Evidence-based Practice:
A Workshop for Training Adult Basic Education, TANF and One Stop Practitioners and Program Administrators

May 2007

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National Institute for Literacy

NCSALL

National Center for the Study of Adult Learning and Literacy

NAEPDC

National Adult Education Professional Development Consortium

NCSALL Training Materials are funded by the Educational Research and Development Centers program, Award Number R309B960002, as administered by the Institute of Education Sciences (formerly Office of Educational Research and Improvement), U.S. Department of Education. The contents of this paper were developed using funds transferred from the National Institute for Literacy to the Institute of Education Sciences. The views expressed herein do not necessarily represent the positions or policies of the National Institute for Literacy, the Institute of Education Sciences, or the U.S. Department of Education. No official endorsement by the National Institute for Literacy, the Institute of Education Sciences, or the U.S. Department of Education of any product, commodity, service or enterprise mentioned in this publication is intended or should be inferred.

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Evidence-based Practice Workshop

Objectives: To enable adult basic education, TANF and One Stop practitioners and programs to:

- **Discuss their own attitudes about research** and its connection to practice and policy
- **Define some basic concepts and terminology about research design and methodology**
- **Describe the connection** between evidence-based practice and program/classroom improvement
- **Describe what empirical evidence looks like** and how it can be integrated with professional wisdom to make decisions about instruction and services for adult students
- **Implement a plan for improving reading instruction in their programs** utilizing evidence-based practices
- **Cite strategies** they can use to continuously access, understand, judge and use research to make decisions about practices in their classrooms or programs

Introduction

The National Center for the Study of Adult Learning and Literacy (NCSALL) and the National Adult Education Professional Development Consortium (NAEPDC), with funding from the National Institute for Literacy (Institute), have created a one-day workshop to assist practitioners and administrators in adult basic education, TANF (Transitional Assistance for Needy Families) and One Stop programs to understand evidence-based practice and develop strategies for continuously accessing, understanding, judging and using research.

In each of three pilot states—North Carolina (July 18, 2006), Texas (September 12, 2006) and Wyoming (October 19, 2006)—NCSALL /NAEPDC conducted a workshop with approximately 25 practitioners and program administrators (along with selected professional developers and state staff participating as observers) that introduced them to the definition of evidence-based practice, and helped them understand how to access, understand, judge and use research in their classrooms and programs. We conducted an evaluation of the participants' experiences, plus the knowledge they gained, to both determine how to revise the workshop and to gauge its success[1]. The results of that evaluation indicate that the workshop is successful in reaching the goals set above.

Presenters: The workshop and follow-up were presented by Beth Bingman (NCSALL/Center for Literacy Studies), Lennox McLendon (NAEPDC) and Cristine Smith (NCSALL/World Education).

Participants: Adult basic education, TANF and One Stop practitioners and program administrators (in program teams).

Time: One-day workshop (8:45 a.m. to 4:05 p.m.)

[1] *For a brief description of the outcomes of that evaluation, see separate file at www.ncsall.net.*

Workshop Agenda

1. **Introductory Activity: Welcome, Objectives and Agenda** (15 minutes)
   A whole group activity where participants are introduced to each other, share a strength of their program, and learn about the workshop as a whole.

2. **Attitudes Toward Research: Discussion Activity** (35 minutes)
   A whole group discussion activity to help participants understand that there are a range of existing attitudes towards research and its role in improving practice. Participants analyze their own attitudes towards research and the attitudes they think other practitioners might hold, and they think about what attitudes about research mean for promoting evidence-based practice.

3. **Introduction to Research Design** (70 minutes)
   An overview of the basics of research in experimental design and quantitative data analysis. Participants create their own data, explore how to analyze such data and learn basic research concepts such as random sampling, reliability, validity, means/medians/modes, standard deviation, findings and implications. The activity concludes with a group discussion of experimental, correlational and case study research and when each might be useful to answer questions in adult education.

4. **Understanding Research and Identifying Evidence-based Practice** (110 minutes)
   An activity where the concepts of scientifically based research and evidence-based practice are defined. Participants analyze research related to adult reading instruction and generate principles of evidence-based reading instruction.

5. **Using Evidence-based Practice to Improve Your Programs** (45 minutes)
   A small group, program-specific activity where participants think about a recent change they made in their own programs (and the steps involved), read a case study about a fictional program making a program improvement change based on an evidence-based practice about reading, and then compare their own change process with the case study to see how they might incorporate evidence-based practice in their programs.

6. **Next Steps: Action Planning** (40 minutes)
   An action planning activity in which participants talk about specific problems that they are currently facing in their programs for which reading research might be useful and how they will take the information on evidence-based reading back to their programs.

7. **Accessing, Understanding, Judging and Using Research On Your Own** (60 minutes)
   A whole group discussion activity where participants consider a strategy for how they will continuously access, understand, judge and use research as part of their ongoing efforts to improve their programs.

8. **Evaluation and Closure** (10 minutes)
   An activity to get feedback from the participants about the workshop.

1. Introductory Activity: Welcome, Objectives and Agenda

Overview of activity:

A whole group activity where participants are introduced to each other, share a strength of their program, and learn about the workshop as a whole.

Objectives: By the end of this activity, participants will be able to:

- Say who the other participants are and the strengths of their programs
- Outline the agenda of the workshop as a whole

Time: 15 minutes (8:45–9:00)

Materials:

- Nametags, newsprint and pens
- Power Point slides #1–5: *Evidence-based Practice: A Workshop for Training Adult Basic Education, TANF and One Stop Practitioners and Program Administrators, Welcome, Introductions, Objectives, Agenda*
- Handout: *Objectives and Agenda*
- Handout: *Programs and Practices: Basic Terminology*

Steps:

1. **Welcome participants** to the seminar. Show PP slide #2: *Welcome*. Introduce yourself and state your role as facilitator. Explain how you came to facilitate this seminar: The National Institute for Literacy is interested in promoting evidence-based practice in states through this one-day workshop for practitioners and program administrators.

2. **Ask participants to introduce themselves** (name, program, role, state one strong component of your program). Show PP Slide #3: *Introductions*. **Write on newsprint** or directly into PowerPoint slide: program name and strength.

3. **Make sure that participants know** where bathrooms are located, when the session will end, when the break will be and any other housekeeping information.

4. **Show the PP slides** *Objectives* and *Agenda* and review with the participants. Draw their attention on the *Objectives* slide to the terms "access, understand, judge and use research," and explain how these words are at the heart of this workshop and of promoting evidence-based practice in programs. Direct them to the *Objectives and Agenda* handout in their folders. Also, direct them to the handout *Programs and Practices: Basic Terminology*; this may be useful during the workshop to clarify standard terms so that all participants and facilitators are using the same terminology.

2. Attitudes Towards Research: Discussion Activity

Overview of activity:

A whole group discussion activity to help participants understand that there are a range of existing attitudes towards research and its role in improving practice. Participants analyze their own attitudes towards research and the attitudes they think other practitioners might hold, and they think about what attitudes about research mean for promoting evidence-based practice.

Objective: By the end of this activity, participants will be able to:

- Discuss their own attitudes about research and its connection to practice and policy

Time: 35 minutes (9:00–9:35)

Materials:

- Pennies, paper and pencils
- Signs to post around room
- PP slides #6–10: *Attitudes Towards Research, Evidence-based Practitioners are…, Your Stance as Evidence-based Practitioners: Questions, Your Stance as Evidence-based Practitioners: Consumers, Your Stance as Evidence-based Practitioners: Producers*
- Handout: *Evidence-based Practice: Your Stance as Evidence-based Practitioners*

Steps:

1. **Put up PP Slide #6:** *Attitudes Towards Research*. **Explain to participants** that the next activity is a reflection and discussion activity where they will consider how they perceive and feel about research, as well as thinking about their goals as practitioners who use research.

2. **Penny Activity: Distribute blank paper and a pencil** to each participant. Ask everyone to think about a penny. Point out that most of us still encounter pennies everyday and probably carry several of them. Tell participants to take 10 minutes to draw both sides of a penny from memory, including as much detail as possible.

3. **After participants have finished drawing, ask** for a few volunteers to share their sketches and discuss the process they went through. Ask the volunteers the following questions:

   - *How do you think you did with your drawings?*
   - *Were you able to remember all the details?*
   - *Do you feel like the penny you drew matches reality?*

4. **Now pass around the real pennies.** Ask participants:

   - *How do your drawings and the real pennies compare?*
   - *What are some reasons the reality of a penny and the drawings don't match*? Possible answers (and some key messages) include:

     - We drew the penny based on faulty memory.
     - We take pennies for granted because we're around them all the time.
     - We assume we know.
     - We haven't had a pressing need, or opportunity, to examine a penny with the care needed to remember more details.

Then ask everyone to think of the penny as absolute reality and their drawing as an interpretation. Ask the participants the following questions:

- *What lesson(s) might you draw from this? Or what lesson(s) might you apply?*

  Possible answers include:

  - Our memories are unreliable. We need to find other means to remember.
  - We make assumptions; therefore, it's important to acknowledge that assumptions exist. And it's important to **test the accuracy of our assumptions**. That's what research does.

