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Evidence, Standards, and School Librarianship: Prevaling Policies, Promising Methods, and Progress on a Research Agenda

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Guided by the question, "What are the implications of national educational evidence standards for school librarianship research?," prevailing U.S. evidence-driven educational policies are examined to identify implications for school librarianship research; promising methods to contribute to building this evidence base are explored; and finally, progress on a long-term research agenda designed to enable school librarianship researchers to contribute evidence to educational policy is reviewed. As promising methods are explored, an actionable agenda is proposed that school library researchers can undertake to participate in a causal research environment.

Introduction

Waves of educational reform and policy impact school libraries regardless of whether libraries are explicitly included in those initiatives. Indeed, silence from policy makers regarding the library is often a cause for alarm. In 1983, the National Commission on Excellence in Education published *A Nation At Risk*, a report which sparked renewed national interest in U.S. educational quality and launched an educational curriculum standards movement centered on common benchmarks and achievement opportunities for all students. Libraries were omitted from this report, sparking a

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response from the library profession that involved multiple seminars and culminated in a report calling for libraries to become a key member of an alliance with families and schools in the creation of a “learning society” (U.S. Department of Education, 1984, p. iv). Recommendations from this response included assessment of information literacy skills and called upon higher education to rigorously address the training of information professionals but did not go so far as to suggest evidence or research regarding the impacts of libraries on a “learning society.”

Pappas (2007) traces standards-based education in the United States following a *Nation At Risk* and its impact on school library programs. Pappas gave particular focus to the 2002 No Child Left Behind Act (NCLB) (U.S. Department of Education, 2004) that was up for reauthorization at the time. NCLB led to national expectations and accountability for Annual Yearly Progress (AYP) benchmarks for groups of students in schools and school divisions through standardized testing (Hamilton, Stecher & Yuan, K., 2008; National Academy of Education, 2009). While NCLB was seen by many as an opportunity for school librarians to work with teachers on literacy, often the consequence was that funds were diverted from school libraries to classrooms with a singular focus on improving test scores. Addressing the profession’s response to NCLB and its reauthorization, Pappas (2007) asserted “The lobbying voices of ALA [American Library Association], AASL [American Association of School Librarians], and state associations will have greater significance with scientific and evidence-based research” (p. 33).

To further the significance of school librarianship research Todd (2006, 2009, 2015) addressed the role of evidence in school librarianship from three perspectives: evidence *for* practice, evidence *in* practice, and evidence *of* practice. These three powerful constructs allow school librarians to think of their work as informational, because they base their practices on externally documented successes; transformational because they can generate locally based evidence to personalize practice and guide decisions; and formational because they are able to follow the chain of their informed practice and its locally geared execution to its effect on student outcomes. This chain of evidence is logical, accessible, and asserted to be impactful.

Despite the appeal and resonance of this imperative, U.S. public school librarians are hindered from engaging in current articulations of evidence-based school librarianship because they work in learning environments that, in order to receive state and national funding, must reflect the most compelling evidence-based practices from educational research. To be recognized as part of this policy landscape, school librarians must intersect the logical chain of evidence-based school librarianship with levels of evidence expected and required in all public school environments. We need to build on our solid base of correlational studies (Gaver, 1960, 1961, 1963; Lance, Wellborn & Hamilton-Pennell, 1993; Scholastic, 2016) with explanatory research that investigates the cause and effect relationship between school librarianship and positive student outcomes.

Purpose and Guiding Question

The purpose of this paper is to document educational policies in the United States that may have implications for school librarianship research as well as explore promising methods and propose an actionable agenda that school library researchers can undertake to participate in a causal research environment.

Guided by the question, “What are the implications of national educational evidence standards for school librarianship research?,” we first interrogate prevailing U.S. evidence-driven educational policies; explore promising methods to contribute to building this evidence base; and finally, review progress on a long-term research agenda designed to enable school librarianship researchers to contribute evidence to educational policy.

