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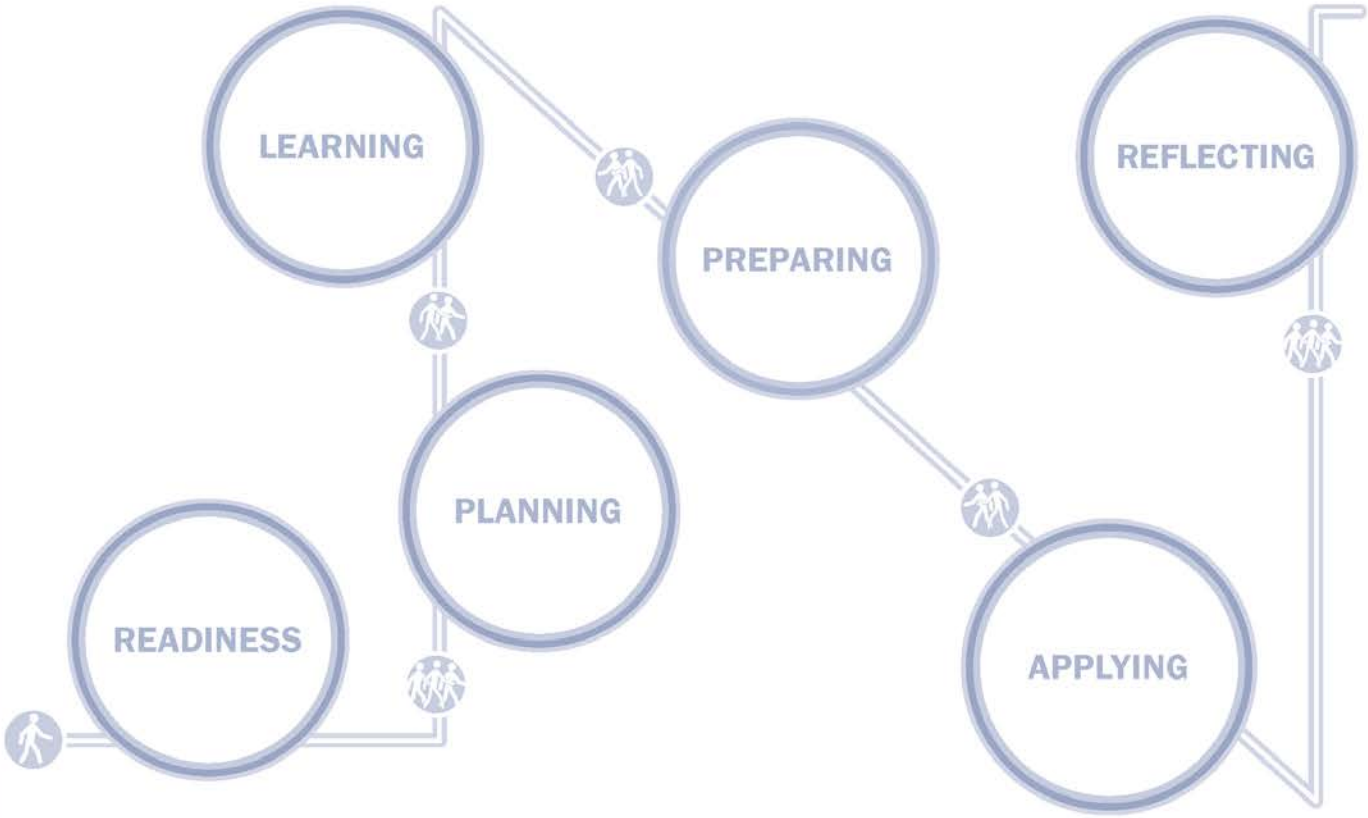
Evidence-Based Instruction and Teacher Induction



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Evidence-Based Instruction and Teacher Induction

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Introduction

For decades, policy makers and educators in the United States have debated how best to educate students. Concerns about poor student performance on national and international assessments (e.g., scores from the Program for International Assessment of Adult Competencies [or PIAAC]) have led to a wave of initiatives designed to improve student outcomes. For example, resulting legislation, such as the No Child Left Behind Act of 2001 and the Workforce Innovation and Opportunity Act of 2014, reflects an increased focus on providing quality instruction and holding schools and programs accountable for students' success as a way to improve student achievement. The research supports this focus, as "a growing body of evidence suggests that schools can make a great difference in terms of student achievement."[1]

By using good instructional practices based on evidence, teachers can more effectively support student achievement.

