Demystifying Research: What’s Necessary and Why Administrators Need to Understand It

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Demystifying Research: What’s Necessary and Why Administrators Need to Understand It

Mary Antony Bair¹ and Ernestine K. Enomoto²

Abstract
Despite the need to adopt evidence-based school reform practices, administrators are often stymied by the proliferation of instructional strategies not supported by research data. In this article, misconceptions about research terms are clarified, and sources for reliable studies are suggested. We offer practical guidelines for determining whether findings are credible and relevant for a particular context. By demystifying research, it is hoped school administrators will be encouraged to be critical consumers of research studies when making administrative decisions.

Keywords
research-based best practice, decision making, educational leadership, administration and management, school reform

To date, 45 U.S. states have adopted common core standards in an effort to stipulate what is to be taught in public schools across the nation (Common Core State Standards Initiative, 2011). When implementing these standards, school administrators will be expected to translate the policy for teachers, provide appropriate support, and direct the school reform efforts necessary to ensure student success. But many principals themselves receive little or no direction on how policies are to be translated into practice (Bair & Bair, 2011). For example, the new common core standards state the “content of intended curricula” (i.e., what is to be taught) but not the “pedagogy of

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curriculum” (i.e., how it is to be taught; Porter, McMaken, Hwang, & Yang, 2011). Therefore, principals will need to make decisions about the nature of staff development provided to their teachers. In addition, if No Child Left Behind (NCLB) guidelines are to be followed, principals will need to ensure that all students are proficient in reading and mathematics by 2014. In so doing, they must make decisions about curricula, assessment, and school schedules.

NCLB recommends the use of programs and practices that are based on scientific research (Slavin, 2008). Likewise, according to the Individuals with Disabilities Education Act of 2004, a student’s lack of response to scientific, research-based intervention can be used to identify them as having a specific learning disability (King, Lemons, & Hill, 2012). Therefore, in the hopes of increasing student achievement, secondary school administrators are adopting Response to Intervention, a model that emerged in elementary schools (King et al., 2012). Response to Intervention requires the adoption of research-based interventions and the careful monitoring of results. How will principals identify and select scientifically-based programs and practices? What will guide their decision making as they confront these complex challenges?

It appears that, in making decisions about school programs, educators “do not often use scientific reasoning and proof to make sense of their world” (Berliner, 2008, p. 309). For example, Levin (2010) reports that administrators were found to rank “personal experience and colleagues as a more powerful influence on their beliefs than either professional development or research” (p. 309). They also tend to rely on war stories and anecdotes rather than drawing on the latest research studies (Hattie, 2009; Labaree, 2008; Stanovich & Stanovich, 2003). Like teachers who prefer research that is personal and experiential (Landrum, Cook, Tankersley, & Fitzgerald, 2007), school administrators may turn to their peers for information and advice (Levin, 2010; Miller, Drill, & Behrstock, 2010).

The problem with this approach is that decisions based on individual experiences or anecdotal information can lead to biased conclusions. It is easy to select cases that support one’s arguments and ignore those that do not (Davis, 2007). Moreover, popular practices might be flawed even if they are applied extensively. For example, between 2006 and 2010, in response to a state-mandated increase in graduation standards, a third of Michigan public high schools reorganized to accommodate a trimester schedule. They did this despite having very little empirical evidence to support the effectiveness of that approach for students who were struggling academically (Bair & Bair, 2010). In a long-term ethnographic case study undertaken from 2006 to 2009, Bair and Bair (2010) found that 3 years after adopting this new school schedule, “trimesters inadvertently hurt students already at risk of academic failure” (p. 78). Large urban districts in Michigan started reverting back to the semester schedule when they realized that struggling students needed more time, not less, in order to learn the rigorous content required for high school graduation.

