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TEN YEARS OF CHALLENGE COURSE RESEARCH: A REVIEW OF AFFECTIVE OUTCOME STUDIES

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Over the past 30 years, challenge/ropes courses have spread across the country and are now focused toward a variety of populations, including adolescents, college students, and corporate employees. Despite their success and growing popularity as an effective training tool, challenge/ropes courses have earned little credibility through academic research. Although a significant amount of research has been completed, questions continue to arise regarding the efficacy of challenge/ropes experiences for corporate team development and the educational enhancement for adolescent and college students. The purpose of this study was to assimilate and synthesize challenge/ropes course research during the 1990s that studied affective outcomes with non-therapeutic populations.

The electronic databases of ERIC, Current Contents, PsycInfo, and Digital Dissertations were searched using keywords such as ropes course, challenge course, adventure education, adventure training, experiential education, experiential training, experience-based education, and experience-based training. Eighty-seven studies and documents were located using these search terms. For inclusion in the review, a study had to meet all of the following criteria: article published or dissertation completed during the 1990s; challenge/ropes course experience of primary importance to the study; at least one dependent variable relative to challenge/ropes course affective outcome, i.e. self-esteem, self-efficacy, team development, etc.; non-therapeutic setting and population; and adequate data reported for effect size computation. Authors who did not report adequate data for effect size computation were contacted and asked to provide the necessary data. Nineteen studies met the

inclusion criteria. However, four studies were identified as special cases due to their focus on specific facilitation components, i.e. debriefing techniques, indoor versus outdoor venues, and program sequencing. The remaining 15 studies were used for effect size (ES) comparisons. Cohens d ($d = M_2 - M_1 / sd_{pooled}$) was used to compute effect sizes whenever possible.

Of the 15 studies, 10 studies found the challenge course experience resulted in statistically significant positive changes in one or more of the affective dependent variables, while five studies found the challenge course to elicit no significant change in affect. The studies with significant findings had a mean $ES=.75$, $sd=.51$. The only dependent variables tested by more than one study were team development, self-concept, and self-esteem. Team development included five studies with a mean $ES=.58$, $sd=.53$. Self-concept had two studies with a mean $ES=.23$, $sd=.02$. Self-esteem also had two studies with a mean $ES=.16$, $sd=.12$. Six other affective variables were investigated by single studies. These variables and their effect sizes were as follows: physical self-efficacy, $ES=1.81$; classroom environment, $ES=.86$; group cohesion, $ES=.76$; moral reasoning, $ES=.45$; hope, $ES=.43$; and openness and support, $ES=.27$. When studies were grouped by duration of the challenge/ropes experience, effect sizes were larger as duration increased. Although the categorical groupings showed a trend toward higher effect sizes with longer duration, the actual statistical correlation between duration and effect size was $r=.28$. Of the five investigations identified as special focus studies, two examined the influence of sequencing on group environment and cohesion. One of these studies reported statisti-

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cal significance ($ES=1.99$) and the other found no significant difference ($ES=.08$). A single study focused on the influence of debriefing techniques on group environment and found a statistically significant difference between techniques ($ES=.34$). Another single study investigated the influence of an indoor versus an outdoor environment on team development and did not find a statistically significant difference ($ES=.10$). Such inquiries into specific challenge course components are an important direction for continued investigation.

Research during the past ten years showed that challenge course experiences were most effective when used to develop group cohesion and teamwork, and when the duration of the experience was 14 hours or longer.