limitations, Assumptions, and Design Controls

Limitations

The use of English 1 examinations may prove limiting. Not all schools utilize the assessment, as it is not, extant to the period of the study, part of the required regimen of testing as stipulated by DESE. The English 1 exam does not, obviously, measure student proficiency in other subject areas, and may be a rather narrow view into achievement.

Assessed valuation infers the relative material wealth within a school district. Assessment does not reveal whether that wealth is concentrated or dispersed throughout the district population. It is possible for a school district to sport a rather high assessed valuation, but still serve a rather poor student population in terms of household income.

Assumptions

Uniform student effort and motivation is assumed. The use of three years of assessment data, which will be averaged, should help to equalize any differences in motivation among different groups of students. While some groups are likely more invested in achieving high scores than others, it is assumed all put forth the same general effort on the assessments.

Economic and demographic data collected will be district-level data. Three years of achievement data will be utilized—from three different sets of students, yet a guarantee cannot be made that the percentages of free and reduced lunch students, for example, will follow precisely the percentages of the entire district for that period. For this study the assumption will be the tested populations look like the district population as a whole.

Design controls

Three years of English I data will be used. Rural schools tend to have small student populations. Thus, achievement scores can see extreme volatility in rural schools as some grade cohorts include larger numbers of high achieving (or low achieving) students than cohorts within the same school. Three years of data should include enough students to reflect the actual proportions within the population of the district and provide an accurate picture of actual achievement occurring in each district.

Economic features of school district populations and valuations will be used to categorize schools. The data will be used to coalesce school districts into one of three economic categories. School districts will be classified as high, moderate, or low, according to comparative economic health or strength.

Summary

This study will set out to explore the assumption that rural schools are largely reflections of the overall economic health of their host community. Economically ambitious, and advantaged people, may tend to raise children with the same characteristics and advantages. Those children may achieve at higher rates than their peers unburdened with such advantages as Payne (1996) and Jackson (2007) observed and suggested. Economic health may contribute to family stability—which may also have great impact on student achievement.

If resource scarcity is indeed negatively impactful upon student achievement, we are duty bound to explore methods to make our rural public schools equitable with each other in terms of resource availability, and to provide something beyond adequacy for all the students in Missouri. If resource scarcity is indeed negatively impactful upon student achievement, we are duty bound to encourage rural communities to search for ways by which they can be the ground for fertile and innovative economic growth practices—perhaps the basis for future studies.

Conclusion

There is little doubt, based on an analysis of the literature, equity in public school funding and resource allocation is, at best, hard to truthfully illustrate, and at worst, impossible to find. Missouri well represents the states which, inadvertently or not, exhibit and perpetuate those imbalances, according to numerous sources. Rural school districts, according to the literature, are highly represented insofar as school districts who are not treated equitably in terms of finance and resource allocation.

School districts across the nation, and Missouri in particular, are highly dependent upon the strength of the economy in the local community. The literature points out this condition and assigns the reason for resource discrepancy at the feet of this fact of school finance. While the effects of this practice, and the history behind it, are easily seen, the literature does not have consensus for viable strategies to combat or improve finance or resource equalization in public schools.

This study will attempt to fill in some gaps relative to Missouri rural schools—as far as what happens to student achievement, if anything, when rural schools are appropriately funded (if such a school exists). Also of interest is whether rural schools on the short end of resource allocation can overcome those shortcomings in terms of student achievement. Perhaps this study can add to the discussion of resource allocation and discover places which overcome a dearth of resources both in the school but within the home lives of their respective student bodies.

Results

Data was collected for Missouri rural school districts. Specific data inclusive to the years 2011 to 2013 were gathered for percentage of proficient and advanced scorers on the English 1 end-of-course examination, assessed valuation per pupil, household income, and percentage of students eligible for free and reduced price lunch. Data in each category were averaged for the three-year period. English 1 performance was the dependent variable. Assessed valuation per pupil, household income, and percentage students eligible for free and reduced price lunch were independent variables.

Table 1
Descriptive Statistics for Average of Percentage of Proficient and Advanced Scorers on the English 1 End of Course Examination 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	57.45%	10.08	.69	18.8%	83.9%

Table 2
Descriptive Statistics for Average of Assessed Valuation per Pupil 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	$79,000.02	$52,812.46	$3,618.65	$22,793	$419,668

Table 3
Descriptive Statistics for Average Household Income 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	$40,877.25	$7,350.05	$503.62	$29,385	$68,638

Table 4
Descriptive Statistics for Average Percentage of Free and Reduced Lunch Students 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	55.16%	13.49	.92	13.2%	86.2%

Regression analysis showed the three economic factors (independent variables) in combination accounted for over 15% (adjusted R^2=.153) the variance in the percentage of proficient and advanced students on the English 1 exam (dependent variable).

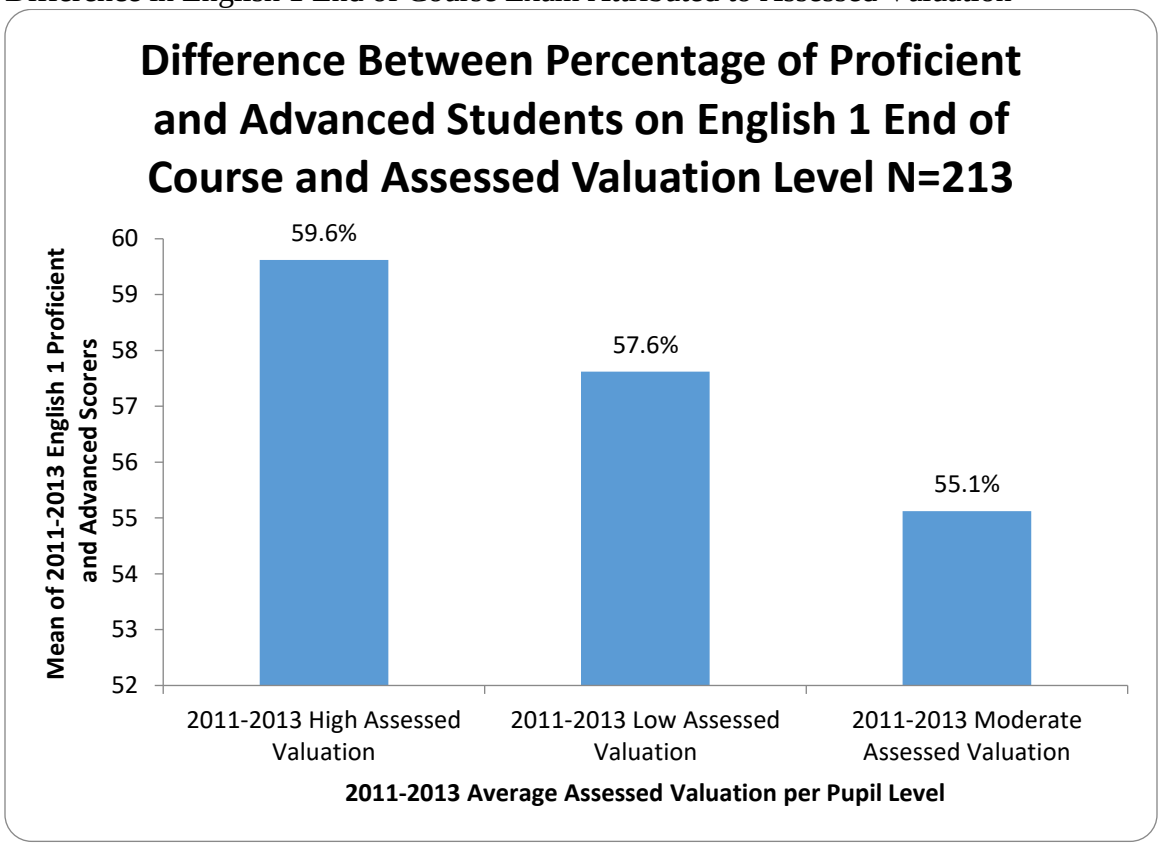
Table 5

Regression Statistics	
Multiple R	0.40655491
R Square	0.1652869
Adjusted R Square	0.15330537
Standard Error	9.27824357
Observations	213

The regression analysis showed a significant relationship between free and reduced lunch percentage and the percentage of proficient and advanced students on the English 1 end-of-course exam (p=.000). Free and reduced lunch proved the only dependent variable with a statistically significant relationship.

ANOVA test found a statistically significant, small effect between assessed valuation per pupil and the percentage of proficient and advanced students on the English 1 end-of-course exam (p=.028, Omega^2=.02).

