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The Effects of Educational Drama on Students' Creativity and Critical Thinking: A Systematic Review and Meta-Analysis

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ADMINISTRATIVE INFORMATION

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Conflicts of interest - The authors declare that they have no competing interests or conflicts of interest related to this systematic review and meta-analysis. No financial, institutional, or personal relationships have influenced the design, conduct, or reporting of this study.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 April 2026 and was last updated on 11 April 2026.

INTRODUCTION

R **Review question / Objective** Population (P): Students in formal educational settings (e.g., primary, secondary, and higher education).

Intervention (I): Drama-based educational interventions, including educational drama, creative drama, and process drama.

Comparison (C): Traditional teaching methods, non-drama-based instruction, or no intervention.

Outcomes (O): Students' key competencies, including creativity, critical thinking, communication, and collaboration.

Study design (S): Randomized controlled trials (RCTs) and controlled clinical trials (CCTs).

This review aims to systematically evaluate the effects of drama-based educational interventions on students' key competencies and to explore potential moderating factors such as participant

characteristics and intervention duration through meta-analysis.

Condition being studied This review focuses on students' key competencies in educational settings, particularly creativity, critical thinking, communication, and collaboration. These competencies are widely recognized as essential skills for 21st-century learning and are critical for students' academic success and future development. However, traditional instructional approaches may not effectively foster these higher-order skills.

Drama-based education, as an experiential and interactive pedagogical approach, has been increasingly used to promote student engagement and competence development. This study examines the effectiveness of drama-based educational interventions in enhancing students'

key competencies across different educational stages.

METHODS

Participant or population The participants included in this review are students in formal educational settings, including primary, secondary, and higher education. There are no restrictions on age, gender, or cultural background. Participants are typically enrolled in school-based learning environments where drama-based educational interventions are implemented as part of the curriculum or extracurricular activities.

Intervention The intervention of interest is drama-based education, including various forms such as educational drama, creative drama, and process drama. These interventions involve experiential, participatory, and student-centered learning activities, such as role-playing, improvisation, storytelling, and performance. The interventions are typically implemented in formal educational settings, either as part of the curriculum or as extracurricular activities, with the aim of enhancing students' key competencies.

Comparator The comparator includes traditional teaching methods, non-drama-based instructional approaches, or no intervention. In some studies, the control group may receive standard curriculum instruction without the use of drama-based activities.

Study designs to be included This review will include randomized controlled trials (RCTs) and controlled clinical trials (CCTs) that examine the effects of drama-based educational interventions on students' key competencies. Only empirical studies with a comparison group will be considered.

Eligibility criteria Studies will be included if they are published in peer-reviewed journals, written in English, and provide sufficient statistical data to calculate effect sizes (e.g., means, standard deviations, or other relevant statistics). Studies will be excluded if they are reviews, meta-analyses, conference abstracts, dissertations, or lack a control group. In addition, studies with insufficient data for effect size calculation or duplicate publications will be excluded.

Information sources A comprehensive literature search will be conducted using multiple electronic databases, including PubMed, Web of Science, Scopus, Google Scholar, and ProQuest Central.

In addition, the reference lists of relevant studies and review articles will be manually screened to identify any additional eligible studies. Where necessary, corresponding authors may be contacted to obtain missing or unclear data. Grey literature will also be considered where appropriate.

Main outcome(s) The main outcomes of this review are students' key competencies, including creativity, critical thinking, communication, and collaboration. These outcomes are measured using validated assessment tools reported in the included studies.

Effect sizes will be calculated using standardized mean differences (SMDs) with 95% confidence intervals (CIs) under a random-effects model. Where applicable, outcomes will be assessed immediately after the intervention or at the closest reported follow-up time point.

Quality assessment / Risk of bias analysis The methodological quality and risk of bias of the included studies will be assessed using the Cochrane Risk of Bias tool. The following domains will be evaluated: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other sources of bias.

Each domain will be rated as low risk, high risk, or unclear risk of bias. Two independent reviewers will conduct the assessment, and any disagreements will be resolved through discussion or consultation with a third reviewer.

Strategy of data synthesis Data will be synthesized using meta-analysis where appropriate. Effect sizes will be calculated as standardized mean differences (SMDs) with 95% confidence intervals (CIs). A random-effects model will be applied to account for potential heterogeneity across studies.

Statistical heterogeneity will be assessed using the I^2 statistic and the Q test. Subgroup analyses will be conducted to examine potential moderating effects, such as participant characteristics, intervention duration, and study design. Sensitivity analyses will be performed to test the robustness of the results. Publication bias will be evaluated using funnel plots and statistical tests where applicable. All analyses will be conducted using appropriate statistical software.

Subgroup analysis Subgroup analyses will be conducted to explore potential sources of heterogeneity and to examine whether the effects of drama-based education vary across different

conditions. The analyses will be performed based on participant characteristics (e.g., educational level), intervention duration, and study design. Where sufficient data are available, additional subgroup analyses may be conducted.

Sensitivity analysis Sensitivity analyses will be conducted by removing individual studies one at a time to assess the stability and robustness of the overall results.

Country(ies) involved China and South Korea.

Keywords educational drama ; creativity ; critical thinking ; systematic review ; meta-analysis.

Contributions of each author

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