Evidence as a Foundation for Policy

The National Research Council (NRC) (2012) affirmed the need for further research into the necessary 21st century competencies for students. NRC’s (2012) proposition was that high-quality educational research is necessary to identify effective practices that can be translated into common standards for all educators to use. The *Common Guidelines for Education Research and Development* (Institute of Education Sciences and National Science Foundation, 2013), the prevailing guide to federal views of educational research best practice, provides an evidence-based research pathway. This pathway begins with defining best educational practices and culminates in scaled up causal studies that test the effectiveness of educational interventions in larger and more diverse groups of students. Figure 1 illustrates the *Common Guidelines* research trajectory.

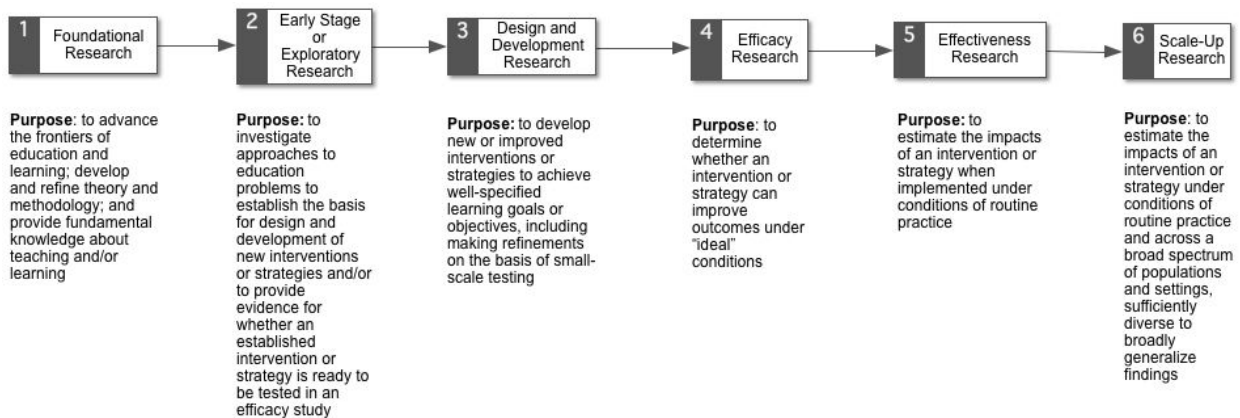


Figure 1. Study progression outlined in the *Common Guidelines for Educational Research and Development* (2013)

As Figure 1 suggests, educational researchers who are investigating new phenomena should aim first to provide fundamental knowledge about teaching and learning by developing and refining theories and methods. The outcome of the foundational research efforts can then be tested in small scale exploratory studies that are then further developed into interventions that are tested in design and development research. When researchers have identified promising interventions, they test the interventions in an efficacy study centered on ideal conditions. These conditions include extensive implementation support, highly trained personnel, and/or more homogenous participants than is typical. Researchers then take the next step of expanding the intervention’s implementation in effectiveness research that allows for normal conditions (i.e., those similar to what would occur if a study were not being conducted). The research trajectory culminates in scale-up research in which the intervention becomes part of routine practice. This trajectory is, obviously, extensive and would likely take many years to complete. Researchers may also engage in one phase but not continue on to the next; the *Common Guidelines* merely project a roadmap for building causal evidence for educational interventions.

Recent standards for college and career readiness, including the Next Generation Science Standards (NGSS) (National Research Council & Achieve, 2013) aim to closer connect the relationship between education and student learning by emphasizing the discovery of causal relationships. Causal research is also warranted by two intertwined current reform movements:

Common Standards Movement

While the Common Core State Standards (CCSS) (Carmichael et. al., 2010) are purportedly research-based, they were initially met with significant challenges regarding the evidence presented, with Tienken (2011) having proclaimed that while evidence was a strong component in the standards for students, for the authors of the CCSS “there is no reliable, independently validated empirical support” (p. 13). Among the criticisms of the English/language arts standards were a lack of attention to research about the developmental stages of learning, particularly in the younger grades and the failure to address learning differences particularly in students with disabilities. McDonnell and Weatherford (2013) provided an overview of the role research and evidence played in the various stages of the Common Core State Standards.