- *Does this make you think about research in a different way? If so, how?*

5. **Explain that the next activity will go further in helping them think about their attitudes and the attitudes of other practitioners towards research. Post the three signs below**—statements about research and practice—around the room. Refer participants to the three signs in large letters that you posted.

Research is useless; it should have a direct impact on practice, but it doesn't because it isn't relevant to my program and/or class.

Research can be useful; it should have a direct impact on practice and it does if it provides practical suggestions and strategies.

Research is useful; it shouldn't necessarily have a direct impact on practice; rather it should expand my understanding of program practices and/or teaching.

5. **Ask participants to stand up and move to stand near the sign that best represents how they feel about research**. Explain that this next activity is purely for promoting discussion and there are no right and no wrong answers.

6. **After participants are standing near a sign**, ask one or two people near each sign to explain why they agree with the statement. Tell participants that, if they change their mind after listening to the explanations, they may move to stand near another sign reflecting their new opinion. Feel free to let participants dialogue with each other from different sides of the room; in other words, they are not trying to convince you but each other

7. **Draw the discussion to a close after 10 minutes**. Ask participants if they would have stood in the same place when they came in today, before they did the penny activity. Briefly note that the three positions were identified in research by Zeuli (1991). Suggest that as they plan ways to use research in their programs, they need to take into account the various ways that practitioners view research.

8. **Go through PP Slides #7–10.** Point out that these are ways that we have found that practitioners engage with research and that our goal is that practitioners do engage with research in at least one of these ways. All three stances involve teachers and program administrators using research to improve their practice and programs. Direct them to the *Evidence-based Practice: Your Stance as Practitioners* handout in their folders.

3. Introduction to Research Design

Overview of the activity:

An overview of the basics of research in experimental design and quantitative data analysis. Participants create their own data, explore how to analyze such data and learn basic research concepts such as random sampling, reliability, validity, means/medians/modes, standard deviation, findings and implications. The activity concludes with a group discussion of experimental, correlational and case study research and when each might be useful to answer questions in adult education.

Objective: By the end of this activity, participants will be able to:

- Define some basic concepts and terminology about research design and methodology

Time: 70 minutes (9:35–10:45)

Materials:

- PP Slides #11–16: *Introduction to Research Design, Research Design: The Research Question, Research Design: Limitations of the Study (Validity), Research Design: Limitations of the Study (Reliability), Research Design: Experimental Research, Research Design: Research Options for Our Study*
- Handout*: Let's Do Some Research*
- Handout: *Statistics 101*
- Five ball-in-cup toys
- Calculator
- Blank newsprint or whiteboard
- Sticky notes

Steps:

1. **Show PP slide #11. Explain to participants that the purpose** of this activity is to learn experientially about experimental research design and quantitative data analysis. By participating in creating numeric data through a skill-building activity, they can then explore how to analyze such data and understand factors that may account for improvement in skill.

2. **Introduce the activity by explaining** that the point of the task is to give the group some data that they can then use to walk through an analysis process. Show PP slide #12. The research question that would drive this study, if it were a real study, is: *Does practice in trying to flip the ball into the cup lead to improvements in that skill?*

3. **Ask for 10 volunteers** to raise their hands. Write their first names on newsprint.

4. **Ask each person to select a strip of paper.** Five of the strips will have an "*X*" marked somewhere on them; another five will have an "O" marked on them. The rest will be blank. This allows participants to randomly select themselves into participants in either

experimental and control groups. Strips should be folded in half so that the numbers and the "*X*"s and "O"s are not visible. Once they have selected their strips, they should look at their numbers and see whether or not they have an *"X,"* an *"O"* or nothing marked on their papers.

5. **Bring the whole group of 10 that was randomly chosen to the front of the room.** Ask those with an "X" or "O" to come to the front of the group. There should be 10 people at the front of the room. Compare the group of volunteers with the randomly chosen group, discussing how using volunteers might skew the results. Thank the volunteers.

6. **Distribute the handout** *Let's Do Some Research*. Ask the participants to skim through it.

7. **Create a newsprint with the names of the randomly chosen group**, all of the "*X*s" in a list on one side, and all of the "*O*s" in a list on the other side of the newsprint. Using the ball-in-cup toys, have *each* person in turn take 10 tries at flipping the ball into the cup. Keep track on newsprint of how many successful attempts the person has (i.e., Sarah = 3 out of 10; John = 5 out of 10). Explain that this is their "pretest" or "baseline" performance on the task.

8. **After each person has taken 10 tries,** ask the "*X*s" to take a ball-in-cup toy and go outside in the hallway. They are to practice, in any manner they choose, for five minutes. Explain that this group is the "experimental" group. The group that still remains in the room is the "control" group. These control group members are not getting the "intervention" of practice. While the experimental group is practicing in the hall, the control group can look at the data on the newsprint and discuss the results of the baseline data: what's the range of scores; do they diverge widely; what's the mean, median and mode; and what's the best way to report the average, etc.?

9. **After five minutes, ask the experimental group to come back into the room.** Ask the group who practiced to talk about how they practiced: what did each do as individuals to get better? (This constitutes the "intervention." Sometimes in studies it is just more practice (like attending any adult education class for longer) and in other studies, the intervention is something new that everyone in the "treatment" or experimental group does the same.)

10. **Ask *everyone* to do the test again,** even those who didn't practice. Record the new scores on the newsprint. This second set of scores is called the "posttest." Then walk through the analysis phase: what is the range of scores for the posttest; what's the best way to do the average; what's the standard deviation and is that helpful in interpreting the results? Discuss how this is "descriptive" data analysis: describing the data in standard and accepted ways that will help in interpreting it.

11. **Invite the group to analyze the data:**
    - What's the difference between the means in the pretest and the posttest and between the two groups? (*finding*)
    - Is that difference large enough to be a significant difference? (*analysis*)

- What are some of the factors (other than the practice time) that might explain the difference in scores, such as people's previous experience with the toy, physical coordination, etc.? (*rival hypotheses, other variables*)
- What do you conclude about whether or not practice helps to improve skill and how important are the factors in the findings? (*conclusion*)
- What are the implications of this research for others who may want to improve their skill at doing the "ball-in-cup" task? (*implications*)

12. **Finally, discuss the limitations of this study** (PP slides #13–14)**:**
    - How does the number of "subjects" in the sample affect how comfortable you feel about generalizing this to other (non-adult education practitioner) populations of people? What about how the control and experimental groups were chosen? What about the population from which the sample itself was chosen (Is there something unique about people who work in adult education that would affect their skill?) ? (*size of "n," sampling*)
    - What else, other than counting successful attempts, could be used as a measurement (e.g., number of successful attempts in two minutes)? Would the results have been different? Was the right measurement chosen to test whether skill increased? (*validity*)
    - Were the measurements accurate? Were all subjects measured the same way? (*reliability*)

13. **Conclude the activity by showing PP slide #15 and remind the group that this was experimental research** (but with a very small "n"). Review the terms. Then, show PP slide #16 and talk about the three main types of research studies.

    Discuss the possible uses of experimental, correlational and case study research in this study. Are there variables that correlate (e.g., previous experience with toy and performance)? How might a case study be used to explore the nature of the practice that the members of the experimental group used?

14. **Discuss how different types of research might answer different questions** in adult education, TANF or One Stop services. What questions do they have that might be answered by each kind of research?

15. **Refer the participants to the handout** *Statistics 101*, and give them a few minutes to look them over and ask any questions they may have.

BREAK: 15 MINUTES (10:45–11:00)

4. Understanding Research and Identifying Evidence-based Practice

Overview of activity:

An activity where the concepts of scientifically based research and evidence-based practice are defined. Participants analyze research related to adult reading instruction and generate principles of evidence-based reading instruction.

Objective: By the end of this activity, participants will be able to:

- Describe what empirical evidence looks like and how it can be integrated with professional wisdom to make decisions about instruction and services for adult students

Time: 110 minutes (1 hour, 50 minutes): (11:00–1:15, including 25 minutes for lunch)

Materials:

- PowerPoint Slides #17–22: *Evidence-based Practice*: *Scientifically Based Research Must…*, *Evidence-based Practice*: *Recognizing Effective Research, Evidence-based Practice*: *Analysis Group Tasks, Evidence-based Practice*: *Discussion Group Tasks, Evidence-based Practice*: *Definition,* and *Uses for Research*
- Handout: *What Is Scientifically based Research? A Guide for Teachers*
- Handouts: Research briefs* *Adult Reading Components Study, The Sustained Silent Reading Study, and Influences on the Reading Practices of Adults in ABE*
  (**Note:* You may want to substitute other reading research briefs here, instead of the three we have included. Be sure that they are accessible, short enough, etc. to be included in a jigsaw, *or* send full research articles out beforehand and *ask* the participants to read them before coming to the workshop.)
- Handout: *Evidence-based Practice: Definitions*
- Handout: *Evidence-based Education*
- Handout: *Evidence-based Practice: Using Research*
- Sticky notes, newsprint, markers, and tape

Steps:

1. **Explain to participants that the purpose** of this activity is to help them understand what scientifically based research and evidence-based practice means, and to practice generating some principles of evidence-based practice for adult reading instruction. Explain that the next activity will walk them through the process of analyzing research on a particular topic: reading.