Willingham (2012) observed that much time and money was wasted in adopting scientifically unsubstantiated interventions. Stahl (1988, 2002) noted that, in an attempt
to boost student achievement, teachers were taught how to differentiate instruction to accommodate various students’ learning styles. But this was done without any evidence to support the claim that assessing and matching children’s learning styles to specific instructional methods had an effect on learning. Likewise, Riehl, Larson, Short, and Reitzug (2000) stated that the practice of retaining students continues in elementary schools across the United States despite decades of research attesting to the ineffectiveness of this practice.

At the same time there are instructional procedures that many teachers have never heard about, such as reciprocal teaching (Palincsar & Brown, 1984), a practice that has proven to dramatically increase reading comprehension in Grade 4 through adulthood (Rosenshine & Meister, 1994). Similarly, despite decades of research supporting the effectiveness of explicit, direct instruction for novice learners, teachers continue to engage in practices like discovery learning, problem-based learning, and inquiry learning for this academically vulnerable population (Clark, Kirschner, & Sweller, 2012).

The NCLB Act of 2001 requires schools to adopt only programs and methods that are based on research and that have been proven to be effective (Slavin, 2008). Since evaluation of principal performance will soon be based on student achievement, it behooves administrators to know “how to analyze data and change curriculum and instruction accordingly” (Agarwal, Bain, & Chamberlain, 2012, p. 446). Furthermore, before principals make decisions regarding the kind of staff development to be pursued or instructional programs to be purchased, they need to question the outcomes that are being promised and examine the evidence offered. Not only do they need to ask the right questions regarding the educational value of a program, they also need to be able to evaluate the answers they receive (Willingham, 2012).

Why do school administrators generally not use research to guide their decisions? There may be several reasons for this. One reason might be a lack of time. As one administrator told the authors, “When you are a superintendent, it’s like your hair is on fire. You don’t have time to sit around reading research.” Second, it might be that research is published in scholarly journals to which administrators do not have access (Kennedy, 1997). Third, the sheer volume of the available research might be overwhelming; information overload combined with a lack of time may prevent administrators from serious inquiry (Miller et al., 2010). Fourth, administrators may find that research studies are written by and for university researchers in a manner that is inaccessible to practitioners (Berliner, 2008). Fifth, they may not know how to evaluate the quality of the research or cannot understand the findings in the way they are expressed (e.g., in significance levels or effect sizes). Finally, it might be difficult to determine the relevance of a research study for one’s particular district or school. Even if school principals can access, read, and understand the research, they may not know how to implement it in their schools (Levin, 2010).

Thus, it is important to clarify possible misconceptions and help school administrators understand how to search for relevant, trustworthy research. Knowing how to read research and critique the evidence presented is the first step in this complex process.
Understanding the basics can help principals determine whether findings are relevant for their particular context, encouraging them to be critical consumers of research studies when making administrative decisions.

**What Is Empirical Research?**

As faculty who teach research methods courses in colleges of education, the authors frequently find their students confused about the term *research*. Students use the word in a colloquial manner, saying, “I’d like to research common core standards” or “I’d like to research formative assessments.” They frequently mean that they will be looking for more information, usually from the Internet and occasionally from the university library. This colloquial use of the term *research* simply refers to a search for more information.

But empirical research specifies a process by which individuals gather and analyze data in a systematic, scientific manner. Scientifically-based research is “rigorous, systematic, objective, empirical, peer reviewed and relies on multiple measurements and observations preferably through experimental or quasi-experimental methods” (Lauer, 2004, p. 6). Data collected may be quantitative (numerical) or qualitative (nonnumerical). Unlike the haphazardly nature of gathering anecdotal data, empirical research consists of a systematic collection and analysis of information, often gathered from different sources and settings over time.

Research studies may be conducted for a variety of reasons. Studies that seek to increase our fundamental understanding of a topic or issue fall under the category of basic research. For example, a researcher may investigate the history of curricula in American education (e.g., Kliebard, 1995). Or perhaps a team of researchers is exploring how parents and families engage with schools (e.g., Epstein & Sanders, 2006; Hoover-Dempsey et al., 2005). While adding knowledge to the field, these studies may not be of immediate use to practitioners (Berliner, 2008).