Advocacy efforts by school librarians often seem to face an upward climb. Why, when we have over 15 state-based studies suggesting a link between school libraries and student achievement do we struggle to gain recognition from administrators and lawmakers? The answer may be because school librarianship lacks a causal research base (Gordon, 2007; Morris & Cahill, 2016). McDonnell and Weatherford (2013) examined the application of research and evidence related to the CCSS and identified three stages for policy and the role of research in each: in the problem definition and solution development stage, they discussed 1) identifying a gap between the status quo and a desired outcome; 2) identifying causes of the gap; and 3) selection of evidence to promote a particular solution. In this framework, school librarians have a potential role in developing solutions to problems such as achievement gaps, student retention, or college and career readiness. However, the usefulness of school librarians’ participation in solution development is stymied by the causal identification gap; the current school librarianship research corpus lacks the causal explanations needed to enable school librarians to effectively participate in the evidence selection phase.

Every Student Succeeds Act (ESSA) and Evidence-Based Interventions

The major federal funding bill for public education, ESSA, was signed into law on December 10, 2015 (United States Department of Education, 2016). As state education policymakers create plans for accessing ESSA funds for public education, they must include interventions for student improvement that are evidence-based. These interventions must demonstrate a statistically significant effect on improving student outcomes or other relevant outcomes. Non-regulatory guidance was provided to ensure that:

State educational agencies (SEAs), local educational agencies (LEAs), schools, educators, and partner organizations [must select and use] ‘evidence-based’ activities, strategies, and interventions, as defined in Title VIII of the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the Every Student Succeeds Act of 2015 (ESSA). (p. 2)

Educators are encouraged to choose successful interventions according to the four evidence levels shown in Figure 2.

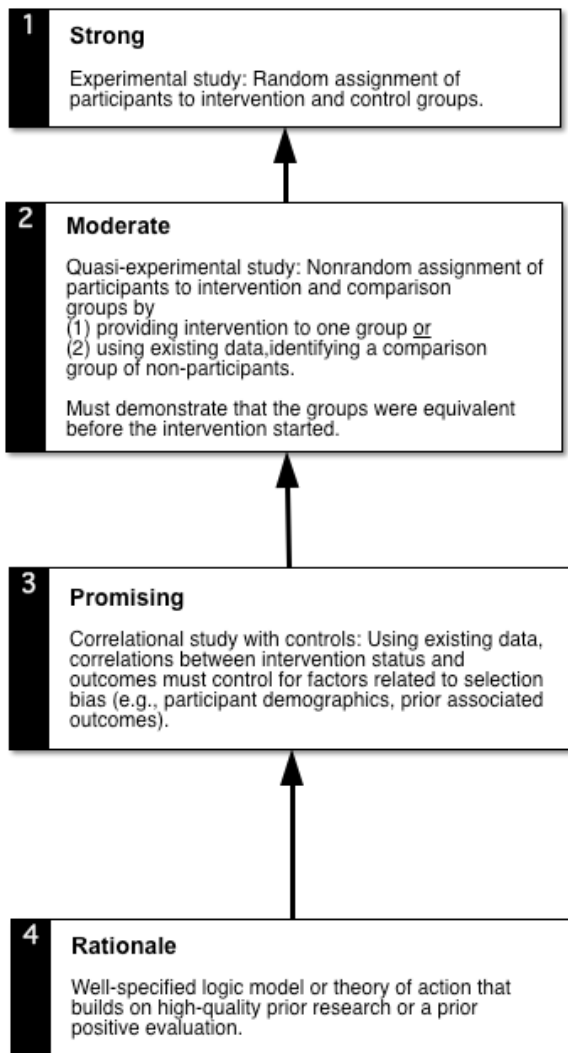


Figure 2. ESSA levels of evidence

Figure 2 provides four increasingly definitive levels of research evidence that State level policymakers can use to justify selection of an educational intervention. The reasoning behind the choice of intervention follows:

Interventions supported by higher levels of evidence, specifically *strong evidence* or *moderate evidence*, are more likely to improve student outcomes because they have been proven to be effective. When *strong evidence* or *moderate evidence* is not available, *promising evidence* may suggest that an intervention is worth exploring. Interventions with little to no evidence should at least *demonstrate a rationale* for how they will achieve their intended goals and be examined to understand how they are working. (United States Department of Education, 2016, p. 4)

The process of examining evidence levels leads to a higher likelihood of success in terms of selecting interventions that improve student outcomes. Emphasis is also placed on local capacity: funding, resources, staffing, skills and support for the intervention. An intervention’s evidence level and capacity considerations combine to increase the prospects for success.

Evidence in Librarianship

The evidence-based movement has emerged in the past few years in response to changes in the health care arena. The movement originated as evidence-based medicine (EBM) and recently has been somewhat eclipsed by a much broader movement, referred to as evidence-based health care (EBHC). The proliferation of so many evidence-based movements in education and medicine bodes well for health librarians. After all, librarians have positioned themselves as the experts at information handling of the evidence needed for each of these elements in the larger EBHC movement (Haines, 1994; McCarthy, 1996). Health sciences librarians apparently even played a role in EBM during the 1920s. Physicians must have the evidence at hand to support their decisions to employ procedures; librarians similarly are called upon with increasing frequency to provide the requested evidence to continue provision of their collections, operations, or services. No wonder, then, that the former Medical Library Association president identified the need to “foster evidence-based librarianship” as a major goal (Homan, 2000).

Evidence-based librarianship (EBL) adapts its core characteristics from the EBM and EBHC movements. EBM, in particular, offers some of the most powerful research designs available, such as randomized controlled trials and a decision-making framework that have been largely untapped by health sciences librarians. In clinical medicine, these research methods are intended to establish causal relationships while minimizing systematic or human biases. EBL now seeks to adapt rigorously tested research designs from the health sciences, particularly clinical medicine, to investigating the effects of libraries and librarians (Eldredge, 2000).

Increasingly, library professional associations are adopting statements that support doing and using EBL research, such as the Medical Library Association and the Special Libraries Association. Associations may also include research among the competencies expected of practitioners (Marshall, 2006). The new U.S. *National School Library Standards* (AASL, 2018), for example, not only emphasize the school librarians’ role in learning and professional assessment and school library program evaluation, but provide a comprehensive appendix of evidence sources and ways to present results. In fact, school librarianship is the site where the evidence movements of prioritized ESSA research techniques and evidence-based medicine converge: to determine how and why school librarians affect learners’ outcomes, school library researchers must apply the rigor required by evidence-based practice, in its current policy interpretations, to the leadership and professional practices in which they engage.

Operationalizing an Evidence Based Research Agenda

Because students’ in-school and out-of-school learning experiences include the school library, it is essential to understand the school library’s causal role. Educational research that does not consider the school library’s contribution is providing an incomplete, and possibly misleading, view of student learning. While researchers (e.g., Gordon, 2007; Todd, 2009) have been clear on the need for school librarianship researchers to participate in prevailing evidence driven policy structures, less clear is how this participation can be operationalized.

AASL proposed a research agenda, as part of their 2014-2015 *Causality: School Libraries and Student Success* federally funded grant project; Figure 3 illustrates that agenda.