2. **Show the PP slide #17:** *Scientifically Based Research Must…*. Describe how this is the definition of the U.S. Department of Education, based on the No Child Left Behind Act, of the preferred type of research on which evidence should be based. **Show PP slide #18**: *Recognizing Effective Research.* For each question, talk with participants about what the question means and how they would know, using the following information as a guide:

Understanding What Effective Research Is

1. *Has the study been published in a peer-reviewed journal or approved by a panel of independent experts*?
   - What does this mean? There are two types of peer review: one is "blind" peer review, where neither the author nor the reviewers know who each other are. These types of studies are published in "peer-refereed journals". Another type of peer review is when the authors and reviewers *may* know each other, but the reviewers' comments must be addressed in the final version of the article. All of NCSALL's studies are peer reviewed in this way.
   - How would you know? You have to know the source. There are only a few peer-refereed journals that include articles about adult literacy and basic education; some are listed in handout on ***Sources for Accessing Research***, in the folders.

2. *Have the results of the study been replicated by other scientists*?
   - What does this mean? This means that the same study has been done by someone else and, hopefully, with the same results. This is extremely rare in adult literacy and basic education, because research funds are so limited—and the number of unanswered research questions so many—that few studies are dedicated to replicating previous studies.
   - How would you know? In the research article or brief, the literature review should mention previous studies that the current study is replicating. Or, the methodology section should say that the study is replicating a previous study.

3. *Is there consensus in the research community that the study's findings are supported by a critical mass of additional studies*?
   - What does this mean? This means that a reviewer of all studies on the topic, or a panel of experts, have determined that there are a sufficient number of rigorous and effective research studies done on this topic (in any field, including K–12) that the findings of the current study are very well supported.
   - How would you know? The article must provide a thorough review of all of the previous and related studies, their methodology, and their findings. *or*, the article should provide the opinion of the group of experts who met and "judged" the findings to be well-supported by many other studies. Such panels rarely exist in adult education, but for an example, see *Research-Based Principles for Adult Basic Reading Instruction* at www.nifl.gov/partnershipforreading/publications/adult_ed_02.pdf

Refer participants to the handout in their folders: *What Is Scientifically based Research? A Guide for Teachers.* Tell the participants that you will keep these questions up during the next activity, because they are going to be looking at specific pieces of research and deciding for themselves whether and how they meet these criteria.

3. **Jigsaw Activity: Scientifically based Research and Reading Research**. Explain the structure and process of the next activity to participants. **Post PP slide #19**: *Analysis Group Task*. Divide them into three *Analysis* groups of 8 people each (if there are 24 participants, or groups of 9 if there are 27 participants; if a number not divisible by three, ask several people to observe).

4. **Assign a specific research brief/article* to each of the three groups** (refer them to copies in their folders):

   - *Analysis* Group A gets *Adult Reading Components Study*
   - *Analysis* Group B gets *The Sustained Silent Reading Study*
   - *Analysis* Group C gets *Influences on the Reading Practices of Adults in ABE*

   Tell them they will have 20 minutes in their *Analysis Groups* to read and discuss the research brief/article.

   (*Note: You may want to substitute other reading research briefs here, instead of the three we have included. Be sure that they are accessible, short enough, etc. to be included in a jigsaw, *or* send full research articles out beforehand and *ask* the participants to read them before coming to the workshop.)

5. **With 3 minutes left to go in their *Analysis* Groups**, go around and hand each member of each group a slip of paper with a number from 1–8 written on it. Explain to them that in a few minutes they will be asked to move to a new group, a *Discussion* Group, with other people from the different groups.

6. **Post large numbers 1–8 on slips of newsprint around the room.** At the end of 20 minutes in their *Analysis* Groups, ask participants to move to the areas of the room with their numbers are and create a new group of three people who have the same numbers.

7. **Explain that these new groups are their *Discussion* Groups,** and each member has some background information about a different reading study. **Show PP slide #20**: *Discussion Group Task* and go over the directions with them. Remind them not to take more time than they are allotted or else they will be using someone else's time.

8. **After 15 minutes in their *Discussion* Groups, reconvene the whole group**. Ask for their comments about each study in turn, specifically asking whether they thought the study was scientifically based research, and why or why not.

LUNCH: 25 minutes

9. **Tell the whole group that it has just learned about three different research studies on adult reading**. Now the participants are going to document some of their own experiences with adult reading instruction. Ask them, individually and silently, to spend one minute to think about *one* strategy or instructional approach that they have found from experience to be successful in helping adults improve their reading skills. Each participant should write the strategy on a piece of paper.

   After a few moments, ask for a volunteer to name his/her approach or strategy. You, the facilitator, should write (paraphrase) the activity on a clean sheet of newsprint. Ask if anyone else had this same strategy; if so, make check marks next to the strategy indicating how many others wrote the same strategy. Then ask for someone else to read out a strategy; write on the newsprint and ask how many others also listed that strategy, etc. Continue until all the participants' strategies are recorded on the newsprint. Ask if there are questions from the whole group about this list of reading strategies or approaches. Write "*Professional Wisdom*" at the top of the newsprint, and explain that this represents some of the group's ideas about successful approaches to teaching adults reading.

10. **Now ask participants to think about the reading instruction strategies** they learned about in their *Discussion* Groups. Pass out two red dots to each participant and ask them to come up and put a dot next to the *Professional Wisdom* strategies that they feel were **supported by the research they read**.

11. **Explain to the group that this** overlap between the evidence from research and the strategies that experience (professional wisdom) suggests is, in fact, what "evidence-based practice" is. **Show PP slide #21:** *Evidence-based Practice: Definition*. Refer participants to the handouts *Evidence-based Practice: Definitions* and *Evidence-based Education* in their folder. Review the definition with the group, inviting comments and questions. Referring to the newsprint list of *Professional Wisdom* about reading, ask participants to name any reading instruction issues that aren't supported by the research but for which they have professional wisdom: What should we say about these approaches?

12. **Show the PP slide #22:** *Uses for Research*, and suggest that these are ways that other practitioners and program administrators have found research useful. Refer participants to handout *Evidence-based Practice: Using Research* in their folders.

5. Using Evidence-based Practice to Improve Your Programs

Overview of activity:

A small group, program-specific activity where participants think about a recent change they made in their own programs (and the steps involved), read a case study about a fictional program making a program improvement change based on an evidence-based practice about reading, and then compare their own change process with the case study to see how they might incorporate evidence-based practice in their programs.

Objective: By the end of this activity, participants will be able to:

- Describe the connection between evidence-based practice and program/classroom improvement

Time: 45 minutes (1:15–2:00)

Materials:

- Power Point slides #23–24: *Using Evidence-based Practice to Improve Your Program: Your Current Program Improvement Process, Using Evidence-based Practice to Improve Your Program: A Case Study*
- Handout *Program Improvement and Evidence-based Practices: A Case Study*

Steps:

1. **Explain to participants that the purpose of this activity** is to think about how research can help a program to make changes and improve. After this step, they will choose an evidence-based reading practice that they might implement in their own programs as part of a program improvement effort.

2. **Post PP Slide #23:** *Using Evidence-based Practice to Improve Your Program: Your Current Program Improvement Process*. Then, ask participants to form groups of people **from the same program.** Ask the groups to take 15 minutes to think about and discuss a recent change (of some substance) that they made in their own programs and how they went about it.

3. **After 15 minutes in their groups, post PP slide #24:** *Using Evidence-based Practice to Improve Your Program: A Case Study*. Also, refer participants to the handout in their folders, *Program Improvement and Evidence-based Practices: A Case Study*. Ask the participants to take 15 minutes to read the handout silently and then to talk in their groups about the differences between the change/program improvement process that the case study program followed and the process their own program followed when they made a change. Are there steps that the case study program did that they would like to add to how they make changes in their programs, or vice versa?

4. **Ask the groups to make note of the steps** for the process they would like to have (whether it's the one they currently use or one that is adapted based on new steps they saw in the case study).

5. **Reconvene the whole group.** Ask each group to comment on one thing they learned about the process of using evidence-based practice to improve their program. Explain that the next activity will help them write action plans for incorporating an evidence-based practice about reading into their own programs, and they may want to incorporate some of their new ideas about program improvement processes into those action plans.

6. Next Steps: Action Planning

Overview of activity:

An action planning activity in which participants talk about specific problems that they are currently facing in their programs for which reading research might be useful and how they will take the information on evidence-based reading back to their programs.

Objective: By the end of this activity, participants will be able to:

- Implement a plan for improving reading instruction in their programs utilizing evidence-based practices

Time: 40 minutes (2:00–2:40)

Materials:

- Handout: *Action Plan for Evidence-based Reading Instruction*
- Power Point Slides #25: *Action Planning: Creating a Plan for Evidence-based Reading Instruction*.

Steps:

1. **Explain that the next activity will give the participants a plan for implementing an evidence-based reading instruction practice in their classrooms or programs.** Post PP Slide #25: *Action Planning: Creating a Plan for Evidence-based Reading Instruction*. Refer back to the newsprint and discussion of evidence-based reading instruction. Ask them to look at the items marked with red dots (those they thought had an overlap between professional wisdom and research evidence). Ask them to select *one* of these practices that might be relevant or useful in solving a reading instruction problem in their own programs.

