Research as a Reality Check on Intervention Investments

by
Jason K. Feld, Ph.D.

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Assessment Technology Incorporated

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Acknowledgements

Abstract

We are living in an age in which new educational interventions involving curriculum and technological innovations are proliferating into the educational marketplace at an exponential rate. At the same time, school districts are being called upon to utilize interventions to assist students in achieving new levels of learning in order to compete in a rapidly changing global society. The critical relationship between interventions and learning outcomes has become a central issue in 21st century education. Schools have invested large amounts of money in interventions. They now face the task of determining the educational return on their intervention investments.

This paper addresses the challenges associated with the conduct of research evaluating intervention effects. It begins by providing a historical context for current research on intervention investments. This is followed by essential elements needed to build district capacity to support intervention research. Essential elements touch upon consensus building, time-management, technology-based research tools, and short-experimental and quasi-experimental designs. The paper concludes with suggestions to help guide district research initiated as a reality check on intervention investments.

I. Introduction

School districts throughout our nation continually invest substantial financial resources, time, energy and intellectual capital in their efforts to select and utilize interventions intended to produce positive outcomes for students and raise levels of achievement.   In recent years, intervention investment decision-making has become increasingly impacted by a number of factors. These include: 1) the proliferation of intervention options available to districts; 2) scarcity of funds to support these interventions; and 3) the increased public policy demand for using evidence-based strategies to improve student learning. This current state of affairs presents an important opportunity for school districts to more closely explore their intervention choices and to strengthen their capacity to effectively evaluate intervention impact on student learning. Consequently, this paper is intended to serve as a launching point for a continuing dialog on the ways in which local school district grass-roots initiatives can be effectively designed to answer the fundamental question - How do we *really know* if we are getting an acceptable educational return on our intervention investments? The discussion begins with a presentation of the historical and current context for the pressing need to conduct locally designed and managed research on intervention investments. A fundamental question to be addressed in this discussion has to do with the extent to which there is precedent supporting a district's need to move more aggressively in this direction. This is followed by a discussion about the resources and constraints requiring consideration in order to build and sustain district capacity to conduct "return on investment" research. Core issues including consensus building, time-management, the role of technology-based research tools, and the use of various research designs are incorporated into this part of the discussion. Finally, considerations for moving ahead, and helpful information resources are presented.

II. A Brief Time Capsule of the Challenge

We are living in a time where the critical connection between the intervention investments made by local school districts and scientifically-based research evaluating their efficacy in producing positive learning outcomes has become an integral part of the national discourse on education.   In an effort to help frame the discussion and establish guidelines for sound decision-making, the U.S. Department of Education's Institute of Education Sciences established the What Works Clearinghouse (WWC) in 2002. The WWC is intended to serve as a trusted source of scientific evidence for what works in education. It conceptualizes interventions as the "four Ps" - programs (e.g., whole school reform), products (e.g., curriculum or textbooks), practices (e.g., tiered intervention), and policies (e.g., class size reduction) that provide educators with the tools to make informed decisions.

As an outgrowth, in part, of the No Child Left Behind (NCLB) Act of 2001, the WWC like many other entities formed in the late 20th and early 21st centuries, is designed to help the educational community implement the requirements of NCLB.   In particular, their goal is to assist and encourage educational stakeholders across the nation to more fully engage in both scientifically based research and the use of evidence-based strategies for promoting student learning.   NCLB defines scientifically based research as "research that involves the application of rigorous, systematic, and objective procedures to obtain

reliable and valid knowledge relevant to education activities and programs." (NCLB, 9101 (37)).   Evidence-based education, on the other hand, may be more broadly conceived as the translation of scientifically-based research into educational practice at the local school district level. According to Whitehurst (2002), putting research into practice involves the integration of professional wisdom with the best empirical evidence in making decisions about how to deliver instruction.