"A substantial portion of [the] difference [in student achievement is] attributable to teachers."[2] Achievement among students of different teachers varies substantially and persistently, providing evidence of the impact of effective teachers.[3] Thus, discussions about accountability should consider the capacity of teachers to design and transfer critical knowledge and skills in ways that are grounded in solid evidence or that reflect evidence-based instruction.

This brief provides an overview of evidence-based instruction, its impact on the effectiveness of teachers, how it relates to the *Adult Education Teacher Competencies*, and key strategies for using evidence-based instruction as part of the teacher induction process.

Findings in this brief informed the development of the *Adult Education Teacher Induction Toolkit*, a set of resources used to prepare beginning teachers for their roles as adult educators. Appendix A identifies the tools in the Toolkit and where they can be accessed. In 2013–2014, eight programs field-tested these materials to learn the impact of induction and mentoring on adult education teachers beginning their careers. The quotations cited within this brief illustrate the experiences and reflections of those mentors and beginning teachers working together.

What Is Evidence-Based Instruction?

Drawing from the seminal work of the National Reading Panel on evidence-based reading instruction in Grades K–12,[4] the International Reading Association (IRA) defined evidence-based instruction as a program or instructional practice that is derived from rigorous research and has demonstrated a record of success.[5] "Evidence," in this sense, is considered to be "reliable and trustworthy indicators of effectiveness,"[6] and all proofs or facts that support such practice are scientifically based. The IRA identified five **key components of evidence**:[7]

1. **Objective**—data that any evaluator will identify and interpret similarly
2. **Valid**—data that adequately represent the tasks needed to accomplish success

3. **Reliable**—data that will remain essentially unchanged if collected on a different day or by a different person
4. **Systematic**—data that are collected according to a rigorous design of either experimentation or observation
5. **Refereed**—data that are approved

Evidence-based instruction is an instructional approach, practice, or methodology that is derived from evidence. Such evidence is often a derivative of empirical research, resulting in reliable, trustworthy, and valid substantiation suggesting that a program or practice is effective and that all proofs or facts that support such a program or practice are scientifically based.[8] Professional wisdom, based on educators' individual experiences and consensus, also provides a source of evidence.[9]

The definition of this and other terms relevant to teacher induction can be found in the *Teacher Effectiveness Glossary*.

Over the years, several important adult evidence-based instruction principles have emerged that highlight the knowledge, skills, and practices adult educators need to have and use in their classrooms to support the goals and achievement of adult learners. For example, evidence from research conducted by the National Research Council[10] shows that adult education teachers help to advance learner goals when they

- Explicitly address foundations of reading and writing
- Combine teaching and extensive practice using diverse and differentiated materials and approaches well-suited to learners
- Develop learners' skills to ensure transference to highly valued tasks external to the classroom
- Adjust instruction through frequent monitoring of and feedback on student progress[11]

An overview of studies on evidence-based research[12] also suggests that effective instruction includes, but is not limited to

- Designing learner-centered instruction
- Developing standards-based instructional units and lesson plans
- Using instructional techniques based in adult learning theory
- Designing instruction to build on learners' technology and media skills

In essence, according to these strands of research, it appears evident that to be considered "effective," teachers must provide students with instruction that engages them in deeper thinking, questioning techniques, questioning skills, and active learning strategies.[13] Additionally, adult education teachers also must understand and be able to provide learning opportunities to students in a way that acknowledges and draws on the students' background knowledge, personal motivation for learning, and current skill level. The ability to use data to inform classroom instruction is yet another important skill for effective teaching.

How Evidence-Based Instruction Contributes to Teacher Effectiveness

Teachers can be effective when they use and implement evidence-based instruction, but the close relationship between "teacher effectiveness" and "evidence-based instruction" is far more complex. As Whitehurst recognized, teachers are instrumental in the process of discovering new methods and contributing to the evidence base in their own instructional context.[14]

Thoughts From the Field

"[Implementing evidence-based instruction] helped me change my role as a teacher—sharing the rubric with [students] and informally assessing them along the way so they have more guided practice."

—Beginning Teacher

"The week before our final exam, I gave students a list of the concepts that would be on the final exam. In various grouping situations, I had students quiz each other and work together to achieve greater understanding of the material. I was gratified as students shared their knowledge and helped each other. They all did better on the final than they did on the midterm."