2. **Refer participants to the handout in their folder called** *Action Plan for Evidence-based Reading Instruction*. Ask them to write the steps to make change for that particular evidence-based reading practice, in order, on the action plan.

3. **Then tell them to work in program groups and take 15 minutes to fill out the action plan** for implementing the reading strategy. Who will do what when? What resources will be needed? How will you involve the teachers/tutors, counselors, and students? How will you document whether or not the new, evidence-based, reading strategy makes a difference?

4. **Reconvene the whole group, and ask each group what practice they developed an action plan around,** and see if there were any problems or anything that a group needs help with from the whole group. If two or more groups are addressing the same need, make sure that they know how to talk to each other after the workshop.

BREAK: 15 MINUTES (2:40–2:55)

7. Accessing, Understanding, Judging and Using Research on Your Own Programs

Overview of activity:

A whole group discussion activity where participants consider a strategy for how they will continuously access, understand, judge and use research as part of their ongoing efforts to improve their programs.

Objective: By the end of this activity, participants will be able to:

- Cite strategies they can use to continuously access, understand, judge and use research to make decisions about practice in their classrooms or programs

Time: 60 minutes (2:55–3:55)

Materials:

- Power Point slides #26–37: *Your Program's Own Strategy for Evidence-based Practice (*two slides*), When You Get Home, Force Field Analysis: Making Our Plans and Strategies Work, Accessing Research Findings* (eight slides)
- Handout: *Developing a Strategy for Evidence-based Practice and Program Improvement: Worksheet for Programs*
- Handout: *Sample Timetable—A Strategy for Evidence-based Practice and Program Improvement*
- Handout: *Some Sources for Accessing Research*
- Handout: *Some Sources for Understanding and Judging Research*
- Newsprint: Blank format for Force Field Analysis

Steps:

1. **Explain that the workshop so far has focused on program improvement through evidence-based reading instruction.** This is just *one example* of the process of accessing, understanding, judging and using research in their programs. Now, the workshop will turn to helping them think about what type of *structure* and *process* they need to set up in their program to *continually* use research (on any topic) as a source for solving problems (program improvement) in their programs.

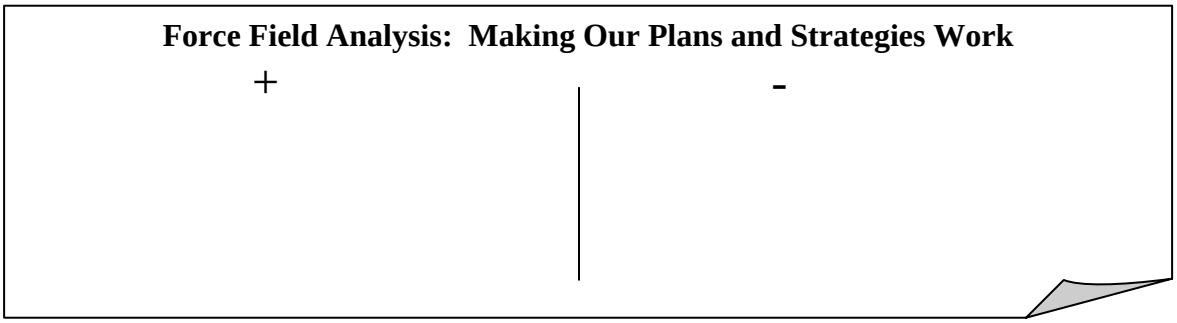
2. **Post the Power Point slide #26 first and then slide #27:** *Your Program's Own Strategy for Evidence-based Practice* and review.

3. **Refer participants to the handouts in their folders:** *Developing a Strategy for Evidence-based Practice and Program Improvement: Worksheet for Programs* and *Sample Timetable—A Strategy for Evidence-based Practice and Program Improvement*. In their program groups, ask them to take the next 30 minutes to begin to develop a structure by thinking about the 11 tasks on the first handout.

4. **After 30 minutes reconvene the whole group.** Ask program groups if there are any questions that they have about their strategy for continually accessing, understanding, judging and using research for evidence-based practice and program improvement in their programs, *or* whether there is anything from their worksheet that they would like to share with others.

5. **Explain that the next step is implementation back home,** which can sometimes be hard to do. **Post PP slide#28**: *When You Get Home*, and review. This next activity should help participants think about how to "keep the momentum going" and not get stuck, once back in their programs.

6. **Post PP slide #29 and put up the Force Field Analysis Newsprint.** First ask participants to brainstorm what will make it harder for them to finish their plans, and list these factors on the right side of the newsprint, under the "negative" sign. Then, ask them to brainstorm what will support them to finish their plans successfully, and list these factors on the left side of the newsprint, under the "positive" sign.



7. **Now ask participants to strategize** how they might reduce the negative or hindering factors, and how they might increase the positive or supporting factors. Facilitate a general discussion.

8. **Finally, explain to participants that one of the most daunting things can be the first steps** in utilizing research for evidence-based practice: accessing the research**. Review PP slides #30–37**. Refer participants to the handout in their folders on *Some Sources for Accessing Research*, which lists all of these sites and more. Also, refer participants to some of the sites about background documents about research: *Some Sources for Understanding and Judging Research*, in case they are looking for more information about how to read and understand research.

8. Evaluation and Closure

Overview of activity:

An activity to get feedback from the participants about the workshop.

Objective:

- To hear from participants what was useful and what needs to be changed in the workshop to make it more useful for them

Time: 10 minutes (3:55–4:05)

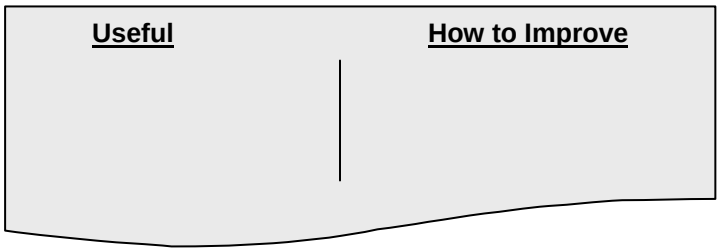
Materials:

- PowerPoint slide #38: *Evaluation*.
- Newsprint *Useful/How to Improve*

Steps:

1. **Explain to participants** that, in the time left, you would like to get feedback from them about this session. You can use this feedback in making improvements for the next time you conduct this workshop.

2. **Post the PP slide #38,** and **post the newsprint** *Useful/How to Improve*. Follow the instructions on the slide. Remember to try to write exactly what participants say, and also remember to *not* defend anything that feels like criticism. Just write down their comments and indicate that you hear their suggestions (even if you don't agree with them).



3. **Close the session by** thanking the group for coming, and wish them luck in implementing their plans and strategies.

Handouts

All handouts should be photocopied beforehand and inserted, in the following order, into a folder for each participant. You may use different colored paper so that directing participants to a particular handout is easier.

- Evidence-based Practice Workshop: Objectives and Agenda
- Programs and Practices: Basic Terminology
- Evidence-based Practice: Your Stance as a Practitioner
- Let's Do Some Research
- Statistics 101
- What Is Scientifically Based Research? A Guide for Teachers
- Adult Reading Components Study
- The Sustained Silent Reading Study
- Influences on the Reading Practices of Adults in ABE
- Evidence-based Practice: Definitions
- Evidence-based Education
- Evidence-based Practice: Using Research
- Program Improvement and Evidence-based Practices: A Case Study
- Action Plan for Evidence-based Reading Instruction
- Developing a Strategy for Evidence-based Practice and Program Improvement: Worksheet for Programs
- Sample Timetable—A Strategy for Evidence-based Practice and Program Improvement
- Some Sources for Accessing Research
- Some Sources for Understanding and Judging Research

Evidence-based Practice Workshop: Objectives and Agenda

Objectives

By the end of the workshop, you will be able to:

- Discuss your own attitudes about research and its connection to practice and policy
- Define some basic concepts and terminology about research design and methodology
- Describe the connection between evidence-based practice and program/classroom improvement
- Describe what empirical evidence looks like and how it can be integrated with professional wisdom to make decisions about instruction and services for adult students
- Cite strategies you can use to continuously access, understand, judge and use research to make decisions about practice in your classroom or program

Agenda

1. Introductory Activity: Welcome, Objectives and Agenda
2. Attitudes Toward Research: Discussion Activity
3. Introduction to Research Design
4. Understanding Research and Identifying Evidence-based Practice
5. Next Steps: Action Planning
6. Using Evidence-based Practice to Improve Your Programs
7. Accessing, Understanding, Judging and Using Research on Your Own
8. Evaluation and Closure

Programs and Practices: Basic Terminology

Policies: ways of organizing services and instruction

Practices: ways of providing services and instruction

Program Needs: problems or aspects of program practice or policy that aren't "working" and need to be improved

Determining Program Needs:

- **Self-assessment** (against best practices, quality standards or program mission)
- **Analyzing Program Data** (to determine areas where persistence, achievement or impact are not what you think they should be)

What Works: policies and practices that *increase* three things:

- **Persistence** (students stay longer)
- **Achievement** (students learn more)
- **Impact** (students' lives improve)

Determining What Works: two sources

- **Professional Wisdom**: Your own experience at a classroom, program, community, regional or state level, or the experience of colleagues or organizations you trust. May be informal (a colleague telling you a policy or technique in class worked and why s/he knows), or formal (the CASAS model).
- **Research findings**: policies and practices that research studies say will work (based on empirical evidence)

Evidence-based Practice: Your Stance as a Practitioner

The goal is for practitioners to take one of the following three stances towards evidence and research…

Questioners:

- Believe that practice should be based on evidence and professional wisdom.
- Ask, "Why should I use this technique or strategy and what is the evidence that supports it? Is it based on evidence I have about students' performance, on other practitioners' evidence (professional wisdom), or on research evidence?"

