Evidence-Based Practice in Early Intervention/Early Childhood Special Education

Samuel L. Odom & Virginia Buysse
Objectives

- Frame the history and evolution of evidence-based practice (EBP)
- Define terms commonly (mis)used in the field
- Describe a model for EBP that builds on empirical evidence and professional/family knowledge and values
- Identify resources
- Describe a problem solving process for using EBP
Evolution of Evidence-Based Practice in EI/ECSE

- Developmentally Appropriate Practice by NAEYC (Late 1980s)
- DEC Recommended Practices (Early 1990s)
  - Based on knowledge of multiple constituency groups
    - Professionals
    - Family
    - Practitioners
Criteria for DEC Recommended Practice (Odom & McLean, 1996)

- Research- or value-based
- Family-centered
- Multicultural
- Cross-disciplinary
- Developmentally and chronologically appropriate
- Normalization
Evolution of Evidence-Based Practice in EI/ECSE

- Revision of DEC Recommended Practices in late 1990s.
  - Review of decade of research on EI/ECSE
  - Involvement of constituency group
- Linkage of empirical support and practices
Parallel Movement in Education

- NRC Panel that criticized the quality of educational research
- Educational Sciences Reform Act
- No Child Left Behind
- Evidence-based medicine as a model
Evidence-Based Medicine

The integration of the best available research evidence with clinical expertise and patient values.

(Sackett et al., 2000)
According to Davies (1999), “evidence-based education, like evidence-based medicine, is not a panacea, a quick fix, cookbook practice, or the provider of ready-made solutions to the demands of modern education. It is a set of principles and practices which can alter the way people think about education, the way they go about educational policy and practice, and the basis upon which they make professional judgments and share their expertise” (p. 118).
A Reflection on Terminology

- Recommended practices
- Scientifically based practices
- Evidence-based practices—A Noun
  - Specific practices that have evidence of efficacy or effectiveness
- Evidence-based practice—A Verb
  - A process for using empirical research and knowledge and values of professionals and families
Evidence-Based Practice (EBP)

a decision-making process
that integrates the best
available research evidence
with family & professional
wisdom & values

(Buysse & Wesley, 2006; Snyder, 2006; Winton, 2006)
Evidence-based Education
(Whitehurst, 2002)

Evidence based Education

- Professional Wisdom
  - Individual Experience
  - Consensus

- Empirical Evidence
  - Scientifically-Based Research
  - Empirical Information
Sources of Scientific Research

- Experimental Research
  - Experimental group design
  - Single subject design
- Standards for EBPs Established by Professional Organizations
  - CEC DR
  - APA
  - ASHA
The REVIEW PROCESS

I NEVER REVIEWED THE DESIGN.

YES YOU DID. HERE'S A COPY OF YOUR E-MAIL.

THIS IS HARDLY CONCLUSIVE. DID YOU GET ANY DNA EVIDENCE?

WHAT WAS ALL THAT SCREAMING?

I HAD TO COLLECT SOME DNA.
What sources of knowledge may guide your practice?
Welcome

The mission of the Research and Training Center (RTC) on Early Childhood Development is to promote and enhance the healthy development of infants, toddlers, and preschoolers with or at risk for developmental delays or disabilities. The RTC was established to create a bridge between research evidence and early childhood intervention practices.

Our website is designed specifically for parents, therapists, early childhood educators and early interventionists, as well as researchers. The website includes information about effective practices based on research. If you are interested in the latest research on a particular intervention practice, visit our products page. If you can’t find what you are interested in, let us know what you need by completing the topic suggestion form. We are committed to making the materials on our website as useful as possible. We appreciate any feedback you can give us to make improvements, and encourage you to visit our feedback page.

The RTC is a major initiative of the Center for Evidence-Based Practices at the Orelena Hawks Puckett Institute. RTC partners include the Center for Excellence in Early Childhood Education, Asheville, NC, and the Family Infant and Preschool Program, Western Carolina Center in Morganton, NC. The RTC is funded by the U.S. Department of Education, Office of Special Education Programs (OSEP), Research-to-Practice Division.