Without question, the advent of NCLB signaled a marked change in the ways in which the business of education was to be conducted in the 21st century and the ways in which research and practice would be connected and communicated at the most fundamental level of impact – the classroom. Yet, as at the time of NCLB enactment and the WWC initiative, the connection between intervention investments at the local school district level and the effective evaluation of the return on such investments continues to present a challenge.   Part of the challenge has to do with the difficulty inherent in "breaking old habits."   For example throughout the 20th century the mainstay of research validating the impact of intervention investments on learning was typically initiated and guided from the "top-down" by federal and state agencies, universities, and regional research centers with the expertise and experience to do so. Procedures and policies aimed at guiding these activities generally conceived the researcher or research organization as an external entity seeking to gain admission and permission to conduct research. Inherent in this paradigm was the fact that the researcher must first gain acceptance in the school system, provide system stakeholders with a logical research plan for each stage of the research, and foster an atmosphere of collaboration with the school (Carter, 1979). Underlying this process was, of course, the understanding that these externally initiated research activities would be questioned by district stakeholders unless they were clearly of value to the school district.

As is the case today, much of the research conducted in the 20th century varied widely in terms of duration, scope and subject matter, ranging from brief localized classroom interventions to large scale, multi-year investigations. Within this context, the role of the local school district was often seen as that of an accommodating partner, a recipient of the research so to speak, offering staff, students, time, location and some pedagogical expertise. Closure on these studies typically involved the generation of a report, professional development for staff and the publication of research articles in the topic-relevant journal affording an opportunity to foster research-to-practice initiatives beyond the initial endeavor. While beneficial in providing important information concerning the potential return-on-investment for educational interventions and in fostering a subsequent strand of research activities going forward, the vast majority of the larger-scale multi-year investigations tended to be a highly expensive, time-consuming proposition. Moreover, because of the characteristically long time-lag in the dissemination of findings, the benefits accrued from these initiatives did not always filter down in a timely fashion to the potential beneficiaries – students and teachers. Even today, research manuscripts submitted to scholarly journals in education proceed through an initial review process that can take two to three months (e.g., JEM, 2008, Alexander, 2006). To the extent that revisions are needed in order for publication to occur, the process leading to publication may take up to three years.

III. Transforming Challenge into Opportunity

Arguably, in contrast to the 20th century as a whole, the first decade of the 21st century has been a remarkable period of rapid and profound change in American education. At no other time in our nation's history have we seen such an extensive proliferation of educational intervention and technological advances accompanied, and often driven by paradigm-shifting public policy and legislative initiatives. Public policy initiatives, in particular have played a major role in transforming the educational landscape and seeding the direction for technological advances and innovative research initiatives. In fact, from a legislative perspective, the mid 1990s might well be considered as the "defining moment" for change in American education and the seeding of the advances to come in research aimed at evaluating the impact of intervention investments at the local school district level. In 1994, for example, the Educational Research, Development, Dissemination, and Improvement Act authorized the educational research and dissemination activities of the Office of Educational Research and Improvement. The regional educational laboratories and university-based research centers currently in existence today are a direct result of this legislation. Of course, the pinnacle of change in American education that is now a major driver in ongoing efforts to evaluate the impact of intervention investments is the No Child Left Behind Act of 2001 (Public Law 107–110) which provided for the comprehensive reauthorization of the Elementary and Secondary Education Act of 1965, incorporating specific proposals in such areas as testing, accountability, parental choice, and early reading.

Certainly the events of the late 20th and early 21st century leave no doubt that research on the impact of intervention investments is an essential part of the American education system and a fundamental avenue for informing effective decision-making in the best interests of children and youth. There is a clear and pressing need for local school districts to develop systems that make it possible for them to gather, analyze, and use information in a timely fashion to inform intervention investment decision-making. This need presents an opportunity to rethink the purposes and benefits of educational research at the local district level. It calls for consideration of a change in the balance of activity and responsibility within the partnership formed between local school districts and research entities. It calls for a consideration of change whereby school districts can derive greater empowerment, gain greater direction, and contribute more directly to the design, implementation, and evaluation of research on local intervention investments.

