

WHAT IS NOVEL AND USEFUL IN EDUCATIONAL  
BEST PRACTICE?

# Systematic Reviews of Creativity Research

Dr. Ann Robinson  
Keila Moreno Navarrete  
ECHA Thematic Conference  
Dubrovnik, Croatia 10/17/19



JODIE MAHONY CENTER  
FOR GIFTED EDUCATION

# Session Objective

Synthesize lessons learned from systematic reviews focused on creativity performance outcomes, creativity assessment practices, and teacher beliefs about creativity that increase or inhibit the creative performance of students.



# Why Systematic Reviews?



TO BRIDGE THE RESEARCH AND PRACTICE GAP

- Systematic reviews aim to analyze existing data across multiple studies, using explicit, accountable, rigorous research methods (Gough, Oliver, & Thomas, 2017)
- Results and discussion are accessible to a broader audience than academic researchers



# Located Systematic Reviews on Creativity

Bereczki, E.O., & Karpati, A. (2018). **Teachers' beliefs about creativity and its nurture: A systematic review of the recent research literature.** *Educational Research Review*, 23, 25-56.

Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013). **Creative learning environments in education—a systematic literature review.** *Thinking Skills and Creativity*, 8, 80–91.

Kupers, E., Lehman-Wermser, A., McPherson, G., & van Geert. (2019). **Children's creativity: A theoretical framework and systematic review.** *Review of Educational Research*, 89, 93-124.

Leopoldino, K.D.M., González, M. O. A., de Oliveira Ferreira, P., Pereira, J. R., & Souto, M. E. C. (2017). **Creativity techniques: a systematic literature review.** *Product: Management & Development*, 14(2), 95-100.

Mullet, D.R., Willerson, A., Lamb, K.N., & Kettler, T.R. (2016). **Examining teacher perceptions of creativity: A systematic review of the literature.** *Thinking Skills and Creativity*, 21, 9-30.

Said- Metwaly, S., Kyndt, E., & Van den Noortgate, W. (2017). **Approaches to measuring creativity: A systematic literature review.** *Creativity: Theories— Research— Applications*, 4, 239-275.

Sawyer, R.K. (2017). **Teaching creativity in art and design studio classes: A systematic literature review.** *Educational Research Review*, 22, 99-113.

# Research Foci

## CREATIVITY AS A CONSTRUCT

**Definition**  
(Kupers et al.,  
2019)

**Measurement**  
(Said-Metwaly,  
2017)

## K- 12 TEACHER BELIEFS AND PERCEPTIONS

(Bereczki and  
Karpati, 2018)

(Mullet et al.,  
2016)

