

Integrating emerging technologies as a material for exploration in Design curriculums of India

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1. Introduction

As emerging technologies bring about a fundamental transformation in the products and services, it opens up tremendous opportunities and means to explore the creativity that lies at the close intersection of Art, Science, Design, Technology and many other disciplines. Design education in India is yet to explore and exploit this idea. Concerns arise regarding how Indian Design Education is going to adapt to such transformations. How can Design curriculums adjust to such changes? This research presents a work-in-progress towards understanding how new digital realities emerging from computing and new technologies can be integrated and taught in Design curriculums.



Figure 1. Current vs. Ideal scenarios of Design education. Above, higher Design education in India still takes a siloed view as other disciplines. Below, Ideally, Design education should provide the right mix of knowledge from all disciplines to nurture a transdisciplinary mindset and attitude among Designers.

2. Background

The transdisciplinary Design, Science, Technology, Engineering, Arts and Management (DSTEAM) curriculum pedagogy proposed by Yammiyavar (2003) provides a suitable framework for establishing Creative Design as a multi-disciplinary and interdisciplinary knowledge domain.

3. Methodology

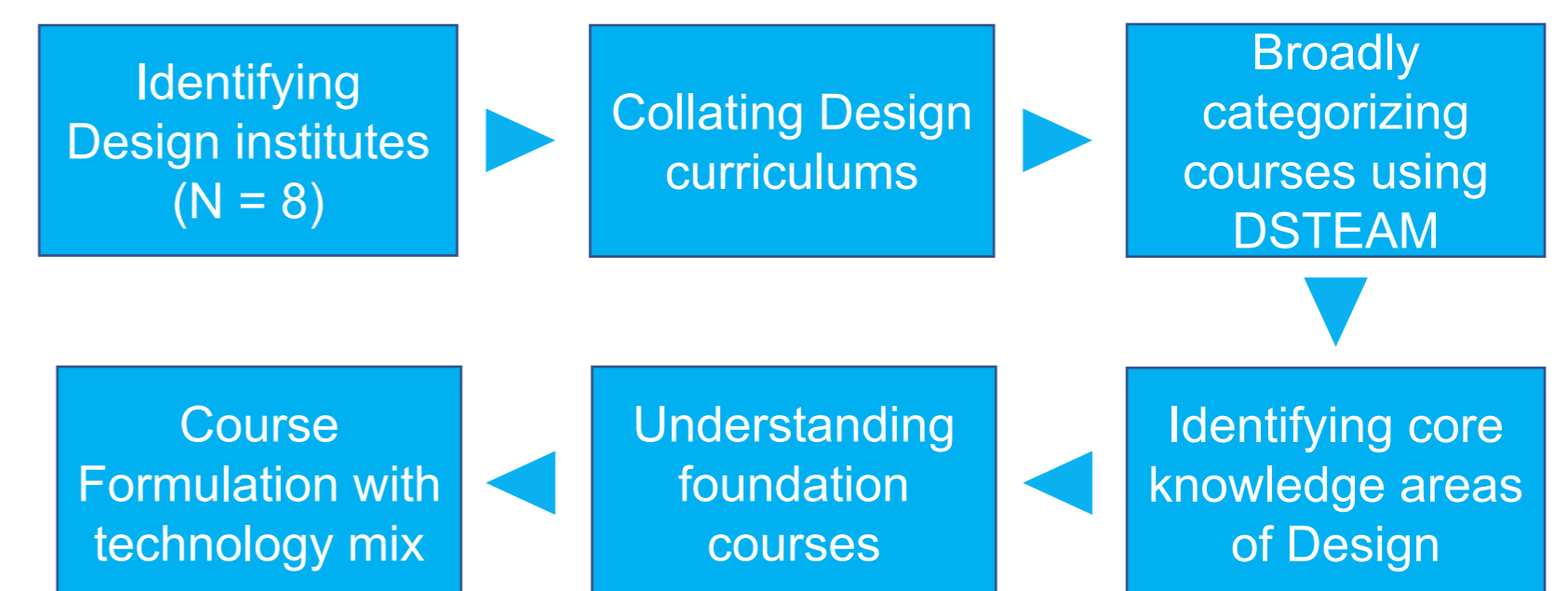
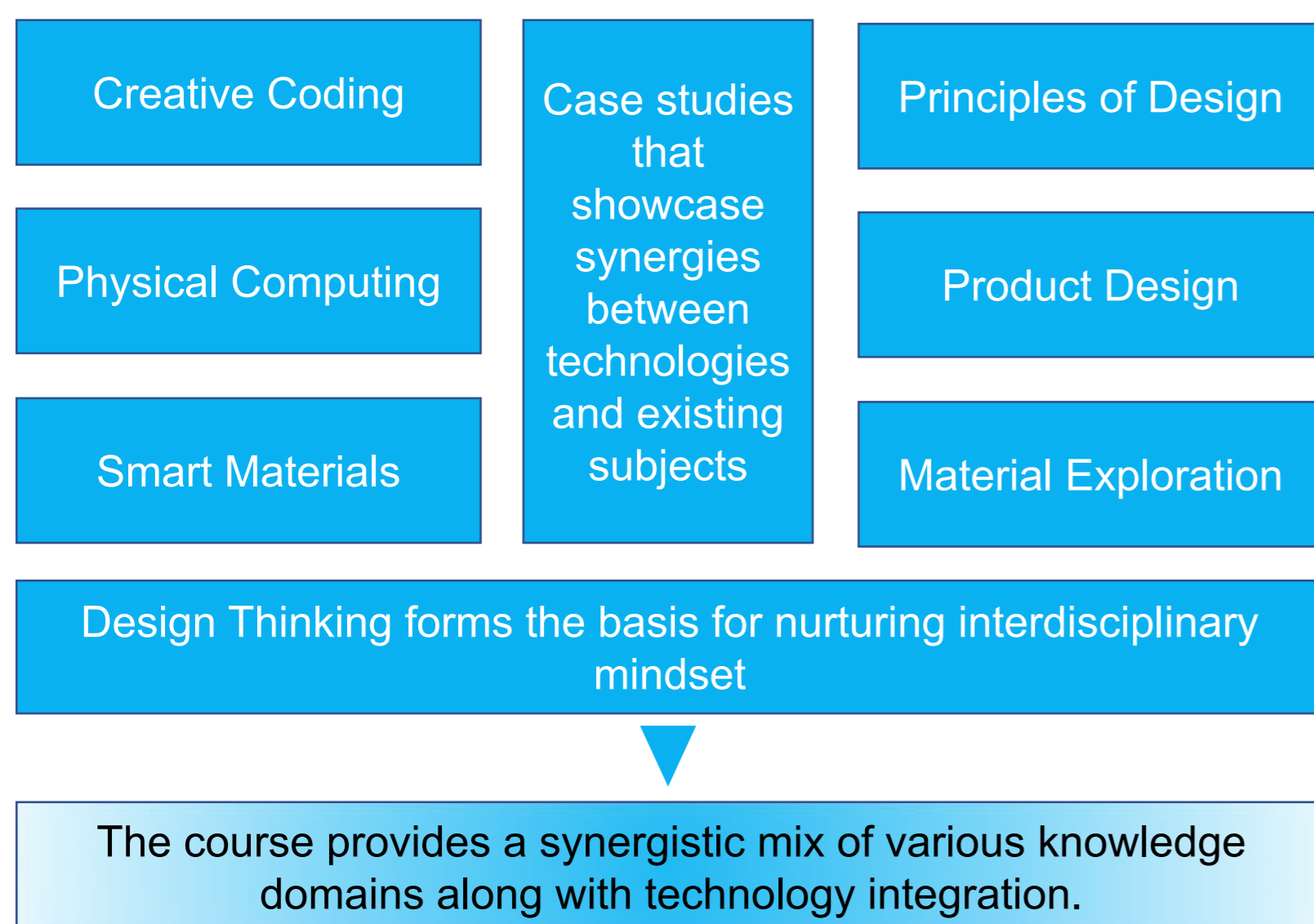


Figure 2. The methodology adopted for course formulation. Existing courses from N = 8 Design schools were compared. Core areas where synergies could be created with technology and computing were identified. Based on insights and DSTEAM philosophy, a course was formulated and floated among fifty-six (N = 56) undergraduate Product Design students.

