June 2018

Introduction to NTACT Criteria for Levels of Evidence

The National Technical Assistance Center on Transition (NTACT) is a Technical Assistance and Dissemination project, funded by the U.S. Department of Education's Office of Special Education Programs (OSEP) and the Rehabilitation Services Administration (RSA), Cooperative Agreement Number H326E140004. NTACT is funded from January 1, 2015 until December 31, 2019. NTACT's purpose is to assist State Education Agencies, Local Education Agencies, State Vocational Rehabilitation (VR) agencies, and VR service providers in implementing evidence-based and promising practices ensuring students with disabilities, including those with significant disabilities, graduate prepared for success in postsecondary education and employment. One of NTACT's primary charges is to identify and promote evidence-based, research-based, and promising practices in the areas of secondary transition, vocational rehabilitation, and career technical education to support implementation and scaling-up of these practices at state and local levels.

The NTACT Criteria for Levels of Evidence provides context for catorizing the evidence base for secondary transition, vocational rehabilitation, and career technical education practices for secondary students with disabilities. The quality indicators and criteria used for categorizing the evidence base is intended for use by (a) NTACT staff in identification of these practices, and (b) by groups or individuals conducting special education research at the secondary level (i.e., middle, high) for students with disabilities. For the purpose of the NTACT systematic literature reviews, the quality indicators and review criteria for group experimental and single-case designs have been adapted from the Council for Exceptional Children's Standards for Evidence-Based Practices in Special Education. The group experimental and single-case quality indicators and criteria only apply to studies examining the effect of an operationally defined practice or program on student outcomes.

Because correlational and qualitative research can support and/or add to evidence related to evidence-based, research-based, and promising practices in secondary transition, vocational rehabilitation, and career technical education, NTACT has developed its own criteria, based on the 2005 special issue in *Exceptional Children* (i.e., Thompson et al., 2005; Brantlinger et al., 2005) for including these types of research designs as part of the evidence base. Therefore, NTACT has developed a separate set of quality indicators for correlational and qualitative research. The intent related to correlational research is that the systematic reviews of the correlational literature will provide additional evidence to support new and existing in-school predictors of positive post-school outcomes for secondary students with disabilities. The qualitative literature provides additional contextual information about a practice and helps researchers and practitioners alike better understand an issue or area where little research exisits (Mazzotti, Rowe, Cameto, Test, & Morningstar, 2013).

To be included in the NTACT systematic literature reviews, studies must be published in peer-reviewed journals and meet quality standards based on the quality indicators for the specified research design. NTACT systematic literature reviews are updated on an annual basis.

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

NTACT
National Technical Assistance Center on Transition

June 2018

NTACT Criteria for Levels of Evidence

	Group Experimental Design Only	**OR**	**Single Case Design Only**	**OR**	**Quasi-experimental Correlational Design Only**	**OR**	**Mix of Group Experimental, Single Case Designs, Correlational Designs**
Evidence-Based Practice EVIDENCE	Must be supported by: a) Two methodologically sound* group comparison studies with random assignment to groups, demonstrating positive effects, and including at least 60 total participants across studies; **OR** b) Four methodologically sound* group comparison studies with non-random assignment to groups, demonstrating positive effects, and including at least 120 total participants across studies; **AND** c) Includes 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. This includes group experimental and non-randomly assigned group comparison collectively; **AND** d) Must calculate effect size or report data that allows for calculation		Must be supported by: a) A combination of five methodologically sound* studies, demonstrating a functional relation (positive effects) and at least 20 total participants across studies; **AND** b) Includes 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. This includes all types of single-case design studies collectively; **AND** c) Studies are conducted by at least three research teams with no overlapping authorship at three different institutions.		Must be supported by: a) Two methodologically sound* *a priori* (planned, hypothesis stated) studies using propensity score modeling/ matching which demonstrate consistent significant correlations between predictor and outcome variables; **AND** b) Studies must calculate effect size or report data that allows for calculation; **AND** c) No evidence from a methodologically sound *a priori* study demonstrating negative correlations between predictor and outcome variables		Meet at least 50% of criteria for group experimental, single-case designs, and/or quasi-experimental correlational design as described. For example, the practice is supported by: a) One methodologically sound* group comparison study with random assignment, positive effects, and at least 30 total participants across studies, plus three methodologically sound single-case research studies with positive effects and at least 10 total participants across studies; **OR** b) Three methodologically sound* single-case studies with positive effects and at least 10 total participants across studies, plus two methodologically sound* group comparison studies with non-random assignment, positive effects, and at least 60 total participants across studies; **AND** c) Includes 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. This includes group

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

				experimental, non-randomly assigned group comparison, single-case design, and quasi-experimental correlational studies collectively.

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

	Group Experimental Design Only	OR	Single Case Design Only	OR	Correlational Design Only	OR	Mix of Group Experimental, Single Case Designs, Correlational Designs
Research-Based Practice RESEARCH	Must be supported by: a) One methodologically sound* group comparison study with random assignment to groups and positive effects; **OR** b) Two or three methodologically sound* group comparison studies with non-random assignment to groups; and positive effects; **AND** c) Includes 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. This includes group experimental and non-randomly assigned group comparisons; **AND** d) Must calculate effect size or report data that allows for calculation		Must be supported by: a) Two to four methodologically sound* single case studies demonstrating a functional relation (positive effects); **AND** b) Includes 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. This all types of single-case design studies collectively; **AND**		Must be supported by: a) A combination of two methodologically sound* *a priori* studies demonstrating consistent significant correlations between predictor and outcome; **AND** b) Studies must calculate effect size or report data that allows for calculation; **AND** c) There are more methodologically sound* *a priori* studies demonstrating positive correlations than methodologically sound* *a priori* studies demonstrating negative correlations		Meet at least 50% of criteria for group experimental, single-case designs, and/or quasi-experimental correlational design as described. For example, practice is supported by: a) One methodologically sound* single-case study with positive effects and one methodologically sound* group comparison study with non-random assignment to groups and positive effects; **AND** b) Includes 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. This includes group experimental, non-randomly assigned group comparison, and single-case design studies collectively. d) For correlational studies, a combination of two methodologically sound* *a priori* studies demonstrating consistent significant correlations between predictor and outcome; **AND**