Applied research, on the other hand, is conducted to find effective ways to solve a problem. For example, Agarwal et al. (2012) examined the use of quizzes for improving students’ long-term learning. They found that quizzes, especially those providing feedback, improved students’ learning. Furthermore, as a principal himself, Chamberlain describes his experience with the applied research project:

> I became more aware of the importance of knowing how our students were performing in order to drive instructional decision-making. Now, I am more aware of the positive impact of research on student learning, especially when research-based decision-making has never been more important for principals. (p. 446)

Findings from this sort of applied research can be particularly useful to administrators who are trying to solve practical problems. It should be noted that action research is a type of applied research where practitioners identify problems in their particular
settings, implement changes, and monitor the effects themselves (Berliner, 2008; Fraenkel, Wallen, & Hyun, 2012).

What Are the Different Types of Research?

According to Duke and Martin (2011), “the educational enterprise is far too complex for one type of research to answer all of our questions or meet all of our needs” (p. 19). For example, when confronted with the new common core standards, some researchers might focus on the outcomes of the standards by documenting their influence on student achievement, attendance, graduation rates, and dropout rates. Others might prefer to look at the process of implementing these standards, for example, exploring how teachers understand and interpret the standards in their own classrooms. Still other researchers might critique the top-down imposition of the standards and examine the deprofessionalization of teachers that results from external mandates. These are different types of research designs that can investigate problems in the field of education. In the following section, we explain some of the different educational research designs that can provide valuable information to administrators.

Quantitative Research Methods

The three most commonly used quantitative research methods are descriptive, correlational, and experimental research.

Quantitative descriptive studies tend to be based on surveys taken to detail some characteristics of a population. For example, a researcher might survey teachers to understand how prepared they feel to implement the common core standards. The resulting research report might describe these teachers (by gender, age, ethnic background, educational level, and experience) and their attitudes and beliefs. Another example of a survey is the federal census, which is a description of the entire U.S. population. It is only taken once a decade because it is such a large-scale, comprehensive endeavor.

In correlational studies, researchers seek to determine the relationships between two or more variables. For example, consider the relationship between parent involvement and student achievement. Does more parent involvement mean greater student achievement? The degree to which these two variables are related is described by a correlation coefficient. A positive correlation means that high scores on parent involvement relate to high scores on student achievement. Conversely, a negative correlation means the opposite; that high parent involvement relates to low student achievement. This kind of research can only measure the strength and direction of such a relationship, not determine what caused the relationship. It is important to keep in mind, though, that a correlation is necessary for causation.

The third type of study, experimental research, is often called the gold standard of research designs because it does establish cause and effect. That said, it is rarely conducted in educational settings because it requires having control and experimental
groups that are deemed equivalent. Random sampling is used to select individuals from a pool, followed by the random assignment of individuals to each group. The researcher then provides an intervention (the independent variable) and measures its effect on the outcome (the dependent variable). Since the two groups of subjects are equivalent in every way except the intervention, the researcher can confidently conclude that any variations in observed outcomes were caused by the intervention. For example, Marin and Halpern (2011) report that randomly assigned high school students who received explicit instruction in critical thinking outperformed the control group on a test of critical thinking. From this research, we can conclude that explicit instruction was an effective method for teaching critical thinking skills to high school students.

Since random assignment of students to experimental and control groups may be impractical or even unethical in schools, researchers often use the quasi-experimental design where two intact groups are compared. For example, D’Onofrio et al. (2012) used a quasi-experimental design to study the effects of maternal smoking during pregnancy on the academic achievement of the children.

Sometimes, there are not enough subjects to enable an experimental design, for example, some studies in the field of special education. If an individual student is the focus of analysis, single-subject research may be appropriate (Horner et al., 2005). The individual serves as his or her own control. In the AB type of design, the researcher measures the baseline performance (A) and performance following a treatment (B) and charts the effects over a period of time. A visual analysis of the performance across different conditions indicates whether the intervention has had an effect or not.

