

Quality Indicators for Research and Evidence- Based Practice in Special Education

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Usefulness of education research questioned

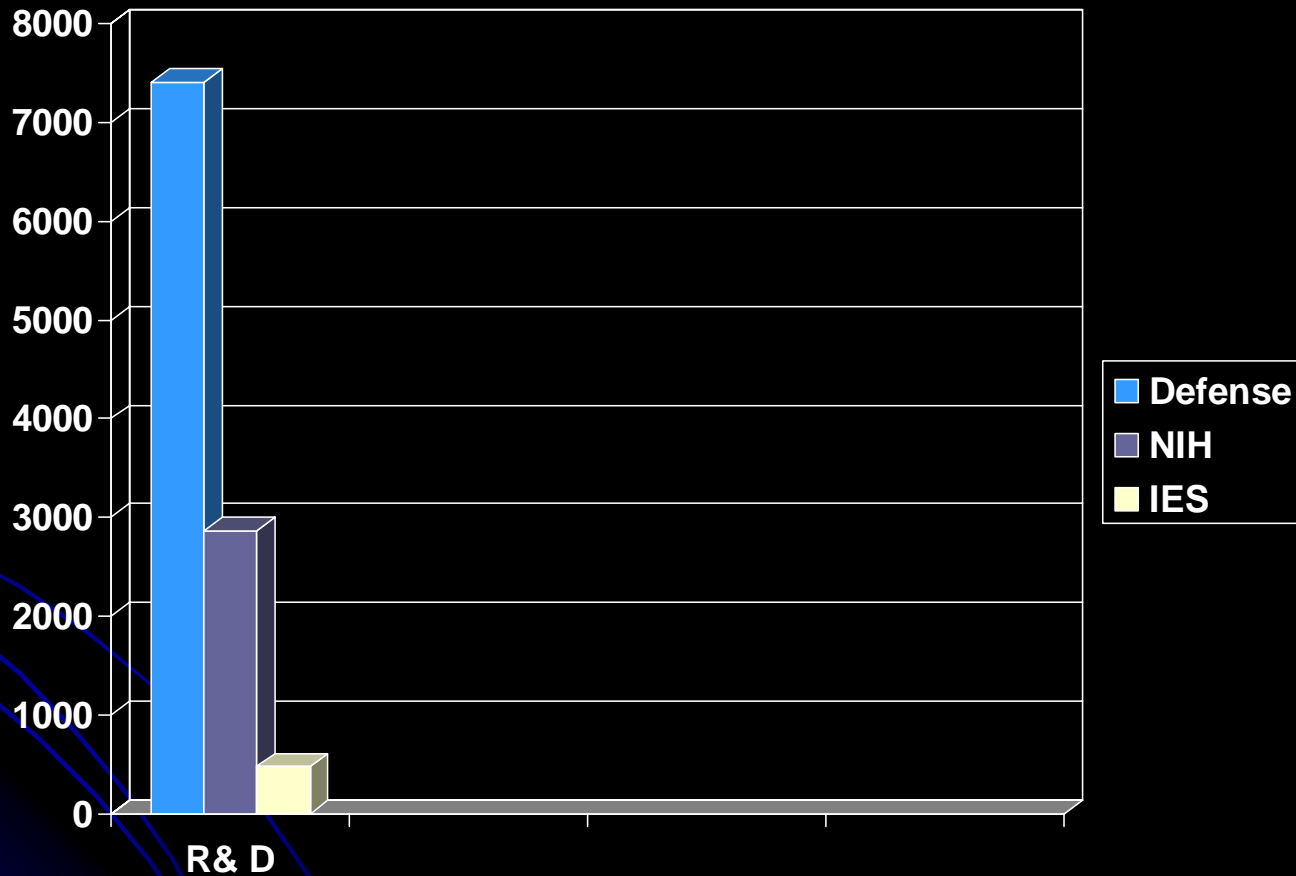


Education Secretary Margaret Spellings speaks about the No Child Left Behind program with President Bush at a charter school in Washington. By law, educators should use scientific methods when determining curriculum, but the science is often inconclusive, politically charged, poorly disseminated or impractical.