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

				c) Studies must calculate effect size or report data that allows for calculation

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

	Group Experimental Design Only	OR	Single Case Design Only	OR	Correlational Design Only	OR	Mix of Group Experimental, Single Case Designs, Correlational, or Qualitative Designs
Promising Practice PROMISING 	a) One methodologically sound* group comparison study with non-random assignment to groups; and positive effects; **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** c) One or more methodologically sound* studies conducted with negative effects, as long as methodologically sound* studies with negative effects do not out number methodologically sound* studies with positive effects.		a) One methodologically sound *single case study demonstrating a functional relation (positive effects); **OR** b) Two or more single case studies demonstrating positive effects using methodologically weak designs (e.g., non-concurrent multiple baseline, AB); **AND** c) The ratio of methodologically sound* studies with positive effects to methodologically sound* studies with neutral/mixed effects is less than 2:1; **OR** d) One or more methodologically sound* studies conducted with negative effects, as long as methodologically sound* studies with negative effects do not out number methodologically sound* studies with positive effects.		a) One methodologically sound* *a priori* study with consistent significant correlations between predictor and outcome; **OR** b) Two methodologically sound* exploratory (no specific hypothesis) studies with significant correlations between predictor and outcome		Meet at least 50% of criteria for group experimental, single-case designs, and/or quasi-experimental and/or exploratory correlational designs as described. For example, practice is supported by: a) One methodologically weak group design study and one single case study demonstrating positive effects using a methodologically weak design (e.g., non-concurrent multiple baseline, AB); **OR** b) Two or more single case design studies demonstrating positive effects using methodologically weak designs (e.g., non-concurrent multiple baseline, AB) and one quality qualitative design study; **OR** c) One methodologically sound correlational study with significant effects and one single case study demonstrating positive effects using a methodologically weak design (e.g., non-concurrent multiple baseline, AB); **AND**

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

				d) The ratio of studies with positive effects to studies with neutral/mixed effects is less than 2:1; **OR** e) One or more studies conducted with negative effects, as long as studies with negative effects do not out number methodologically sound* studies with positive effects.

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

Unestablished UNESTABLISHED 	a) Insufficient research exists to meet the criteria for any of the other levels of evidence above (e.g., descriptive studies, anecdotal evidence, and/or professional judgment articles describing a practice) b) More methodologically sound* studies demonstrating negative effects, than studies demonstrating positive effects

**Note.* Quality indicators are used to determine methodological soundness of each study reviewed. Access the quality indicators here: (a) Quality Indicator Checklist for Group Experimental Research; (b) Quality Indicator Checklist for Single-Case Research; (c) Quality Indicator Checklist for Correlational Research; and (d) Quality Indicator Checklist for Qualitative Research.

Quality Indicators Used in Determining the Level of Evidence

Quality indicators are used to determine methodological soundness of each study reviewed. To be considered methodologically sound, studies must be determined acceptable or high quality based on review of quality indicators (see quality indicator checklist for which items a study must meet to be determined acceptable or high quality). Access the quality indicators here:

Quality Indicator criteria for Group Experimental Research adapted from:

- Gersten, R., Fuchs, L.S., Compton, D., Coyne, M., Greenwood, C., & Innocenti (2005). Quality indicators for group experimental and quasi-experimental research in special education. Exceptional Children, 71, 149-164

Quality Indicator criteria for Single Case Research adapted from:

- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*, 165-179.
- Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education, 34,* 26-38. doi: 10.1177/0741932512452794

Quality Indicator criteria for Correlational Research adapted from:

- Thompson, B., Diamond, K. E., McWilliam, R., Snyder, P., & Snyder, S. W. (2005). Evaluating the quality of evidence from correlational research for evidence-based practice. Exceptional Children, 71, 181–194.
- Gemici, S., Rojewski, J. W., & Lee, I. H. (2012). Use of propensity score matching for training research with observational data. International Journal of Training Research, 10, 219-232.

Quality Indicator criteria for Qualitative Research adapted from:

- Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. Exceptional Children, 71, 195-207.
- Trainor, A. A., & Graue, E. (2014). Evaluating rigor in qualitative methodology and research dissemination. *Remedial and Special Education, 35,* 267–274.

References

Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. *Exceptional Children, 71,* 195-207.

Council for Exceptional Children. (2014). Council for Exceptional Children standards for evidence-based practices in special education. Retrieved from https://www.cec.sped.org/~/media/Files/Standards/Evidence%20based%20Practices%20and%20Practice/EBP%20FINAL.pdf.

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*, 149-164.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*, 165-179.

Institute for Education Sciences, What Works Clearinghouse. (March, 2015). Designing quasi-experiments: Meeting What Works Clearinghouse Standards without random assignment. Retrieved from https://ies.ed.gov/ncee/wwc/Multimedia/23.

Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education, 34,* 26-38. doi: 10.1177/0741932512452794

Thompson, B., Diamond, K. E., McWilliam, R., Snyder, P., & Snyder, S. W. (2005). Evaluating the quality of evidence from correlational research for evidence-based practice. *Exceptional Children, 71,* 181–194.

Trainor, A. A., & Graue, E. (2014). Evaluating rigor in qualitative methodology and research dissemination. *Remedial and Special Education, 35,* 267–274.