More Information for:
Early Childhood Practitioners
Childcare Professionals
Parents
Researchers

Take a look!
Centerscope Articles about the conceptual and operational framework of the RTC
Bridges Practice-centered research syntheses of topics related to early childhood development
Bottomlines One-to-two page summaries of practice-based research syntheses

Sponsored by the Office of Special Education and Rehabilitative Services.

RTC Privacy Policy.
For What Kinds of Practices Do We Find Evidence?
(RCTs-Early Childhood)

- Response Contingent Learning
- Caregiver Responsive Style of Interaction
  - Effects on language and attachment
- Parent-Child Interaction Therapy for Children with Disruptive Behavior
- Use of “social toys” to promote peer interaction
- Pivotal Response Training for Children with Autism
For What Kinds of Practices Do We Find Evidence?
(RCTs-Early Childhood)

- Dialogic reading for toddlers & preschoolers
- Responsive home environment and socioemotional development
- Interventions to promote parent sensitivity
- Guided design learning and adult problem solving
- Contingent touch and infant responses
For What Kinds of Practices Do We Find Evidence?
(RCTs-Early Childhood)

- Incorporating child interest in teaching and learning activities
- Adult reinforcement and child behaviors
- Treadmill to promote walking (but feasibility for parent has not been examined)
For What Kinds of Practices Do We Not Find Evidence?

(RCTs-Early Childhood)

- Dolphin Therapy
- Diagnostic Practices for EC ADHD
- Melodic intonation therapy
- Infant Massage
- Yoga and children with developmental delays
- Craniosacral therapy
Welcome!

The Center on the Social and Emotional Foundations for Early Learning is a national center focused on strengthening the capacity of child care and Head Start programs to improve the social and emotional outcomes of young children.

The Center will develop and disseminate evidence-based, user-friendly information to help early childhood educators meet the needs of the growing number of children with challenging behaviors and mental health challenges in child care and Head Start programs.

The Center on the Social and Emotional Foundations for Early Learning will:

- Focus on promoting the social and emotional development of children as a means of preventing challenging behaviors.
- Collaborate with existing training and technical assistance (T/TA) providers for the purpose of ensuring the implementation and sustainability of practices at the local level.
- Engage in a comprehensive, culturally sensitive approach that is inclusive of and responsive to the needs of programs, families, other professionals, and communities.

Brief 1 Introduction to the What Works Briefs

Brief 2 Understanding the Impact of Language Differences on Classroom Behavior by R. M. Santos, M. M. Ostrosky

Brief 3 Helping Children Understand Routines and Classroom Schedules by M. M. Ostrosky, E. Y. Jung, M. L. Hemmeter, D. Thomas

Brief 4 Helping Children Make Transitions between Activities by M. M. Ostrosky, E. Y. Jung, M. L. Hemmeter

Brief 5 Using Classroom Activities and Routines as Opportunities to Support Peer Interaction by T. Bovey, P. Strain
The What Works Clearinghouse was established by the U.S. Department of Education’s Institute of Education Sciences to provide educators, policymakers, and the public with a central, independent, and trusted source of scientific evidence of what works in education. It is administered by the Department through a contract to a joint venture of the American Institutes for Research and the Campbell Collaboration.

What education areas should the WWC review in future years?

Click here for information on submitting studies and interventions.
## Review Indicators in WWC

<table>
<thead>
<tr>
<th>Key</th>
<th>Positive effects: strong evidence of a positive effect with no overriding contrary evidence</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Potentially positive effects: evidence of a positive effect with no overriding contrary evidence</td>
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<td>Mixed effects: evidence of inconsistent effects</td>
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<td></td>
<td>No discernible effects: no affirmative evidence of effects</td>
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<td></td>
<td>Potentially negative effects: evidence of a negative effect with no overriding contrary evidence</td>
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<td></td>
<td>Negative effects: strong evidence of a negative effect with no overriding contrary evidence</td>
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</tbody>
</table>
## Effectiveness ratings for Early Childhood Education programs in six domains