—Beginning Teacher

In adult education, as with any other learning context, teaching does not occur in isolation; teachers operate in a broader educational and programmatic context that influences their abilities to implement evidence-based instruction and increase effectiveness. When teachers are provided with the encouragement and means to use instructional practices that are grounded in strong research, they become positioned to witness the evidence rooted in those practices. When they consistently and purposefully ensure rigor and research-driven approaches in their instruction, they advance programmatic efforts to drive practice that is informed by data.[15] Student performance data derived from the efforts of teachers are important tools for supporting teacher effectiveness or for refining practices that support student learning.[16] Teachers can benefit from grounding their teaching practices in data, such as:

- Results of National Reporting System (NRS) assessments or other standardized tests
- Completed student projects, such as research papers, case studies, or numeracy projects
- Other samples of student work, such as project drafts (or photos of project drafts); completed reading, writing, or numeracy activities and homework assignments (electronic or paper and pencil); and videotaped recordings of student dialogues
- Results of other diagnostic tests, such as informal reading or word analysis inventories or teacher-developed diagnostics

Teachers may also want to collect other types of data:

- Student feedback
- Students' assessments of their progress, such as completed checklists or questionnaires, entries in journals, oral statements, and end-of-term assessments
- Classroom observations
- Attendance records

To provide a foundation for the use of instructional practices that are grounded in strong research, programs must provide conditions that lead to both teacher and student success, and teachers must understand and value the important role that they play in supporting a program's ability to provide these conditions. Such conditions relate not only to instruction itself but also to programming, teacher training, and various other important features that embody the idea of evidence-based instruction, including:

- Teacher **competencies** (e.g., teacher effectiveness in successfully instructing or transferring or imparting knowledge)
- The teaching **context** (e.g., learning conditions and environment, including determinations about what is and is not evidence, professional development, and teacher induction[a])
- Student **outcomes** (e.g., student achievement and transition to higher levels of education or to the workforce)

How these features interact around evidence-based instruction varies considerably from context to context. For example, because adult education presents a unique educational context that is very different from K–12 and postsecondary education, the body of evidence similar to that for the K–12 system (e.g., derived from experimental designs) is hardly available. However, lessons learned from the 2014 national adult education teacher induction field test—under the *Promoting Teacher Effectiveness in Adult Education* project funded by the Office of Career, Technical, and Adult Education—provides important findings that suggest the need to (a) look closer at conditions for learning and (b) provide an important foundation for improving teacher effectiveness through teacher competencies and the use of teacher induction for professional development.

The Connections Between Evidence-Based Instruction and the Adult Education Teacher Competencies

The *Adult Education Teacher Induction Toolkit* includes the *Adult Education Teacher Competencies* (the *Competencies*) that were designed to identify the knowledge and skills adult education teachers need to improve student learning and performance. The competencies were developed after an extensive review of the literature on teacher competencies and teacher effectiveness. They were then reviewed by national subject matter experts, implemented as part of an extensive field test in adult education programs, and validated by a wide range of adult education stakeholders from across the country. Almost 2,000 stakeholders reviewed the competencies at workshops and focus groups and through online discussions and other outreach efforts.

The *Competencies* can serve as an important organizing structure for framing evidence-based instruction. They are organized into broad areas of skills and knowledge (domains) and then into specific demonstrable and observable actions and behaviors (competencies) that effective teachers can use to improve student achievement. For example, one of the domains promotes teacher data collection in monitoring and measuring student learning through goal setting and conducting, examining, and using the results of formative and summative assessments in instruction. Another domain and the indicators within it specify designing student-centered instruction using content standards and including technology and digital literacy. Research shows

[a] See *Conditions for Success in Teacher Induction*.

that these practices are effective, and the *Competencies* provide a road map for how to apply and implement evidence-based instruction in the classroom.

Key Strategies for Using Evidence-Based Instruction in Teacher Induction

If programs systematize the use of evidence-based practices, they can support beginning teachers' development in using evidence-based instruction. Such support can be done through the implementation of a comprehensive induction model like the *Teacher Induction Pathway*, supported by the *Adult Education Teacher Induction Toolkit,* that includes high-quality mentoring, ongoing professional development, a supportive network and feedback.[17] Programs can use a process like the one outlined in the *Teacher Induction Pathway* to induct beginning teachers into a specific evidenced-based adult education instructional model, such as Student Achievement in Reading (STAR),[b] which is grounded in the findings of Kruidenier's *Research-Based Principles for Adult Basic Education Reading Instruction.*[18]

One of the purposes of teacher induction is to "[offer] support, guidance, and orientation for beginning teachers,"[19] including, but not limited to, helping them learn how to be effective in their instruction. To do this, beginning teachers need program- and classroom-level supports in learning how to implement evidence-based instruction. At the classroom level, individual teachers can greatly benefit from mentoring as a means of learning how to implement evidence-based instruction. Mentoring is an important professional development tool for beginning teachers. Through mentoring, beginning teachers are connected to mentors (other experienced professionals) who provide them with opportunities to observe, practice, and become accustomed to implementing evidence-based instruction. Among other things, mentors can help beginning teachers by (a) modeling evidence-based practices; (b) coaching them in using the practices effectively; and (c) showing them how to use tools to teach the subject areas that are directly tied to their classrooms.[c]

Thoughts From the Field

"The beginning teacher got specific things from being observed. She tends to stand at the front of the room and deliver the lesson, and the mentor moves around and interacts more and watches. So now, the beginning teacher has rearranged the classroom so she can move more."

