

Project 1-4: Meta-analysis of effects of psychological variables in sport and/or exercise (4 projects)

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Research Purpose: To objectively summarise the body of research evidence pertaining to effects of psychological variables in sport and/or exercise using meta-analysis techniques.

Research Description: Meta-analysis was originally defined by Glass (1976, p.3) as “the statistical analysis of a large collection of results from individual studies for the purpose of integrating the findings.” Traditional reviews of the literature typically use a qualitative approach to summarise research whereby the results of previous studies are integrated into a narrative to support or refute a point of view via the accumulation of significant findings. Meta-analysts argue that such narrative summaries often fail to accurately capture the accumulated knowledge and are inherently tainted by the pre-existing position of the person writing the narrative. By contrast, meta-analysis provides for the quantification of trends in a literature by transforming the findings of each piece of research into a common metric, known as an *effect size*.

Calculation of effect sizes for each study carries at least four benefits. Firstly, it allows for objective assessment based on statistical analysis of the effectiveness of an experimental condition (such as use of music in exercise classes) compared to a control condition (such as exercise without music) on a study by study basis using a common point of comparison. Secondly, using effect size as a common metric provides a straightforward means of addressing secondary questions of interest, such as whether the effects of music are the same for males and females, for sport and exercise contexts, for psychological and physical measures, and so on. Thirdly, effect sizes can be adjusted to reflect aspects of the research studies in question, such as the number of participants used (whereby, other things being equal, greater weight is given to studies with larger samples) and the consistency of the results (whereby, other things being equal, greater weight is given to studies with smaller variances). Fourthly, once an overall effect size is established for the literature as whole and after making the appropriate adjustments, it is easy to interpret. Beneficial effects are reflected in positive effect sizes whereas detrimental effects are reflected in negative effect sizes; and the magnitude of the effect can be judged using a simple rule of thumb, whereby an effect size of up to .2 represents a small effect, around .5 represents a moderate effect and .8 or greater represents a large effect (Cohen, 1992).

The four projects on offer will use the process of meta-analysis to objectively summarise the entire literature on the effects of four different psychological variables relevant to sport and/or exercise.

Participants: It is not necessary to recruit any participants because the studies that provide the data for the meta-analyses have already been conducted and are in the public domain. Hence, there is also no need for ethical clearance.

Methodology: The task for the researcher is to identify and locate the studies of interest, and to use the information provided to calculate effect sizes. This process is not always as straightforward as it sounds. Some studies are difficult to

locate and others do not provide the information necessary to calculate an effect size. These are challenges to be overcome by the researcher. The areas that the meta-analyses will be conducted in will be negotiated between supervisor and supervisee.

Data Analysis: Once all the relevant studies have been identified and obtained, calculation of a weighted mean effect size is based on standard procedures.

Student friendliness: These projects are suitable for external or on-campus students. Supervision sessions will be as needed. The student should note that the supervisor is on leave during part of the first semester and regular supervision during this period may not be possible.

Further reading: Beedie, C.J., Terry, P.C., & Lane, A.M. (2000). The Profile of Mood States and athletic performance: Two meta-analyses. *Journal of Applied Sport Psychology, 12*, 49-68.
Hagger, M.S. (2006). Meta-analysis in sport and exercise research: Review, recent developments and recommendations. *European Journal of Sport Science, 6*, 103-115.

Ethics: This acts as a check for the supervisor

- Ethical approval will be sought by supervisor; or
- Ethics approved (Not applicable)

Resources: This acts as a check for the supervisor

- Project able to be funded within \$150 departmental limit
- Project not able to be funded within \$150 departmental limit – additional funds will come from: _____

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Directory: C:\Documents and Settings\User\Local
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