

Exploring the Math and Art Connection: Teaching and Learning Between the Lines, by Daniel Jarvis and Irene Naested

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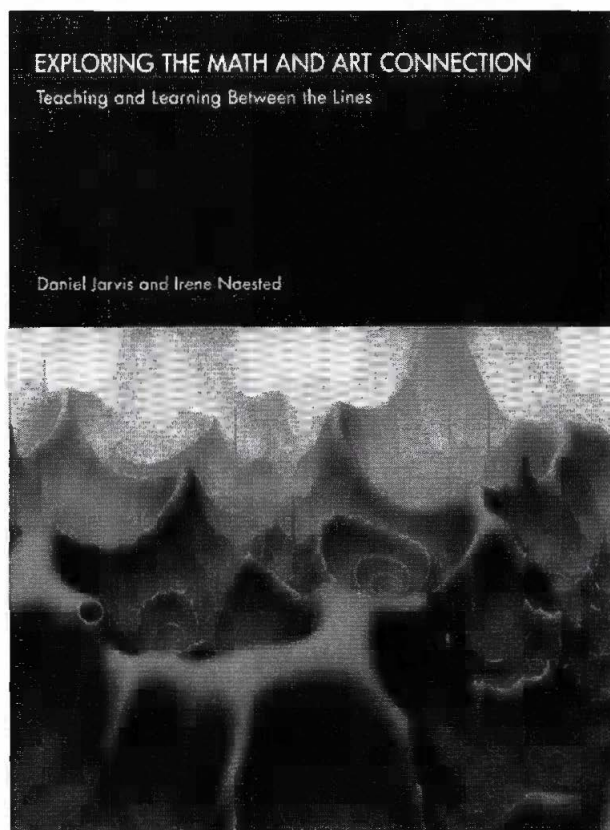
Reviewed by Roberta La Haye

Exploring the Math and Art Connection: Teaching and Learning Between the Lines is a recent publication by Daniel Jarvis (Nipissing University) and Irene Naested (Mount Royal University), two education professors with expertise in teaching art and mathematics. The book is intended as a teaching resource for educators, especially at the elementary level. It is built on the principles that both mathematics and visual arts provide valuable tools with which to understand the world around us and that connecting the two disciplines can enhance students' appreciation and understanding of both.

I had the pleasure of teaching a new course for future elementary educators with Dr Naested. The course dealt with the integration of mathematics and the visual arts for pedagogical reasons. This book was both a valuable resource for the course and an eye-opener for me. As a professor of mathematics with an interest in visual art and experience with math-art outreach activities, I thought I had a decent understanding of the math-art connection. I was wrong! Many learning experiences that I thought of as math-art are actually math activities with crafts added on to make mathematics more appealing. These "math crafts" give no consideration to artistic principles or the true value of integrated learning to both math and art.

Chapter 1 outlines the history of the math-art connection and discusses a breadth of educational theories and strategies that support connecting the two disciplines. The intention is to show readers the value to students of exploiting these connections in the classroom.

Chapter 2 highlights the major elements of both the mathematics curriculum and the art curriculum



and finishes up with a discussion about planning integrated activities. A single chapter can't make a math teacher an art expert, or an art teacher a math expert. Instead, the chapter emphasizes that both disciplines have substantial and meaningful curricula and that there are links between them.

Chapters 3-7 get down to the nuts and bolts of exploiting connections between the two subjects

through teaching and learning experiences. The authors chose not to organize the chapters using the math or art curricula. Instead, they have organized the topics according to the world around us. There are chapters related to flora, fauna, the human figure, architecture and designed objects. The authors also bring in connections to other disciplines, including science and sociology.

The following are examples of the learning experiences outlined:

- Linking grid drawings and distorted grid drawings to measurement and area
- Measuring angles and using symmetry to construct kaleidoscope patterns
- Making data collection a part of the artistic process of realistically capturing the human figure
- Problem solving with ratios to get a “life-sized” depiction of a sasquatch

Imagine discussing math and art topics not because you hit that section in the textbook but because you and your students were looking at the world around you and saw them there!

Finally, in Chapter 8 the authors further discuss the why of curriculum integration and get into a few specifics about how it can be achieved. They warn that to do a good job of integrating mathematics and art curricula in planning learning experiences, the teacher must have a good understanding of both subjects and must carefully plan the lessons. The references and resources at the back of the book are also an asset.

Overall, the book puts a little more emphasis on art—probably because the authors have more combined experience in that discipline than in mathematics. From the mathematics viewpoint, it is interesting to see experts in another discipline also lamenting how little respect their discipline gets and how its goals are being watered down.

There are some really nice ideas in these chapters but, for the sake of breadth and to appeal to a wider audience, the book just outlines the learning experiences. The onus is on the reader to flesh out these ideas and customize them to their individual goals in the curriculum. This is not necessarily an easy task, but it has the potential to be a rewarding one. I’d recommend this book to any educators who are both open to the idea of truly integrated math and art activities and willing to put in the time and effort to expand their expertise and apply the ideas. It will not be your only resource, but it is a great start.

Roberta La Haye is an associate professor of mathematics at Mount Royal University, where she teaches courses in calculus, algebra and statistics and has helped develop and run a course in general education, as well as a course connecting mathematics and art for future educators. She has a PhD in group theory and, in the past few years, has developed an interest in the ties between mathematics and art. This interest has manifested itself in outreach activities to elementary and middle school children, as well as in research.