## FOSTERING CREATIVITY

**Pedagogical  
Environment**  
(Davies et al.,  
2013)

**Art and studio  
design**  
(Sawyer, 2017)

**Techniques**  
(Leopoldino et al.  
2017)

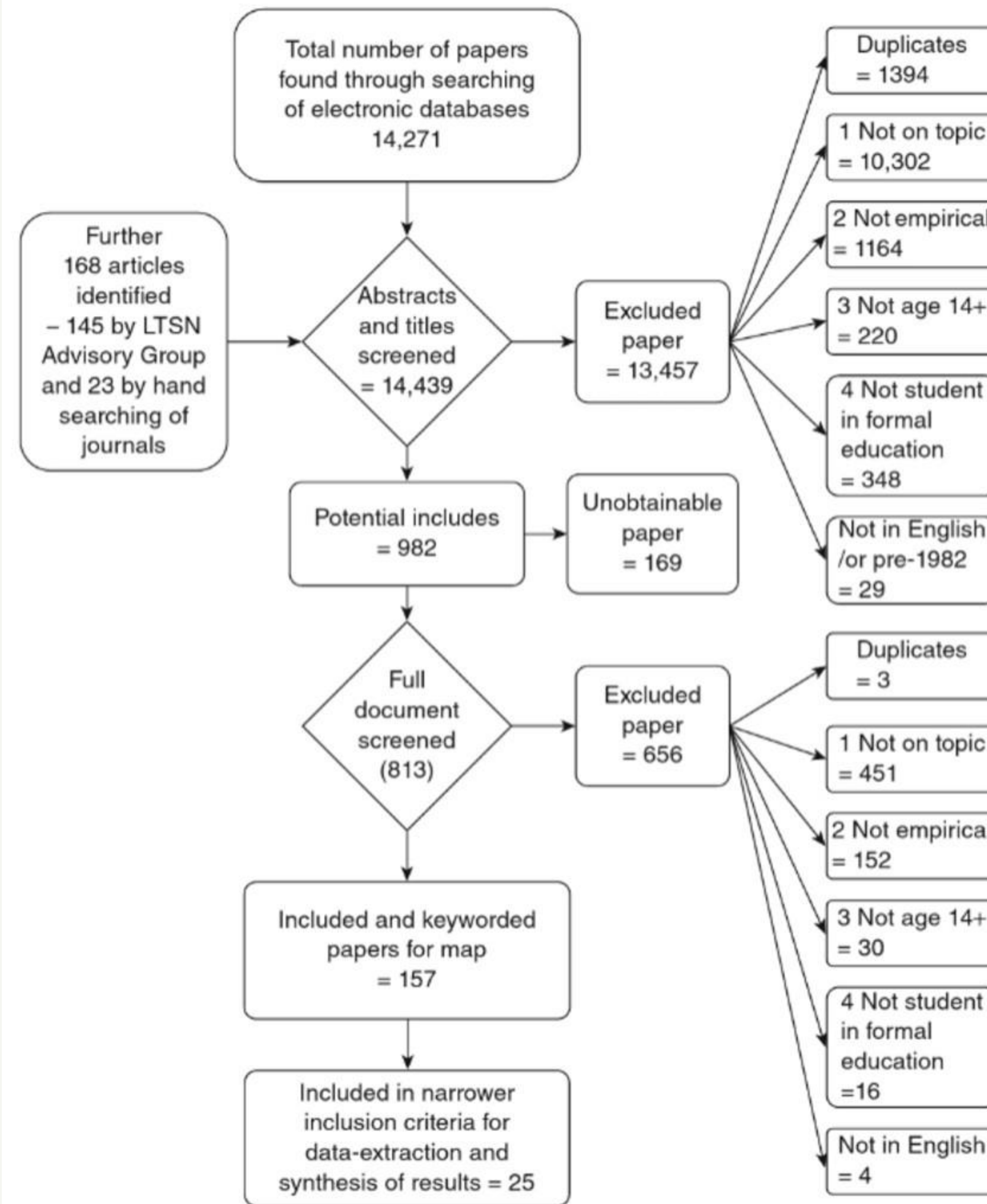


# Summary Chart of Systematic Review

Citation	Topic	n	Screening process	Research aims	
Sawyer, R. K. (2017). <b>Teaching creativity in art and design studio classes: A systematic literature review.</b> <i>Educational Research Review</i> , 22, 99-113.	Pedagogy used in art and design studio classes	65  HE = 45 K-12 = 18 Art = 23 Design = 36 Art & design = 6	Inclusion criteria <ul style="list-style-type: none"><li>Peer reviewed journal article published in English</li><li>Empirical studies relevant to topic (qualitative and quantitative))</li><li>K-12 and higher education</li><li>Any country</li><li>Date range: 1980 - 2016</li></ul>	To contribute to our understanding of teaching and learning for creativity, by analyzing and synthesizing empirical studies of the pedagogy used in art classes and design classes.	
			Search terms		
			In title: pedagogy OR teach OR project OR practice OR learn OR teaching OR learning OR projects		
			"art teaching" and "art studio" and "art education"		
"design teaching" and "design studio" and "design education"					
Outcomes from Sawyer, R. K. (2017)					
<ul style="list-style-type: none"><li>K-12 studies contained more art-focused articles than design, while the opposite occurred in the HE studies</li><li>Pedagogical practice (36 papers)<ul style="list-style-type: none"><li>constructivist, open-ended, learner-centered approach where students are active, reflective, and allowed to take risks and experiment, and teacher acts as a facilitator</li><li>Teaching paradox: providing students with open-ended assignments and an appropriate level of structure</li></ul></li><li>Learning outcomes (21 papers)<ul style="list-style-type: none"><li>The creative process is the primary learning outcome in both art and design education, and yet there was a lack of K-12 studies focusing on this outcome</li><li>Studies also found non-cognitive and personality outcomes, but learning outcomes are not explicit to students</li><li>Teachers may struggle to balance teaching lower-level technical skills vs. higher-level abilities</li></ul></li><li>Assessment (9 papers)<ul style="list-style-type: none"><li>Critique: formative assessments where teacher offers feedback (may feel be stressful, competitive, and unsafe to students)</li><li>Rubrics also mentioned in studies   teachers had mixed feelings about using these</li></ul></li></ul>					