One unintended consequence of the typical large-scale or long-term experimental studies conducted in the past was that local decision-makers were often placed in the untenable position of not knowing what worked for some time. This time lag could be several months or years. In an age where rapid access to information that can be used to inform educational decision-making is paramount, long-term or large-scale experimental studies serve only to produce data-delay rather than data for decision-making. At a time when educational interventions (the four Ps) are proliferating at an exponential rate, it is essential that school districts are effectively empowered to conduct research locally in order to continually inform evidence-based practice.

As discussed in Mageau's (2004) interview with Grover Whitehurst, evidence-based practice has two prongs. One prong relies on well-designed, scientific studies of effectiveness of the sort that appears on the WWC. The other prong involves locally

collected data on student learning indicating whether changes are occurring in the desired direction when a particular program or practice is implemented. Whitehurst as well as others point out that that this is something schools should do by way of having a system in place for collecting performance data relative to interventions. Moreover, it is not only possible but highly desirable for school districts to collect data on any of the "four Ps" (i.e., programs, products, practices, policies) they choose, whether evidence of effectiveness is validated by the WWC or not. Finally, Whitehurst makes the point that since an educational intervention is not the same as a pharmaceutical intervention, what may work in one location, may not work in another because circumstances may be quite different in another school system.

IV. Start by Building Consensus among District Stakeholders

A precursor for enhancing local school district capacity to evaluate the impact of intervention investments is to first build consensus in support of this activity. Taken at face value, one might conclude that this would be a relatively straightforward task. "Why of course we want to know if what we are doing is making a difference" would seem to be the obvious answer to the question. However, in the complex organizational structure of a school district, consensus regarding the specific intervention to be evaluated, the questions to be asked, the approach to be taken and the responsibilities of each participant will need to be carefully planned. As the old adage goes, "buy-in is critical." In this regard, consensus building will need to take into consideration a variety of factors including district stakeholder interests, skills and expertise, impact on established routines, to name a few. For some stakeholders, the formal integration of research examining the impact of intervention investments into daily routines might represent a welcome enhancement, as well as an opportunity to contribute to the decision-making knowledge base of the district. For others, it may initially evoke a sense of uncertainty about what specific kinds of changes will likely occur within the classroom, and concern about how these changes may affect established routines and approaches to ongoing instruction. Without question, well established traditions and practices are not easily modified, even under the most evident of circumstances calling for change. School systems, for example, have traditionally viewed themselves and have been viewed by the community, first and foremost as educational institutions. As such, school systems are places where teaching and learning occur. Historically, school systems are not typically regarded as research environments wherein experimentation and data analysis occur on a prescribed and continuous basis. Yet, given the very nature and demands of 21st century education it would seem only natural that a very fundamental "research" question (i.e., "Is this intervention working?") would be on everyone's mind. If the question is not salient, then it may be time to take some first steps in building consensus for moving forward.

In building district consensus, it is helpful to recognize that whether the intervention is a program, product, practice, or policy, the fundamental questions remain the same: "What are our goals?" "Why did we do this?" "Has the expected outcome been achieved?" Whether the intervention is designed to help students master a particular set of objectives included in instruction, achieve a specified level of progress, or perform well on a statewide test, the basic question, "Did we get an adequate return on our

investment?" deserves to be answered.   Consequently, consensus on the value of the question is a critical step in preparing to pursue the answer.

A. How Do We Build Consensus

Consensus building in support of efforts to evaluate the impact of intervention investments helps to ensure that the course of action is one that everyone is generally comfortable with. At the outset, consensus building activities help to identify common ground for the importance of these efforts. Moreover, consensus building activities provide a collaborative context for: 1) identifying realistic and relevant research goals; 2) developing an agreed to set of plans and procedures for conducting the research; 3) managing and monitoring the flow of research activities over time; and 4) evaluating and utilizing results of the research to inform decision-making.