Resource Allocation in US

- Three largest public expenditures
 - Medical services (\$1,700 Billion)
 - Defense (\$534 Billion)
 - Education (\$511 Billion)
- Research and Development
 - Medicine (\$28 Billion)
 - Defense (\$74 Billion)
 - Education (\$479 Million)

Relative Expenditures On Research and Development



Medical Origins of Evidence Based Practices

- Current emphasis may be traced to Cochrane's (1972) concern about the lack of use of research in health care practice
- Formation of Cochrane Collaborative to conduct systematic reviews of effects of health care interventions
- Evidence-based medicine coined as a term at McMaster University in 1980's
- Sackett and colleagues were primary early advocates for evidence-based medicine

Evidence-Based Medicine (Sackett et al. 1996)

The *practice* of evidence-based medicine means integrating individual clinical expertise (the proficiency and judgment that individual clinicians acquire through clinical experience and clinical practice) with the best available external clinical evidence...from systematic research. ‘Without clinical expertise, practice risks being tyrannized by evidence....Without current best evidence, practice risks becoming rapidly out of date, to the detriment of patients’ (p.72)

(Cutspec, 2002, p. 1)

Sackett (1996) qualifications of EBM

- Neither old hat nor impossible to practice
- Not at “cook-book” medicine
- Not a cost cutting medicine
- Not restricted to randomized trials and meta-analyses

According to Sackett et al. (1996), “if no randomised trial has been carried out for our patient’s predicament, we must follow the trail to the next best external evidence and work from there” (p. 72).

Movement of “evidence-based” into Education

- Campbell Collaborative formed (in the US) in 1990 to conduct systematic reviews of educational and social policy practices
 - What Works Clearinghouse funded by Institute of Education Sciences operates through CC
- Evidence for Policy and Practice Information Center (EPPIC) at the University of London Institute of Education was created in 1993
- Center for Evidence-Based Practice at Orelena Puckett Institute in North Carolina

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).

Efforts to Identify Criteria for Evidence-Based Practices/Professional Associations

- Child-Clinical Section of Division 12 of the American Psychological Association
- CEC-Division for Research
- National Association for School Psychology (empirically supported interventions)
- ASHA
- DEC Recommended Practices

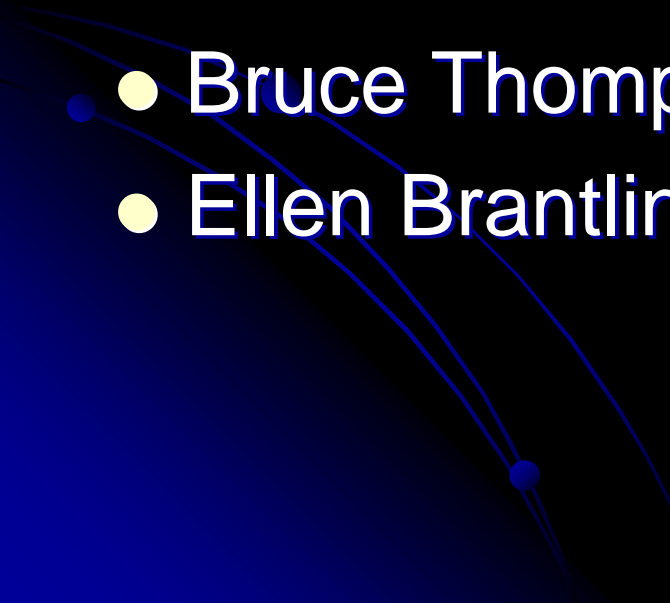
APA Task Force on Promotion and Dissemination of Psychological Procedures: Well Established

- **At least two well-conducted group-design studies, conducted by different investigators**
 - Superior to pill placebo or alternative treatment
 - Equivalent to well established treatment
- **Large series of single-case design studies (n>9) that use good experimental design and compare the intervention to another treatment**
 - Treatment manuals used for the intervention
 - Clearly specify sample characteristics

Historical Context for DR Quality Indicators

- **National Education Research Improvement Act (2002)**
- **No Child Left Behind**
- **National Academy of Sciences Report on Educational Research**
- **Doug Carnine from the 1980s: Scientifically Based Practices**

DR Task Force on Quality Indicator of Research and Evidence-Based Standards

- Sam Odom, Chair
 - Russell Gersten, Experimental and Quasi-experimental Design
 - Robert Horner, Single Subject Design
 - Bruce Thompson, Correlational Design
 - Ellen Brantlinger, Qualitative Design
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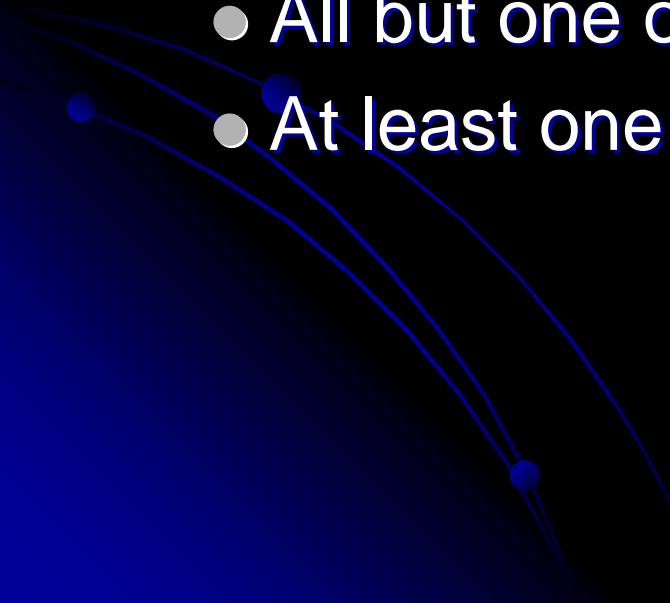
Purpose