Consumers:

- Believe that new evidence is critical to your work and proactively seek research evidence.
- Learn enough about research and its findings to integrate what has been found to be effective with our own knowledge of students, and then change our practice accordingly.

Producers:

- Believe that we should not only be consumers but also researchers in your own classrooms.
- Generate knowledge that can be shared with others through program or classroom research, through co-research with university-based researchers, or by documenting how we implemented evidence-based practice.

Let's Do Some Research

Purpose	The purpose of this activity is to learn experientially about quantitative data analysis. The point of this activity is to give us some data that we can then use to walk through an analysis process. By participating in creating numeric data through a skill-building activity, we can then explore how to analyze such data and understand factors that may account for improvement in skill.
Research Question	The research question that would drive this study, if it were a real study, is: **Does practice lead to improvement in this skill?**
The Skill (Pretest)	First, we'll test everyone on the skill (pretest score). The individuals will have 10 tries to get the ball into the cup. Record the score (number of successful tries): Name _____ Score _____

Practice and Analysis	Now, the randomly selected "experimental" group will go outside and practice any way they want to for five minutes. The control group and the facilitator will look at the data and draw some preliminary results: • The range of results is _____ to _____. • Do the results diverge widely? yes/no • What could it mean if the results diverge dramatically? • The mean (total of scores/number of people) is _____. • The median (arrange scores in order; select middle score) is _____. • What's the best way to report the average, mean, or median? • The standard deviation (find difference of each score from mean or median; total these differences and divide by the number of scores) is _____. When the experimental group comes back, record the different ways the experimental group practiced (the intervention): _____ _____ _____ _____ _____ _____

The Skill (Posttest)	Again, everyone (in both experimental and control group) will try to get the ball into the cup 10 times each. Record the scores for each group: Control Group Score _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Experimental Group Score _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Remember, the experimental group practiced. This constitutes the "intervention." Sometimes in studies it is just more practice, like attending any type of adult education classes longer, and in other studies, the intervention is something new to which everyone in the experimental group is exposed.

Data Analysis	Next, let's analyze the posttest data: • The range of results on the posttest is _____ to _____. • Do the results diverge widely? yes/no • The mean (total of scores/number of people) is _____. • The mean of each group: control _____ experimental _____ • The median (arrange scores in order; select middle score) is _____. • The median of each group: control _____ experimental _____ • What's the best way to report the average—mean or median? • The standard deviation (find difference of each score from mean or median; total these differences and divide by the number of scores) is _____. • Why do you think the standard deviation is helpful in interpreting the results? This is descriptive analysis. We are describing the data in standard and accepted ways that will help us interpret it. Let's consider the following questions: • What's the difference between the means in the pretest and the posttest for the entire group (*finding*)? Is there a difference between the posttest means for the experimental sub-group and the group that did not practice? • Is that difference large enough to matter (*analysis*)? • What are some of the factors (other than the practice time) that might explain the difference in scores, such as people's height, balance, previous experience balancing things, gender, physical coordination, etc. (*rival hypotheses, other variables*)? • What do we conclude about whether practice helped to improve skill, and how important were the factors in the findings (*conclusion*)? • What are the implications of this for others who may want to improve their skill (*implications*)?
Limitations of the Study	Finally, in the large group, discuss the limitations of the study: • How does the number of "subjects" in the sample affect how comfortable you feel about generalizing this to other populations of people? What about how the control and experimental groups were chosen? What about the population from which the sample itself was chosen (Is there something unique about adult educators that would affect our skill?) (*size of "n," sampling*)? • What else, other than counting successful attempts, could be used as a measurement (number of successful attempts in two minutes)? Would the results have been different? Was the right measurement chosen to test whether skill increased? Did the test measure the skill it was intended to measure (*validity*)? • Were our measurements accurate? Were all subjects measured the same way (*reliability*)?
Wrap-up	How does this help you to understand research studies? How might the research be conducted differently?

Statistics 101

Here are some beginning concepts (with *definitions in italics*) about statistics that may help you if you are using quantitative data.

Statistics based on two main concepts: averages and probabilities

Averages (Means): Most quantitative research statistics rely on comparing averages (means). A mean is simply *the number you get when you add up all the scores and divide by the number of scores* (e.g., scores of 3, 4 and 5 add up to 12; divided by three scores equals a **mean** (or **average**) of 4).

The means (averages) that are most often compared are:

- The mean scores of one group of students who were exposed to a new approach (this group is called the experimental group) compared to the mean scores of another group of students who didn't get the new approach (this group is called the control or comparison group). This is called an **experimental design.**
- The mean scores of one group of students before they were exposed to a new approach (this is called their baseline mean or "pretest score") and the mean scores of the same group after they were exposed to the new approach (their "posttest" score). This is called a **pre-/post- design.**
- The mean scores of one group of students who were exposed to a new approach compared to the mean scores of another group of students who were exposed to a different approach. This is called a **quasi-experimental design.** (It's not really experimental because there's no control group. Everyone is exposed to some type of educational approach).

Probabilities: **Probabilities** play a role in determining *whether the differences between two means are really reliable or an accident*. What are the chances (what is the probability) that the difference (or lack of difference) seen between two means is an accident?

Think about flipping a coin. There are only two outcomes: heads or tails. Common sense tells you that each time you flip a coin, there's a 50/50 (or 50% chance, or .50 chance) that it will be heads. However, you know that if you flip it 30 times, it might come up heads 20 times, and tails 10 times (heads 67% of the time or .67), rather than exactly heads 15 times and tails 15 times. If you flipped the coin 100 times, you might end up getting heads closer to, but not exactly, 50% of the time. But, if you had unlimited time and patience, you could flip it a million times, and you would probably end up with pretty close to 500,000 times that it's heads, and 500,000 times that it's tails.

In research you usually don't have the resources to test *all the students* (the whole **population** of students) in the school, the country, or the world. (You can only flip the coin so many times.) Statistics is based on the idea that you can only test *a limited number of students* (a **sample** of the whole population of students). So you want to know: What are the chances that with this number

of students, my results will be the same as they would be if I tested a huge number, or the whole population?

Statistical analysis

Statistical analysis is a *mathematical process of telling you how reliable your results are*, when you only have a sample of all the students to which the results could apply. So, naturally, the larger your sample, the less risk (the higher the probability) that the sample of students you have is just like the whole population.

Similarly, if you were to test someone multiple times with the same test, they wouldn't perform exactly the same way every time they took it; i.e., they wouldn't get the same score every time. One day they feel tired; the next day, they read the question a different way. If you kept testing them and testing them, you could probably average all their test scores and get a pretty good idea of what their skills are. But in most research, you can only test someone a few times at most. So, what are the odds that, the one or two times you tested them for your experiment, you got an accurate representation of their skills? When you test a group who has experienced a new educational intervention, and then test a group who hasn't had the intervention, what is the chance or probability that those test scores represent their skills, rather than just being "variation" in how each student took the test that day? How much of a difference between the scores of one group of students and those of the other group of students is really acceptable, given this variation, for you to say that the intervention made that difference, rather than the difference just being an accident of the scores they got on that test on that day?

Typically, the acceptable probability numbers are less than 1% or 5%. What this means is that, in comparing means, the statistics test tells you if there was less than a 1% chance or less than a 5% chance that these two means could **accidentally** be as different as they are. When you see research reports that say, "The difference between the means was $p<.05$," this means that the statistical test indicates that there was less than a 5% chance that the means are different by accident.

What standard deviations are and why they're helpful

Standard deviations are the *average distance of all the scores from the mean*. It tells you how widely the scores vary from each other. Say that you have three scores:

1, 5, and 10. The mean is about 5.

Say that you have another group of scores:

4, 5 and 6. The mean here is also 5.

Now take the first group of scores, and take the difference between each score and the mean:

- Difference between 1 and 5 = 4.
- Difference between 5 and 5 = 0.
- Difference between 10 and 5 = 5.

- Now average those differences: 4 + 0 + 5 = 9 divided by 3 = 3.
- This—*3*—is the **standard deviation** of the scores 1, 5 and 10.

Now take the second group of scores, and take the difference between each score and the mean:

- Difference between 4 and 5 = 1.
- Difference between 5 and 5 = 0.
- Difference between 6 and 5 = 1.
- Now average those differences: 1 + 0 + 1 = 2 divided by 3 = *.67*.

