OSLOMET

Cook, B. G., Buysse, V., Klingner, J., Landrum, T. J., McWilliam, R. A., Tankersley, M., & Test, D. W. (2015). CEC's standards for classifying the evidence base of practices in special education. *Remedial and Special Education, 36*, 220–234. doi: 10.1177/0741932514557271

Børge Strømgren

OSLOMET

Background: Entering in to the evidence base

- Barrett, P. M., & Ollendick, T. H. (Eds.). (2004). *Handbook of Interventions that Work With Children and Adolescents: Prevention and Treatment.* Chichester, UK: Wiley.
- Chpt 1, p. 6.

Table 1.1 Criteria for empirically validated treatments

I. *Well-established treatments*
A. At least two good between-group design experiments demonstrating efficacy in one or more of the following ways:
1. Superior to pill or psychological placebo or to another treatment
2. Equivalent to an already established treatment in experiments with adequate statistical power (about 30 per group)

or

B. A large series of single case design experiments ($n > 9$) demonstrating efficacy. These experiments must have:
1. Used good experimental designs, and
2. Compared the intervention to another treatment as in A.1.

Further criteria for both A. and B.:
C. Experiments must be conducted with treatment manuals.
D. Characteristics of the client samples must be clearly specified.
E. Effects must have been demonstrated by at least two different investigators or investigatory teams.

II. *Probably efficacious treatments*
A. Two experiments showing the treatment is more effective than a waiting-list control group

or

B. One or more experiments meeting the well-established treatment criteria A, C, D, but not E

or

C. A small series of single case design experiments ($n > 3$) otherwise meeting well-established treatment criteria B, C, and D.

OSLOMET

Development

- Based on:
- Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality Indicators for Group Experimental and Quasi-Experimental Research in Special Education. *Exceptional Children, 71*(2), 149-164. doi: 10.1177/001440290507100202
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165–179. doi: 10.1177/001440290507100203

OSLOMET

CEC standards

- The recommendations, or standards, is about what should be reported in an article in order for it to enter into the ”evidence-base”
- APA6th is about formalities, i.e. mechanics of style, how to use abbreviations, how to cite etc.
- The CEC quality indicators are, among many others, about what should be reported in order for the reader to assess sources of bias and the quality of the evidence / results
- A simpler system than WWC, which requires certification

OSLOMET

CEC standards

- Research Designs considered are
  - group designs (randomized and non-randomized)
  - single-case experimental designs (ABAB/reversal, MB/MP, CC, ATD)
- Correlational and qualitative research excluded
- Originally Developed Quality Indicators for
  - Context and setting, Participants, Intervention agents, Description of practice, Implementation fidelity, Internal validity, Outcome measure/dependent variables, Data analysis and Social validity
  - Rated on a dichotomous scale (Yes/No)

OSLOMET

CEC standards

- Studies initially classified as either of:
  - Strong methodological quality (meets all QIs)
  - Moderate methodological quality (meets all QIs except social validity, treatment fidelity, and effect size (ES))
    - In order to incorporate older studies
  - Unacceptable methodological quality
- Guidelines for classifying studies as having either:
  - Positive, Neutral or Negative effects
  - Based upon ES for group comparison studies and visual inspection for SCED studies
    - NB! – low levels of inter-observer reliability in visual analysis (DeProspero & Cohen, 1979; Ottenbacher, 1990, 1993).

OSLOMET

CEC standards

- Classified studies as evidence-based, potentially evidence-based, mixed effects, insufficient evidence or negative effects
- Based on the number of SCE and group comparison studies with strong and methodological quality with positive, neutral and negative effects
- Studies with moderate methodological quality weighted as half of studies with strong methodological quality

OSLOMET

CEC standards

- QIs tested with experts, N = 24, average yoe 14.1 (SD = 6.7), published average of 5.9 (SD = 5.8) group comparison articles and an average of 8.2 (SD = 9.8) SCE studies.
- Rated each QI and evidence-based classification on a Likert: 1 (strongly disagree) to 4 (strongly agree)
- Intended to incorporate QIs with 80% or more agreement
- Initial overall mean rating was 3.5 (SD = 0.7) and 91 % agree/strongly agree
- Two areas with < 80% agreement, social validity and weighting, were later moderated

OSLOMET

CEC standards

- Consist of two sections:

a) QIs for methodological soundness
   - Method: Context and setting, Participants, Intervention agents, Description of practice, Implementation fidelity, Internal validity, Outcome measures/dependent variable, Data analysis

b) Standards for classifying the evidence base of practiced based on the studies
   - Classifying effects og group comparison and SCED
   - Group comparison: ES, a priori educational levels different from Cohen's *d* rules of thumb;
     - ES ≥ +/- .25 is substantial (NB: Lipsey et al., 2012 – grade level)
   - SCED: Visual based rating
     - consider ES with Valentine et al. (2017) —three participants, MB/ABAB

OSLO

Evidence-based Practice:

(a) Must be supported by at least
- two methodologically sound group comparison studies with random assignment to groups, positive effects, and at least 60 total participants across studies;
- four methodologically sound group comparison studies with non-random assignment to groups, positive effects, and at least 120 total participants across studies; or
- five methodologically sound single-subject studies with positive effects and at least 20 total participants across studies; **OR**

(b) Meet at least 50% of criteria for two or more of the study designs described in (a); **AND**

(c) No methodologically sound studies conducted with negative effects and at least a 3:1 ratio of methodologically sound studies with positive effects to methodologically sound studies with neutral/mixed effects. For this item, CEC considers group experimental, non-randomly assigned group comparison, and single-subject design studies collectively.

Potentially Evidence-based Practice:

(a) Must be supported by
- one methodologically sound group comparison study with random assignment to groups and positive effects;
- two or three methodologically sound group comparison studies with non-random assignment to groups and positive effects; or
- two to four methodologically sound single subject studies with positive effects; **OR**

(b) Meet at least 50% of criteria for two or more of the study designs described in (a); **AND**

(c) No methodologically sound studies conducted with negative effects, and at least a 2:1 ratio of methodologically sound studies with positive effects to methodologically sound studies with neutral/mixed effects. For this item, CEC considers group experimental, non-randomly assigned group comparison, and single-subject design studies collectively.

Practice with Mixed Effects:

(a) Must meet criterion (a) or (b) for evidence-based practice or potentially evidence-based practice (regarding number of methodologically sound studies with positive effects supporting the practice); **AND**

(b) The ratio of methodologically sound studies with positive effects to methodologically sound studies with neutral/mixed effects is less than 2:1; **OR** one or more methodologically sound studies conducted with negative effects, as long as methodologically sound studies with negative effects do not outnumber methodologically sound studies with positive effects.

Insufficient Evidence:

Insufficient research exists to meet the criteria for any of the other evidence-based categories.

Practice with Negative Effects:

(a) Must include more than one methodologically sound study (of any acceptable design) conducted with negative effects; **AND**

(b) The number of methodologically sound studies conducted with negative effects outnumbers the number of methodologically sound studies with positive effects.

OSLOMET

CEC Workbook

- Group Comparison and Single-Case Research Design Quality Indicator Matrix Using Council for Exceptional Children 2014 Standards: Standards Overview and Walk-Through Guide
- Royer, D. J., Lane, K. L., & Common, E. A. (2017).
- Lane, K. L., Common, E. A., Royer, D. J., & Muller, K. (2014).
- http://www.ci3t.org/practice