

**Quality indicators for group experimental and quasi-experimental research in special education.**

*Exceptional Children*, 71, 149-164.

Give summary and page reference, where these components are addressed in original research reports:

Group-experimental research. Assumptions of ANOVA; threats to validity; random assignment. Read Gersten et al. (2005);	
Authors	Gersten, R., Fuchs, L., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. (2005). Quality indicators for group experimental and quasi-experimental research in special education. <i>Exceptional Children</i> , 71, 149-164.
Importance	Researchers need to know what makes quality research so they can read research critically and conduct quality research.
p. 150	The distinction between indicators that are essential versus those that are desirable
Present research indicates... P 150	<p>There is a place and for all methodologies in educational research, survey, qualitative, correlational, Feuer, Towne, and Shavelson (2002)</p> <p>The national research council contends that that there is an underutilization of experimental research with randomization in education (NCR, 2002)</p> <p>Despite being the single best the methodological route to ferreting out systematic relations between actions and outcome” ( Feuer, et al (2002)</p> <p>Study Design and Implementation Assessment Device (DIAD Valentine &amp; Cooper 2003) Has good suggestions – to determine reliability for inclusion in a synthesis of research</p>
However,... (limitation) p. 150	No Real current indicators quality indicators for research
Therefore... (Purpose)/ research questions p. 149	<p>Presents a quality indicators for experimental and quasi-experimental studies.</p> <p>Intended to evaluate completed research and serve as an organizer of critical issues for consideration in research</p> <p>Provide a standard to determine whether a practice may be considered evidence based</p>

Authors	
1.p. 151	<p>Essential quality indicators</p> <p>Conceptualization</p> <ol style="list-style-type: none"> <li>1. The compelling case for importance based on well designed studies- includes the scoped of existing knowledge</li> <li>2. Sound conceptualization for new the approach- using sound research-</li> <li>3. Research questions – appropriate? Stated clearly for the purpose of this study?</li> </ol> <p>Participants and sampling-</p> <ol style="list-style-type: none"> <li>1. Appropriate procedures to ensure participants are comparable across the conditions</li> <li>2. Sufficient evidence to determine whether the participants demonstrated the learning difficulty</li> </ol>

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presented

3. Appropriate procedures to ensure teachers/interventionists are comparable

The implementation of the intervention and nature of comparison conditions

1. Is the intervention clearly described
2. Are there procedures ensuring fidelity- are they described
3. Is nature of the instruction/services of the comparison condition described

The outcome measures

1. Multiple measures used to provide an appropriate balance between the measures closely aligned with the intervention and measures of generalized performance
2. Is evidence of reliability for the outcome measures provided? How will it be calculated?

Quality indicators for data analysis

1. Are the data analysis techniques that to be used appropriate and linked to the key research questions and hypotheses?
2. Is the variability within each sample counted for by either sampling techniques or statistical techniques?
3. Is a power analysis provided to describe the adequacy of the minimum cell size

Desirable quality indicators

1. The data collectors in or scorers blind to study conditions and equally unfamiliar to examinees across the study conditions
2. Does the study provide not only internal consistency reliability but also test-retest reliability and inter-rater reliability when appropriate for outcome measures
3. Are outcomes for capturing the interventions effect the measure beyond an immediate post test
4. Is evidence of the validity of measures provided ? if not will it be tested the based on data from the proposed study or with data collected from the other samples?
5. Will the research team assess more than surface features of fidelity implementation for example number of minutes allocated to the intervention or teacher/interventionists following the procedures specified? Additionally will the research team examine the quality of implementation?
6. Will he research include actual audio or videotape excerpts that capture the nature of the intervention?
7. Does the researcher conduct power analyses proper for varying levels of statistical analysis? Eg. If data will be analyzed at a classroom or day care center level, are analyses at that level sensitive enough to detect effects?

Essential Quality Indicators

QI For describing participants

1. The was sufficient information provided to determine/confirm whether the participants demonstrated the disabilities or difficulties presented?
2. Were appropriate procedures used to increase the likelihood that the relevant characteristics of participants in the samples were comparable across the conditions?
3. What's the patient information they meant characterizing the interventionists or teachers provided? Did it indicate whether they were comparable across conditions?