So even though two groups of scores share the same mean (5), the standard deviation for one group of scores is 3, and the standard deviation for the other group of scores is .67. Generally, the smaller the standard deviation, the more representative the mean is. In other words, with a large standard deviation, it means the scores were widely variant: a few people might have done really badly, and so the mean might accidentally be **skewed.**

When the concept of median is used

Sometimes, rather than an average (or mean), a **median** might be more helpful. This is particularly so when you have a few scores that are widely divergent from the mean (when you have a high standard deviation).

Consider, for example, income in the United States. While most people make anywhere from $0 to $80,000 a year, there are a very few people (1%) who make millions. If you just averaged all the incomes, the mean income would be very high, like $500,000, because the few who make a lot more make a whole lot more. Therefore, if you want a more reliable and realistic way to look at the incomes of most people, you would use the **median**. The median (which, like the median in the road, means "middle") is the income figure indicating that *exactly half the people make less* than that income. If half the people in the country make less than $45,000, then that is a more realistic way to look at what most people make.

The way to get the median is to arrange all the scores in order, then find the exact middle score. For example, say you have the following group of 11 scores:

1, 3, 5, 7, 9, 11, 13, 15, 17, 89, 312.

Now just count over from the edge until you reach the middle score, in this case 11. The median score is 11. However, for this group of scores, the mean would be 44 (because there are two numbers which are way out of the range: 89 and 312). You can see why, in this case, the median score is a better representation of the middle than the mean.

In some statistics, the numbers 89 and 312 are called **outliers;** they are *uncharacteristic scores from the rest of the group*. Generally, if they are very uncharacteristic, you would throw them out of your sample (your set of scores). However, when you have only a few scores, as in this set, that's tough to do because the sample we began with is small. So, the median score is a better way to represent the average.

What "sampling" means and why it is important

Again, your **sample** is the students you are actually involving or testing in your research. **Sampling** is *how you choose those particular students*. In traditional research (but not in practitioner research), how you choose your sample is important, because you want to reduce the chances that there are students in your study who have some characteristic that you don't know about that would influence how well they do. That is why some researchers and statisticians like **random sampling.** In random sampling, *any student has exactly the same probability of being in the study or in the experimental group as any other student*. In medicine, a random sample is obtained by identifying a whole group of patients or subjects and then literally randomly picking some to get the treatment and others not. In education, you would randomly pick from a large group of students who all seem to be the same (say, all third graders), and those picked would be in the class with the new approach; the others are in the class with the old approach. In this way, researchers and statisticians think there is no chance that the students in the group who are exposed to the approach are in any way different from the students who don't.

For that reason, letting people volunteer for the new approach is non-random, because there may be something about those who volunteer that is fundamentally different from those who don't volunteer; i.e., volunteers are more energetic, more interested in learning, have more free time, etc., and any of *these* factors (variables) may explain why this group has better scores, rather than the new approach.

However, this is generally not relevant to practitioner research, because the point of practitioner research is to understand what works in **your** classroom, and, of course, you are not going to randomly teach some students and not teach others. (For this reason, many people object to random assignment studies in education, because it seems ethically strange not to serve some students and to serve others. Others point out that it can be done in large-scale studies.) The point of practitioner research is for you to understand what works with those exact students, not to choose other students. For this reason, and the fact that very reliable quantitative data requires large numbers, some consider that qualitative data is the only option for practitioner research. However, test scores and other quantitative data are still useful for many practitioner research questions; you just have to understand the limitations with smaller number of scores (see the examples above).

Other terms and their importance to statistics

- A **correlation** is just *an association between one aspect and another* (your age on the one hand, and the fact that your score went up on the other).
- A **variable** is *a factor that may influence or otherwise explain how well someone does* on a test or other measure, other than the approach they were exposed to. Common variables are age, gender, race, socio-economic status, class size, previous experience, etc.
- **Generalizability** of the findings means that the *quantitative data are reliable enough that the findings can be* ***generalized*** *from the sample in the study to the whole population of like learners.* From a statistician's point of view, findings are strictly only generalizable when the sample was chosen randomly and when the number of students involved in the

study is very high. These types of studies are rare, even in K–12, yet most researchers do state their implications as if they could be relevant to the larger population of students. This is why you typically see "limitations" sections in research reports, where they state what the sample was, so that readers can make a judgment of how generalizable the findings are to other students.

Some commonly used statistical abbreviations

Now that you know what some of these concepts are, you may realize what some of the language is in the research reports that you read:

X = 5	The mean (X) equals 5.
P = .01	The chance, or **probability,** that the difference between the means (the averages of two sets of scores) are different by accident is 1%.
N = 25	The number of students in the sample (or in that statistical test) was 25.
s.d. = 13	The standard deviation for that set of scores was 13.

The vast majority of statistics are **descriptive,** which means that they usually employ only *testing the difference in means and describing what the sample looked like.*

What Is Scientifically Based Research? A Guide for Teachers

Download from the National Institute for Literacy website at:
www.nifl.gov/partnershipforreading/publications/science_research.pdf

Copy for participants and put in their folders prior to the training.

Adult Reading Components Study

Download article from National Center for the Study of Adult Learning and Literacy website at www.ncsall.net/fileadmin/resources/research/brief_strucker2.pdf

Copy for participants and put in their folders prior to the training.

The Sustained Silent Reading Study

Download article from National Center for the Study of Adult Learning and Literacy website, page 16 and 17 from www.ncsall.net/fileadmin/resources/teach/pasourcebook_teaching.pdf

Copy for participants and put in their folders prior to the training.

Sustained Silent Reading (SSR) is a technique in which everyone in a class (or sometimes in a school) stops and reads for pleasure. Teachers, as well as students, read, modeling that reading can be done for enjoyment. SSR has been shown to be effective in changing learners' attitudes about reading, and for some learners, leads to gains in comprehension and fluency. **The ESOL Lab School at Portland State University experimented with using sustained silent reading** in beginning ESOL classes.

The ESOL Lab School is set up to have two classes at the same level operating at the same time. When the Lab School decided to conduct research on Sustained Silent Reading (SSR), students entering the program at the lowest level of instruction were randomly assigned to one of the two classes. Both classes offered an integrated ESOL program, but in one class, the reading instruction followed the regular skills-based approach and in the other, it was a modified version of sustained silent reading in which students recorded their reactions to what they read and discussed some aspect of it with another student. Each teacher taught one term in each class.

When the **researchers compared the students** in the two classes, they found that there was no difference in students' achievement on standardized tests, attendance hours, retention, and progress through the program between the students who had skill-based reading instruction and those who had SSR as their reading instruction. Teachers reported that even beginning-level students enjoyed the silent reading activities.

Influences on the Reading Practices of Adults in ABE

By Alisa Belzer

Download article from National Center for the Study of Adult Learning and Literacy website at:
www.ncsall.net/?id=771&pid=1108

Copy for participants and put in their folders prior to the training.

Evidence-based Practice: Definitions

Evidence-based practice is defined as…

> *the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instruction.*[2]
> —Grover Whitehurst, Director of Institute of Education Sciences

Professional wisdom is defined as…

- the judgment that individuals acquire through experience
- consensus views
- including the effective identification and incorporation of local circumstances into instruction[3]

The **best available empirical evidence** is from…

> *Scientifically based research—the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge relevant to education activities and program … uses experimental or quasi-experimental designs…with a preference for random assignment experiments… and has been accepted by a peer-reviewed journal or approved by a panel of independent experts… .*[4]

Distinction between…

- **Evidence-based practice:** It's about *what should drive practice*—using empirical evidence and professional wisdom to make decisions.
- **Scientifically based research:** It's about *what type of research should generate the empirical evidence* (research that, according to USDOE, meets