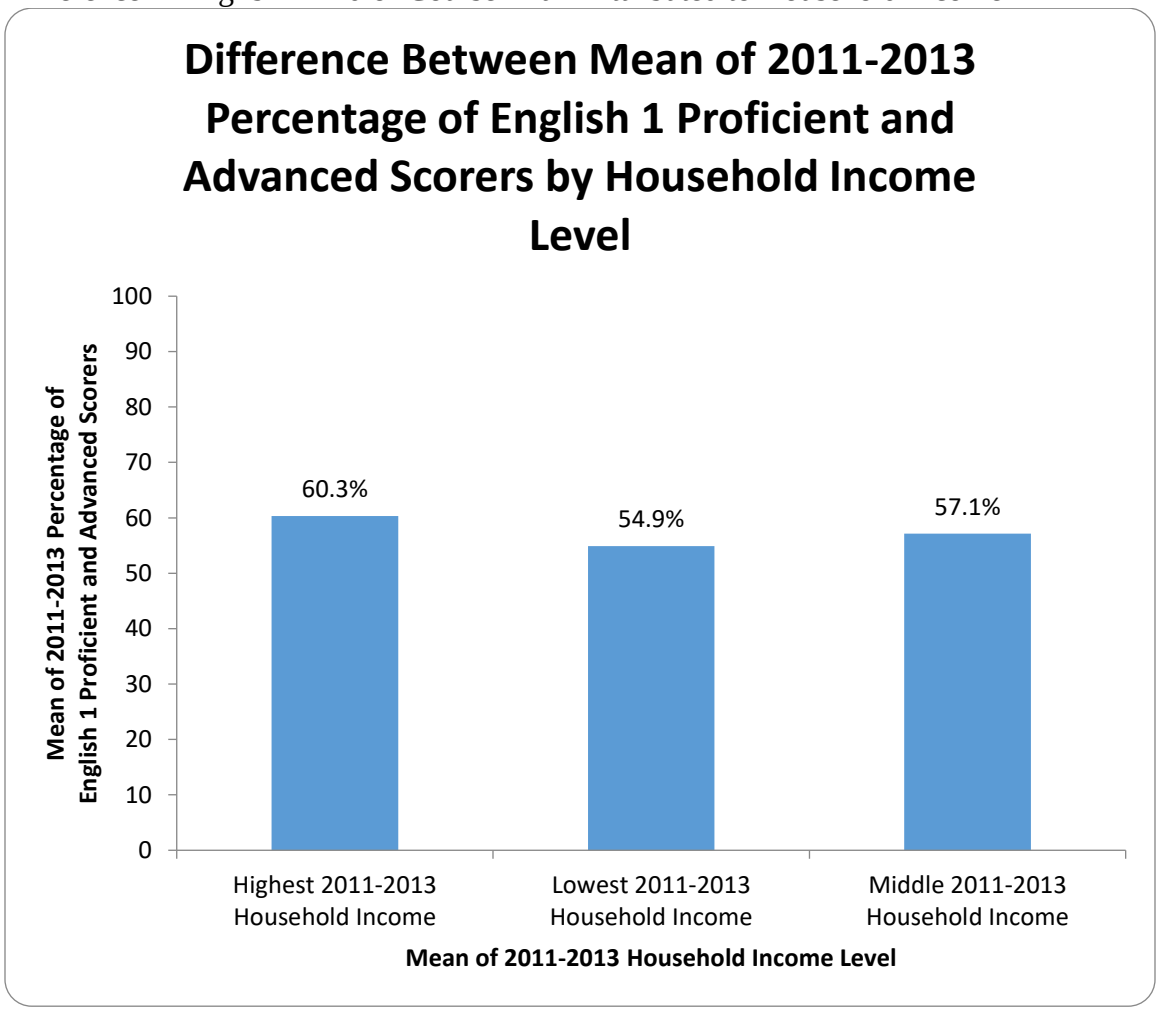
Figure 4
Difference in English 1 End of Course Exam Attributed to Assessed Valuation



Within the ANOVA test described in Figure 1, significant differences were found among the high assessed valuation group and moderate assessed valuation group (p=.008). As Figure 4 exhibits the largest spread of average achievement scores occurred between those two groups.

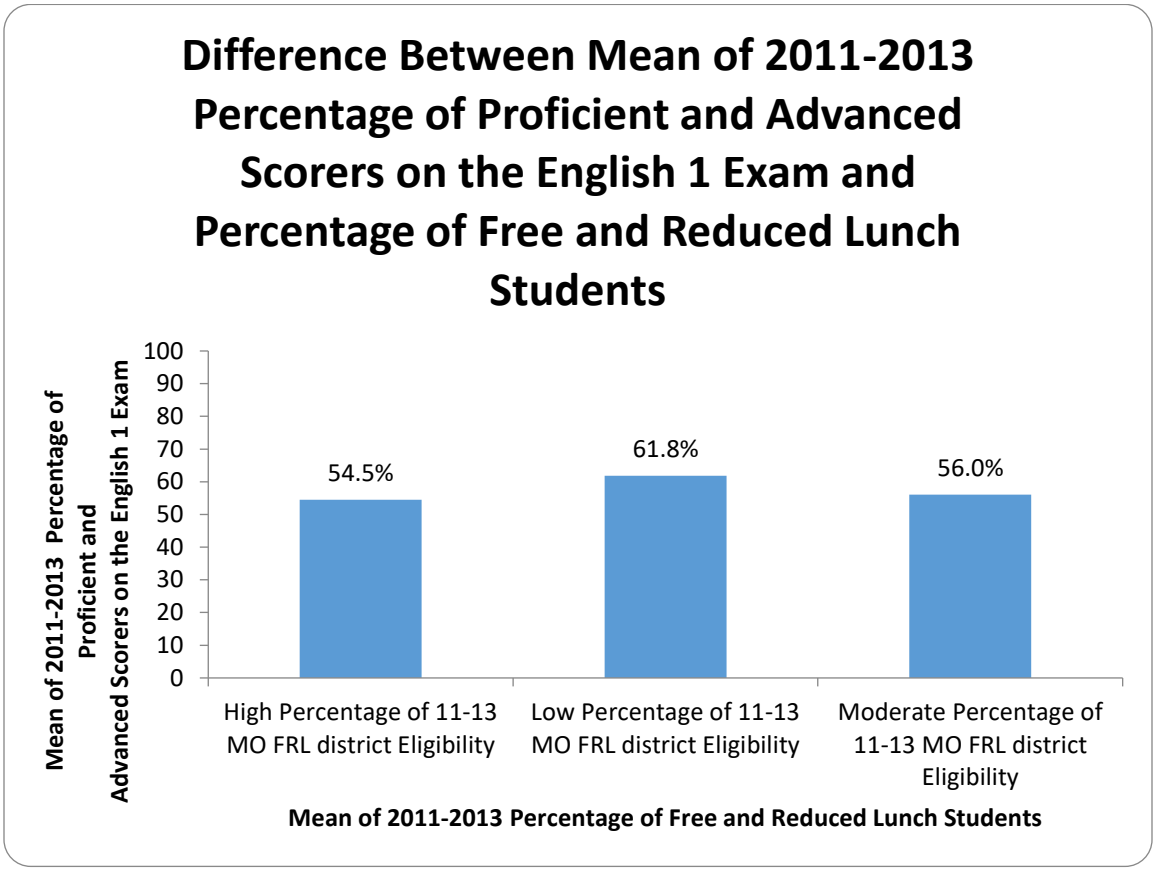
ANOVA test found a significant and small effect between household income and the percentage of proficient and advanced students on the English 1 end-of-course exam (p=.005, Omega^2=.04). ANOVA test found a significant relationship (p=.001) between the high income group and the low income group, as illustrated by Figure 5.

Figure 5
Difference in English 1 End of Course Exam Attributed to Household Income



ANOVA test found a significant and large effect between percentage of free and reduced lunch students and the percentage of proficient and advanced students on the English 1 end-of-course exam ($p=.000$, $Omega^2=.09$). Significant differences were found between the low percentage of free and reduced lunch students and both the moderate group ($p=.000$) and the high percentage group ($p=.000$). Figure 6 illustrates the differences in student achievement among the groups.

Figure 6
Difference in English 1 Proficient and Advanced Scorers Attributed to Percentage of Free and Reduced Lunch Students



School districts that scored exceptionally well, or exceptionally poor, were identified by 1.5 and greater standard deviations from the mean of proficient and advanced percentage of students. According to the special education standards and indicators used by the Missouri Department of Elementary and Secondary Education, children scoring at a discrepancy of 1.5 standard deviations below the mean can be categorized as learning disabled (DESE, 2016). Similar logic was used to identify those schools performing exceptionally, at either end of the spectrum. When comparing schools, who perform 1.5 standard deviations and beyond on the English 1 end-of-course exam, both higher and lower than the mean, differences in assessed valuation per pupil, household income, and free and reduced lunch percentages are statistically significant.

Figure 7 illustrates the difference in achievement among the low and high performing groups.

