

**Name, Title**

Julia Schröder, Promoting effects of extracurricular offerings at all-day elementary schools. A quasi-experimental study in the field of science.

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### **Abstract**

The aim of this dissertation was not only to investigate the effect of extracurricular science programs on elementary school students with respect to their motivational-affective competencies, but also to examine in particular the extent to which science programs that are integrated with physical education have a beneficial effect. The 2000 PISA study, in which German students performed only moderately in comparison, prompted one of the most elaborate educational reforms in Germany to date: the expansion of all-day schools. Among other things, this was supposed to lead to a change in the culture of teaching and learning that would promote the motivational-affective competencies of students. However, even after more than twenty years of intensive school development efforts, all-day elementary schools do not seem to fulfill these expectations. The reason could be the lack of implementation of scientific quality criteria, such as interlocking. For the empirical investigation of the implementation of a quality criterion, a subject-specific, extracurricular science offering in the field of ESD was conducted at six open all-day elementary school over a six-month period as part of the GanzNaWi intervention study. The topic of ESD is considered highly relevant sociopolitically and offers potential for extracurricular offerings due to its cross-perspective interconnectedness, but is not without controversy for younger children due to its complexity. At half of the schools, the quality criterion of dovetailing was implemented by linking the extracurricular offering with the curricular subject lessons through various elements. At the remaining schools, the offer took place in an unlinked, additive variant. Using a questionnaire on motivational-affective attitudes before and after the implementation of these variants of the offer, the third- and fourth-year students participating in the offer as well as some non-participating students were interviewed (N=236). The focus of the present work was on the evaluation of the motivational-affective characteristics intrinsic motivation, interest regarding ESD, physical education and science,

self-efficacy regarding ESD and physical education self-concept. The mean values of the trait expressions were analyzed when comparing the treatment group (n=86) to the control group (n=150) using a t-test for independent samples. This revealed that in some sub-areas positive effects occurred for students who had participated in the science offering. Participation in a science program can therefore be beneficial and the topic of ESD can be communicated in a way that is effective for learning even in elementary school. In order to test the effect of interlocking, the treatment group was separated into the interlocked (n=43) and additive (n=43) treatment groups during the evaluation, and an analysis of variance was used to analyze the mean differences of the three groups. The findings showed predominantly no significant differences when comparing the interlocked to the additive treatment group, so interlocking did not have as high an effect on students in this study as scientifically expected. The treatment groups also took part in a questionnaire on process quality during their visit to the offer. This showed that the students from both treatment groups perceived the quality of the offer predominantly equally well; in some cases, the additive offer was perceived better. Overall, it is thus clear that interlocking in current school practice cannot yet be implemented as effectively as hoped and expected. With a special focus on elementary schools and the relevance of promoting motivational-affective competencies there, the study suggests examining whether and how interlocking should be implemented. According to the findings of this study, for interlocking to be successful, either the internal school structure must be changed or the understanding of interlocking must be revised.