



# Effectiveness of career choice interventions: A meta-analytic replication and extension

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## ABSTRACT

This meta-analysis of career choice intervention is a replication of Brown and Ryan Krane's (2000) notable meta-analysis. This random-effects meta-analysis included 57 published and unpublished studies that produced a weighted mean effect size of 0.352. Seven separate meta-analyses were conducted for the outcomes of vocational identity, career maturity, career decidedness, career decision-making self-efficacy, perceived environmental support, perceived career barriers, and outcome expectations. Studies ( $k = 32$ ) that utilized measures of career decision-making self-efficacy had the largest effect sizes with an average of 0.452. This effect size was homogeneous, but tentative moderator analyses were conducted. Counselor support appears to be a critical ingredient in career choice counseling. Implications and directions for future research are discussed.

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## 1. Introduction

Brown (2015) argued that the field of vocational psychology still has a way to go in establishing the empirical efficacy of career counseling interventions. Often when examining the effectiveness of interventions, one looks to meta-analyses, and there are a number of meta-analyses that have been conducted on career interventions (e.g., Brown & Ryan Krane, 2000; Oliver & Spokane, 1988; Spokane & Oliver, 1983; Ryan, 1999; Whiston, Sexton, & Lasoff, 1998). Oliver and Spokane (1988) extended the meta-analysis conducted by Spokane and Oliver (1983) and included studies published from 1950 through 1982 and found an average effect size of 0.82 using the Glassian (delta) method. Updating this meta-analysis, Whiston et al. (1998) used more sophisticated meta-analytic techniques (i.e., weighting effect sizes by the sample size and inverse variance) and found a weighted mean effect size of 0.30 using studies published between 1983 and 1995. Both Whiston et al. and Oliver and Spokane included a broad array of career-related outcomes. Later, Brown and Ryan Krane (2000) extended the series of meta-analyses conducted by Ryan (1999), which focused on career choice outcomes (e.g., congruence, vocational identity, career maturity, and career decision-making self-efficacy). Ryan included all relevant studies from Oliver and Spokane as well as studies published between 1983 and 1997. Although Ryan conducted six separate meta-analyses based on specific outcomes, Brown and Ryan Krane averaged the effect sizes across outcome categories and reported a weighted mean effect size of 0.34. Brown and Ryan Krane used a system similar to Whiston et al. for calculating effect sizes.

Although there is consistency between the overall effect sizes found by Brown and Ryan Krane (i.e., 0.34) and Whiston et al. (i.e., 0.30), these vary from the overall effect size of 0.82 found by Oliver and Spokane (1988). Although both Brown and Ryan

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Krane and Whiston et al. used more sophisticated methods, which may partially explain the discrepant findings, there is still a need for further explorations of the effectiveness of career interventions due to variation in average effect sizes. There also is a need for another meta-analysis of career interventions as the most recent meta-analysis (i.e., Brown & Ryan Krane, 2000) is >16 years old, and there has not been a meta-analysis of career choice interventions conducted since that time. There has been a recent meta-analysis of job search interventions (i.e., Liu, Huang, & Wang, 2014), which found that the odds for obtaining employment were 2.67 times higher for job seekers who participated in a job search intervention as compared to those in the control group. Whereas Whiston et al. (1998) combined both job search and career choice interventions, it provides more detailed information to practitioners if these approaches to career counseling are separated. Thus, there is a need for another meta-analysis of career choice interventions that includes more recent research.