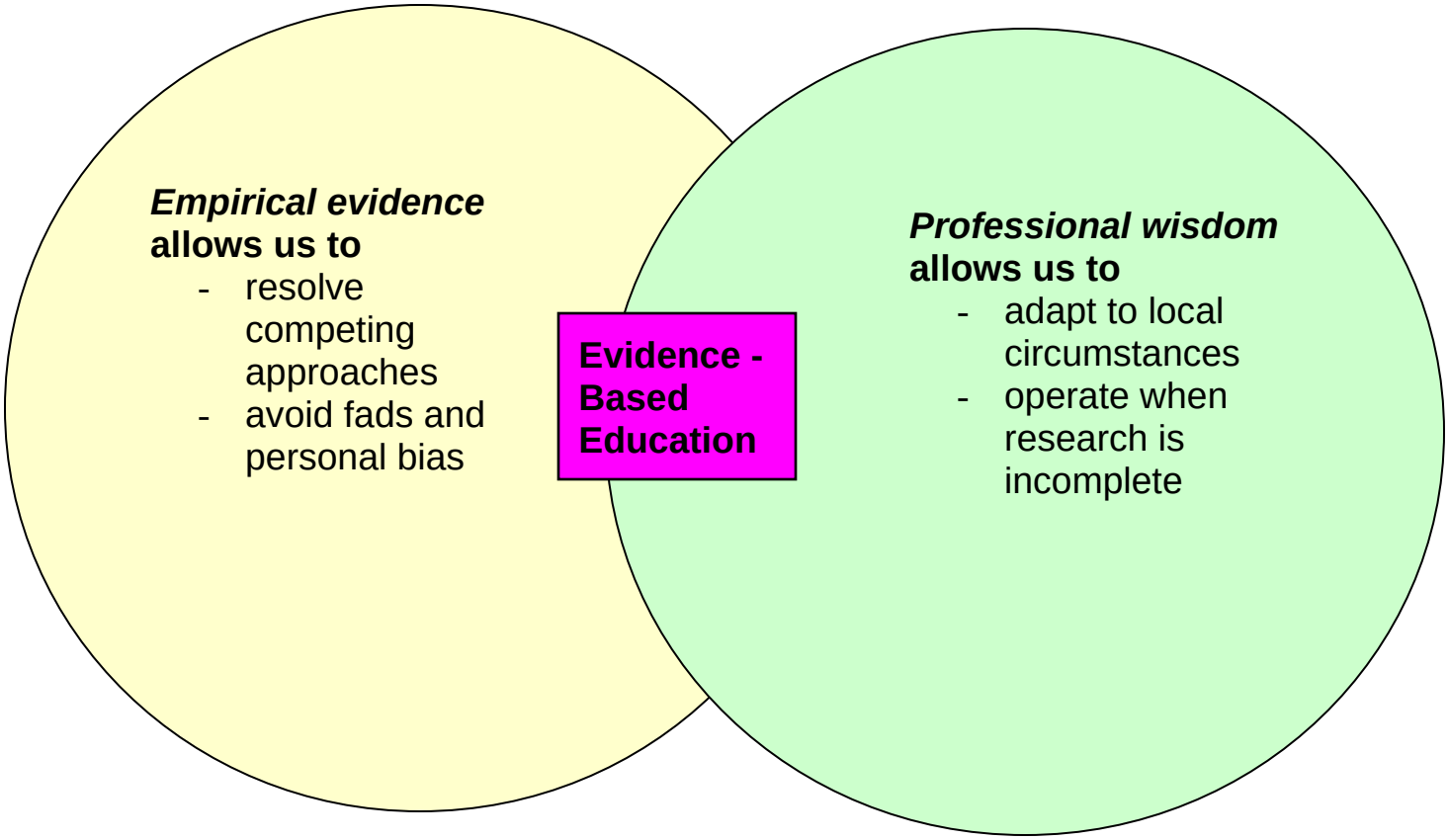
[2] http://www.e..gov/nclb/methods/whatworks/eb/edlite-slide003.html

[3] http:/www.ed.gov/policy/elsec/leg/esea02/pg107.html

[4] http://www.ed.gov/nclb/methods/whatworks/eb/edlite-slide--4.html

particular criteria: experimental design, peer-refereed journal, sample size and selection, etc

Evidence-based Education



Evidence-based Practice: Using Research

Building evidence-based practice in your program may mean that…

- Research justifies what we're already doing well.
- Research helps us improve something that we're already doing.
- Research suggests a solution to a problem we have.
- Research uncovers an interesting or intriguing practice.
- Research may lead to changes. For example:
  - Your program needs to improve in a particular area.
  - The research evidence and/or professional wisdom says X.
  - So the implications for classrooms or programs are that programs or practitioners should do Y.
  - Some strategies for doing Y are A, B and C.

To apply research, practitioners need to…

- ***Access*** research that addresses questions that are of concern.
- ***Understand*** what the research says—the population being studied, the questions asked, how the data was used to answer these questions, what the findings, conclusions and implications mean.
- ***Judge*** the quality and relevance of the research to the specific situation—similarity of the research population and context to the program's, usefulness of the research, rigor of the research.
- ***Use*** the research to determine what changes to make in the program that will help students learn.

Program Improvement and Evidence-based Practices: A Case Study

At their annual Evaluative Staff Meeting in April, the adult education staff of the A–1 Adult Basic Education Program heard a report from one of the teachers about recent **research** on adult reading instruction. She reported that adult readers have many different reading profiles and that knowing students' reading comprehension scores may not be enough for teachers to design the targeted instruction that adult students need. She described a variety of reading profiles varying in comprehension, vocabulary, and fluency. Students in each group need a different approach. The report challenged the adult educators to examine their reading instruction and to learn more about how to help students with instruction focused on their particular needs.

During this annual meeting the staff also looked at their program data to see in what areas they felt they were weak, and asked the staff to brainstorm their priorities for ways to improve their program services. At the end of their discussion, the staff decided that the ***top program improvement priority*** was *addressing students' different reading instruction needs*.

The director led them in a ***visioning process***: "What would this look like if our reading instruction were working perfectly?" In response to that question, small groups of teachers, tutors and other staff members created the following vision statements:

1. *The program would assess students to determine their particular reading profiles.*
2. *Students would know the particular aspects of reading on which they needed to focus.*
3. *Teachers would have instructional options to offer students to help them address these needs.*
4. *Teachers and students would have access to a variety of instructional and reading materials.*
5. *We would know if this new approach to reading instruction is working.*

Next, the staff named ***sources of strategies*** to fulfill these vision statements. Those preliminary sources included the NCSALL research, the Institute's LINCS database, the state director, the state resource center, and Internet searches.

With that information in hand, the staff set a ***timetable*** that would conclude the ***search for strategies*** by the end of May, plan for implementation during the summer, and pilot test the new reading instruction approach in several classes in the fall.

Three teachers agreed to do that search and report back at the June staff meeting. The search would focus on identifying strategies ***to accomplish the five vision statements*** identified by the staff. The director agreed to provide a stipend to each for their work.

At the June staff meeting, the staff reviewed the results of the search and the strategies that held promise of realizing the five vision statements. They narrowed down the ones they wanted to try out in a pilot. The staff ***planned to pilot the strategies*** and see how they worked. They discussed how long the pilots would need to run to adequately test out the strategies and the criteria the director should use in selecting classrooms in which to pilot.

The director committed ***a budget*** of $1,000 to pay three pilot teachers for piloting the new strategies, collecting data to see how the pilot worked, meeting monthly to discuss their findings, and preparing recommendations for the other staff regarding the use of the strategies. Five teachers volunteered for the pilot test, so it was the director's job to talk with the volunteers, and make the final selection of three pilot teachers, using the criteria the staff had generated.

The three selected teachers met monthly over the summer and began their pilots in the fall. During monthly meetings with the director, they discussed what they were finding and made adaptations to their work.

At their staff meeting at the end of February, the pilot teachers ***presented their findings*** about the new reading instruction strategies, related to the five vision statements.

1. *The program would assess students to determine their particular reading profiles.* They presented strategies they had tested and adapted for:
   - Informally assessing reading levels as students enrolled
   - Using a variety of assessments—formal and informal—to look at various aspects of students' reading abilities and determine their reading profiles

2. *Students would know the particular aspects of reading they needed to focus on.* They presented the student profile form they had developed from samples on the National Institute for Literacy's Assessment Strategies and Reading Profiles website (www.nifl.gov/readingprofiles/).

3. *Teachers would have instructional options to offer students to help them address these needs.* Each of the three teachers described a particular approach they had used and presented a list of instructional options with information on how to learn more about them. They suggested a process for ongoing, teacher sharing of effective research-based approaches.

4. *Teachers and students would have access to a variety of instructional and reading materials.* The pilot team led the rest of the staff on a tour of the Reading Center they had begun to develop. The center included both student library and instructional materials.

5. *We would know if this new approach to reading instruction is working.* The team presented reading test scores (TABE) which had improved slightly and results of a student survey that was very positive.

Using the resources from the presentation, teachers met in content groups (e.g., ESOL, ABE, ASE, Workplace, Family Literacy) to create an implementation plan to incorporate and adapt the work from the pilot study.

At their annual Evaluative Staff Meeting the following April, the adult education staff reviewed the reading instruction changes they had made, and then identified a new top program improvement priority and began the program improvement process anew.

Questions

- How did this program use the adult reading research—initially and afterwards?
- How did this particular program understand and judge this research?
- What might be their next steps with this initiative? What evidence might they consider?

Action Plan for Evidence-based Reading Instruction

Reading improvement need we prioritized:_____

Steps	**Who will lead? Who will work on?**	**Complete by when?**	**Resources needed?**	**Benchmark: How to know when step is successfully completed?**
1.				
2.				
3.				
4.				

Steps	Who will lead? Who will work on?	Complete by when?	Resources needed?	Benchmark: How to know when step is successfully completed?
5.				
6.				
7.				
8.				
9.				
10.				
11.				

Developing a Strategy for Evidence-based Practice and Program Improvement: Worksheet for Programs

Integrating research findings or strategies into your program will become an annual event that continually improves your program services. To ensure that annual renewal happens, you and your staff members might want to work through eleven *tasks* deciding *who* will do *what* and *when*. Once you have a *strategy* (**a structure and a process** for ongoing program improvement using evidence-based practice), it can become automatic.

In your program team, for each of the 11 tasks:

- Read the examples given.
- Discuss what structures and processes might fit in your program and make notes on the worksheet lines.
- (If appropriate) Make revisions to your Action Plan for Evidence-based Reading Instruction.
- Decide what resources you need to make the strategy work.
- Discuss how you will involve other staff in your program once you return.