4. Course Formulation



6. Course Outcome

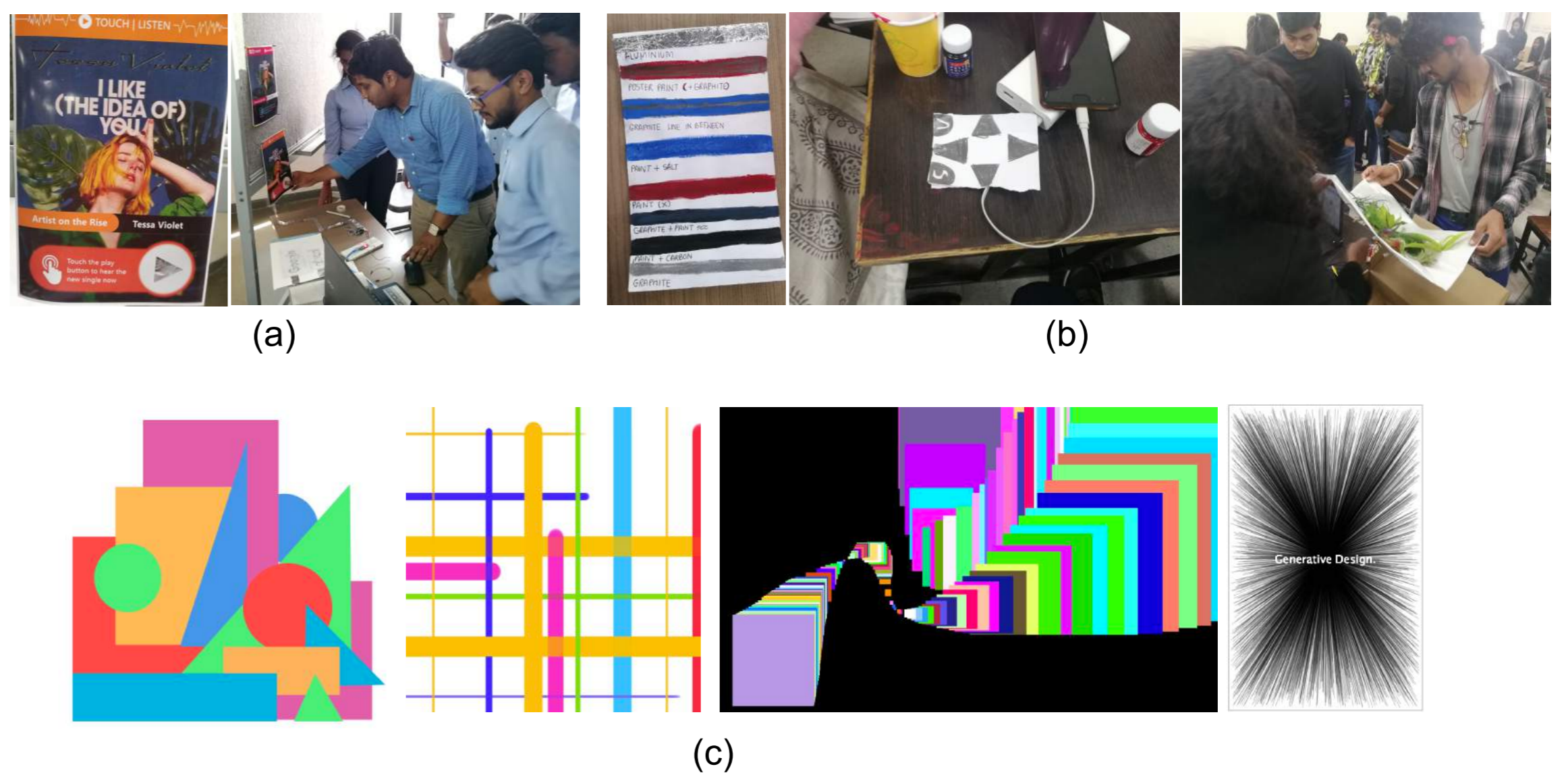
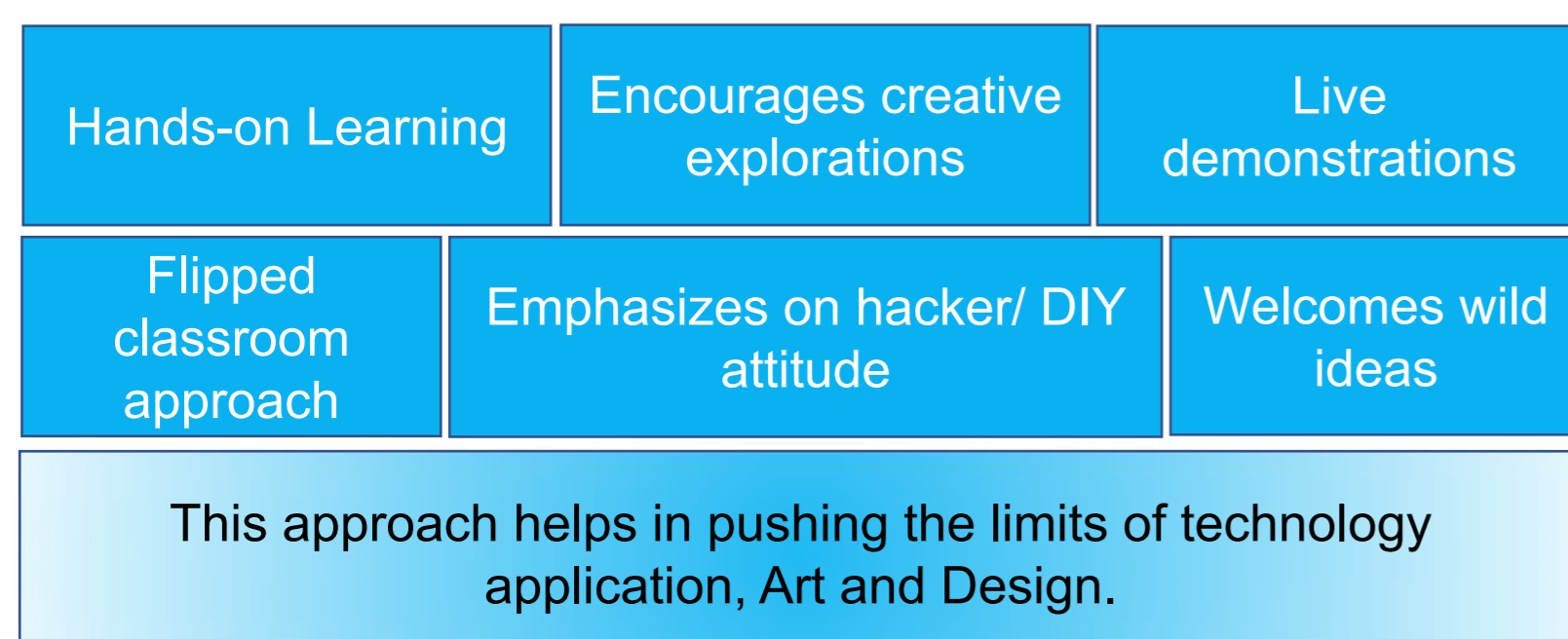


Figure 3. Product Design students' explorations resulting from the proposed course. (a) Merging graphic design and computing. Students explore how posters can be augmented using everyday materials and embedded computing technologies. (b) Exploring electrical properties of commonly used materials and objects. A series of explorations were carried out by students to understand how frequently occurring materials can facilitate computing and user interactions. (c) The creative coding exercise focused on nurturing computational thinking. The image depicts a series of explorations by students that merge their understanding from elements and principles of design with programming.

5. Teaching Philosophy



7. Results

- Students indicate a positive inclination towards learning new technologies.
- Suggestions emphasize on introducing electronics and programming during foundation classes.

References cited in this poster

- P. Yammiyavar, "Innovation Management: Teaching the art of innovation and its management to creative designers," in *Indo-US Workshop on "Product Design - Impact from Research to Education to Practice,"* 2010, pp. 255–264.
- P. Yammiyavar, "Status of HCI and Usability Research in Indian Educational Institutions," Springer, Berlin, Heidelberg, 2010, pp. 21–27.
- P. Yammiyavar, "UE-HCI Lab." [Online]. Available: <http://iitg.ac.in/uclab/about.html>. [Accessed: 28-Jun-2019].