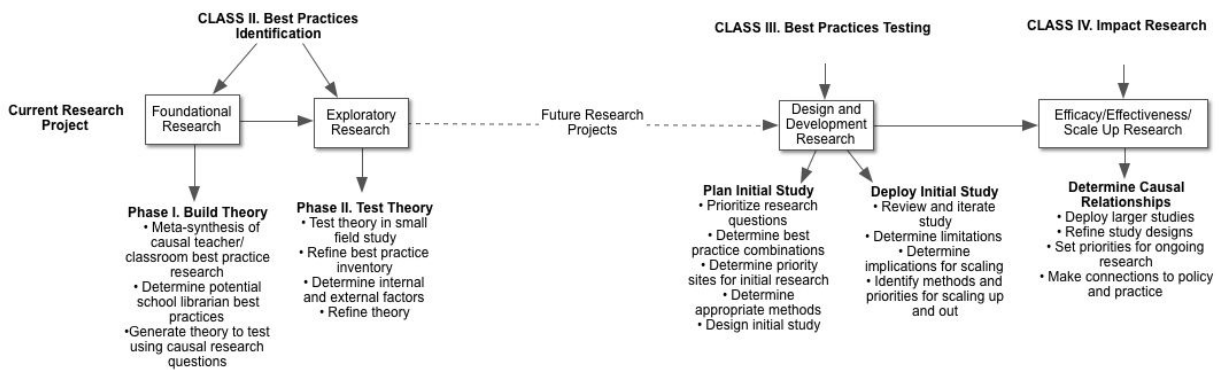


Figure 3. CLASS research agenda phases (AASL, 2014, p. 4)

The CLASS II Project (2015-2019)

The CLASS II initiative began in late 2015 with three teams of researchers from Florida State University (FSU), Old Dominion University (ODU), and the University of North Texas (UNT). These research teams include school librarian educators, methodology specialists, practicing school librarians, and doctoral students. They were charged with implementing the first two areas of research shown in Figure 3: Foundational Research and Exploratory Research. The three teams were guided by the research question “What causal relationships between school-based malleable factors (i.e., aspects within the school environment that can be controlled) and student outcomes are present in published research”?

In keeping with the theory building process outlined in the *Common Guidelines for Educational Research*, featured in Figure 1, and the ESSA levels of evidence, specified by ESSA, we, the CLASS II researchers, began by taking a cue from EBM and EBP, and using a promising method for building on school librarianship’s existing research base. We conducted a Mixed Research Synthesis MRS to identify and aggregate activities and features that showed strong relationships with student learning, using three independent and concurrent meta-syntheses of current education policy, theory, and best practices research. Once aggregated, the meta-syntheses results were integrated and refined into a list of possible causal features that may be present in school librarians’ actions and activities that occur within the school library.

Mixed Research Synthesis

The Mixed Research Synthesis (MRS) method, often used in nursing and public health research (Sandelowski, Voils, & Barroso, 2006) can be used to determine the contributions of independent professional actions as well as the effects of professionals working together. “Mixed” are the objects of synthesis (i.e., the findings appearing in written reports of empirical qualitative, quantitative, and mixed methods studies) as well as the mode of synthesis (i.e., the qualitative and quantitative approaches used in the studies). MRS is a strong method to develop evidence summaries, and to determine the effective factors in an implementation chain of interventions, programs, and policies (Pawson, 2006). This particular approach can identify promising causal relationships that must be extrapolated from the original study context (Sandelowski et al., 2012).

MRS Step 1. Aggregation. In this step, each team reviewed a different corpus of peer-reviewed published research on causes of student learning published between 1985 and 2015. In accordance with the Common Guidelines for Educational Research (IES & NSF, 2013) section on foundational

research, we conducted searches of appropriate databases and library catalogs to identify applicable empirical research. To compile the initial corpus, we agreed upon an initial Boolean search phrase of “cause and student and (learning or achievement).” Researchers kept track of the searches conducted by recording date, source, search string and filters, citation, and number of results. Publications were then reviewed for relevance to the research question and each article was rated according to the ESSA standards as guidance for using evidence-giving causal research studies.

MRS Step 2. Synthesis. Researchers then synthesized the aggregated corpus of studies from MRS Step 1 using an Integrated MRS design with a top-down configuration synthesis method. In an integrated MRS, studies in a targeted domain are grouped by findings viewed as answering the same research questions, or addressing the same aspects of a target phenomenon (Sandelowski, et al., 2006). An Integrated MRS with top-down configuration entails counting, tabulating, diagramming, and narrating thematically diverse individual findings, or sets of aggregated findings, into a coherent theoretical rendering. Findings in configuration syntheses may contradict, extend, explain, or otherwise modify each other. In configuration synthesis, researchers link findings, even though these links may not have been addressed in any of the primary studies reviewed.