Effective consensus building begins with a clear and logical articulation of the need, the goals, and the potential benefits of the research for district stakeholders. During this initial stage of consensus building it is essential for district leaders to listen to, and fully discuss stakeholders' reactions and input. Given the scope of expertise, experience, and interests within a school district, differences of opinion are natural and to be expected. These differences should be thoroughly vetted as part of the consensus-building process. When different views are openly discussed and considered, rather than suppressed, the likelihood of resolution, followed by a consensus to move forward can occur. It is also important to recognize that effective consensus-building involves discussion and accountability of perspectives, rather than opinions and power struggles. Sometimes the time required to reach consensus may need to be extended so that district stakeholders have the opportunity to think.

District consensus building can be initiated by an individual or group capable of bringing the diversity of district stakeholders together. This can be accomplished through an initial discussion with key lead individuals from stakeholder groups. A meeting of this type can help to clarify needs, goals, and the benefits pertaining to intervention investment research. If the prevailing view is to proceed at consensus building efforts, a next step is to ensure that any stakeholder groups not represented at the initial meeting, who will likely influence and be influenced by the process, be informed and invited to the next meeting.

Within the early stages of consensus building, it is vitally important that district stakeholders collaboratively and explicitly clarify the roles and responsibilities of the various consensus building team members (e.g., teachers, coaches, administrators, specialists, researchers). It is also important to agree on the ways in which consensus building meetings will be organized, documented, and disseminated to district stakeholder groups.   In building an agenda for moving a census building initiative forward, it is important to lay out specific consensus building goals, a timetable for achieving those goals, and the activities that will take place to support consensus building.   It is also important to be realistic about the amount of time it will take to build consensus with the diverse group of district stakeholders that may not likely have worked together on a research initiative like this before. As discussed previously in this paper, a large proportion of research during the 20th century validating the impact of intervention investments on learning was typically initiated and guided by federal and

state agencies, universities, and regional research centers. Designing, implementing and managing a viable form of research within an educational setting, spear-headed internally by district stakeholders may take time to cultivate.   Consequently, it is important that teachers, specialists, and administrators alike feel comfortable in that the initiative fits with their unique circumstances and perspectives. Moreover, the consensus building processes should be transparent for all stakeholders. The goals, the ground rules, the benefits, and the possible consequences should be explored upfront and early on in the process.   Through transparency, value is created for each district stakeholder and responsibility for success becomes shared.

B. Develop a Plan for Converting Precious Time into an Effective Ally

An important issue to consider in conducting local research on intervention investments is the extent to which intervention evaluation activities can occur within the natural context of established routines. Instructional planning, assessment, classroom routines, and ongoing activities are all built around and within periods of time throughout the day. The challenge is how to effectively integrate intervention evaluation activities within the constraints imposed by time. Solutions that can offer as natural an integration as possible and that minimize disruption while maximizing information that informs decision-making would, of course, be the ideal situation. This is possible to achieve when research and data collection activities are conceptualized inclusively as a part of instructional planning for the school year. In this way, time for research is "built-in" rather than "added-on".   As a benefit, district stakeholders receive timely and actionable "return-on-investment" data. This data can be used to adjust interventions in those instances where students are not making adequate progress in reaching the goals intended to be achieved through the intervention.

V. Consider the Use of Technology-Based Educational Management Tools

District capacity to implement and manage initiatives evaluating the extent to which intervention investments are doing their job, depends, in part, on the various resources available to actually carry out the tasks. Consider the following questions: "What types of research designs are we able to effectively implement in our district?" What kinds of data collection, analysis, and reporting tools do we have in place to support our research efforts?" "What are the mechanisms through which we will implement and manage our research activities, and the impact of the intervention(s) of interest?" These are just a few of the several questions that need to be addressed by districts engaged in ongoing research activities evaluating intervention investments. The good news is that help is on the way and there are a host of technological advances now at our disposal for implementing, monitoring, and managing research and evaluation activities at the local school district level (see, for example Bergan, Bergan, Burnham, Bergan, and Feld, 2008; Bergan, Bergan, and Burnham, 2007).