Figure 7
Difference in at least 1.5 Standard Deviations Above and Below Mean in English 1 Achievement

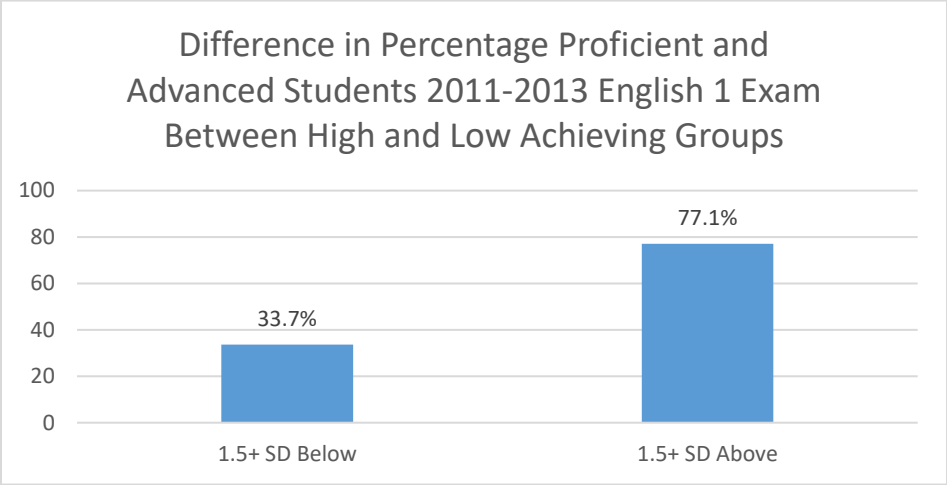


Figure 8
Difference in at least 1.5 Standard Deviations Above and Below Mean in Assessed Valuation per Pupil

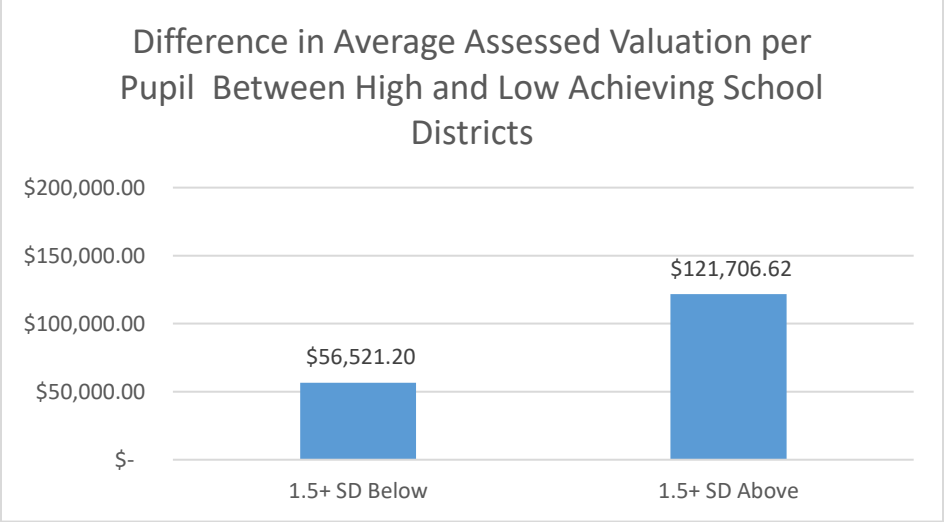


Figure 7 exhibits a stark difference in the two groups. Perhaps the small size of the combined groups (N=22) contributes to the perceived difference. However, it cannot

be argued that students in the high performing group have many more local dollars backing their education than the low performing group.

Figure 9
Difference in at least 1.5 Standard Deviations Above and Below Mean in Household Income

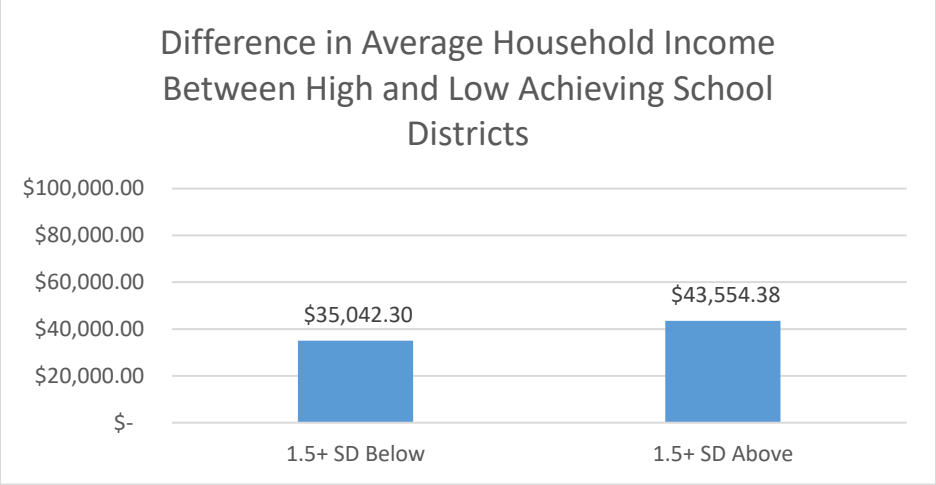


Figure 9 illustrates a clear spread in household incomes between the high and low achieving groups. Families belonging to school districts in the high achieving group has, on average, over $8,500 more in annual income than the low achieving group. That difference equates to 24% of the income of the average family in the low achieving group.

Figure 10
Difference in Percentage of Free and Reduced Lunch Students Between High and Low Achieving Groups

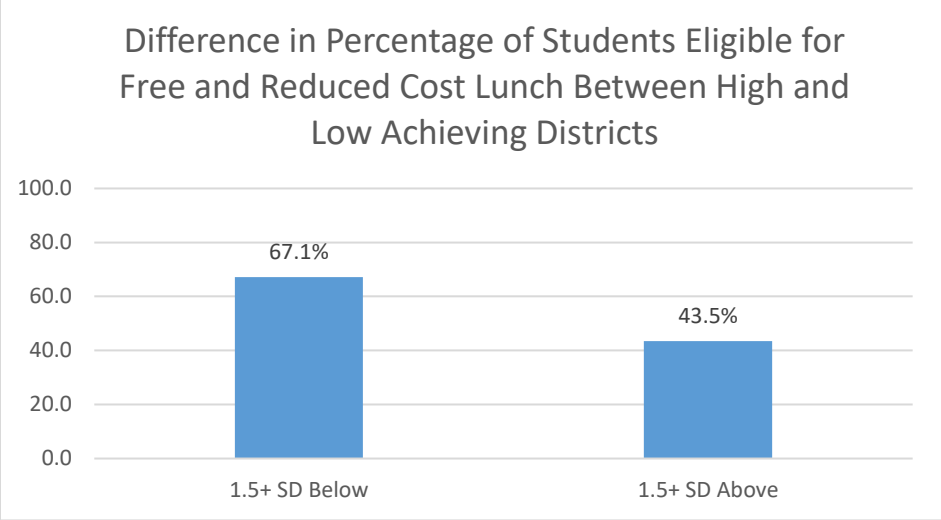


Figure 10 illustrates a clear difference between the high and low achieving groups in terms of percentage of free and reduced lunch students. The low achieving group, on average, has 23.6% more students who receive free and reduced lunch.

Discussion

Economic factors play a role in student achievement. Local assessment per pupil, or the dollars behind a student have a small effect, however, the highest achieving schools on average have over twice as many local dollars behind a student than a low achieving school. This finding may suggest the thoughts that more affluent schools tend to attract and retain superior instructional talent and tend to feature broader curricula.

RQ 2: Is there a difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre-K-12 rural school districts with low, moderate, and high economic resource levels?

The data suggest that the answer is in the affirmative. Regression analysis found a significant relationship between percentage of free and reduced lunch students and the

percentage of proficient and advanced scorers on the English 1 exam, as Payne (1996) implied may be the case. ANOVA tests confirmed significant achievement differences between economically advantaged and disadvantaged groups in all three areas of measure.

H_O2: There is no difference in educational achievement on the 9th grade English-Language Arts end-of-course examination when considering 2011-2013 Missouri Pre-K-12 rural school districts with low, moderate, and high economic levels.

The data suggest the null hypothesis to have been disproved, as significant differences in achievement were found among all three independent variable groups. The economic juxtaposition of families and school districts would appear to have some influence on student achievement, as Payne (1996) insisted. Regression analysis indicated 16% of the variance in achievement scores may be explained by the economic variables tested.

RQ 3: What economic factors relate to increased student achievement on the English 1 end-of-course examination in Missouri rural public schools?

The data suggest that free and reduced lunch percentage appears to have impact upon the percentage of students who achieve at a proficient or advanced levels on the English 1 exam as Payne (1996) observed. Regression and ANOVA tests both found significance among free and reduced percentages and achievement levels.

Assessed valuation per pupil and household incomes were found to exhibit significant differences on student achievement levels, based upon ANOVA analysis. The effects detected were small but statistically significant. Based on the data analyzed schools with lower percentages of free and reduced lunch students, high assessed

valuation per pupil, and high household incomes will tend to produce a higher percentage of proficient and advanced students on the English 1 end-of-course exam.

Furthermore, a perfunctory comparison of the highest and lowest achieving groups indicates the economic factors separating the groups are nearly as stark as the gaps in achievement. Although this particular data set was not subjected to null hypothesis significance testing, descriptive analysis indicated differences between high achieving districts and low achieving districts regarding their availably resources. The existence of significant relationships and significant differences are verifiable. Economic advantages, the data suggests, translate to student achievement.

Affluent rural families and support for achievement

Researchers such as Jackson (2007), Roscigno, Tomaskovic-Devey, and Crowley (2006), Dupere, Levanthal, Crosnoe, and Dion (2010), Konstantopoulus (2006), and Payne (1996) all note the relevant advantages enjoyed by affluent families or the relative disadvantages faced by poor families. Two of the three economic measures utilized in this study, free and reduced lunch percentage and household income, are concerned with resources available to individual families. School districts which are populated with students with high economic resources tend to have a higher percentage of proficient and advanced achievement. The existence of significant relationships and significant differences due to free and reduced lunch and household income suggest the economic disposition in the home influences student achievement.

