INPLASY

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Digital learning in orthopedic instruction: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - No.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202410042

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 11 January 2024 and was last updated on 11 January 2024.

INTRODUCTION

*R*eview question / Objective What is the overall effect of digital learning versus traditional learning in the field of orthopedics?

Condition being studied Digital learning in orthopedic instruction.

METHODS

Participant or population Medical students, residents, and healthcare professionals.

Intervention Digital ways of learning and teaching of orthopedics (for examples, computer-assisted learning, e-learning, virtual reality, augmented reality, and mixed reality.

Comparator Traditional way of learning and teaching of orthopedics.

Study designs to be included Randomized trials.

Eligibility criteria The inclusion criteria of the eligible studies are the following: (1) The study was published during the period of 2000-2023. (2) The study was a quasi-experimental or experimental design. (3) The study had a control group and an experimental group (i.e., traditional method vs. digital method of instruction in orthopedics).

Information sources Sources: (1) Medicaltype databases PubMed, Embase, and Cochrane, (2) Education-type of databases: EBSCOhost, the Learning and Technology Library (EdITLib), ScienceDirect (SDOL – Elsevier), SpringerLink Journals [SpringerLink], Sage Journals, Taylor & Francis Online, Wiley Online Library, (3) Others: the

websites of Australasian Journal of Educational Technology (AJET) and Educational Technology & Education (ET&S).

Main outcome(s) Test scores and clinical performance.

Additional outcome(s) Performance of the learners.

Quality assessment / Risk of bias analysis MERSQI score.

Strategy of data synthesis Standardized mean difference will be used to compare the difference between two means. Cochrane's Q statistics and I^2 are to be adopted to determine heterogeneity across studies, leading to the selection of fixed effects or random-effects models.

Subgroup analysis Subgroup analysis will be conducted according to different kinds of study outcomes.

Sensitivity analysis Leaveone-out analysis will be performed as the sensitivity analysis to assess the effect of the choice of study weighting.

Language restriction English.

Country(ies) involved Taiwan and USA.

Keywords Digital learning; Orthopedic instruction.

Contributions of each author
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