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Oral language</th>
<th>Print knowledge</th>
<th>Phonological processing</th>
<th>Early reading/writing</th>
<th>Cognition</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>DaisyQuest</td>
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<tr>
<td>Dialogic Reading</td>
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<td></td>
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<tr>
<td>Interactive Shared Book Reading</td>
<td>+</td>
<td>?</td>
<td></td>
<td>?</td>
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<tr>
<td>Phonological Awareness Training</td>
<td></td>
<td></td>
<td>+</td>
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<td>Phonological Awareness Training</td>
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<tr>
<td>plus Letter Knowledge Training</td>
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<tr>
<td>Shared Book Reading</td>
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<tr>
<td>Sound Foundations</td>
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<tr>
<td>Words and Concepts</td>
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</tbody>
</table>
## WWC Review in Beginning Reading

### Effectiveness ratings for Beginning Reading programs in four domains

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Alphabetic</th>
<th>Comprehension</th>
<th>Fluency</th>
<th>General reading achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>DaisyQuest</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading Recovery®</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Consider a 5-step Process
Adapted from Evidence-Based Medicine

1. Pose an answerable question.
2. Find best available research evidence. *(Where?)*
4. Integrate the research evidence with professional and family wisdom & values. *(How?)*
5. Evaluate effectiveness of steps 1-4. *(How?)*
**Step 1:**

**Posing Question**

<table>
<thead>
<tr>
<th>Question 1</th>
<th>Target Group or Issue</th>
<th>Intervention</th>
<th>Comparison Condition (if applicable)</th>
<th>Outcomes of Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Possible Search Terms</strong></td>
<td>For young children with disabilities…</td>
<td>…is hippotherapy</td>
<td></td>
<td>effective for improving motor, social-emotional and language functioning?</td>
</tr>
<tr>
<td></td>
<td>young children, special needs, cerebral palsy</td>
<td>Hippotherapy, therapeutic riding, therapeutic horseback riding, horseback riding, equine therapy, riding therapy, therapeutic horsemanship</td>
<td></td>
<td>[could include specific outcome measures in search]</td>
</tr>
</tbody>
</table>

Step 2:
Finding “Best Available” Evidence: Example Search

- CINAHL database

- Search terms
  “hippotherapy” and “cerebral palsy”

- Results of search evaluated against question posed and study inclusion/exclusion criteria
Search Results....


  
  **AN:** 2004207975.


How many of above might meet the inclusion/exclusion criteria?
Step 3: 
Appraising the Evidence

- Which approach?
  - Levels of evidence
  - Quality indicators
  - Functional approaches

- Individual studies versus group of studies
- Functional approach used in available research synthesis
- Consider quality, transparency, relevance of evidence
Select Criteria for Appraising Research Syntheses:

**Transparency**

- Is it clear what criteria were used to appraise the evidence?
- Do the criteria appear appropriate for answering the question?
- Are inter-coder agreement procedures described?
- Are conclusions about the intervention supported by the appraisal evidence presented?
Select Criteria for Appraising Research Syntheses: 

**Relevance**

- How similar to *your* target group are the participants in the reviewed studies?
- How similar is *your* planned intervention to the intervention described in the synthesis?
- Do the results of the synthesis help inform *your* question?
- Do the results of the synthesis help inform *your* EBP decisions?
Select Criteria for Appraising Research Syntheses: Quality

- Is the question that focuses the synthesis stated or able to be inferred?
- Is a clear description provided for intervention under consideration?
- Are search strategies used sufficiently described?
- Are sources used in search listed?
- Is study inclusion and exclusion criteria specified?
Step 4: Integrating

- Integrate research evidence with professional and family wisdom & values
Step 5: Evaluation

- Evaluate the effectiveness of steps 1–4
Where do we go from here?
How can we reach agreement as a field about what evidence-based practice means?
Does research trump professional and family wisdom and values?
How can we make knowledge accessible and transparent to anyone who desires it?
Eminence-Based Practice

Making the same mistakes with increasing confidence over an impressive number of years.

—O’Donnell, 1997, A Skeptic’s Medical Dictionary
FPG research and outreach has shaped how the nation cares for and educates young children.

This presentation is available online at

www.fpg.unc.edu/~handouts/EBP_Odom_Buysse.pdf