Landscapes of creativity

Citation

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Review question

1- What interventions exist to foster creativity in children?

2- What elements are involved in creativity stimulation?

Searches

Hand-search was performed by consulting the citations to identify candidate articles of interest for the present systematic review. The most recent systematic review on creativity programs is from 2004.

A more complete search was performed using the following electronic databases: ISI Web of Science , Scopus, PubMed and EBSCO. Using EBSCO, we searched the following databases: PsycARTICLES, ERIC (Education Resources Information Center), Psychology and Behavioral Sciences Collection, PsycINFO, and MEDLINE. Google Scholar search portal was additionally used to identify publications not indexed in the above-mentioned databases. Other Publishers, such as the Institute of Electrical and Electronics Engineers (IEEE) and the Association for Computing Machinery (ACM) were consulted. Additionally, we searched for articles that focused on the topic of this systematic review in the following selected journals: Psychology of Aesthetics, Creativity, and the Arts, Journal of Creative Behavior, Thinking Skills and Creativity, Creativity Research Journal, and Creativity Studies. The same procedure was conducted for selected conferences of interest, including the International Conference on Computational Creativity, Creativity & Cognition Conference, and International Conference on Design Creativity. The last step was to perform hand-search on the references of these articles and select additional articles not identified in previous searches. For all the selected articles, duplicated were then removed.

We contacted prominent authors and experts in the field of creativity to avoid the file-drawer problem, which is considered the tendency of researchers to not submit articles with null results, or for journals to only publish studies with statistically significant results. 35 authors and experts from institutions in Europe and North America were contacted via email and asked whether they were aware of unpublished or ongoing studies, with 12 scholars returning responses; however, no author was able to share their research.

Additional search strategy information can be found in the attached PDF document (link provided below).

Search strategy

https://www.crd.york.ac.uk/PROSPEROFILES/52101_STRATEGY_20190526.pdf

Types of study to be included

We included peer-reviewed articles written in English and Portuguese, that addressed our research question: "what type of creativity interventions were developed to foster creativity in children?".

Grey literature (e.g., opinion pieces), book chapters, dissertations, abstracts, and technical reports were excluded.

Condition or domain being studied [1 change]

Creativity plays a central role in children's education and development and well-being, being considered a crucial skill to thrive in personal and professional life. Given its importance, researchers and educators have been highlighting the need to enhance creativity in individuals across the life-span. However, a decline in creative skills around elementary school age is documented. Therefore, there is a need to understand how particular programs and interventions can promote creativity at this early age. The goal of this systematic review was two-fold: firstly, collect, summarize available evidence on interventions and training programs research that have been proposed to foster and nurture creativity in children of elementary school age (5-13 years old) by systematically reviewing publications from 1950-2020, spanning 70 years of research; secondly, contribute to concept clarification in creativity research, which remain sparse and under different definitions, by proposing a coding scheme that includes the key-terms of creativity. This review resulted in a Taxonomy of Creativity Elements to ground further studies and programs on creativity.

Participants/population [1 change]

Inclusion: children until from 5-13 years old.

Exclusion: youth, adults, and elderly people, children with special needs.

Intervention(s), exposure(s)

This systematic review will include experimental and quasi-experimental studies that performed interventions training programs for creativity training dedicated to children. Only articles whose focus is on training programs for creativity with children will be included. Thus, studies that examined how creativity impacts other factors (e.g., learning) will not be considered.

Comparator(s)/control

Not applicable.

Context [1 change]

We used PICOS framework to ground literature searches by identifying the inclusion and exclusion criteria.

- Population:

Inclusion criterion: children between 5-13 years old without developmental disorders, including gifted and normal children.

Exclusion criterion: studies with restricted populations, such as children with physical (e.g., motor disabilities), mental disorders (e.g., autism spectrum disorder), or only including gifted children; and children with different age-ranges (unless the mean age is within the scope of our age criteria).

- Intervention:

Inclusion criterion: literature reporting on the effects of creativity interventions in other variables (e.g., academic achievement) were only considered if reporting effects on creativity levels.

Exclusion criterion: studies that only investigated effects of other interventions (e.g., arts and crafts activities) on creativity, or investigating the relation or effects of creativity and other outcomes (e.g., reward, instruction, affect/emotion); studies using creativity interventions to study their effects on a different variables (e.g., intelligence, motivation, self-esteem).

- Comparison:

Inclusion criterion: no intervention, different treatment, control group, pretest and post-test measures.

- Outcomes:

Inclusion criterion: quantitative (statistical) results reporting the effect of creativity interventions on creativity levels. Results can include both quantitative and qualitative results if qualitative findings are meant to deepen the understanding of the quantitative results.

Exclusion criterion: exclusively qualitative and/or theoretical approach.