—Instructional leader

"The beginning teacher's classroom challenges have gotten better. The strategies she's learned are working (such as building a bond/trust in order to get student participation). When I came in to observe, she asked [the students] to do partner work and they all did it. . . . She built a community and involved students through questioning and made connections among students.

—Instructional leader

[b] Based on four major components of reading, STAR provides widely used strategies, that when taught systematically and explicitly, are found to advance student development. Given its research base, STAR is an excellent approach for teaching reading instruction in adult education classes.

[c] See the *Teacher Induction and Mentoring Brief* for more details on how mentoring can benefit beginning teachers, particularly as part of a teacher induction process.

Ideal conditions for implementing a teacher induction process[d] and for supporting mentoring vary from program to program, but two conditions are fundamental:

- Supportive, local-level leadership
- Knowledgeable mentors who can translate the art of teaching to beginning teachers

Applying evidence-based examples of mentoring supports can also help to reinforce a mindset about the importance of evidence.

Conclusion

Evidence-based instruction has garnered a significant amount of attention, in large part because research indicates that teacher quality is the single most important variable affecting student achievement.[20,21] However, the methodology for determining whether an instructional practice is based on scientific evidence (e.g., scientifically based research using experimental designs with randomized controlled trials) is a rarity in current adult education research.[e] As a result, the field of adult education also relies on practitioner wisdom to create its evidence base. Together, professional wisdom and the best available empirical evidence contribute to evidence-based decisions that teachers make about how to deliver effective instruction. Helping beginning teachers understand what is expected of them, in terms of implanting and developing evidence-based instruction, increases the effectiveness of the adult education teacher workforce as a whole. The use of competencies as part of a program of teacher induction can be an effective way to improve such instruction.

[d] See *Conditions for Success in Teacher Induction* for more details on the conditions that determine a program's readiness for implementing an induction process.

[e] That is not to say that reliable mechanisms do not exist in adult education. Rather, it means that the standards for research applied in other fields, including the criteria for rigor used in experimental designs, are judged by some to be more rigorous or better sources of evidence than those used in adult education.

References

[1] Darling-Hammond, L. (2000). *Reforming teacher preparation and licensing: Debating the evidence.* p. 2. Retrieved on November 10, 2011 from http://people.ucsc.edu/~ktellez/d_hammond.pdf

[2] Darling-Hammond, L. (2000). p. 2.

[3] Jacob, B., Kane, T., Rockoff, J., & Staiger, D. (2009). Can you recognize an effective teacher when you recruit one? *Association for Education Finance and Policy, 6*(1), 43–74.

[4] National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction (report of the subgroups).* Washington, DC: National Institute for Child Health and Human Development.

[5] International Reading Association. (2002). *What is evidence based reading instruction?* Retrieved from http://www.reading.org/Libraries/position-statements-and-resolutions/ps1055_evidence_based.pdf

[6] International Reading Association. (2002). p. 2.

[7] International Reading Association. (2002).

[8] International Reading Association. (2002).

[9] Whitehurst, G. J. (2002). *Evidence-based education (EBE)*. Retrieved from http://www2.ed.gov/nclb/methods/whatworks/eb/evidencebased.pdf

[10] National Research Council. (2012). *Improving adult literacy instruction: Options for practice and research* (A. M. Lesgold & M. Welch-Ross, Eds.). Committee on Learning Sciences: Foundations and Applications to Adolescent and Adult Literacy, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

[11] National Research Council. (2012).

[12] Hock, M. F., & Mellard, D. F. (2011). Efficacy of learning strategies instruction in adult education. *Journal of Research on Educational Effectiveness, 4*(2), 134–153.

[13] Hock, & Mellard. (2011).

[14] Whitehurst. (2002).

[15] Bernhardt, V. L. (2004). *Data analysis for continuous school improvement* (2nd ed.). Larchmont, NY: Eye on Education.