Another reason for an additional meta-analysis of career choice interventions is that, although both Brown and Ryan Krane (2000) and Whiston et al. (1998) used more sophisticated meta-analytic procedures, both of these utilized fixed-effect models rather than random-effects models. Whereas fixed-effect models were more common in the past, random-effects models are increasingly popular due to the generalizations that can be made from random-effects results (Fields & Gillett, 2010; Hedges, 2009). With a fixed-effect model, it is assumed that the participants from every study come from the same population. As a result, if the population parameters are actually different across studies, then the probability of a making Type I error can increase beyond the accepted alpha value of 0.05 (Hunter & Schmidt, 2000). Hunter and Schmidt estimated that utilizing a fixed-effect model rather than a random-effects model might increase the alpha rate from 5% to 11–28%. Therefore, when utilizing a fixed-effect model, one should only make conclusions about the sample of studies included in the meta-analysis. With a random-effects model, the researcher recognizes that the samples from studies might come from different populations. The main difference between the two models is derived from sources of error (Fields & Gillett, 2010). For a fixed-effect model, there is only one source of error - sampling error. For each study, the theory is that a representative sample of participants is chosen from one population. Results from this sample can only provide an estimate of the population parameter, and thus error is introduced. In contrast, a random-effects model takes into account that the studies' samples might come from multiple populations by introducing a second sampling error term. Results from the populations represented in the sample of studies only provides an estimate of the 'super-population's' parameter (Hedges, 1992). Thus, it is possible to generalize to other studies or situations that could have been studies because of the statistical techniques involved in random-effects models (Hedges, 2009). Hedges (2009) recommended a random-effects model when the intent of the meta-analysis is to inform public policy or to generalize to situations that have not been explicitly studied. Thus, the meta-analyses presented in this manuscript utilized a random-effects model.

Replication of previous work is a major part of the scientific process; yet, there has been little replication in the area of career interventions (Whiston & James, 2013). Brown and Ryan Krane (2000) asserted that little can be learned from a general meta-analysis that simply examines the effectiveness of career interventions because there is already sufficient research documenting that career interventions are generally effective. They argued that what is needed are meta-analyses similar to theirs, which examine specific factors that contribute to effectiveness or moderators of effectiveness. Brown and Ryan Krane built on the meta-analyses conducted by Ryan (1999), who conducted six specific meta-analyses of the career outcomes of vocational congruence, vocational identity, career maturity, career decision-making self-efficacy, barriers, and career choice goals (e.g., decidedness). Furthermore, she examined the influence of 18 specific interventions (e.g., counselor support) on outcome. She found that with career maturity, there were five ingredients that, particularly when used in combination, were associated with larger effect sizes. Brown and Ryan Krane (2000) labeled these the five critical ingredients of career choice counseling, and they are: workbooks or written exercises, counselor dialogue or individual feedback, world of work information, modeling, and building support for the client's career decision. There is evidence that these five critical ingredients have a significant influence on career intervention delivery and research (e.g., Hirschi & Läge, 2008; Masdonati, Massoudi, & Rossier, 2009); yet, there has been no replication of these findings. This study will replicate Ryan's findings with current research and using a random-effects approach.

Not only is the present study a replication of Brown and Ryan Krane's meta-analysis, but it is also an expansion based on social cognitive career theory (Lent, Brown, & Hackett, 1994). In social cognitive career theory, both self-efficacy and outcome expectations influence the development of career goals. Although Ryan (1999) used the outcome measure of career decision-making self-efficacy, she did not incorporate measures of outcome expectations in her meta-analysis. Therefore, this study incorporates all of the outcome measures utilized by Ryan (i.e., vocational interest congruence, vocational identity, career maturity, career decision-making self-efficacy, perceived environmental supports, perceived career barriers, and career choice goals) in addition to outcome expectations. One of the outcome categories, career choice goals, may be unfamiliar to some readers. Career choice goals is essentially a measure of career decidedness, difficulties with career decisions, and commitment to a career choice. It will be labeled here as career decidedness, which may be a more apt descriptor of the category.

This meta-analysis also expands on Brown and Ryan Krane's work by including unpublished studies. According to Rothstein and Hopewell (2009), the aim of a high quality meta-analysis is to include both published and unpublished studies relevant to the questions posed in the synthesis. One of the criticisms of meta-analyses that only include published studies is that effect sizes may be inflated because of the tendency for editors to only publish studies with significant findings and the resulting tendency for researchers to only submit studies with significant findings (Rosenthal, 1991). This is sometimes referred to as the file drawer problem where there are nonsignificant studies placed at the bottom of a file drawer where they gather dust instead of being published and later included in a meta-analysis. Therefore, by including nonpublished studies, the meta-analytic researcher is more likely to produce effect sizes that are more conservative and, in many ways, more accurate. In this meta-analysis, we made a concerted effort to include nonpublished studies of career choice interventions.

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