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<p>p. 152</p>	<p>QI For implementation of the intervention and description of the comparison conditions</p> <ol style="list-style-type: none"> <li>1. Was the intervention clearly described in specified?</li> <li>2. Was the fidelity of the implementation described an assessed?</li> <li>3. Was the nature of the services provided in the comparison conditions described?</li> </ol> <p>QI For the outcome, measures</p> <ol style="list-style-type: none"> <li>1. The were multiple measures used to provide an appropriate balance between measures closely aligned with the intervention and measures of generalize performance?</li> <li>2. Were outcomes for capturing the intervention’s effects measured at the appropriate times?</li> </ol> <p>Desirable QI</p> <ol style="list-style-type: none"> <li>1. What is data available on attrition rates among intervention samples? Was the severe overall attrition documented? If so is attrition compare across samples? Is overall attrition &lt;30%?</li> <li>2. Did the study provides not only internal consistency reliability but also test-retest reliability and inter rater Reliability when appropriate for the outcome measures ? were data collectors and or scorers blind to study conditions and equally unfamiliar to examinees across study conditions?</li> <li>3. Were outcomes for capturing the interventions effect measured beyond an immediate post test?</li> <li>4. What’s the evidence of the criterion related validity and construct validity of the measures provided?</li> <li>5. Did the research team assess the not only the surface features of fidelity implementation, e.g. number of minutes, allocated to the intervention or teacher/ interventionist following procedures specified) But also examine the quality of implementation?</li> <li>6. Was any documentation of the nature of instruction or series provided in comparison conditions?</li> <li>7. Didn’t the research report include actual audio or video taped excerpts that capture the nature of the intervention?</li> <li>8. Were the results presented in a clear coherent fashion?</li> </ol>
<p>p. 152-153</p>	<p><b>Acceptable quality-</b></p> <p>Must meet all but one of the essential quality indicators and demonstrate at least one of the quality indicators listed as desirable as shown in tables one and two</p> <p><b>High quality</b></p> <p>Must meet all but one of the essential quality indicators and demonstrate at least four of the quality indicators listed as desirable</p> <p>These definitions should be field tested by universities and agencies that review grant applications</p>
<p>2.</p>	<p>The literature review is key              It must be adequate in the breadth of studies covered and key in on the critical issues for this particular study researcher should present a concise a complete summary of The scientific knowledge base that exists - Current studies and seminal research studies and how all relate to the current study-</p> <p>Including areas of consensus that and</p>

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	<p>areas in need of further investigation</p> <p>Why does this study the address an important topic that has not been fully addressed in the past</p> <p>A compelling argument for the approach and setting the stage for guiding the research questions</p> <p>If a new group of participants is used clear rationale</p>
<p>3. p. 153-154</p>	<p>Four types of validity</p> <ol style="list-style-type: none"> <li>1. Incidence- Degree to which research addresses a topic significant to large numbers of people</li> <li>2. Impact – serious and enduring consequences</li> <li>3. Sympathetic – tendency to judge the the significance that based on the feelings of sympathy for individuals affected by the problem</li> <li>4. Salience – degree of public awareness of the problem</li> </ol> <p>Although it is difficult for one study to incorporate all four types of validity, it is important for researchers to be aware of these types of validity and look at the pattern of validity addressed by the study in question</p>
<p>4. p. 154-155</p>	<p>Participants description</p> <p>Beyond school-district provided labels- Include state criteria-</p> <p>Provide definition of relevant disabilities &amp; Include assessment results that the individuals met the requirements of the definition - link the definition with those in current literature – Co Morbidity 0 ADHD – LD- ED – OHI etc</p> <p>Demographics-e.g. age, race, sex, subsidized lunch status, scores related to academic assessments, DLL, stead,</p> <p>document sample comparability at pre-test on at least one outcome measure</p> <p>optical methods randomization</p> <p>participants, teacher/interventionists, classrooms</p> <p>higher-quality-random assignment of both student participants in intervention providers</p> <p>statistical analysis need to account for the nesting of students in classrooms</p> <p>power analysis may need to be conducted at both the student and classroom level</p> <p>matching participants on the salient variable and randomly assigning one member of each pair to a treatment condition or stratified assignment procedure to study conditions are preferred</p>
<p>5. p. 155-156  p. 156</p>	<p>One document overall attrition of participants and ensure that the attrition rates between intervention in comparison groups were not substantially different-groups should remain comparable from beginning to end of the study</p> <p>Provide information about the intervention providers - age, sex, race, educational background, prior experience with the related interventions, professional experience, a number of children with and without disabilities in the family for parents</p> <p>How were intervention providers assigned to the various study conditions- randomized assignment-preferred method</p> <p>*** (RWG Study!!)counterbalance across conditions- interventionists teach one group 1 method another</p>