As a part of consensus building, it is important to determine early on how online educational management technology can be used to support both the consensus

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building and research implementation processes. For example, if a district is currently using an online standards-based educational management technology to build and implement a district-wide data-driven assessment and instructional program, it may very well contain tools that can be effectively used to support an ongoing research initiative at multiple levels of district operation. Consider a scenario where the goal of district research is to evaluate the extent to which district-wide implementation of a newly adopted curriculum promotes student mastery of state standards. A system that makes it possible to design a series of customized, reliable and valid assessments to measure standards mastery throughout the school year, as well as forecast performance on high-stakes state tests would be highly useful in this venue. Moreover, in order to establish a meaningful link between intervention implementation and learning outcomes, the system must have the capacity to allow the district to electronically document fidelity of curriculum implementation at the student, class, grade, school and district levels. The seamless integration of standards-mastery data and level of implementation provides both a data-rich source of information to evaluate the "return on intervention investment" and information to guide decision-making activities regarding where, when, and how to adjust the intervention to better support student learning.

In considering the role of online educational management technology to support intervention investment research, it is also useful to examine the extent to which such a system lends itself to sustaining immediate and longer-term consensus building, ongoing communication, and shared problem-solving.   For example, systems comprised of tools that support a problem-solving orientation to consensus building and research implementation will help to ensure district success. The problem solving orientation includes the use of online tools to help document and communicate research goals. Tools that help to organize the development and dissemination of an implementation plan to achieve research goals.   Finally, it includes the use of tools that support monitoring and management of the research initiative over an extended period of time.

Online educational management systems that make it possible to document decision-making activities and support real-time, easy access to information by all district stakeholders help to ensure effective and efficient communication and collaboration throughout the district. As an example, systems providing online forums articulated to the research endeavor at hand can enhance district capacity to promote intra- and inter-district dialogs on consensus building and intervention investments research.

VI. Research Design Considerations

A fundamental goal in planning and implementing research activities to assess the impact of intervention investments is to set in motion a series of events that make it possible for research to be initiated, interventions evaluated, and improvements made. There are a number of research design options that can be implemented to support district goals in evaluating intervention investments.

It is widely acknowledged that the randomized control group experimental research design is the "gold standard" in research intended to evaluate the impact of interventions on learning outcomes. The hallmark of this design is the random assignment of students or classes to an intervention group or to a control group. Randomization helps make it

possible to determine the impact of the intervention as opposed to other extraneous factors that may influence the outcome. As a basic illustration, a district may wish to determine whether a recently adopted curriculum intended to promote student mastery of state standards in fifth grade math is more effective than the curriculum currently in place. In this instance the district would randomly assign a substantial number of students to an intervention group (i.e., the group where the new curriculum is implemented), and also assign a substantial and equivalent number of students to a control group (i.e., the group using the current curriculum). At the end of a specified period of time, a statistically significant difference in performance between the two groups as might be measured by a reliable and valid benchmark assessment tool aligned with the standards that are of interest to the district, would represent the effect of the newly adopted curriculum compared with current curriculum.

With the advent of new technologies designed to integrate research into the natural context of everyday instruction and learning, the short-term experimental design approach to evaluate intervention investments at the local school district level is possible (see, for example, Bergan, Bergan, Burnham, Bergan, and Feld, 2008).   Designs of this type typically occur at the individual student level or class level and can be effectively supported by the use of classroom formative and district benchmark assessment tools aligned with standards targeted by the intervention.   Formative assessments, for example, can be used to determine the immediate impact of an intervention such as a teaching method or instructional approach, the presentation of information through curricula instructional materials, an online *Instructional Dialog*, or resource used to support student learning.   Customized, reliable and valid benchmark assessments aligned with state standards, can be used as well to gather intervention investment impact information on a broader scale within a district. These customized benchmark assessments, for example, can be aligned with a district's pacing calendar, making it possible to determine the extent to which district goals for student mastery of standards accrue from a particular intervention investment up to a given point in time (e.g., end of a grading period). In both instances, the information gleaned from these kinds of assessments can be used to evaluate "return on investment" and can be used to adjust interventions as needed to help ensure adequate student progress toward mastering the standards intended to be achieved through the intervention. A more detailed discussion of this approach can be found in Bergan et al (2008).