**Qualitative Research Methods**

Qualitative data typically consist of extensive narratives describing the researchers’ observations and in-depth interviews from participants. Rather than rely on random sampling, qualitative researchers gather data from purposefully selected individuals or cases. To sustain the credibility of their findings, they often employ the process of triangulation to gather data from multiple sources (e.g., observation, interviews, and documents). For example, in an extended ethnographic study, Bair and Bair (2011) drew on teacher and administrator interviews, classroom observations, school documents, and department of education documents to describe how school administrators implemented state-mandated universal college preparatory curricula.

For more information about different types of research methods, see Duke and Martin’s (2011) “Table 1. Brief Descriptions and Standards of Quality for Some Common Research Methodologies,” pp. 14-16.

**Where Can Reliable Research Studies Be Found?**

Increasingly, educators at all levels of the school system are expected to implement evidence-based practices that have been shown to be effective through research. But
where does a school administrator go to find reliable research studies? The problem is not a lack of studies, as there are thousands of research journals with articles claiming to be research-based or tested. According to Miller et al. (2010), there are more than one million articles in the Education Resources Information Center (ERIC) database alone. Dozens of peer-reviewed journals target school administrators among their readership, such as Educational Administration Quarterly, Journal of Educational Administration, and Planning and Changing. There are also journals for specific areas of specialization, such as Journal of Curriculum Studies, Early Childhood Education, Race, Ethnicity & Education, Special Education, and Urban Education. All these journals can be accessed through the ERIC database.

Given the volume of information, part of the challenge is taking the time to review what is available. To get an overview of the research on a topic, it is helpful to start with secondary sources that summarize research on that topic. Journals such as the Review of Educational Research provide a synthesis of research. Websites such as What Works Clearinghouse (a branch of the U.S. Department of Education), The Best Evidence Encyclopedia, and The Comprehensive School Reform Quality Center identify studies that provide evidence of effectiveness (Slavin, 2008). The Promising Practices Network, maintained by the Rand Corporation, also contains a compilation of effective practices. Widely circulated journals such as Educational Leadership or Elementary Reading, which focus on presenting research findings and their implications for schools and classrooms, are typically written for an audience of practitioners. They can offer appropriate secondary sources of information, summarize the research of others, and provide quick, easy-to-read reviews of the literature on a topic or issue. But, as summaries, these sources might not include the data or evidence necessary to make an informed decision.

Primary sources, on the other hand, are original reports written by those who actually conducted the research investigation. Because the researchers seek public scrutiny of their work, they provide information necessary for readers to judge the quality of that work and even to replicate the study if they wish.

However, not all primary sources of research are of the same caliber. The most rigorous research articles are shared with the professional community for critique through publication in scholarly journals that are refereed or peer reviewed. These are journals in which drafts of research articles undergo a “blind review” before they are accepted for publication. Blind or masked review means that two or more independent scholars, who are often experts in the field, provide critiques to ensure the objectivity of the research and the accuracy of the conclusions reached by the authors. Articles in peer-reviewed journals undergo more rigorous scrutiny than those where the only reviewer is the editor. The latter type can reflect an editor’s preferences or biases.

In summary, if school administrators want an overview of the research on a topic, they should read secondary sources. But if they want to know the details of a study or are seeking to do a similar kind of study, reading primary sources published in peer-reviewed journals would be more appropriate and useful.
How Do Administrators Know If Research Is Credible?

When evaluating research studies, it is important to remember that not all relevant research is good and not all good research is relevant. Administrators will need to decide on the efficacy of particular strategies, programs, or policies. For example, they might need to decide whether to purchase a particular instructional program or subscribe to a particular management model. Or they may need to determine an appropriate professional development process for their teaching staff.