The impact of free and reduced lunch percentage was detected in two separate analyses. This suggests poverty, as indicated by free and reduced lunch qualification, exhibits a tangible drag on student achievement as Payne (1996) noted. What is unclear

from the data is the level of wealth required for optimal achievement. We assume affluence equates to increased achievement. However, the absence of qualification for lunch assistance does not guarantee the presence of wealth. Presumably there are many students who do not qualify for free and reduced lunch who are some distance from affluent economic conditions. Many, but not all, of the schools in the high performing group (at least 1.5 standard deviations beyond the mean in their student achievement) had high household incomes and assessed valuation per pupil.

Affluent rural school districts and teacher quality

The teacher is credited with large influences on academic achievement as Rockoff (2004) stated. Christie (2001), Strange (2011), Debertin, Clouser, and Hule (1986), Gibbs (2005), Guarino, Santibanez, and Daley (2006) all suggest teacher compensation has an impact on the quality of instruction available to a given school.

Small, and significant, differences were found between achievement levels and the variables of household income and assessed valuation per student. Both of those measures suggest relative health of a given local tax base. As Rowe (2009) noted, Missouri schools are dependent upon their localities for funding. Both budgets of our sample schools, District X and District Y, reveal over half of the combined revenues to those schools are from local sources. Schools with an abundance of resources, it is logical to assume, are better positioned to pay for instructional talent. Whatever advantages may be implied for a school in a relatively affluent community certainly teacher quality, by and large, would set them apart from their resource-challenged peers.

Affluent rural schools and curriculum

Aikens and Barbarin (2006) observe schools populated with many economically poor students often find their academic intervention services overwhelmed by sheer numbers of struggling students. This phenomenon consumes resources which would be utilized for enrichment of existing curricula. The noted phenomena also suggest students from poor families are more likely to struggle on achievement tests.

The data suggest as the percentage of free and reduced lunch students increases, the percentage of proficient and advanced students decreases. The data sugges as test scores depress opportunities for remediation increase, as Aikens and Barbarin (2006) noted. The performance of schools with high percentages of free and reduced lunch students would suggest confirmation of the observations of Aikens and Barbarin (2006).

Researchers such as Kelly and Sheppard (2009), Debertin, Clouser, and Hule (1986), Gibbs (2005), and Skrla, Sheurich, Garcia, and Nolly (2004) all noted the increased opportunities associated with affluent schools. Students with expanded opportunities, as the literature suggests, tend to achieve at higher levels. Rigor has a role. As students have opportunities to progress to more and more difficult subject matter achievement can increase.

This specific phenomenon is difficult to pinpoint from the data analyzed in this study. However, affluent schools tend to have a more diverse curriculum, as such as Kelly and Sheppard (2009), Debertin, Clouser, and Hule (1986), Gibbs (2005), and Skrla, Sheurich, Garcia, and Nolly (2004) intimated. This may or may not translate to the achievement test utilized for this study. Certainly, the literature implies a richer

educational experience for students in affluent schools. The study data show schools with high levels of poverty struggle in terms of student achievement.

Recommendations for Policy, Practice, and Future Research

Policy

The data show poverty, both in individual families, and collectively in a school district, serves to restrict student achievement. Researchers including Payne (1996), Jackson (2007), Roscigno, Tomaskovic-Devey, and Crowley (2006), Dupere, Levanthal, Crosnoe, and Dion (2010) and Konstantopoulus (2006) all imply affluence helps, and poverty hurts, academic achievement. Building upon that work, economic development may be a key to increasing achievement. Dupere, et al (2010) and Konstantopoulus (2006) in particular indicated stable and financially secure families tend to produce children that achieve academically. A key may be to develop the rural economy in Missouri. It would seem the benefits seen in affluent families and affluent schools would, on balance, improve student achievement. If student achievement is indeed dependent upon off-campus economic factors, and Missouri insists schools are largely left to their own devices to fund education, then local economic development efforts appear to be tantamount to a variety of milieus.

Rowe (2009) described the historical and legal basis by which Missouri funds public schools. Historically Missouri, according to Rowe (2009), has tended to allow individual communities to assume the largest burden of providing financial support for the local school. This traditional mechanism may be inadequate. As the percentage of qualifiers for free and reduced cost lunch increases (as the average did over the three-year

period of this study) local schools may find their tax bases decreasing, again an argument for more support from the state level.

Whatever academic supports may help ameliorate the effects of poverty on student achievement, they may come with increased financial burdens on schools. Thus, an impetus exists to review school funding mechanisms in Missouri. The state should do more than simply mandate schools perform better. The state should provide real support to rural schools if they are to make academic progress with the growing population of resource-poor students.

Practice

Can impoverished students overcome their condition? Are kids low achieving because they are poor, or are kids poor because their family is low achieving? Payne (1996) may agree in the affirmative to both former and latter questions. Nonetheless these are questions worth asking. Perhaps a study of a true employment rate, accounting for those who are not actively seeking work, may provide insight. If economic opportunity, and the willingness to actively pursue economic opportunity, is paramount to academic achievement, then societally we should be compelled to pursue policies which may stimulate economic growth.

Perhaps there are strategies for improving academic achievement of resource deprived students. There are schools in the high achieving group that sport rather large populations of students eligible for free and reduced cost lunch. Payne (1996), Jackson (2007), Roscigno, Tomaskovic-Devey, and Crowley (2006), Dupere, Levanthal, Crosnoe, and Dion (2010), and Konstantopoulus (2006), all note, in a variety of ways, how poverty influences individual children within those environments, and the subsequent drag on

achievement that can occur. These children often require supports and interventions to succeed academically as Payne (1996) noted. The best practices in terms of supporting resource-poor students should be implemented in a widespread fashion. Some of the group of schools who achieve beyond 1.5 standard deviations past the mean on student achievement may have answers to those questions, and structures in place for other schools to emulate.

Future research

An economic factor not investigated is any relationship or difference attributable to unemployment on student achievement. The measure of employment that relates to the percentage of the available work force actively employed and any corresponding effect on achievement may be an interesting study. It can be demonstrated, with some certainty, that economic conditions do indeed exert some influence on student achievement. However, the specific impacts are harder to quantify.

A question exists as to whether some students do not succeed because they are resource-poor or are some families resource-poor because they do not succeed. There may be able-bodied parents who simply chose not to be employed. It would be interesting to see what, if any, impact that would-be population has upon student achievement in a school. Assuming many of those students qualify for free and reduced lunch status it would be interesting to drill down farther, if possible, between working poor, unemployed poor, and non-job-seeking unemployed poor to see if there are any differences in those groups.

While it is easy to castigate the unemployed for their condition, they must have employment opportunities to seek. This is where economic development in rural areas is

key, along with continued experimentation and research. The plight of rural economies is apparent and an area that has seen some research. However, actual progress is hard to find, and how that progress-where it happens-translates to student achievement is unknown.

Perhaps schools have a role to play in the economic fortunes of their host communities. Schools may have cards to play in economic development, but those avenues are largely unexplored. Certainly, many superintendents attend local economic development meetings, but to what effect is unknown and possibly ground that merits exploration.

Other recommendations for future research involve identifying schools that achieve 1.5 standard deviations beyond the mean that have characteristics of resource-poor schools. Such schools achieve despite lack of advantages. Perhaps those schools have an understanding of poverty amelioration as pertains to student achievement beyond current literature on the subject. Certainly, any efficacious organizational practices to encourage achievement would be advisable to emulate in other districts.

SECTION SIX: SCHOLARLY PRACTITIONER REFLECTION

As many who have come before may attest, the dissertation process is a consuming endeavor. Completion requires time and exquisite concentration. It requires creativity and reflection. It may be cliché to describe the effort as a journey, yet it is. As the march started in the summer of 2013 comes to conclusion three plus years later many things have changed along the way. Hopefully the changes have been for the better, better for the students, teachers, staff, and administrators, who depend upon competent leadership. Time will tell.

Influence of Dissertation on Educational Leadership

A career that has spanned 25 years and counting has been spent in totality in rural areas. Five years, and counting, as a superintendent in small, rural schools has afforded the opportunity to view the described phenomena in this study in real time.

Years ago, after securing the first administrative position, as a high school principal, some assumptions were made. The first was an assumption that administrative work would involve a great deal of managing manufactured conflict. Conflict management has improved. Bolman and Deal (2008) provided a method to frame, and thereby manage conflict. Bardach (2012) provided a methodical and practical path to evaluate, and, if need-be, change policies or practices.

Conflict is inherent in school administration. I suspicion it has always been that way. The 21st Century may or may not be a more contentious educational environment than past years. Certainly, we live in interesting times. The doctoral process has taught me how to better listen and seek to understand disparate points of view. Before, anyone who disagreed with time honored ways a school does business may have been labeled

unreasonable and dismissed, at least subconsciously. Now I seek to understand instead of seek to dismiss. Bolman and Deal (2008) help tremendously when seeking to understand uncover hard-to-find logic in some points of view. Merely having the ability to understand someone else and find the nugget of logic within a cloud of confusion has helped me get along with difficult patrons, even if we ultimately do not agree.