Similar to Bergan et al (2008), Brainerd (2009) provides an in depth discussion that illustrates a methodology for implementing experimental research in a standards-based educational environment. As Brainerd points out, the cornerstone of standards-based education is research that establishes reliable cause and effect links between specific learning practices and desired outcomes. Experimental research with randomized control group designs is necessary to establish those links. Brainerd's work provides a practical approach for demonstrating the ways in which experimental research with relatively small numbers of students participating in brief but carefully controlled sessions can produce reliable data.   Moreover, as is the case with Bergan et al (2008) Brainerd points to the fact that studies of this type are inexpensive to conduct, easy to implement under highly controlled conditions, require minimal time, can occur in the natural context of learning, reduce teacher effects, and minimize obstacles to randomization and assignment to groups.

A second, but less powerful approach for consideration in evaluating the educational return on intervention investments is the quasi-experimental design. Unlike true experimental studies, which require randomization of students to treatment and control conditions, the quasi-experimental design does not use random assignment. One example of this type of design is the Pretest Posttest Nonequivalent Group design. Within this design, the assignment of students or classes to experimental and control conditions occurs based on convenience rather than random assignment (i.e., the students are already enrolled in specific classes.). This particular design is characterized by several features: 1) a pretest and a posttest are administered to both groups of students; 2) one group of students receives the intervention and one does not; and 3) the groups are non-equivalent, meaning that they may already differ prior to the intervention. In order to generate results that are as meaningful as possible under the non-experimental constraints of this approach, it is generally advisable to select student groups that are:1) naturally occurring (e.g., two fifth grade classrooms); and 2) as similar as possible (class size, same school, similar average statewide test scores, primary language, to name a few). If feasible, the class receiving the intervention should be selected randomly.

When randomization is not feasible or practical in the school setting, this type of design may be considered for use to help determine the extent to which an intervention (e.g., a fifth grade math curriculum) contributes to increasing student mastery of standards targeted for instruction. In the math curriculum example discussed previously, comparison and intervention groups are chosen through methods other than randomization. For example, the comparison group might be students in neighboring classrooms or another school within the district that does not use the new curriculum.

The quasi-experimental design is a potentially valuable research asset for school districts given the fact that unlike the requirements of gold standard experimental designs, districts may not be able to "control" the assignment of students to experimental and control conditions or manipulate an independent variable. Within the quasi-experimental design, the comparisons that are made are between classes or groups that already exist within the school setting.

Although the quasi-experimental design limits the extent to which a difference (e.g., higher scores on a benchmark assessment) can be directly attributed to the intervention (e.g., a new textbook or mathematics curriculum), the quasi-experimental design can generate useful information regarding potential "return on investment" as well as information that can be used to improve intervention implementation. Consequently, the quasi-experimental design may offer a pragmatic approach for assessing the impact of intervention investments on student learning when the level of rigor required in a true experimental design is difficult to achieve in a particular educational setting.

VII. Considerations for Moving Ahead

As discussed in this paper, new educational interventions are rapidly proliferating into the educational marketplace and are being continuously adapted to address the needs of 21st century learning. These interventions come in many forms and flavors including district-wide school reform programs, adopted curricula or texts, educational technology,

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instructional practices, and policies.   As these interventions flow across the educational landscape, school districts are being called upon, either through public policy mandates or local strategic planning goals, to utilize them in ways that assist students in achieving new levels of learning in a rapidly changing global society.   Consequently, the critical relationship between interventions and learning outcomes has become a central issue in 21st century education.