# PRISMA Flow Diagram

(Moher et al. 2009)



# Research Foci

## CREATIVITY AS A CONSTRUCT

**Definition**  
(Kupers et al.,  
2019)

**Measurement**  
(Said-Metwaly,  
2017)

## K- 12 TEACHER BELIEFS AND PERCEPTIONS

(Bereczki and  
Karpati, 2018)

(Mullet et al.,  
2016)

## FOSTERING CREATIVITY

**Pedagogical  
Environment**  
(Davies et al.,  
2013)

**Art and studio  
design**  
(Sawyer, 2017)

**Techniques**  
(Leopoldino et al.  
2017)



# Creativity as a construct

## Theory

- General consensus
- Creativity delineated through the four P's

(Kupers et al., 2019; Said-Metwaly et al., 2017)

## Measurement

- Measure used indicates researcher's definition of construct

(Kupers et al., 2019; Said-Metwaly et al., 2017)

## Limitations

- Heavy reliance on instruments that measure creativity based on a product at single point in time (Kupers et al., 2019)
- Instruments focused on the process perspective raised validity and bias concerns (Said-Metwaly et al., 2017)



# K-12 teacher beliefs and perceptions of creativity



(Bereczki and Karpati, 2018; Mullet et al., 2016)

- n=53 | only 6 articles overlapped in the two reviews

## Results

- Few teachers view creativity as innate
- Many teachers associate creativity with art or intelligence
- Teachers struggle to define creativity, have misconceptions about creativity, and therefore, are uncertain how to measure it or how to identify it in students



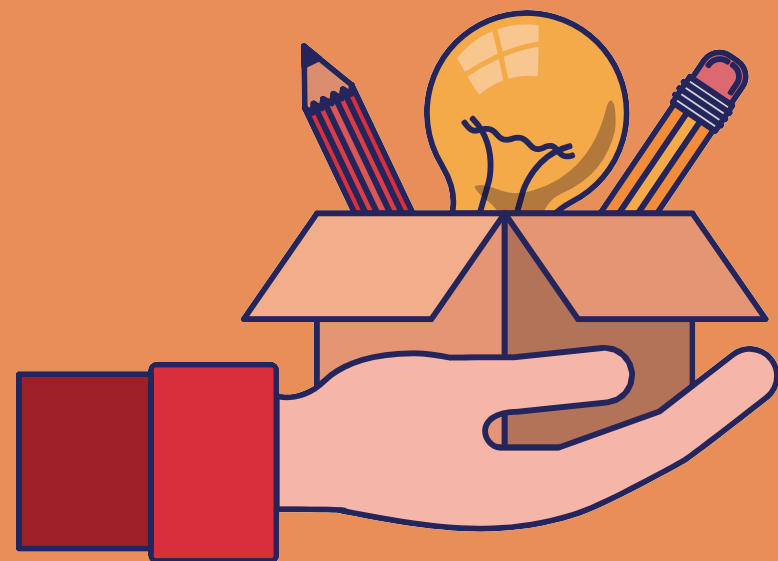
# Fostering creativity

In the learning environment (Davies et al., 2013; Sawyer, 2017)