The doctorate program, as it culminates in this dissertation, has forced me to focus thinking. It has taught me to gather information from a multitude of sources, even those I may not agree with, and synthesize it all into something cogent and practical. As a former football coach a proper analogy perhaps is the doctoral program, and dissertation process in particular, have taught me how to construct the playbook for school leadership.

The mere act of knowing where to find the best information, how to interpret it, how to validate it, and how to craft a solution from it, make the doctoral program and dissertation worthwhile. In my mind, if all administrators practicing in Missouri had to be graduates of this program, our educational perception problems would fade very quickly. The best word to describe the experience would be “comprehensive”. There is simply no part of educational leadership practice that is not put under scrutiny. Sometimes what is found is not what you want to see. But authors, such as Bardach (2012), provide a mechanism to change the organization and yourself.

In summation, practice is more methodical, patient of other points of view, more reflective, and more comprehensively effective.

Influence of the Dissertation Process on Scholarship

The dissertation process has instilled an appreciation for scholarship not present prior to the dissertation process. Probably the largest impact has been in the acquisition and consumption of research, and the analysis of data. Both skills have been developed and honed during the writing process.

Research acquisition and consumption is a skill that has been strengthened immeasurably the past several months. There is a lot of information out there. Discriminating useful and accurate information, picking out bias, identifying sound research practices, and quickly finding relevant information are all skills honed during the process. Dr. Wall and Dr. Edmonds have both been vital in development as a consumer of research. The program affords multiple opportunities to read, and reflect upon, research. The key is to know where to find good research and extract the most pertinent information. These skills will doubtless prove useful as a scholar-practitioner for the coming years.

Data is a term thrown around a lot in education circles now-a-days. The educational leader spends many hours compiling and uploading data for DESE and others in the alphabet soup who regulate public education. However, within the sea of numbers all educational leaders swim in, are truths, if one has the skill to unearth them.

Field (2013) has been a real eye-opener in terms of data analysis. It is one thing to have a set of numbers. Another to perform some rudimentary descriptive statistics in an effort to understand what story there is to tell. However, to get inside the numbers one must perform, or understand the results of, more advanced statistical analysis. Regressions, correlations, and ANOVA tests can unearth such truths. Those analyses

may also clarify or refute what the naked eye may lead one to assume when superficially viewing a data set.

The correct consumption of data has been a tremendous influence upon scholarship. It has also contributed to both sides of the scholar-practitioner equation. Knowing truth, and an accurate depiction of reality, is only accomplished through data analysis as described, in exquisite detail, by Field (2013).

Conclusion

As an elementary student, my hometown received snow in copious enough amounts to warrant cessation of education for the day. A friend of mine and I decided a good way to pass time would be to ride our sleds to the town square and visit each building.

We entered the senior citizen center to a reception best qualified as annoyance, despite our offer to engage in dominoes. We received quizzical looks at the bank when the suckers they would give us when accompanied by our parents were asked for. A mildly scary incident occurred at one of the drug stores (which was actually a liquor store), when a disembodied voice from the reputed morphine-addicted, elderly proprietor, inquired “can I help you boys”, and sent us scurrying out into the street. We found patient amusement at both the General Motors and Ford car dealerships when we inquired as to the possibility of a test drive. We earned watchful tails while browsing in two hardware stores, the small department store (with the appropriate moniker of “Pixie”), jewelry store, the other (and more reputable) drug store, the electronics store, paint store, carpet store, the two flower shops, newspaper office, and auto parts store. We

found sustenance in the Hy-Vee, one of two grocery stores in town, and at the Dew Drop Café.

My friend and I were ten years old in the winter of 1978. That was the last time intrepid pre-teen explorers could circumnavigate the town square and find commerce in all storefronts. By the time of high school graduation, some eight years later, more than half of those mentioned business concerns had ceased—usually without replacement. Even my friend would move away, as did others, before we finished school. Our school class lost nearly 30% in population between that winter and graduation day.

Youth is colored with remembrances of ubiquitous financial hardship. Of cold winters with the heat turned low to save money. My classmates and I saw the last vestiges of a more prosperous past, a community quickly yielding to global economic forces none of us in the fourth grade knew existed, nor would we have understood if we had. All we knew, at that time, was every so often another farmer went under, another business would close, and another classmate would move away. And on and on it went until little remained, or at least, what remained did not resemble what came before. Similar stories are chronicled by Drabenstott (2005), Longworth (2008), and Carr and Kefalas (2009).

These remembrances, mine and others cited, are at the core of this research. Rural Missouri is withering away. Rural Missouri schools are going with them. If rural America is not economically relevant anymore in the modern, global, sense, then so be it. If true, and the trends observed are irreversible and inevitable, and our collective fate is to gravitate to crowded suburbs, let us adjust and move on. However, if rural America, and rural Missouri, has a relevant role to play, then we are doing a very poor job sustaining a

part of our heritage and economy. Rural Missouri, and the schools that serve rural communities, are taken for granted. They often supply urban areas with raw materials and intellectual talent. One wonders, on a drive through any rural area of the state, what many rural communities have left to give. Where will the cities and suburbs be when the talent has been cleansed from the country-side? No one is asking these questions. That is why this research was done, to see if the economic erosion of rural Missouri was affecting school achievement. Of course, it is. The larger question is what to do.

The challenge for rural superintendents is to stave off what may be inevitable. The challenge is to educate children increasingly from environments onerous to achievement. Our politicians and bureaucrats seem oblivious to the societal calamity unfolding in general society. Mere acknowledgment of difficulty in rural areas is analogous to a lightning strike, much less any parallels to problems more widespread.

The superintendent position is a complicated job. In a small, rural, school, the superintendent is asked to be expert in a dizzying array of tasks. Saving a small town from the ravages of economic decline is not within the training or expertise of many superintendents. Indeed, most superintendents wish to manage the resources of a school district, support the educational process, and advocate for education within their community. Most days that is a big enough job.

As a scholar-practitioner there is an obligation to improve the lot of our state. Whether the state has the will or the cognizance to improve rural communities and rural schools is conjecture for debate. Public education may not save Missouri. Public education may not save our small towns. Perhaps, if enough educational leaders are trained, and their practice inculcated, in the methods and dispositions of this program,

then Missouri rural public education has a chance. Missouri public education—and the public perception of the industry itself may be saved, or at the least, improved. That may have to be enough.

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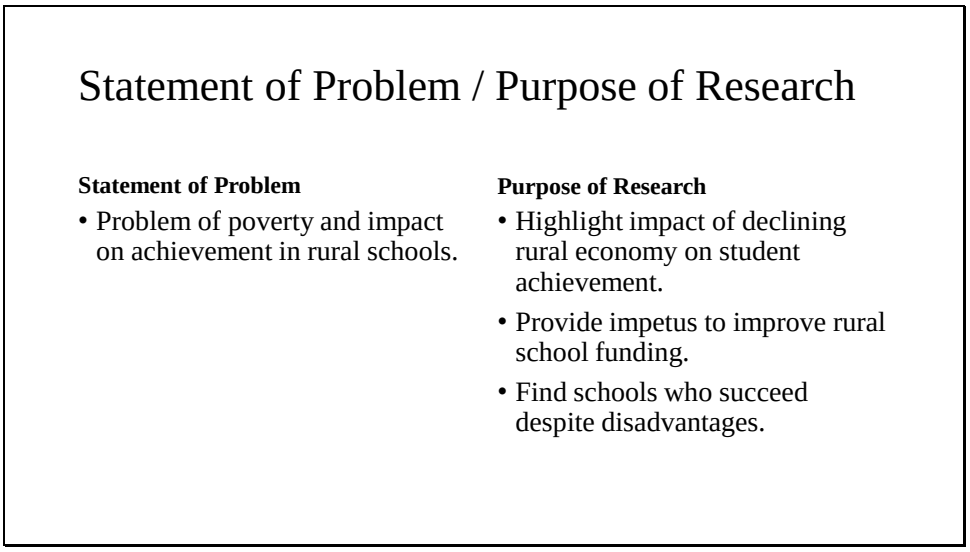
APPENDIX A

Presentation

A Quantitative View Into the Economic Disparities of 2011-2013 Missouri Rural Public School Districts and English 1 Examination Scores

Research Study Presented by:

- John Rinehart
- University of Missouri / Northwest Missouri State University ELPA Ed.D. Program
- jrcn7@mail.Missouri.edu
- rinehartj@wpsd.net

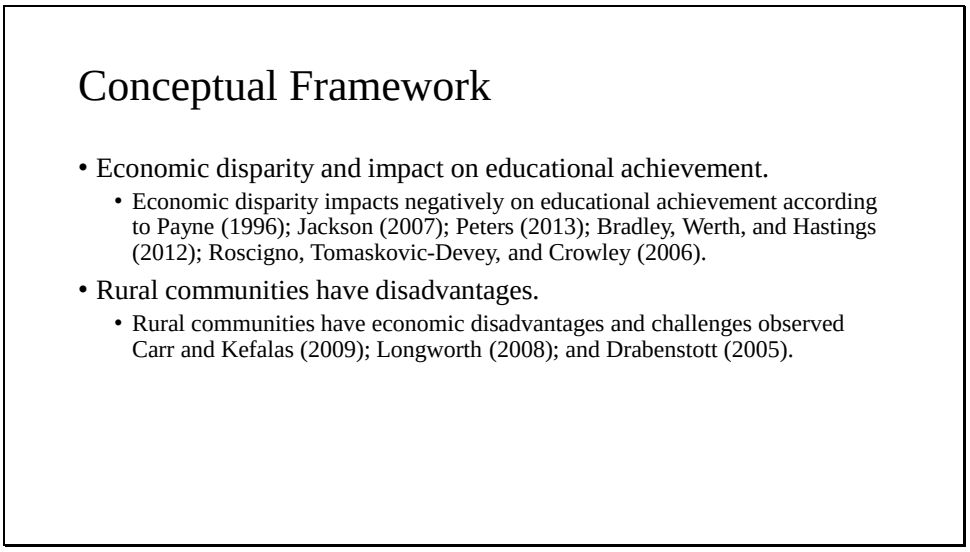


Notes:

- Longworth (2007) among others observed the decline of rural economies over the past several years.
- As rural schools see higher rates of poverty, are there implications for student achievement?
- What can be done to assist schools from policy (funding) and practice standpoints?