- Study design:

Inclusion criterion: experimental studies presenting the methodological design, including sample size, measures and the statistical analyses. Detailed Interventions to enable replication, that is, must describe the techniques used to foster creativity and validated instruments to assess creativity outcomes.

Exclusion criterion: literature lacking the description of the intervention or information about the study design.

Main outcome(s)

- To provide a systematic review of interventions for creativity dedicated to children in terms of: (1) their effectiveness; and (2) elements used by the program to train the creativity in children.

- To present a taxonomy of creativity elements.

Measures of effect

Not applicable.

Additional outcome(s)

None.

Measures of effect

Not applicable.

Data extraction (selection and coding)

We will follow the PRISMA-P (Preferred Reporting Items for Systematic Reviews) guidelines for systematic reviews.

1. Identification: a researcher will be guided through the inclusion and exclusion criteria established. In this stage, there will be the identification of a wide range of articles through the title and abstract, using the search strategy to inquire different databases, volumes of journals, peer-reviewed conference proceedings, use a snowballing approach; and contact prominent researchers.

2. Screening: the first step will be to remove duplicated articles; afterwards, two researchers will screen the remaining articles' titles and abstracts and compare them against the inclusion/exclusion criteria. If ambiguity occurs (e.g., if a given article does not provide enough information in the title and abstract to enable its inclusion/exclusion from the systematic review), researchers will read the full-text in order to disambiguate and come to a decision.

3. Eligibility: the full-text of the selected articles will be assessed for eligibility. Eligibility will be assessed by contrasting the information presented in the full-text of each article against the research questions of the systematic review. In order to organise the aforementioned information the extraction document for included articles will be refined with the purpose of including relevant information, such as the theoretical framework, study design details, participants' characteristics, measures, intervention (s) details, and outcomes. During this phase, if there are removed articles, they will be associated with a reason, thus indicating the justification for their exclusion from the systematic review.

4. Inclusion: the final phase of this data extraction is to define the studies included in the systematic review. Data and information to be extracted from the articles: authors and publication year; hypothesis; sample; measure(s)instrument (DV); intervention (IV); context (collected/distributed creativity); evaluation (pre/post tests); study type (experimental/quasi-experimental), study design (within/between subjects design); duration (short/long term); results and effects.

Risk of bias (quality) assessment

Two authors will independently assess the studies for risk of bias in the included studies by considering the following characteristics:

(a) Whether the study appeared in a peer-reviewed of non-peer reviewed publication;

(b) The study is index in a database (e.g., ISI or Scopus);

(c) The methodology of the selected literature must be made explicit (e.g., sample size, intervention, instruments, analysis);

(d) Was the instructor the person who conducted the experiment?

(e) Were rewards (e.g., money or other forms of prizes) provided for the creative responses or the participation in the study?

(f) Did the researchers actively praised o delivered other form of recognition to the participants towards their creations?

Discussions and frequent meetings for detailed review of selections will be conducted between the two authors that assess the risk of bias.

Strategy for data synthesis

The research questions will be used to guide the analysis and synthesis.

Analysis of subgroups or subsets

If sufficient data are available, subgroup analysis will be performed for the context of the intervention, e.g., by dividing the studies according to individual or group interventions and analysing the type of measures used and the outcomes.

Contact details for further information

Patrícia Alves-Oliveira

patricia_alves_oliveira@iscte-iul.pt

Organisational affiliation of the review

Instituto Universitário de Lisboa (ISCTE-IUL), CIS-IUL, Lisboa, Portugal

http://www.iscte-iul.pt/

Review team members and their organisational affiliations

Ms Patrícia Alves-Oliveira. Instituto Universitário de Lisboa (ISCTE-IUL), CIS-IUL, INESC-ID, Lisboa, Portugal

Professor Patrícia Arriaga. Instituto Universitário de Lisboa (ISCTE-IUL), CIS-IUL, Lisboa, Portugal

Professor Sara Ibérico Nogueira. Universidade Lusófona de Humanidades e Tecnologias, Escola de Psicologia e Ciências da Vida, Lisboa, Portugal

Professor Guy Hoffman. Sibley School of Mechanical and Aerospace Engineering, Cornell University, Ithaca, NY, USA

Professor Ana Paiva. Instituto Superior Técnico, Universidade de Lisboa, INESC-ID, Lisboa, Portugal

Type and method of review

Systematic review

Anticipated or actual start date

01 October 2016

Anticipated completion date

30 June 2019

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Conflicts of interest

None known

Language

English

Country

Portugal, United States of America

Stage of review

Review Completed not published

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Child; Creativity; Humans

Date of registration in PROSPERO

25 November 2016

Date of first submission

26 May 2019

Stage of review at time of this submission [1 change]

Stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Revision note

Revision of the protocol since the manuscript was accepted to the Journal of Creative Behavior. Changes in the protocol make it consistent with the most updated version of the paper.

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

25 November 2016

14 June 2017

31 July 2019

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