For assistance in assessing research studies, the What Works Clearinghouse (Institute of Education Sciences, n.d.) screens each study and gives it a rating to indicate whether it meets their evidence standards. This rating indicates the amount of confidence the Clearinghouse reviewers place in the ability of the study to demonstrate causal evidence of the effectiveness of an intervention. The screening criteria involve a determination of whether the study used one of the following designs: randomized controlled trial, quasi-experimental design, regression discontinuity, or single case. Reviewers note whether the details of the intervention and of the study (location and age or grade range of students, etc.) have been clearly articulated. They also evaluate the quality of evidence provided by the researchers.

Begin by examining the article’s abstract to determine who the authors of the study are and what is being examined. Are the authors independent researchers or are they people who have a vested interest in selling some educational product or program? If the evidence has only been published on a commercial site, this suggests that the authors have something to benefit from the adoption of a practice, and the objectivity of the study may be suspect.

A researcher and founder of the prominent Success For All school reform model, Robert Slavin (2003) cautions that “accepting the developer’s word for a program’s research base is not a responsible strategy” (p. 16). As an administrator, it is important to evaluate the claims made by researchers and school reform promoters. This process is known as determining the study’s internal validity, which is done by ruling out any alternative explanations for observed differences in outcomes.

Only quantitative research studies with a true experimental design can issue claims about causing effects on outcomes (such as student achievement). As mentioned previously, this type of design is characterized by the use of randomly selected participants who are randomly assigned to treatment or control conditions. When reading the report of a randomized trial study, it is important to examine the evidence to determine if the authors have provided sufficient data to assure there were no systematic differences between the treatment and control groups. It is also important to examine the instruments used to measure outcomes to ensure that they were valid and reliable.

The most common threat to the internal validity of a study is called selection bias. This occurs when the groups being compared are not equivalent. It is possible that, due to some immeasurable characteristics, two groups being compared were not really the same at all. For instance, simply comparing the results of a highly selective magnet
school with the neighboring public school might be biased, because the magnet school is allowed to “weed out” struggling students.

Sampling bias can also occur if the subjects are volunteers. For example, those who voluntarily attend after-school science programs are probably interested in science, so claims that the program boosted an interest in science should be questioned. Likewise, if particular subjects (e.g., students who speak English as a second language) are excluded from the study, then a biased sample results. Attrition of subjects can also lead to sampling bias, especially when subjects with certain characteristics drop out of a study. If struggling readers drop out of the study or students with attendance problems are not present when the posttest is administered, the posttest scores will be artificially inflated.

In survey research, it is important to consider the response rate. How many of those surveyed actually replied? If the survey was sent out to 1,000 people and only 100 responded (i.e., 10% response rate), then conclusions can be made only about those respondents. By contrast, a response rate of 50% or more indicates that the survey might have captured a better sense of those surveyed.

It is also necessary to distinguish between correlation and causation. Because elementary school students who eat breakfast tend to have higher test scores than those who do not have breakfast, this does not mean that providing free breakfasts will necessarily boost student achievement. Eating a healthy breakfast daily could be associated with other factors, such as educated, diligent parents, or disciplined households where eating breakfast and doing homework are part of the daily routine. Therefore, a correlation between breakfast eaters and higher test scores does not necessarily mean causation.

Hattie (2009) cautions against applying correlations like a recipe and hoping for results. For example, he states that although feedback is strongly correlated with student achievement, simply increasing the amount of feedback will not lead to an increase in their achievement. Instead, it could have the opposite effect. For example, Nuthall (2007, as cited in Hattie, 2009) found that 80% of student-provided feedback was incorrect. For feedback to have a positive effect, it might require a different conception of teaching and a different way of interacting with and between students.