- Quality Indicators (All require further operationalization)
 - Provide guidance for selection of evidence-based practices
 - Provide guidance for researcher designing studies
 - Assist in establishing review criteria for journals and grants
- Guidelines for Evidence-Based Practices
 - Selecting practices

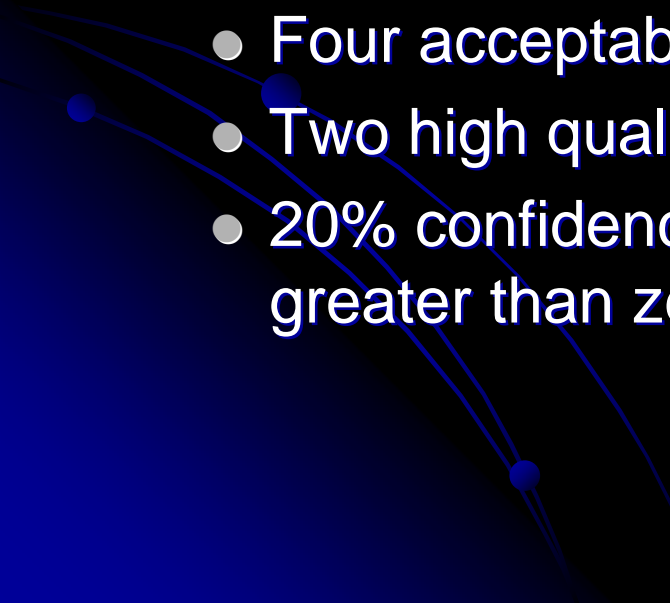
Quality Indicators of Experimental and Quasi-experimental Designs (Gersten et al., 2005)

- Conceptualization of the study
- Participants/Setting
- Implementation of Intervention and Nature of the Comparison Conditions
- Outcome Measures
- Data Analysis
- Other desirable features
 - Blind/naïve data collectors
 - Maintenance

Quality of Study

- High quality study has
 - All but one of the essential quality indicators
 - At least four of the other features
 - Acceptable quality study has
 - All but one of the essential quality indicators
 - At least one of the other features
- 

Guidelines for Evidence-Based Practices

- Evidence-based practice
 - Four acceptable quality studies or
 - Two high quality studies
 - Weighted effect size significantly different from zero
 - Promising
 - Four acceptable quality studies or
 - Two high quality studies
 - 20% confidence interval that weighted effect size greater than zero
- 

Defining Features of Single Subject Research

- Experimental approach
 - Single subject research documents functional (causal) relationships between manipulation of independent variables and change in dependent variables.
- Individual participant is the unit of analysis
 - Child participant
 - Class
 - Community

unlikely that an extraneous variable caused the observed changes at these two points in time

