

The Use of Origami in Design Education to Promote Divergent Thinking

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Abstract

Over the years, many educators have come to realize the immense potential for origami to be used as a teaching tool in education. One can see these types of lessons taught in schools to help students learn about basic geometry or spatial reasoning. However, it becomes harder to use origami as a teaching tool in higher education. I have noticed that when it is used, it is often for a course in complex mathematics or specifically on folding technique. This paper offers insight into a different method of structuring curriculum based around origami without relying on knowledge of complex topics or prior skill in the craft.

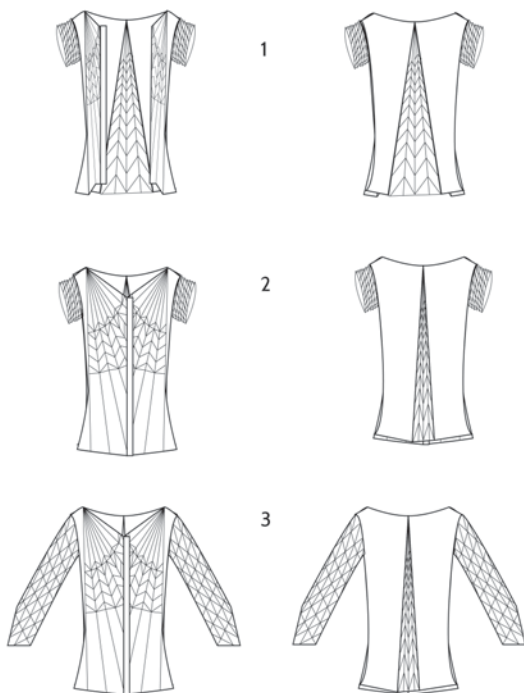


Figure 1: Enfold — Transformable Clothing

Following the development of Enfold (Lin, Zhou, & Koo, 2015), a research project of mine which married accessible fashion design and origami (figure 1), I proposed for a course to be taught at the University of California, Davis that might produce similar projects and results. Soon enough, I designed and taught a 10-week course titled Origami: The Art, Science, & Design. Rather than focusing on how to fold specific origami models or examining complex origami theory, the class observed origami techniques as a set of tools available to a designer. A large emphasis was placed on experimental approaches to discover practical uses of origami principles in outside fields such as engineering. Assignments did not ask for specific models, but rather, creative uses of different aspects of origami. For example, viewing origami diagramming systems as a form of information design or modular origami as a form of modular architecture. This helped promote a method of thinking that did not require a specific problem to solve at the outset, but instead a push to seek problems that *could* be solved.



Figure 2: The Smokey Mountain Roofing Project: A Roofing System Synthesizing a Variation of the Miura Fold and the Bahay Kubo. Designed by student Adrian Ang.

The final project required of each student was to present a hypothetical abstract for 7OSME, the 7th International Meeting on Origami in Science, Mathematics and Education. The end results were varied and strong: from roofing structures for poverty-stricken areas in the Philippines (Figure 2), sustainable production in fashion design, art therapy via modular origami, and educational chemistry kits, it was clear that there was value in allowing designers to have exposure to these tools.