



Paper: “Conceptual Formation of Curvature in the Logic of Art: An Educational Mathematical Approach”

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Peer review:

Reviewer 1: Mahammad A. Nurmammadov

Shamakhi Astrophysical Observatory of the Ministry Science and Education of Republic
Azerbaijan

Reviewer 2: Blinded

Reviewer 3: Napoleon Bellua Sam

University for Development Studies (UDS), Ghana

Reviewer A:

Recommendation: See Comments

The TITLE is clear and it is adequate to the content of the article.

The title “Conceptual Formation of Curvature in the Logic of Art: An Educational Mathematical Approach” reflects the interdisciplinary nature of the article. It signals both the conceptual and educational focus, which aligns well with the content. A minor critique : The phrase “Logic of Art” is somewhat abstract and could benefit from clarification—perhaps a more direct phrasing like “Mathematical Curvature in Artistic and Educational Contexts” might be clearer to non-specialist readers.

The ABSTRACT clearly presents objects, methods, and results.

The abstract does a good job outlining the general aim—bridging mathematical curvature and artistic expression—and hints at the methods (examining visual examples and curves). It also emphasizes educational value but it does not explicitly present a “methodology”—instead, it blends purpose and results without distinguishing between them.

There are a few grammatical errors and spelling mistakes in this article.

There are very few grammatical mistakes, and most are minor

The study METHODS are explained clearly.

The article is not based on empirical methods (no experiments or surveys), but rather a conceptual-exploratory and didactic methodology, relying on illustrative examples and narrative explanations

The body of the paper is clear and does not contain errors.

The body flows well, connects concepts logically, and balances math and art nicely.

Explanations of curves (parabolic, sinusoidal, exponential, fractal) are clear and accessible but some mathematical expressions lack full symbolic clarity, especially for beginners . Also a few transitions between art and math could be smoother.

The CONCLUSION or summary is accurate and supported by the content.

The conclusion summarizes the paper well and suggests future research directions (e.g., more advanced math, machine learning). It is coherent with the body of the paper.

The list of REFERENCES is comprehensive and appropriate.

The references are diverse and relevant, covering art theory, mathematics, STEAM education, cognitive science, and even fractals. Key authors like Arnheim, Kandinsky, Gombrich, and Kreyszig are included.

Please rate the TITLE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the ABSTRACT of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the LANGUAGE of this paper.

[Poor] **1-5** [Excellent]
4

Please rate the METHODS of this paper.

[Poor] **1-5** [Excellent]
2

Please rate the BODY of this paper.

[Poor] **1-5** [Excellent]
4

Please rate the CONCLUSION of this paper.

[Poor] **1-5** [Excellent]
4

Please rate the REFERENCES of this paper.

[Poor] **1-5** [Excellent]
5

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

Thank you for your submission. Your manuscript offers an engaging and original perspective on the conceptual role of curvature at the intersection of mathematics, art, and education. The interdisciplinary approach, supported by references to well-known artistic works and fundamental mathematical curves, is both accessible and thought-provoking—particularly in the context of promoting STEAM-based learning.

The article is clearly written and well-organized, and its reflective tone may resonate with educators and readers interested in bridging traditionally distinct domains. That said, I encourage you to consider a few minor revisions that could enhance the clarity and impact of your work:

1. Clarify the Methodological Positioning

The article is presented as an exploratory and reflective piece. Briefly stating this explicitly would help readers understand the scope and intentions of your work.

2. Strengthen the Educational Implications

Since the manuscript emphasizes educational relevance, consider offering a more concrete example or suggestion of how this perspective might be used in a classroom or teaching context.

3. Deepen Critical Reflection

Acknowledging potential limitations—such as the interpretive nature of linking mathematical curves to artistic meaning—would add further depth and scholarly balance.

Overall, your work is a valuable contribution to interdisciplinary dialogue and could be especially inspiring to educators seeking integrative approaches. I look forward to seeing the revised version and the continuing development of your ideas

Reviewer B:

Recommendation: Revisions Required

The TITLE is clear and it is adequate to the content of the article.

The title is clear and adequate

The ABSTRACT clearly presents objects, methods, and results.

The abstract effectively introduces the interdisciplinary nature and educational importance of exploring curvature in art and mathematics. However, there are

→ Lack of Specificity: The abstract could specify the types of artworks or contexts analyzed to make the scope more tangible.

→ Limited Results or Conclusions: Does not preview key findings or the implications of the study, which could enhance reader engagement and understanding of its significance.

→ Technical Jargon: Phrases like "foundational mathematical concepts" and "interpretive applications" are somewhat broad; including more precise language might clarify the innovative aspects.

→ Absence of Methodology Details: While it mentions examining specific curves, it doesn't indicate whether the paper employs case studies, theoretical analysis, or empirical research, leaving the methodology somewhat vague.

There are a few grammatical errors and spelling mistakes in this article.

It looks good but can still be improved

The study METHODS are explained clearly.

Good but can still be worked on

The body of the paper is clear and does not contain errors.

It is clear

The CONCLUSION or summary is accurate and supported by the content.

No much problem

The list of REFERENCES is comprehensive and appropriate.

The author can be consistent

Please rate the TITLE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the ABSTRACT of this paper.

[Poor] 1-5 [Excellent]

3

Please rate the LANGUAGE of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the METHODS of this paper.

[Poor] 1-5 [Excellent]

Please rate the BODY of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the CONCLUSION of this paper.

[Poor] 1-5 [Excellent]

4

Please rate the REFERENCES of this paper.

[Poor] 1-5 [Excellent]

4

Overall Recommendation!!!

Accepted, minor revision needed

Comments and Suggestions to the Author(s):

Abstract

The abstract effectively introduces the interdisciplinary nature and educational importance of exploring curvature in art and mathematics. However, there are

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Introduction:

Look at these suggestions for possible improvements

→ Could benefit from more concrete examples of how curvature manifests in specific artworks or architectural designs for immediate engagement.

→ Lacks detailed discussion of existing gaps in literature that this study aims to address.

Conceptual Formation of Curvature:

Even though, it provides a compelling argument for viewing curvature as a unifying principle, extending beyond pure mathematics to interpretive art, there is limited discussion of cultural or historical contexts influencing the use of curvature in art.

Mathematical and Artistic Applications:

→ Some sections are dense and technical; more simplified summaries or visual aids could improve accessibility.

→ The examples, while diverse, may lack detailed analysis of how these mathematical forms influence viewer perception or emotional response. What must be done.

Pedagogical and Cross-Disciplinary Benefits:

This study promotes the integration of art and STEM in classroom settings, advocating for visual literacy and interdisciplinary thinking, highlights the potential for using mathematical concepts to deepen artistic understanding and vice versa and encourages innovative pedagogical approaches that validate diverse cognitive styles. I believe it

→ could still include more practical teaching strategies or curriculum examples to guide educators in implementation.

→ Some claims about increased engagement and understanding are theoretical; empirical evidence or case studies would strengthen the argument.

Educational and Artistic Implications:

→ The discussion emphasizes the aesthetic, emotional, and symbolic aspects of curvature, showing its multifaceted role in art.

→ Links mathematical formalism to emotional and cultural expression, broadening the scope of analysis.

However,

→ The discussion is somewhat broad; more focused case studies or specific artwork analyses would add depth.

→ Limited acknowledgment of potential challenges in interdisciplinary teaching or comprehension.