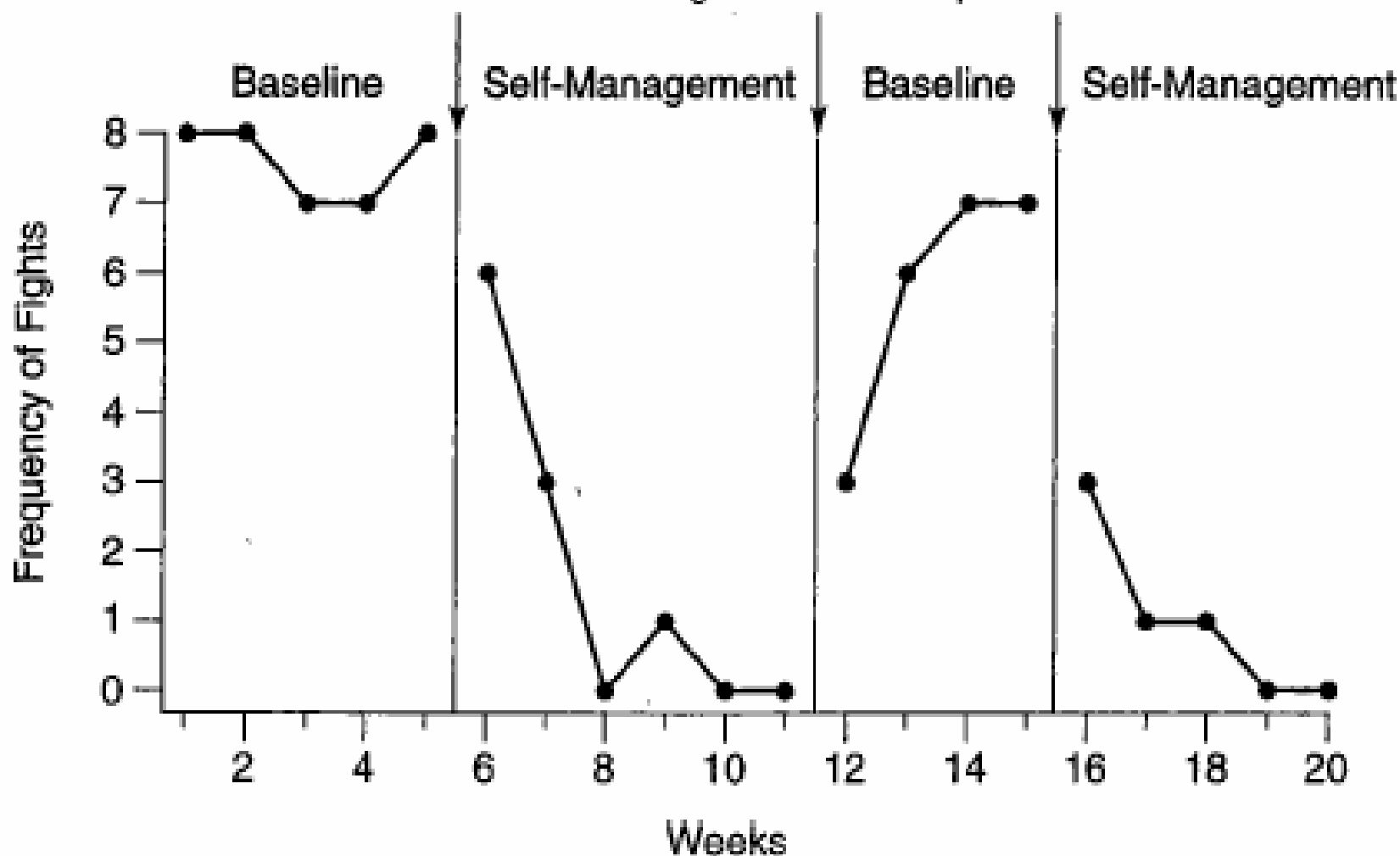
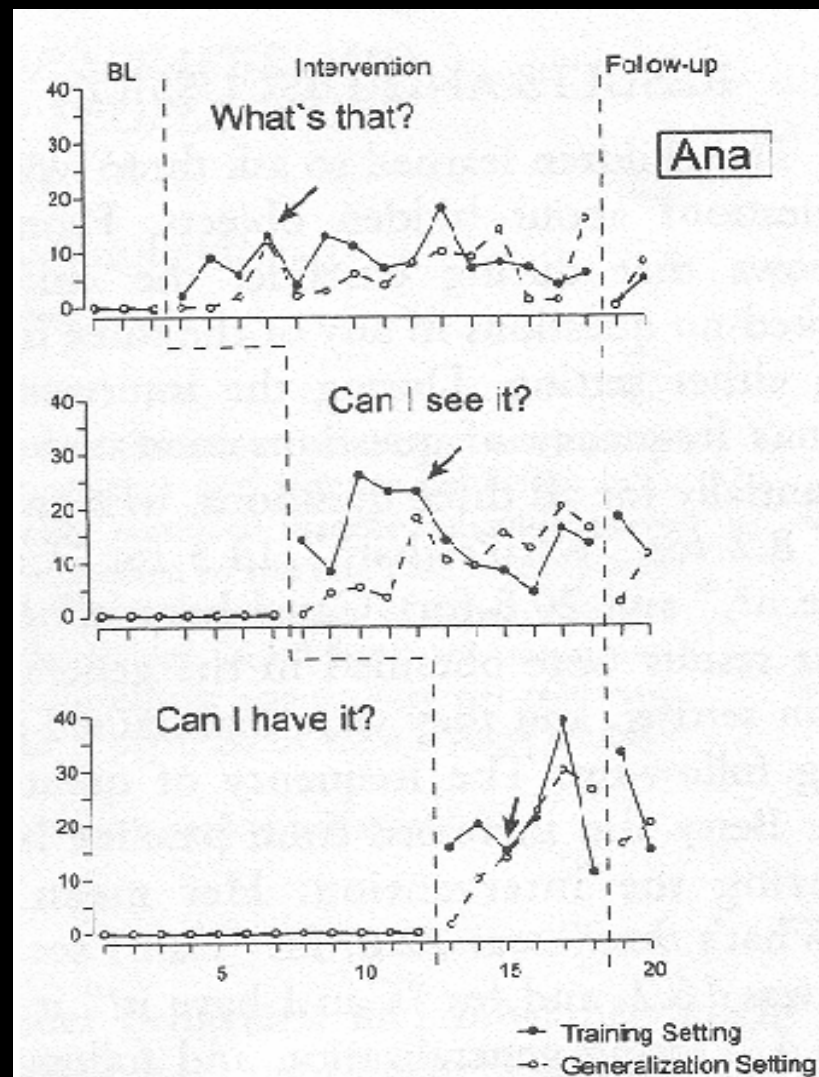
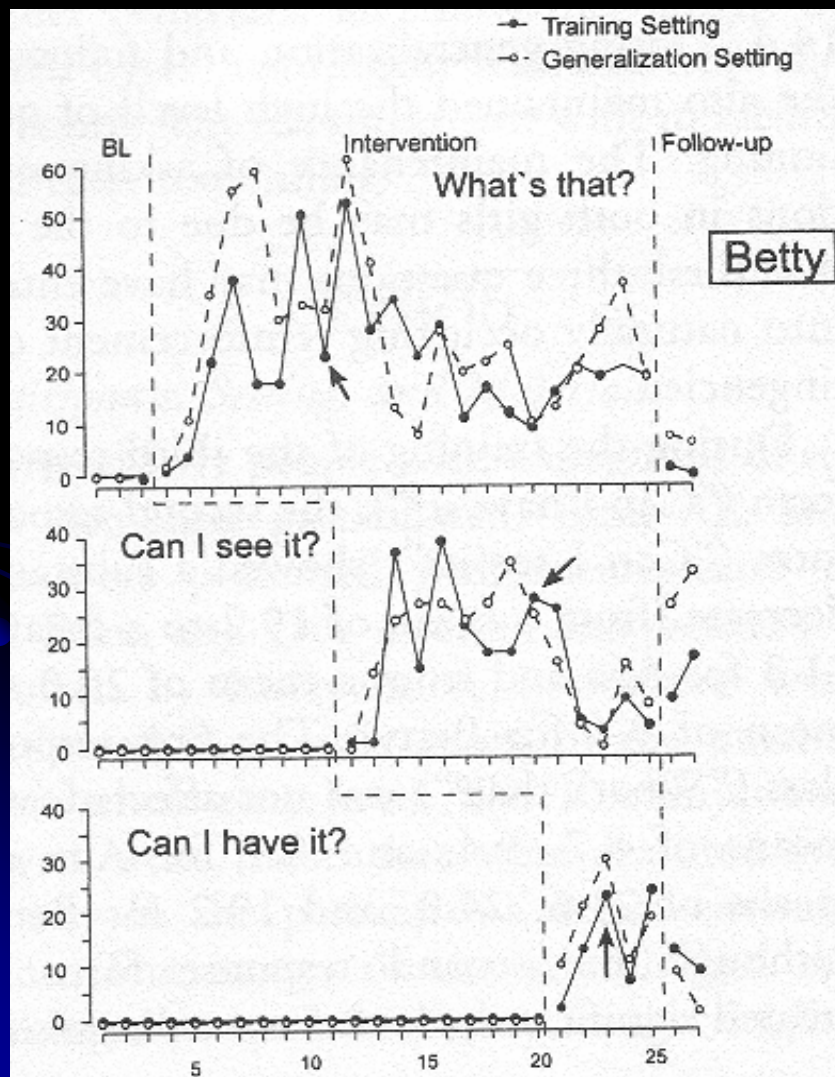


FIGURE 10.5 The frequency of fights across baseline and self-management conditions.

Multiple Baseline Design (Williams, Donley, & Keller, 2000)



Establishing “Evidence-based” Practices

- Experimental control is demonstrated across a sufficient range of studies, researchers and participants to allow confidence in the effect
 - Minimum of 5 studies of acceptable quality published in peer reviewed journals
 - Studies conducted by at least 3 different researchers at 3 different sites
 - Studies, cumulatively, include a total of at least 20 participants

Summarizing Work



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