Review of: "Does a ‘Creativity Crisis’ Truly Exist Among Science Learners?"

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The authors seek to investigate whether current curricula contribute to developing the creative potential among science learners in India. It aims to accomplish this in this research study by exploring the change in the creative potential of Indian learners from the teachers' perspective. The researchers invited science teachers from different educational institutes through their institutional emails, and ninety-two participants were selected by purposive sampling. Participants answered a descriptive survey questionnaire in Google form. Section 1 of the survey assessed four traits among science learners - Ideation, Intrinsic motivation, Grit and Self-efficacy. Using a 5-point Likert scale, teacher participants scored how they perceived new science students to be compared to the older students in relation to these four factors. Section 2 was a semi-structured questionnaire consisting of 7 close-ended questions and one open-ended question that, according to the authors, looked into teachers’ perceptions of students’ creative attitudes and behaviour. Data was analyzed using SPSS v.22 software. Based on the results, the authors concluded that “*in the last couple of decades, the generation of science learners in India exhibited moderately high levels of ideational behaviour, intrinsic motivation, and self-efficacy*” and that “*teachers reported that simple teaching-learning methods such as free interaction, collaborative learning, open seminars, projects, problem-solving, and joyful learning were helping nurture the creative potential of science learners in their classrooms by influencing their ideation, motivation, and self-efficacy*.”

One strength of this manuscript is the authors’ intent to look into the status of the creative potential of science learners in India, which is a relevant initiative. I appreciate the links to the data repository and the Change in Students Creative Potential: Trend Analysis Inventory (Version 1.0.20.06.2020), which I tried to answer to simulate the participants’ experience. I also note the authors’ effort to format the references according to APA 7th referencing format.

That said, the research manuscript itself needs much formative and substantive improvement for the following reasons:

1. It is best if the title reflects the focus and design of the research. One possibility is to frame the research focus as an investigation into teachers’ perceptions of changes in the creative potential of science students (this is just an example of a possible approach).
2. A clear articulation of (1) the research question/s that the research seeks to answer and (2) the research gap it is trying to address are both missing. While the manuscript states the objectives, clearly articulating the research questions is essential (1) to make it clear to the reader what questions the study is seeking to answer and (2) to ensure the appropriateness of the design and methodology of the study. The absence of clear research questions opens the research to many questions. Good research questions are also informed by a thorough literature review,

which will address other questions raised in the following numbers that require evidence-based substantiation.

3. The study's design assesses teachers' perceptions of student creative potential by comparing perceptions of a newer generation of students versus the old generation of students. However, the basis for the parameters used to assess "creative potential" in students is unclear. The authors must also be cautioned about inferring more than necessary from the results. These are teachers' perceptions, which may have inherent biases and which cannot be extrapolated beyond what they are – participants' perceptions and perspectives.
4. It is best to clearly explain the basis for the variables and parameters used in the study and questionnaire. For example, I wonder why Section 1 of the questionnaire assessed traits of Ideation, Intrinsic Motivation, Self-efficacy, and Grit for science learners when the study focuses on creative potential. How are they related to Creativity? In fact, in the section on "Values" on page 4, the authors themselves stated that "*it has been found that grit does not predict creative behaviour (Grohman et al., 2017).*]". It raises the question: why include Grit at all?
5. I also wonder why there are questions in Section 2 that do not align with creative potential and why these questions were included. For example, Q1 is on *being competitive*, Q2 is on *collaboration*, and Q3 is on *whether friendship is ruled by need or intimacy*. The relation of these factors to *creativity,* which is the focus of the research, needs to be clarified. The manuscript will benefit from a clear explanation and evidence-based justification of the purpose of these survey questions. This is very important since the research results and analysis stem from data generated by answers to these questions.
6. Given the observations in #4 and #5, I am now curious whether the survey questionnaire is validated or standardized. This directly impacts the study's internal validity, design and methodology, and the manuscript benefits from a clear explanation.
7. The unanswered questions related to the study's internal validity need to be addressed for us to adequately assess the domains of external validity (generalizability, applicability, predictability).

Overall, the research study can potentially add to the literature on creativity. However, to realize this potential, there is much work to be done first in (1) reflecting on the questions posed by reviewers regarding the research focus, design and methodology, (2) addressing these questions, and (3) revising the research manuscript. I look forward to seeing how this research paper will pan out. Thank you for the opportunity to review this research manuscript.