Task 1. Gain access to current research findings.

Example:
An adult education program in Virginia sets up a Research Committee comprised of two teachers, two learning center coordinators, one university adult education professor, and one university research professor. The practitioner members monitor NCSALL, *Focus on Basics*, CAL/CAELA, and TESOL for research reports. The academic members monitor academic research. The meet quarterly by conference call to discuss what they find. Three of the practitioners are graduate students and want to keep up with research. The third is simply interested in research. The academics are given access to six years of the adult education program data to conduct their own research—and to provide data analysis for the program manager.

Example:
A program in California creates a group comprised of program managers and teachers. Their focus is on ESOL so they monitor the ESOL sites.

Example:
A state office, in collaboration with the state professional association, establish a Research Committee to monitor research for the entire state and regularly report their findings to all local programs and at the state conference.

In your program…

Who is going to **monitor research** for you?

_____

_____

How will they **go about it**?

_____

_____

_____

Task 2. Understand research.

Example:
The Research Committee or workgroup is charged with the responsibility of understanding the research.

Example:
Staff meetings are built around understanding the research findings that have been identified as holding promise in Task 1.

In your program…

Will you **involve everyone in understanding** the potential research findings or can a **smaller number of staff complete the task** for all of you?

_____

_____

When do you/they do that?

_____

_____

Task 3. Judge research.

Example:
The Research Committee or workgroup judges the merits of research studies and makes recommendations to the program director alone or to the program director and the staff members regarding which research findings hold promise. This presentation is done in the spring when the program staff members are making plans for the coming year. The program director, in consultation with the staff, selects the strategies implied from the findings that they want to integrate into their program.

Example:
Where staff meetings are used to understand and judge the research, the staff determines which findings hold the most promise and make recommendations to the program manager and/or whole staff in the spring as the program staff members are making plans for the coming year. The program director, again in consultation with the staff, select the findings that they want to integrate into their program.

In your program…

Will you involve all **staff or others in judging** whether the potential research findings hold promise for improving your services, or can a **smaller number of staff complete the task** for all of you?

_____

_____

When do they do that?

_____

_____

Task 4. Engage key staff in setting the vision.

Example:
A Program Improvement staff meeting in the spring helps the staff to envision what the integration of this strategy will look like when it is working perfectly. There the staff members also list all the evidence they will need to see to support whether or not to adopt the strategies.

In your program…

This finding/strategy will be **working perfectly when** ……

_____

_____

What kind of evidence should the pilot collect to convince staff of its effectiveness?

_____

_____

Task 5. Develop a piloting plan.

Example:
At the spring Program Improvement Staff Meeting, the staff members make recommendations to the director regarding all aspects of the piloting.

In your program…

Who are the **best teachers to conduct** this pilot? Or **what are the characteristics of teachers who should conduct** this pilot?

_____

_____

What **kinds of materials** are they going to need?

_____

_____

What **kind of training** will they need prior to beginning?

_____

_____

What **types of classrooms** should we include (ABE, multi-level, GED, ESOL, workplace, family literacy)?

_____

_____

Who will **set the timetable** with benchmarks for the piloting?

_____

_____

How **much money** do we need for this pilot?

_____

_____

Task 6. Select the pilot teachers and classes.

Example:
Based on the staff recommendations in Task 5, the program director, pilot teachers and/or program improvement team designs the pilot and prepares the pilot teachers and serves as a resource person to them.

Example:
Where the findings relate to ESOL, the program manager confers with the lead ESOL teacher and a program improvement team to design the pilots. The lead ESOL teacher prepares the pilot teachers and serves as a resource person to them. (In other words, if you have a specialist in the research area, let them take the lead).

In your program…

Who will **help prepare** the pilot teachers?

_____

_____

Are there **resource people** who could advise them?

_____

_____

Task 7. Conduct the pilot.

Example:
Some pilots run six weeks, others six months, others all year. Some are very complex; others are pretty basic. Support during the project depends on the complexity of the project. One program taps the state resource center's professional development staff for technical assistance in designing the professional development that will be needed.

Example
Another program has a lead teacher in charge of professional development, and she provides the technical assistance in designing the professional development and helping the pilot teachers collect data, etc.

In your program…

How **often will the pilot teachers review** and compare the data they are collecting?

_____

_____

Who will **help them design the professional development** needed to implement the strategy?

_____

_____

Who will **collect the information on the financial and material resources needed** if the strategy is to be used program-wide?

_____

_____

Task 8. Share and evaluate the results.

Example:
In all examples, the pilot teachers are the ones who present the pilot findings. In one program, they present it to the program director, who evaluates the success of the pilot because the director has to defend the expenditure of the funds to adopt the strategy program-wide.

Example:
In another program, the Research Committee gets the briefing from the pilot teachers. Together with the pilot teachers, they analyze the data and make recommendations to the program director and staff, who discuss the pilot findings and make a decision about whether to implement the strategy program-wide.

In your program…

> Who will you **involve in reviewing the pilot data** and making recommendations to the staff and director?
>
> _____
>
> _____

Task 9. (If pilot is successful) Integrate the strategy program-wide.

Examples:
In most cases, the pilot teachers, often teaming with a professional development trainer, deliver the training to other teachers who are now adopting the strategy. Pilot teachers are paid for the extra time it takes to collect the data, meet, prepare professional development and other extra efforts they make as part of the pilot.

Example:
In large programs, the integration can come in phases. First, the pilot teachers train a portion of the staff members to implement the new strategy. Then, their success is monitored, and professional development, resources and implementation are tweaked. A second wave of staff members are trained, and subsequent waves are added until the entire program is involved.

In your program…

> What kind of **reward or award** can you provide to pilot teachers and others who work on the pilot?
>
> _____
>
> _____

Who will **conduct the training** of the other teachers?

_____

_____

Task 10. Celebrate!

Example:
Spring Program Improvement Staff meetings are an advantageous time to honor the pilot teachers and supporters. Not only do you recognize their contributions, you encourage others to be willing to pilot next year's findings/strategies.

Example:
Staff newsletters and program websites are good places to feature the pilot teachers.

When will you **celebrate and recognize** the pilot teachers?

_____

_____

Task 11. Conduct ongoing monitoring.

Example:
Program directors build a process to monitor implementation to ensure the new strategy is working and make any adjustments that might need to be made. One program includes an update from the teachers on the success of the new strategies.

Who will **monitor the program-wide implementation** and help make adjustments?

_____

_____

Sample Timetable—A Strategy for Evidence-based Practice and Program Improvement

Month	Activity
July	Research Committee is organized
July–October	Research Committee members access research findings
November	Research Committee conference call to understand and judge
November –January	Research Committee members access research findings
January	Research Committee conference call to understand and judge
January–March	Research Committee members access research findings
March	Research Committee conference call to understand and judge
March	Research Committee recommends findings to Program Director
April	Spring Program Improvement Staff Meeting to recommend findings for pilot testing
May	Pilot sites selected
June–August	Pilot sites prepared
September–December	Pilots
January	Presentation to staff
February–March	Professional development and Implementation
March +	Monitoring

Some Sources for Accessing Research

To access NCSALL research reports and briefs, *Focus on Basics*, and Teaching and Training Materials go to:

www.ncsall.net

To access a wide range of research on adult education and literacy go to:

www.nifl.gov

www.nifl.gov/lincs/

To access research findings regarding ESOL go to:

www.cal.org/caela

www.tesol.org/s_tesol/seccss.asp?CID=28&DID=33

For research specific to adult reading instruction go to:

www.nifl.gov/partnershipforreading/publications/applyingresearch.pdf

Specific Adult Literacy and Basic Education-related Journals

- *Adult Basic Education and Literacy Journal*: Published by COABE and ProLiteracy. Subscription information at: www.coabe.org/index.cfm?fuseaction=journal

- *Journal of Adolescent and Adult Literacy*: Published by International Reading Association. Subscription information at: www.reading.org/publications/journals/jaal/index.html

- *Literacy and Numeracy Studies*: Published by Centre for Language and Literacy, University of Technology, Sydney. Subscription information at: www.education.uts.edu.au/lns/current.html

- *Journal of Adult and Continuing Education:* Published by NIACE. Subscription information at: www.niace.org.uk/publications/Periodicals/JACE/Default.htm#Contributors

- *Adult Education Quarterly*: Published by American Association for Adult and Continuing Education and Sage Publishers. Information at: www.niace.org.uk/publications/Periodicals/JACE/Default.htm#Contributors

Some Sources for Understanding and Judging Research

A Policymaker's Primer of Education Research: How to Understand, Evaluate and Use It

www.ecs.org/html/educationIssues/Research/primer/foreword.asp

Using Research and Reason in Education

www.nifl.gov/partnershipforreading/publications/pdf/Stanovich_Color.pdf

The Research Methods Knowledge Base

www.socialresearchmethods.net/kb/

Identifying and Implementing Educational Practices Supported by Rigorous Evidence: A User Friendly Guide

www.ed.gov/rschstat/research/pubs/rigorousevid/rigorousevid.pdf