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	<p>group of another method</p> <p>Precise description of the independent variable to allow for systematic replication</p> <p>salient dimensions including conceptual underpinnings-detailed instructional procedures-teacher actions and language ( e.g. modeling, corrective feedback) use of instructional materials (e.g. task difficulty, example selection,) student behaviors( e.g. what students are required to do and say)</p> <p>operationalize the independent variable</p>
<p>P 157</p>	<p>Fidelity of implementation is described- treatment fidelity or treatment integrity</p> <p>Treatment fidelity is essential in understanding the relationship between intervention (which is the independent variable) and outcome measure(dependent variables) the goal of experimental research and special-education-demonstrate any changes in the dependent variable are the result of implementing a specified intervention</p> <p>Determine whether treatment fidelity was measured and how it was measured</p> <p>*** Researchers should observe intervention using a checklist of treatment components and record whether the most central aspects of the intervention occurred</p> <p>Observations should occur regularly should include a measure of incher observer and reliability</p> <p>A. Inclusion of key features          B. Adequate time per day or week          C. coverage of specified amount of material in the curriculum or teacher guide</p> <p>Not only observe the occurrence of steps but also the quality with which they were followed did teacher use clear language, interesting examples come scaffolding, corrective feedback,</p> <p>provides understanding of implementation issues can lead to important insights about intervention components and teacher behaviors that are more directly related to desired outcomes</p> <p>Audiotapes/video tapes can be used to gain understanding of quality</p> <p>using a transcript can help the reader get a sense of how the intervention plays out with students and actual materials</p>
<p>p. 158</p>	<p>Use multiple measures and standardized measures</p> <p>Estimate Internal consistency- Cronbach's alpha</p>
<p>p. 159</p>	<p>Bottom line for reliability- at least .6 or above</p> <p>Effects of intervention best detected immediately- within a few days of the end</p> <p>Important to determine long term effects-</p>

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<p>p. 160</p>	<p>Align data collection with the research questions</p> <p>***Multiple point collections</p> <p>*** scorers should be blind to information about which participants took part in the treatment and which were in control conditions to limit experimenters bias</p> <p>Also treatment in comparison groups should have the same amount of access to implementers who have a similar amount of familiarity with the participants</p> <p>Minimize threats to the study's internal validity- experimenter bias-same quality implementation-interrater observer tester reliabilities conducted</p> <p>Above .90</p> <p>Data analysis appropriate unit of analysis participant, class, teacher, pairs of students</p>
<p>p. 161</p>	<p>Data analysis techniques must be appropriate and linked to research question and hypothesis</p> <p>power analysis</p> <p>Effect range .2 equals small .5 equal moderate .8 in greater equals large minimum for educational .40</p> <p>Need a large enough sample size</p>
<p>P 163</p>	<p>??Lead to lower effect sizes</p> <ul style="list-style-type: none"> <li>a) controlling for teacher effects</li> <li>b) using standardized rather than an experimental developed measures</li> <li>c) using appropriate unit in data analysis</li> <li>d) reporting samples ethnic composition</li> <li>e) providing psychometric information</li> <li>f) using multiple criteria defining the sample</li> <li>g)</li> </ul> <p>better control studies appears to be less biased in favor of the intervention</p> <p>Research quality does matter and does have educational impacts</p>
<p>Results/ discuss ion</p>	<p>Field testing of the indicators is important</p> <p>Refinements based on field testing</p> <p>Considerations for adoption by journals</p> <p>Serious field testing of the quality indicators impact on evidence-based practice</p>