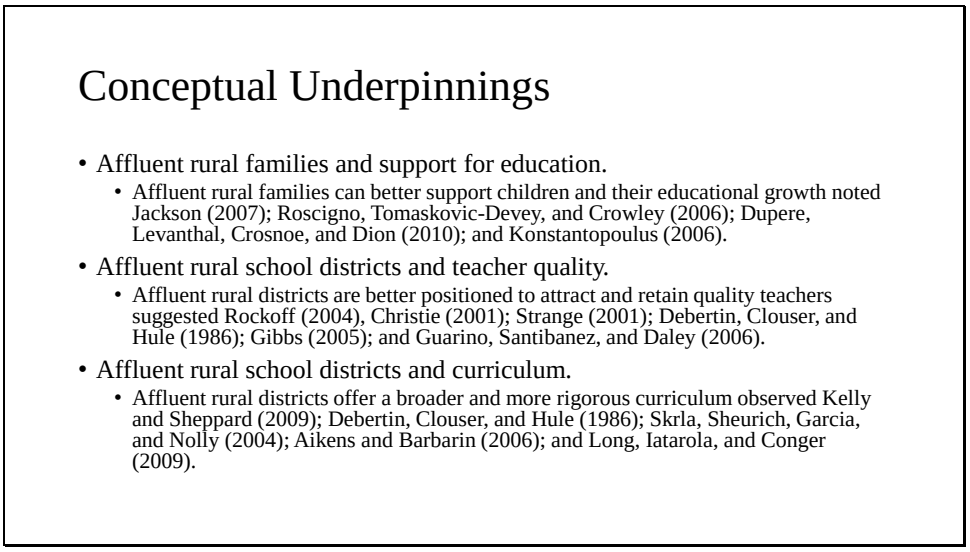
Research Questions

- 1. What are the descriptive statistics of 2011-2013 Missouri rural public school district student achievement and economic measures?
- 2. Is there a difference in educational achievement between low, moderate, and high economic resource levels?
  - HO_2: There is no difference in educational achievement between low, moderate, and high economic resource levels.
- 3. What economic factors relate to increased student achievement?



Notes:

- Many researchers insist poverty impacts student achievement. Therefore, if rural schools see more poverty, they may struggle maintaining high levels of student achievement.



Notes:

- The literature suggests poverty places obstacles to student learning in three areas, which became the conceptual underpinnings.
    - Affluent families are better equipped to support education.
    - Affluent schools are better positioned to hire quality teachers and develop a rich, rigorous curriculum.

Design of Study

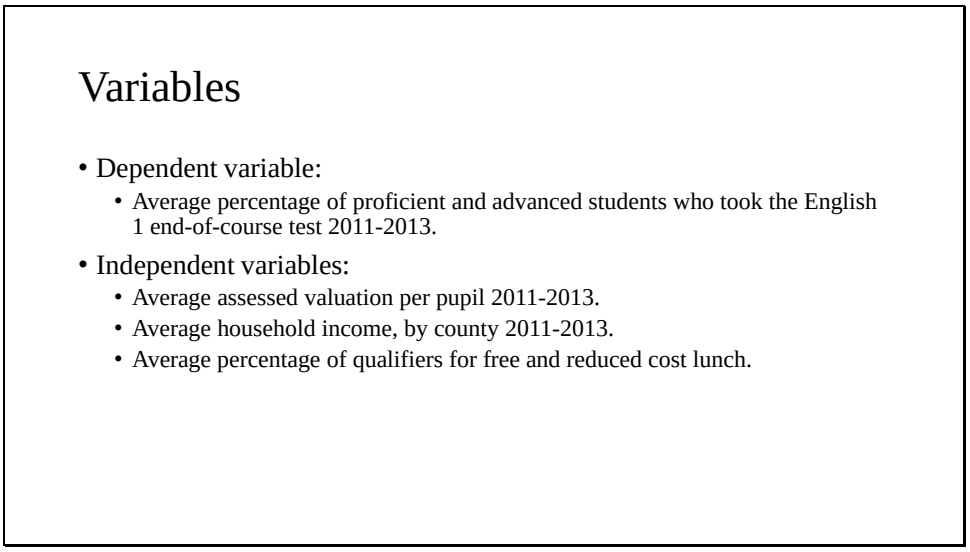
- Setting and Participants:
  - rural Missouri school districts who administered the English 1 end-of-course exam from 2011-2013.
- Data analysis:
  - School districts ranked by achievement on the English 1 exam and economic factors.
    - Average assessed valuation per pupil.
    - Average household income.
    - Percentage of students who qualify for free and reduced cost lunch.

Data Analysis

- Correlation analysis, as suggested by Field (2013) to determine any significant relationships between economic factors and student achievement.
- Regression analysis, as described by Field (2013) to determine the amount of variance that can be explained by economic factors upon student achievement.
- ANOVA test, as explained by Field (2013) to determine if differences in achievement levels could be explained by economic factors.

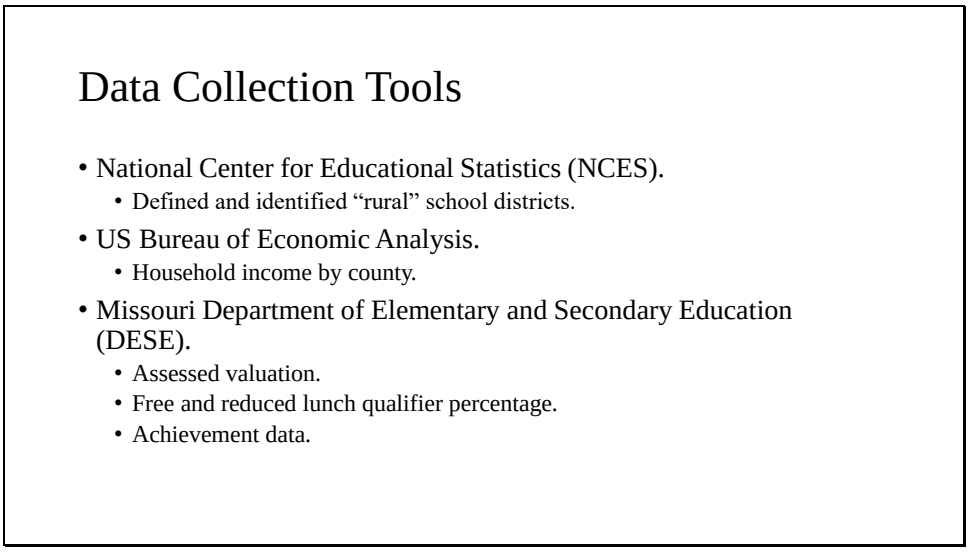
Notes:

- Used these tests to find relationships and differences.
- Evidence thereof suggests impact of economic factors to student achievement.



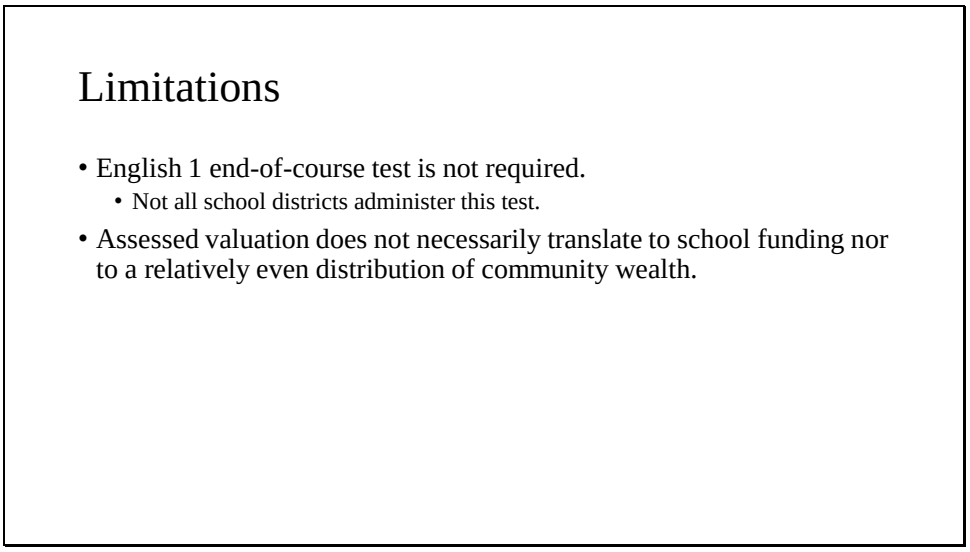
Notes:

- DV picked because English 1 last communication arts test all students will take.
- Many students drop out prior to taking the English 2 assessment.
- Household income and free and reduced cost lunch picked as economic measures within families.
- Assessed valuation was utilized as a measure of relative community wealth.



