
NEWSLETTER

Impact of STEM Education on Students' Academic Achievement

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A RECENT study published in *Journal of East China Normal University (Educational Sciences)*, analyzing the impact of STEM education on students' academic achievement as an example of how to use meta-analysis to synthesize existing empirical research.

Results show that:

The study provides firm evidence of the effects for STEM education, which proves that STEM education is conducive to students' academic achievements ($d = 0.410$), and factors like educational methods, students' educational stage, location, and sample all have notable affection on the effects.

In terms of the methods, this study explores how to obtain reliable evidence through a literature review to support educational reform, and demonstrates that "meta-analysis" can be more effective, objective, and normative than traditional subjective literature review methods, as a result of "meta-analysis", which enjoys many advantages like sorting out general and regular conclusions from the Literature review.

Regardless of the type of research, the evidence obtained through the scientific analysis and comprehensive induction of the existing research literature conducted by the meta-analysis method is undoubtedly more general and instructive, and more in line with the requirements of "best evidence". Stronger evidence effectiveness, which helps relevant research based on a more solid foundation. To this end, the author makes the following comments and suggestions:

Vigorously strengthen and promote domestic educational experimental research. Only by carrying out strictly designed experimental research can people get general conclusions through meta-analysis and other techniques on the basis of more empirical research.

Advocate for the "evidence" awareness of literature review research. Many current types of education research have problems such as incomplete reviews, inaccurate processes, and unreliable conclusions. A subjective literature review focusing mainly on academic inquiry and opinion expression, it

is difficult to provide direct, effective, and robust “best evidence” for practical work. From this perspective, the meta-analysis method may provide an effective path for enriching the educational literature review and research, and better serving educational practice exploration.

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