As Table 1 shows, each team took complementary approaches to aggregating and synthesizing existing high quality experimental and quasi-experimental causal research published since 1985. Guidelines and standards played a major role in contributing to the research process. This approach moves the national school library research agenda toward the causal analyses underlying the differences that certified school librarians can make for students, across a spectrum of diverse needs.

Table 1. CLASS II Team Mixed Research Synthesis Activities

MRS Step	<u>Team Action</u>		
	Florida State University	Old Dominion University	University of North Texas
Aggregation and Number of Articles Found	<ul style="list-style-type: none"> Reviewed practice guides, intervention reports, and individual studies included from the What Works Clearinghouse (WWC)¹. Considered only WWC studies that met WWC design standards with or without reservations and that had significant results. 	<ul style="list-style-type: none"> Identified effective practices from <i>Visible Learning: A Synthesis of Over 800 Meta-analyses Relating to Achievement</i> (Hattie, 2009) Searched EBSCO, SCOPUS, Google Scholar, and JSTOR for articles 1) available in English; 2) peer-reviewed, published after 1985-2016; 3) centered on school aged children without disabilities. Snowballed citations from articles and Hattie (2009) bibliography. Included random-controlled trials, matching designs, propensity score matching, regression discontinuity, and 	<ul style="list-style-type: none"> Searched Scopus with keywords “school librar*” + “caus* AND school* AND/OR learn* AND/OR achiev*” for articles 1) available in English; 2) peer-reviewed; 3) published 1985-2016; 4) centered on school libraries. Coded 18 themes related to school librarians’ role; coding confirmed by two coders <p>N=76 (1 strong; 9 moderate; 27 promising;</p>

¹ The WWC conducts broad ongoing searches of education research databases and websites to identify a wide range of studies to review. In this process, WWC reviewers screen studies to ensure that they use an eligible design (i.e., randomized controlled trial, quasi-experimental design, regression-discontinuity designs, or single-case designs) and assess whether it “Meets WWC Design Standards Without Reservations,” “Meets WWC Design Standards With Reservations” or “Does Not Meet WWC Design Standards.”

		other strong correlational designs.	39 demonstrated a rationale)
		N=245 (107 strong; 135 moderate or promising; 3 demonstrated a rationale)	
Synthesis	<ul style="list-style-type: none"> • Studies grouped by WWC-assigned domains that fit with study scope: behavior; early childhood; English learners; literacy; mathematics; path to graduation; science; and teacher excellence 	<ul style="list-style-type: none"> • Created a concept map of broad domains that influence student achievement • Synthesized each domain independently. 	<ul style="list-style-type: none"> • Coded articles by concept: Learner, Learning Environment,

To accommodate the team approach to MRS, we added two additional steps to the traditional MRS process. MRS Step 3, Inter-Team Aggregation: the CLASS II research teams combined individual aggregation lists, removed duplicates, and produced a dataset of over 400 studies. The studies contain causal education research studies, segmented by ESSA evidence levels. We are now engaged in MRS Step 4 of Inter-Team Synthesis, as shown in Figure 4.

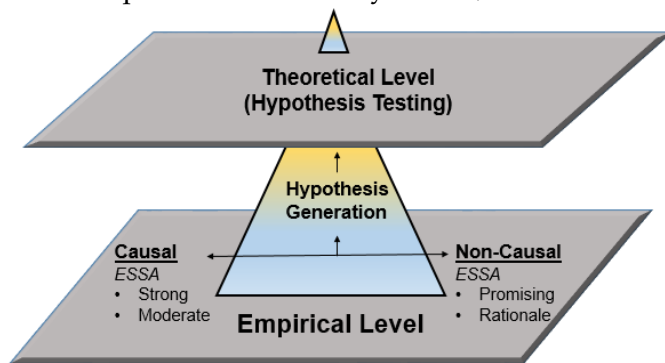


Figure 4. Inter-team synthesis process

The three teams are currently working through the inter-team aggregated studies to verify and synthesize the studies that represent strong and moderate research. While these two levels are considered the higher levels of evidence, and are more likely to improve student outcomes because they have been proven to be effective, the promising and rationale levels include many excellent studies that won't be overlooked. Our early results suggest that learners benefit from educators who:

- Use a constructivist approach to learning
- Link new knowledge to prior knowledge;
- Engage in frequent instruction instead of lengthy instruction;
- Provide direct, explicit, and systematic instruction on new material blended with strategically timed small group reinforcement activities;
- Use instructional prompts that encourage students to pose and answer “deep-level” questions;
- Personalize the amount and type of intervention or teaching to meet individual needs;
- Facilitate hands-on experiences that connect learning with real world or familiar content and experiences;
- Deliver contextual instruction in questioning and other metacognitive skills;
- Share formative, corrective feedback, including quizzes, that promotes and reinforces learning;

- Assist students in monitoring and reflecting on the problem-solving processes;
- Give exposure to vocabulary through reading and listening as well as explicit vocabulary instruction and acquisition strategies;
- Teach students how to use visual representations; and
- Modify the learning environment to decrease problem behavior in addition to other effective practices

The teams are working together to distill themes that reflect activities that school librarians can lead or in which they can participate to positively affect student outcomes. Reviews to date suggest that several areas of classroom-based research are particularly promising for school librarians and provide a response to the research question, “What causal relationships between school-based malleable factors and student learning are present in published research?”

Based on these early results, we reviewed the effective practices identified from the inter-team synthesis step from the point of view of:

- **Effective practices that a school librarian could lead or conduct individually.** In this instance, leadership is defined as “coaching others to do for themselves, acting as a sounding board for key decision-makers bringing people together, and taking the risk of leading when the opportunity arise” (DiScala & Subramaniam, 2011, p. 60). Leadership is linked to accountability and school librarians are best positioned to lead activities for which they are accountable (DiScala & Subramaniam, 2011), especially because they fall within their job roles. In the case of school librarians in the United States, these roles include teacher, instructional partner, information specialist, program administrator, and leader (AASL, 2018).

Practices that could be led by a school librarian are currently being tested in a limited series of field studies by school librarians in the United States. The CLASS II researchers aim to sponsor the testing of these hypotheses in school library settings with the goal of increasing the number of causal studies that utilize school librarians, and that directly test malleable factors that improve student achievement in school libraries.

Conclusion

As Todd (2009) charged, there is

an urgency for the whole school library research community to engage in some sustained and complex discussions on the future directions of school librarianship research, and what is needed to continue building a strong research base for the profession (p. 91).

The ultimate goal of the agenda and early project results presented here is to provide the tools to produce accepted evidence of the effectiveness of school librarians in relation to student learning. The profession’s foundation of correlational studies has provided the groundwork of school librarians’ effectiveness. Now is the time to extend that pursuit to establish evidence-based research as a reality. ESSA has given us the language to use and the milestones to meet for this evidence to matter. The CLASS II initiative has a strong potential to forward research into school librarians’ causal contributions to positive learner outcomes.

The mixed method research design employed in this project will test the usefulness of the MRS technique, which has never been used in school settings, and of confirmation through explanatory case study. The MRS technique and the researchers’ implementation of this technique will provide a very useful entry point for researchers concerned with other types of libraries, as will the researchers’ use of subsequent data gained through best practice case studies. This project could create a model for causality research in schools. Just as the correlational studies began to be recreated, it is expected that this model would also be repeated in additional studies.

Standards address a range of issues by providing guidance, aspirational direction and assessment criteria. We look to standards for best practices against which we can align our efforts to implement new initiatives and benchmark our progress toward achieving excellence. Standards are typically developed through a consultative process that includes experts in the discipline, analysis of trends, and future oriented expectations. The architecture of standards communicates core concepts and performance indicators that can be embedded in other standards or used as intersection points for complementary disciplines. Guidelines and standards played a major role in contributing to the research process of the American Association of School Librarians (AASL) full scale research project designed to investigate causal relationships between school library program features and activities and student learning.

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