Notes:

- All publicly available databases.

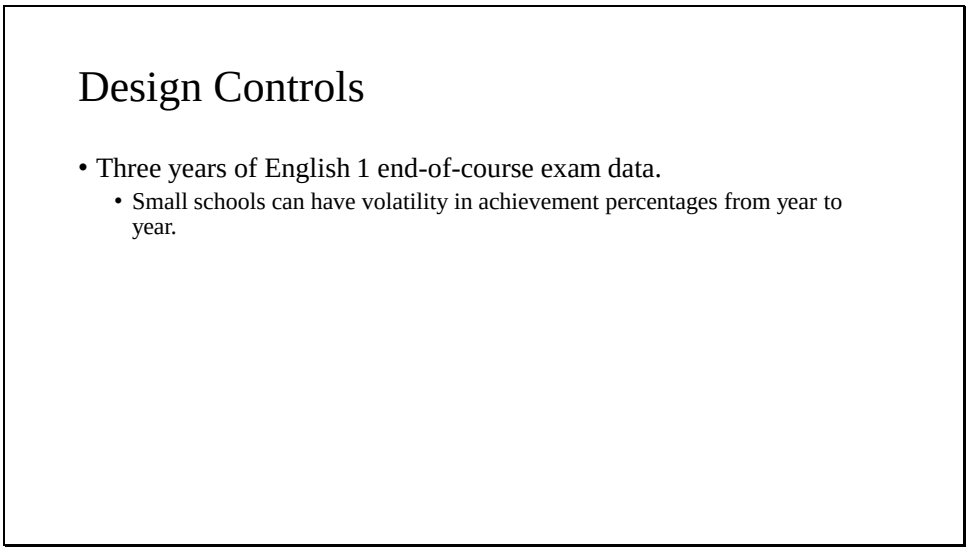


Notes:

- English 1 is the last communication arts many students take.
  - Many students drop-out prior to taking the English 2 test.
- Assessed valuation is a measure of community wealth, however:
  - Assessment can be subjective, and varies by county.
  - Wealth measured may be concentrated and not distributed throughout the community.
  - AV does have a great impact on the local school budget.

Assumptions

- Uniform student effort and motivation on the English 1 end-of-course exam.
- Population demographics of English 1 exam takers mirrors that of school district.



Notes:

- Three year average used to take extremes into account.

Results / Descriptive Statistics

Table 1

Descriptive Statistics for Average of Percentage of Proficient and Advanced Scorers on the English 1 End of Course Examination 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	57.45%	10.08	.69	18.8%	83.9%

Table 2

Descriptive Statistics for Average of Assessed Valuation per Pupil 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	$79,000.02	$52,812.46	$3,618.65	$22,793	$419,668

Table 3

Descriptive Statistics for Average Household Income 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	$40,877.25	$7,350.05	$503.62	$29,385	$68,638

Table 4

Descriptive Statistics for Average Percentage of Free and Reduced Lunch Students 2011-2013

N	Mean	Std. Dev.	Std. Error	Min	Max
213	55.16%	13.49	.92	13.2%	86.2%

Results / Regression Analysis

Table 5

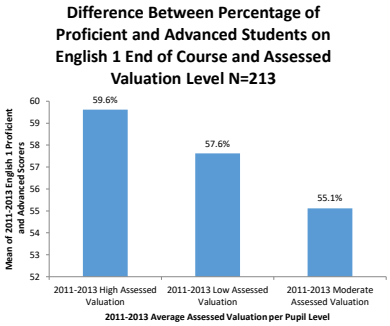
Regression Statistics	
Multiple R	0.40655491
R Square	0.1652869
Adjusted R Square	0.15330537
Standard Error	9.27824357
Observations	213

- About 16.5% of the variance in test scores can be attributed to our tested economic factors.
- Free / reduced cost lunch qualifiers were found to have a statistically significant relationship to achievement. (p=.000).

Notes:

- The only variable found to be statistically significant was FRL. An assumption can be made most of the variance found in R squared is due to FRL percentage.
- This analysis really locks down FRL as an influence.

Results / ANOVA English 1 and AV / Pupil

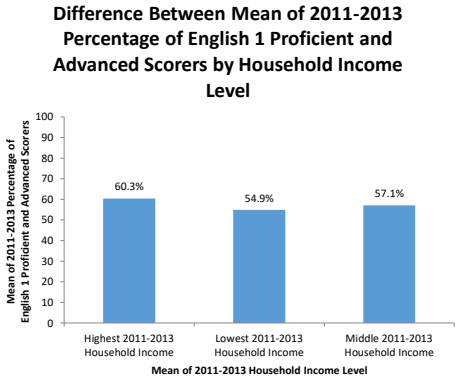


- Statistically significant difference and small effect between districts with high assessed valuation and moderate assessed valuation (p=.008).

Notes:

- Even though AV was not significant in the regression evaluation, there was a significant, if small, difference detected in the ANOVA test.
- This may suggest relative community wealth may play a role in achievement.
- There may be a better measure of relative community economic health than AV.

Results / ANOVA English 1 and Household Income

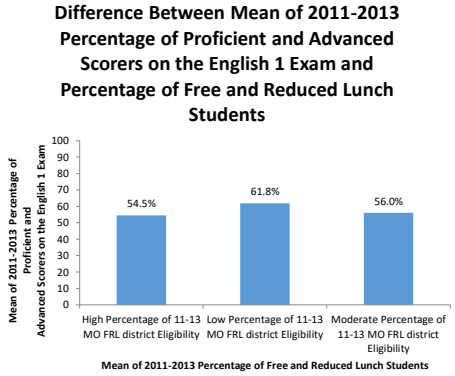


- Statistically significant (p=.005) and small effect (Omega^2=.04) attributed to household income.
- Statistically significant difference between high household income and low household income (p=.001).

Notes:

- Another significant, if small difference found.
- This is an imperfect measure as some districts span more than one county.
- Some counties see wide variations in economic health within their boundaries.

Results / ANOVA English 1 and Percentage of Free / Reduced Cost Lunch Qualifiers

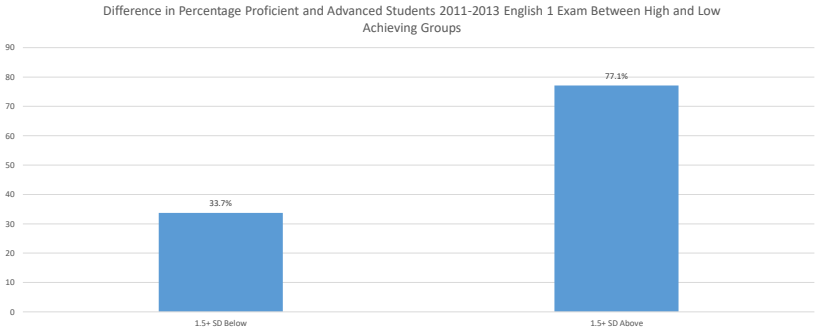


- Statistically significant (p=.000) and large effect (Omega^2=.09) difference attributed to percentage of free and reduced lunch students and achievement.
- Statistically significant differences found between low frl percentage and moderate frl and between low frl and high frl.

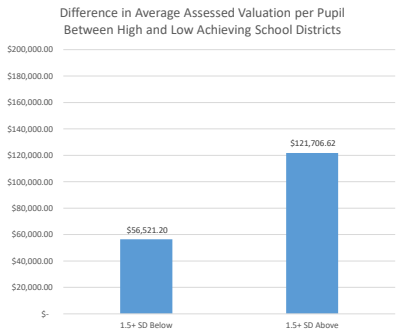
Notes:

- Again FRL is shown as significant, and a large effect.
- Two tests suggest FRL has an impact on student achievement. It would seem to be indisputable that FRL exhibits a drag on student achievement.

Comparison of Districts 1.5 Standard Deviations from Mean



Comparison Groups and AV / Pupil

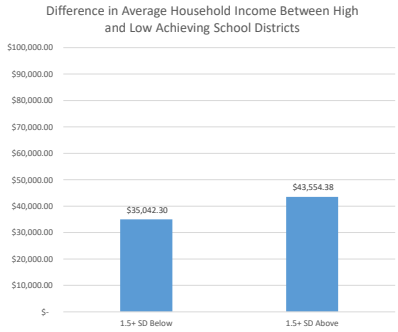


- The high achieving group, on average, has over double the assessed valuation per pupil.
- Suggests those schools have more local resources.