In deciding whether an educational program or practice will make a difference, administrators need to consider whether the results reported are statistically significant. That is, are the recorded differences between treatment and control groups merely due to chance, or are the findings statistically different? The researchers will report two terms, the alpha value and the \( p \) (probability) value. Experimental researchers set up a null hypothesis, which states that there is no difference between the treatment and control groups. Then they establish an alpha value (the level of confidence) in their findings. In educational research, this value is usually .05, meaning that the researcher is 95% confident that the difference observed is true within a 5% margin of error. Researchers will then compute the probability \( (p) \) value; this is the likelihood of obtaining a difference of the observed magnitude. If the \( p \) value is less than .05, a researcher can safely conclude, with 95% certainty, that the observed difference
between treatment and control groups is not due to chance (i.e., that the findings are statistically significant).

The \( p \) value does not give the magnitude of the difference. Rather, it reports the probability that the difference between the groups occurred by chance alone. To know the magnitude of the treatment effect, the researcher must calculate an \textit{effect size}. Generally, this means taking the difference between the average scores of the treatment and control groups (i.e., the mean of the treatment group minus the mean of the control group) and dividing it by the pooled standard deviation. In a recent synthesis of more than 800 meta-analyses, Hattie (2009) found that an effect size of .40 was a benchmark of real-world change. For example, computer-aided instruction had an effect size of .37, reciprocal teaching had an effect size of .74, and direct instruction had an effect size of .90. This means that administrators might be advised to focus their efforts on implementing reciprocal teaching and direct instruction rather than computer-aided instruction (see Table 1 for common statistical notations).

### Table 1. Basic Notations of Inferential Statistics.

<table>
<thead>
<tr>
<th>Term</th>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null hypothesis</td>
<td>( H_0 )</td>
<td>Hypothesis that the finding occurred by chance; it is assumed to be true and is tested</td>
</tr>
<tr>
<td>Alternative hypothesis</td>
<td>( H_a )</td>
<td>Hypothesis that the finding did not occur by chance; it is supported on rejection of ( H_0 )</td>
</tr>
<tr>
<td>Significance level</td>
<td>( \alpha )</td>
<td>The probability of rejecting ( H_0 ) when it is actually true</td>
</tr>
<tr>
<td>( p ) Value</td>
<td>( p )</td>
<td>Probability or likelihood of occurrence by chance alone</td>
</tr>
<tr>
<td>Effect size</td>
<td>( d, \omega^2, \delta )</td>
<td>Magnitude of the difference between two groups</td>
</tr>
<tr>
<td>( t ) Test</td>
<td>( t )</td>
<td>Inferential test to detect difference between means of two distributions, for example, when testing the difference between experimental and control groups</td>
</tr>
<tr>
<td>Correlation coefficient</td>
<td>( r )</td>
<td>Measure of strength and direction of relationship between two variables</td>
</tr>
<tr>
<td>Chi-square test</td>
<td>( \chi^2 )</td>
<td>Inferential test to find relationships involving categorical data</td>
</tr>
<tr>
<td>( F ) test</td>
<td>( F )</td>
<td>Inferential test to find difference between means of more than two distributions, for example, one control and two different levels of the treatment</td>
</tr>
</tbody>
</table>

### Is This Research Study Relevant?

Once it has been determined that a program has a moderate to large effect size and that the findings are statistically significant, an administrator will need to consider...
whether the study is relevant to his or her specific context. To what extent does this study apply to a specific school? Are the setting and sample similar enough to be relevant to a specific educational situation and group of students? The terms contextual relevance and external validity refer to whether research findings can be generalized to other similar individuals and situations. It is important to examine the research setting and population on which a study was conducted.

Impressed with the high mathematics achievement of Singapore students or the high literacy scores of students in Finland, American educators have been looking at these countries for ways to boost the achievement of American students. But adopting the same curricula or strategies from high-achieving countries will not necessarily yield the same results in the United States. For example, in Singapore and Finland, teaching is a high-status position, and only high-performing college graduates are recruited for teaching positions (Dillon, 2011). Important cultural variables, such as the value given to education or the respect given to teachers, cannot be transferred. Therefore, Labaree (2008) warns that “relevance is in the eye of the beholder” (p. 422). School administrators need to understand their own situations and whether or not the study applies to their context.