- No overlapping articles      n = 58      n = 65
- Similar conclusions from both reviews

## Results

- Teaching paradox
- Best practices
- Student-teacher relationships matter



risk taking  
authentic real-world  
projects  
play  
allow mistakes  
student choice  
safe environment  
learner-centered  
flexible and adaptive  
curriculum  
available resources  
technology

# Fostering creativity

## Creativity Techniques (Leopoldino et al., 2017)

**Table 1.** Most cited creativity techniques.

CREATIVITY TECHNIQUES	AUTHOR	NUMBER OF CITATIONS
Storyboarding	Vance (1982)	2
Morphological Analysis	Zwicky (1969)	3
Lateral Thinking	De Bono (1970)	4
TRIZ	Altshuller (1984)	5
Six Thinking Hats	De Bono (1970)	5
Force field analysis	Lewin (1947)	5
Synectics	Gordon (1961)	13
Brainstorming	Osborn (1963)	23
Brainwriting	Rohrbach (1969)	28



# Barriers that hinder creativity

Focus on standardized testing

Lack of teacher training

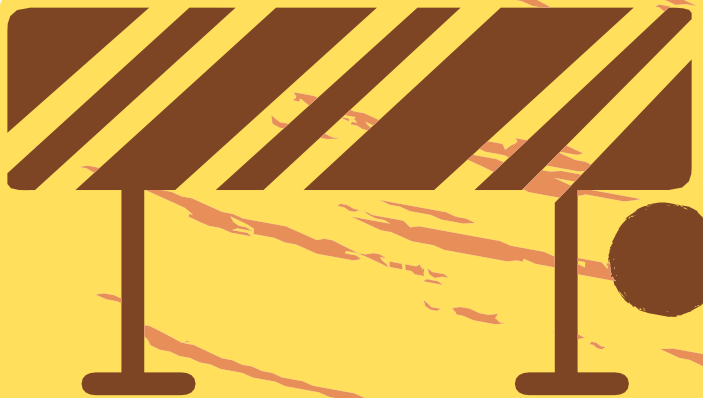
Overloaded curriculum

School environment

(Bereczki and  
Karpati, 2018)

(Davies et al.,  
2013)

(Mullet et al.,  
2016)





# Thank you!



Contact us at:

DR. ANN ROBINSON  
[aerobinson@ualr.edu](mailto:aerobinson@ualr.edu)

KEILA MORENO NAVARRETE  
[kxmorenonav@ualr.edu](mailto:kxmorenonav@ualr.edu)

VISIT US ONLINE  
<https://ualr.edu/gifted/>



# References

- Bereczki, E.O., & Karpati, A. (2018). Teachers' beliefs about creativity and its nurture: A systematic review of the recent research literature. *Educational Research Review*, 23, 25-56.
- Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013). Creative learning environments in education—a systematic literature review. *Thinking Skills and Creativity*, 8, 80–91.
- Gough, D., Oliver, S., & Thomas, J. (Eds.). (2017). *An introduction to systematic reviews*. Sage.
- Kupers, E., Lehman-Wermser, A., McPherson, G., & van Geert. (2019). Children's creativity: A theoretical framework and systematic review. *Review of Educational Research*, 89, 93-124.
- Leopoldino, K. D. M., González, M. O.A., de Oliveira Ferreira, P., Pereira, J. R., & Souto, M. E. C. (2017). Creativity techniques: A systematic literature review. *Product: Management & Development*, 14(2), 95-100.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269.
- Mullet, D.R., Willerson, A., Lamb, K.N., & Kettler, T.R. (2016). Examining teacher perceptions of creativity: A systematic review of the literature. *Thinking Skills and Creativity*, 21, 9-30.
- Said- Metwaly, S., Kyndt, E., & Van den Noortgate, W. (2017). Approaches to measuring creativity: A systematic literature review. *Creativity: Theories—Research—Applications*, 4, 239-275.
- Sawyer, R. K. (2017). Teaching creativity in art and design studio classes: A systematic literature review. *Educational Research Review*, 22, 99-113.