Notes:

- Even though statistically significant relationships were hard to find between achievement and AV—some high assessment districts score in the high group.

Comparison Groups and Household Income

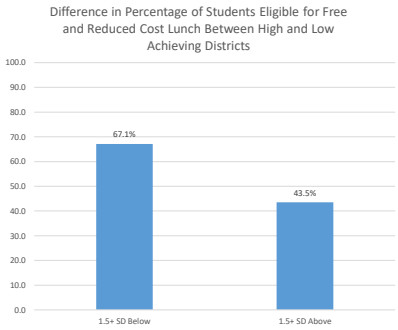


- High achieving group features average household incomes about $8,000 / year higher.
- 24% higher average incomes.
- Suggests families are better able to support education in the high achieving districts.

Notes:

- Although a statistically significant relationship between HI and achievement was hard to find, the high achieving group certainly had higher average HI.
- It would be interesting if the HI data could be dialed down to the school district level.

Comparison Groups and Free / Reduced Lunch Percentage



- High achieving group has far smaller percentage of free and reduced cost lunch qualifiers.

Notes:

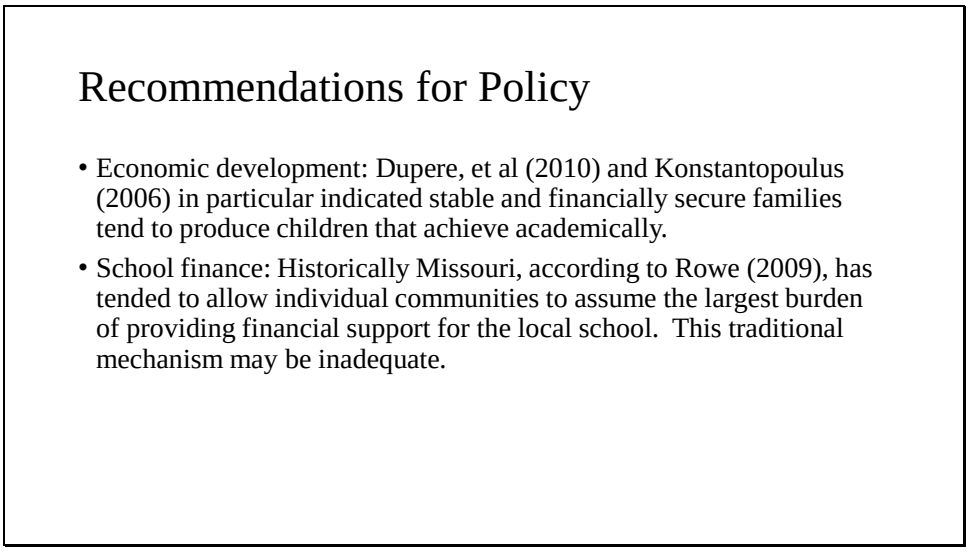
- The high achieving group has a far lower FRL percentage.
- If a regression is run, using only the high and low groups, FRL is again statistically significant.

Research Questions Answered

- 2. Is there a difference in educational achievement between low, moderate, and high economic resource levels?
- Answer: Yes. Districts with high levels of economic resources tend to have a higher percentage of high achieving students.
  - HO_2: There is no difference in educational achievement between low, moderate, and high economic resource levels.
  - Answer: No. Null hypothesis is proven incorrect.
- 3. What economic factors relate to increased student achievement?
- Answer: Percentage of free and reduced cost lunch qualifiers is the most statistically significant and largest effect upon student achievement. Assessed valuation per pupil and household income can be attributed for statistically significant yet weaker differences.

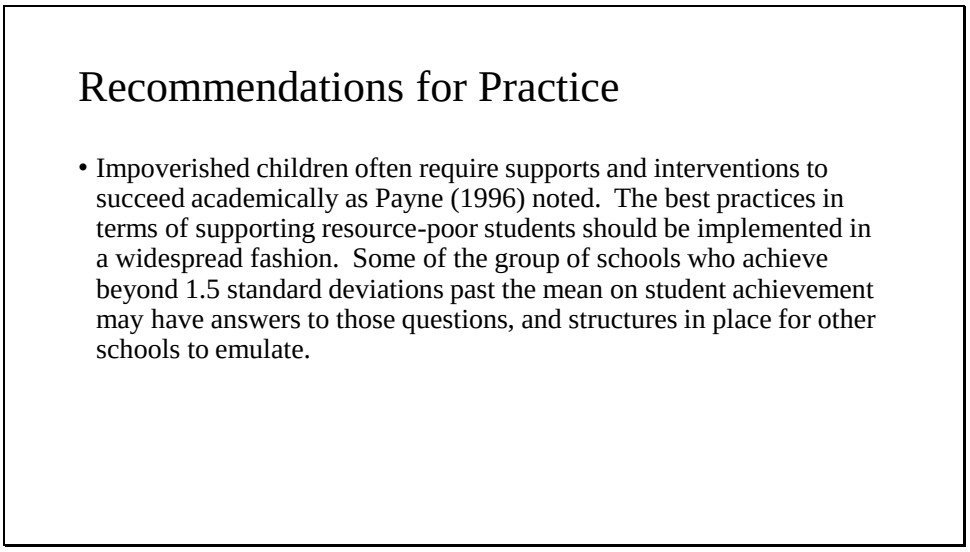
Notes:

- The data suggests poverty in rural areas impacts student achievement.



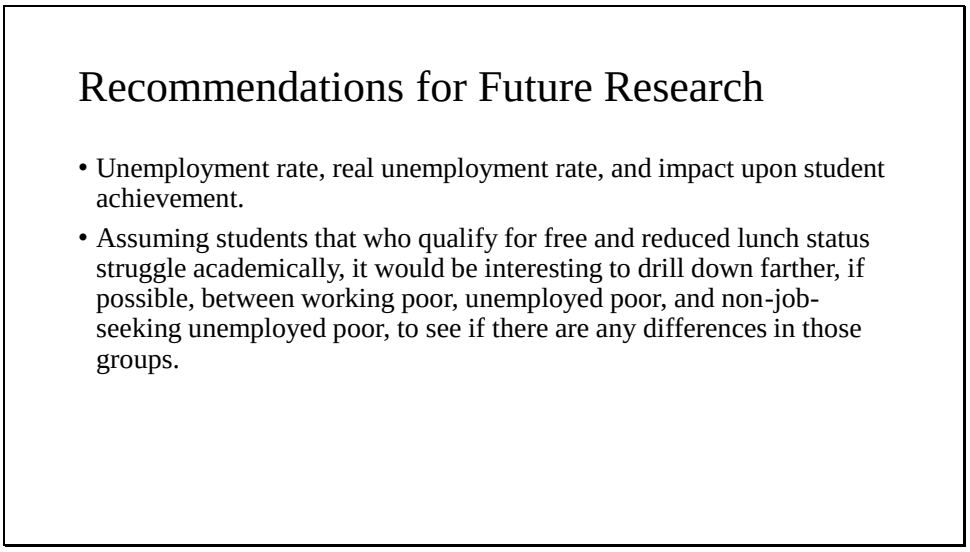
Notes:

- Schools burdened with large populations of impoverished students may be overloaded when trying academic interventions.
- Economic disparities may exacerbate academic problems. Funding to compete for teaching talent, shore up curriculum, and provide interventions may be needed to level the opportunities.



Notes:

- Some schools overcome, despite their disadvantages. Any practices used to good effect should be studied and emulated.



Notes:

- It may be interesting to see if work ethic, as described by the actual employment rate, could be quantified.
- If so, it would be interesting to see what relationship or difference could be found to effect student achievement.

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APPENDIX B

IRB Determination Notice Project #2007011 Review #220715

Project #2007011
Project Title: A quantitative analysis of economic disparities of 2011-2013 rural Missouri public school districts and English 1 examination scores.
Principal Investigator: John Rinehart
Primary Contact: John Rinehart

Dear Investigator,

The MU Institutional Review Board reviewed your application and supportive documents. It has been determined that this project does not constitute human subjects research according to the Department of Health and Human Services regulatory definitions. According to this form, the data you will get is considered publically available, and does not require IRB Approval. As such, there are no further IRB requirements.

If you have questions, please feel free to contact the IRB office at 882.3181.

Sincerely,

MU Institutional Review Board

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VITA

John Rinehart is a lifelong resident of rural Missouri. He was raised in Worth County, Missouri, a son and grandson of teachers, and graduated from Worth County High School in 1987. A Bachelor of Science in Education was earned in 1992 from Northwest Missouri State University in Maryville. Master's in Education (secondary administration) and Education Specialist (school administration) Degrees were earned from William Woods University, Fulton, Missouri, in 2001 and 2005, respectively. Work on a Doctorate of Education in Educational Leadership from the University of Missouri-Columbia (jointly with Northwest) began in 2013.

He served as a science and physical education teacher and coach (mostly football) at South Nodaway, North Callaway, Clinton, Appleton City, and Centralia spanning from 1989-2006. A career in administration began in 2006 at Centralia as high school principal. Albany (2012-2015) and West Platte (currently) have endured his attempts as superintendent of schools.

The Rinehart family lives in historic Weston, Missouri.