Original Article

Meta-analysis of the Effectiveness of Teaching Models and Methods in Academic Performance

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Introduction

Academic performance refers to the measurement of the learning level achieved by students and is considered a key indicator of the effectiveness of educational institutions. Academic performance is a complex phenomenon influenced by the interaction of various factors. Teaching methods is one of these factors. A teaching method refers to a systematic approach or strategy educators employ to impart knowledge and facilitate learning among students. Over the past years, many researchers have examined the effect of teaching models and methods on academic performance, which yielded different results. This study aimed to analyze and combine the results of the performed studies in this field to reach a general conclusion, resolve the existing contradictions, and discover possible moderators.

Method

The present study was conducted by meta-analysis method. The statistical population was all research published in a scientifically valid journal in the country that was available in computer databases (Irandoc, SID, Magiran, Noormags) and was available in related studies between 2011-2022. Using the purposive sampling method and extensive search based on the specified keywords (Teaching methods, Teaching models, Academic performance, Academic progress) and applying entry and exit criteria, 622 studies were selected as a sample and entered the meta-analysis process. The extracted data were analyzed with CMA software.

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Results

From selected studies as a sample, in total, 758 effect sizes were extracted 41 extreme effect sizes were eliminated in sensitivity analysis and the next analyses were performed on 717 effect sizes. The value of the "fail-safe N" statistic was obtained at 2667, which indicated that after entering this number of non-significant studies, the combined effect size will be non-significant. The amount of combined effect size was calculated at 0.918 in the fixed model and 1.227 in the random model. Both models were statistically significant ($p<0.001$). As the effect sizes were heterogeneous, Sub-components of teaching models and methods were examined as the moderator variables. The results indicated that the effect size of teaching methods on academic performance in the information processing model is greater than other models. Also, the results indicated that in the teaching methods of information processing model, the effect size of the project-based learning method on academic performance is greater than other teaching methods.

Discussion

The results of the study showed that teaching models and methods had a significant effect on academic performance. Because of the different ways of learning and comprehending learners, it is suggested that teachers use various teaching models and methods.

Keywords: Academic Performance, Meta Analysis, Teaching Model, Effect Size.