[16] Supovitz, J. A., & Klein, V. (2003). *Mapping a course for improved student learning: How innovative schools systematically use student performance data to guide improvement.*

Philadelphia, PA: Consortium for Policy Research in Education. Retrieved from http://www.cpre.org/Publications/AC-08.pdf

[17] Alliance for Excellent Education. (2004). *Tapping the potential: Retaining and developing high-quality new teachers.* Washington, DC: Author. Retrieved from http://www.all4ed.org/publications/TappingThePotential/TappingThePotential.pdf

[18] Kruidenier, J. (2002).

[19] Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal, 41*(3), 681–714 (p. 681).

[20] Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005), Teachers, schools and academic achievement. *Econometrica, 73*(2), 417–458.

[21] Rockoff, J. E. (2004, May). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review, 94*(2), 247–252.

Appendix A. Tools in the Adult Education Teacher Induction Toolkit

Name of Tool	Main Intended User	Description of Tool	Tool Location
Teacher Induction and a Toolkit for Adult Educators (Information Brief)	All team members	This brief provides an introduction to and overview of what induction is and what the process involves. It explains the roles and responsibilities of instructional leaders, mentors, and beginning teachers throughout the induction process.	http://lincs.ed.gov/publications/te/toolkit.pdf
Conditions for Success in Teacher Induction (Information Brief)	Instructional leaders	This brief identifies the conditions needed within a program for an induction process to have a positive impact on the performance of beginning teachers. It includes a local program self-evaluation worksheet that instructional leaders can use to determine which conditions are present in their program before deciding whether to start the induction process.	http://lincs.ed.gov/publications/te/conditions.pdf
Teacher Induction and Mentoring Brief (Information Brief)	All team members	This brief defines a mentor, describes the impact that a mentor can have, and identifies characteristics of an effective mentor.	http://lincs.ed.gov/publications/te/mentoring.pdf
Evidence-Based Instruction and Teacher Induction (Information Brief)	All team members	This brief introduces evidence-based instruction.	http://lincs.ed.gov/publications/te/ebi.pdf
Leadership Guide for Teacher Induction	Instructional leaders	This guide offers specific directions and resources to help instructional leaders better understand their roles in the induction process. It details what instructional leaders can do to lead and support the efforts of mentors and beginning teachers as they work through the induction process.	http://lincs.ed.gov/publications/te/leadguide.doc
Mentoring Guide for Teacher Induction	Mentors and beginning teachers	This guide provides direction and support for the mentoring of beginning teachers in adult education. It provides specific guidance and resources to help beginning teachers, with support from mentors, to plan, document, and evaluate professional growth. It also describes effective mentoring strategies, provides tools to guide mentoring activities, and supports the collaboration between mentors and beginning teachers in planning, pursuing, documenting, and evaluating professional growth. It guides beginning teachers and mentors in using the *Adult Education Teacher Effectiveness Toolkit*.	http://lincs.ed.gov/publications/te/mentorguide.doc

Name of Tool	Main Intended User	Description of Tool	Tool Location
Teacher Effectiveness Glossary	All team members	This glossary defines terms found throughout the *Adult Education Teacher Effectiveness Toolkit*.	http://lincs.ed.gov/publications/te/glossary.pdf
Teacher Effectiveness Annotated Bibliography	All team members	This annotated bibliography provides a detailed view of some key pieces of literature on subjects related to teacher effectiveness, teacher induction, teacher competency, and adult learning.	http://lincs.ed.gov/publications/te/annotatedbib.pdf
Introduction to Teacher Effectiveness and Induction (Online Course)	All team members	This self-directed, online course introduces the *Adult Education Teacher Effectiveness Toolkit* to all team members.	http://lincs.ed.gov/programs/teachereffectiveness/online-courses
Principles of Learning for Instructional Design (Online Course)	Mentors and beginning teachers	This self-directed, online course supports teachers' understanding of the key principles behind instructional design that promote the learning and of strategies for applying those principles in their teaching.	http://lincs.ed.gov/programs/teachereffectiveness/online-courses
Motivating Adult Learners to Persist (Online Course)	Mentors and beginning teachers	This self-directed, online course supports teachers' understanding of strategies that motivate adult learners to persist. It also guides teachers in making focused observations of how these strategies are implemented.	http://lincs.ed.gov/programs/teachereffectiveness/online-courses
Adult Education Teacher Competencies	Mentors and beginning teachers	These competencies identify the knowledge and skills expected of any adult education teacher.	http://lincs.ed.gov/publications/te/competencies.pdf
Adult Education Teacher Competencies Self-Assessment	Mentors and beginning teachers	This self-assessment offers a structured approach to determining the knowledge and skills that adult education teachers still need to develop and to identify the professional development priorities that will help them to acquire such knowledge and skills.	http://lincs.ed.gov/programs/teachereffectiveness/self-assessment