AOTA Evidence Briefs

Children With Behavioral and Psychosocial Needs

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

PSYCH 11

Incorporating a team-building program into the physical education curriculum improves self-concept in middle school students

Ebbeck, V., & Gibbons, S. L. (1998). The effect of a team building program on the self-conceptions of grade 6 and 7 physical education students. *Journal of Sport and Exercise Physiology*, *20*, 300–310.

Level: IA1a

Randomized controlled trial, 20 or more participants per condition, high internal validity, high external validity.

Why research this topic?

Research indicates that improving people's self-concept has several desirable outcomes: "positive affect" (e.g., cheerfulness), "motivated behavior" (e.g., pursuit of personal goals), and "supportive social interactions" (e.g., inclusion in social groups; p. 301). Research also indicates that physical activity is "an effective context for improving self-conceptions" (p. 301).

What did the researchers do?

Ebbeck and Gibbons (1988), affiliated with Oregon State University (Corvallis) and the University of Victoria (British Columbia, Canada), respectively, investigated the effects of a program called Team Building through Physical Challenges (TBPC) on self-conceptions of physical education students in grades 6 and 7.

The TBPC program

> offers a selection of 22 physical challenges that are categorized as either introductory, intermediate, or advanced. Each challenge is accompanied by information such as a description of the task (including the rules), equipment demands, success criteria, possible solutions, and ideas for varying the original task. Challenges may range from balancing an entire group on an object such as an automobile tire to helping all group members swing, climb, and jump through an obstacle course….While the teacher provides an initial explanation of each new challenge, the onus is on the students to devise and implement strategies for completing a particular task. Students are encouraged to reflect on the experience after mastering each challenge with questions such as the extent to which everyone was involved in the process and whether group members listened to each other (pp. 303–304).

The participants were 120 sixth- and seventh-grade students in a suburban school near a large Canadian city. Fifty-eight were boys, and 62 were girls. The average age was 11.4 years.

The researchers randomly assigned students from the school's two sixth-grade classes, and two seventh-grade classes, to either an experimental or a control condition. Students in the experimental condition participated in the school's regular physical education curriculum for the entire school year (eight months), except that once every two weeks they experienced a TBPC activity for 20 to 40 minutes. Students in the control condition simply completed the regular curriculum. Two physical education teachers in the school implemented the program. One worked with the sixth-grade classes, the other with the seventh-grade classes.

The outcome areas of interest were six self-conceptions appropriate to children of middle school age: *global self-worth*, *athletic competence*, *physical appearance*, *social acceptance*, *scholastic competence*, and *behavioral conduct* (all as measured by the Self-Perception Profile for Children, completed by the children). The instrument has six subscales, which correspond to the six domains of self-concept that were of interest to the researchers. Measures were taken before and after the intervention.

What did the researchers find?

On the measures of global self-worth, athletic competence, physical appearance, and social acceptance, the boys in the experimental group rated themselves **significantly** (see *Glossary*) higher after the program than the participants in the **control group** (see *Glossary*) rated themselves. Also, on the preceding measures and on the measures of scholastic competence and behavioral conduct, the girls in the experimental group rated themselves significantly higher than the girls in the control group rated themselves.

In addition to analyzing the results for statistical significance, the researchers calculated **effect sizes** (see *Glossary*) of the comparisons between the experimental group and the control group. All were large. "Therefore, the treatment effects in this study can be considered meaningful as well as statistically significant" (p. 306).

What do the findings mean?

For therapists and other providers, the findings suggest that incorporating the TBPC program into the physical education curriculum improves self-concept in middle school students.

What are the study's limitations?

The study has one limitation. It failed to "control" (experimentally adjust) for other factors that may have influenced the self-conceptions of the participants—for example, the academic curriculum, extracurricular activities, and family background.

Glossary

control group—A group that received special attention similar to that which the treatment group received, but did not receive the treatment.

effect size (Cohen's *r*)—An effect size is a measure of clinical significance. It provides information about the magnitude of effect of the treatment. Although related to significance, it is not as influenced by the size of the sample. Therefore, it is possible to have an outcome on which the treatment had a large effect (e.g., the treatment group improved a lot more than the control group) and still have a nonsignificant result. If the results have a large effect but no significance, then this effect may be sample specific and not generalizable outside the study. There are many types of effect sizes. What is reported here is Cohen's *r*, which can be interpreted in a manner similar to a Pearson's correlation coefficient:

Effect size *r*	Size of the effect
<0.99	Negligible
0.10 – 0.29	Small
0.30 – 0.49	Medium
>0.50	Large

Cohen, J. (1977). *Statistical power analysis for behavioral sciences.* New York: Academic Press.

significance (or significant)—A statistical term that refers to the probability that the results obtained in the study are not due to chance, but to some other factor (e.g., the treatment of interest). A significant result is likely to be able to be generalized to populations outside the study.

Significance should not be confused with *clinical effect*. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability

to walk may report that the participants in the treatment group were able to walk significantly longer distances than those in the control group. However, after reading the study one may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

This work is based on the evidence-based literature review completed by Ming-Hui Kuo, MS, OTR.

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.