Finally, findings from one study alone should be looked at with caution. Sometimes, people “tend to pay greater attention to research studies that confirm their deeply held beliefs and assumptions than to studies that challenge their sensibilities” (Davis, 2007, p. 570). To avoid this bias, a methodical review of the research on a topic is needed to reveal patterns (Callahan & Moon, 2007). As Duke and Martin (2011) indicate, it is “a mass of related studies over a period of years that lead to a well-accepted or durable conclusion” (p. 21). Such credible research may offer educators a better foundation for their school decisions than mere anecdotal evidence.

How Can This Research Be Implemented?

In duplicating a research study, administrators need to read carefully the details of the program they are hoping to implement. Dynarski (2010) states that “knowledge drawn from science doesn’t come with instructions on how to put it into practice” (p. 61). The administrator as researcher will need to ask many questions: How was the intervention implemented? Who administered it? Under what conditions? For what duration of time? Principals sometimes “tweak” programs to suit their particular school setting, but a lack of implementation fidelity or a failure to adhere to the study’s implementation protocol may affect the outcomes. Significantly higher outcomes are achieved when programs are implemented as intended by the developer (O’Donnell, 2008).

Consider implementing only one major change at a time. If, in attempting to meet the new common core standards, a school adopts a computer-based mathematics program and switches to block scheduling, it may be difficult to determine whether the changes in student achievement scores are because of the curriculum, the schedule, or some interaction between the two.
When administrators adopt a school reform strategy, they should always collect data to determine whether or not the change is having the desired effect. They also need to consider how best to analyze the data, since slight variations in implementation or interaction with existing structures can lead to wide variations in outcomes. Finally, administrators need to be patient; the effects of changes might take some time to manifest in the form of student achievement scores.

**Concluding Remarks**

Principals need to rely on relevant, credible research studies for making informed decisions. Yet they may be “deluged with misinformation” (Gersten, 2001, p. 45) or susceptible to “fads and gimmicks that ignore evidence-based practice” (Stanovich & Stanovich, 2003, p. 5). As critical consumers, they need to both read and critique the research studies available in order to find what is appropriate and workable for their particular schools and students. Indeed, good research studies can offer helpful direction when selecting an appropriate teaching practice or changing something that has been habitually applied. There might also be new ideas or alternative approaches to consider for making effective changes. Substantiating one’s decisions on the basis of research evidence can bring credibility to those decisions.

In this article, we hope to have demystified reading and critiquing research claims. We explained the characteristics of experimental research, the gold standard of research designs, as well as described quasi-experimental and single-subject research that can also provide some strong evidence for practice. We offered some questions principals will need to ask in order to determine the internal validity or credibility of the research claims. There are also some questions to determine the external validity or whether the intervention is really appropriate for a particular school setting. Finally, we discussed implementation fidelity in order to encourage principals to be systematic in their adoption and implementation of change and to carefully evaluate whether or not it is working.

Although it is not necessarily easy to translate research into practice, Levin (2010) offers the following strategies for school administrators interested in adopting research-based practices. Principals could appoint a research liaison to pay attention to available and current research studies on behalf of the organization. Teachers and principals who are engaged in graduate study could share their work with colleagues. Schools could also collaborate with university faculty members in addressing educational problems and in considering critical issues. Such infusion of research-based practices into a school can make the work of school administrators more effective.

By taking advantage of current research in education, principals can stay up-to-date within the field of education, recognize problems, and systematically work toward potential solutions. Familiarity with current evidence-based research practice will help avoid repeating work that has already been done, allowing school personnel to build on existing work and to potentially contribute something new. By reading research on issues related to educational policy, finance, and law, they can be informed about
current debates and stances taken by public officials. This can help principals not just implement policies and directives but actively contribute to the conversation about important policy and practice issues affecting public education.

Declaration of Conflicting Interests
The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The author(s) received no financial support for the research, authorship, and/or publication of this article.

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