We are now at a frontier in which technological advances and intervention innovations are helping to empower local school districts to take the lead in effectively integrating research and practice as a natural part of "the business" of education. As districts continue to move forward in achieving this goal it is important to keep in mind that real change is driven by and sustained through the efforts of the people it affects. This paper has provided some discussion on how this change might be achieved. Highlights of the discussion are encapsulated below.

A. Supportive District Culture

Create a supportive district culture by developing the resources that provide district stakeholders with information and advice on the value of conducting research aimed at evaluating the impact of intervention investments. This may include providing some support mechanisms such as expertise and professional development activities aimed at building individual and group capacity to engage in locally designed research activities. It may involve forming research partnerships with neighboring school districts implementing similar interventions. It may involve the provision of concrete examples of how research can occur.

B. Building a Consensus

Build consensus by organizing and scheduling stakeholder groups to discuss and plan for research activities prior to and throughout the school year. To the extent possible, these activities should occur within the context of ongoing instructional planning and implementation.

C. Support District Efforts

Support the contributions and efforts of district staff interested in and/or engaging in research by allowing time to plan, conduct, summarize, and share research results with colleagues.

D. Research Activities

Take the time to discuss the kinds of questions and interests of district stakeholders that may help formulate research activities within and across classrooms. You might even wish to consider the ways in which "research teams" within and across grades might work together and the benefits accrued from doing so.

E. Intervention Identification

Identify the kinds of interventions you wish to consider for evaluation and the kinds of questions that you wish to ask. The questions should be specific, answerable, and provide meaningful information related to the intended purpose of the intervention.

F. Research Design

Determine the type of research design that best fits with your district's goals and interests, recognizing the strengths and limitations associated with each design. Choosing the appropriate research design for evaluating a particular intervention investment will depend on a number of considerations ranging from the types of questions of interest to the district, the kinds of resources available for implementing the research, and the level of research rigor important to the district.

G. Intervention Effectiveness

Determine the kinds of measures needed to determine the effectiveness of the intervention. In this regard, one should consider such issues as the reliability and validity of the measures. A key question to ask is "Do the assessments measure the goals that we are interested in achieving?" In thinking about appropriate measures, decide what kind of information is needed to answer the question at hand and how the information will be collected.   Information from both benchmark and formative assessments can provide useful tools to help evaluate the effectiveness of various interventions including curricula and instructional practices (Perie, Marion, Gong, and Wurtzel, 2007).

H. Developing a Plan

Develop a plan for implementing, monitoring, and managing your research activities and use the resources available through a host of organizations to guide you in this effort. Some resources are provided below:

> 1. Assessment Technology, Incorporated provides a wealth of information on its website, www.ati-online.com, for districts interested in enhancing efforts to implement standards-based educational interventions and evaluate their impact on learning. Bergan et al (2008) provide helpful guidelines for integrating research and management to support learning in standards-based education (see for example, (http://www.ati-online.com/pdfs/researchK12/Intervention-Final.pdf).

> 2. The National Foundation for Educational Research (NFER) website has several downloadable booklets that provide guidance for developing research-engaged schools (http://www.nfer.ac.uk/research-areas/research-engaged-schools). In addition, the NFER produces a

research journal for teachers and a series to assist in the implementation of research (http://www.pre-online.co.uk/).

3. The U.S. Department of Education Institute of Educational Sciences (IES) provides a wealth of information related to research evaluating intervention impact on educational outcomes for students (http://ies.ed.gov/).

I. Dissemination Plan

Develop a plan to disseminate the results of your locally initiated research through a variety of resources and in a continuous fashion to district stakeholders.   Incorporate the results of your findings into practice in ways that promote intervention revision or, if need be, pave the way toward the transition to another intervention approach.

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