



E&PDE 2019 Workshop Proposal

Workshop title: Cultivating Creativity Workshop

Name of chairs: Iain M Robertson

Description of activities and expected outcomes:

The cultivating creativity workshop consists of five exercises each exploring a different aspect of creative thought patterns or creative attitudes of mind. Exercises, developed by the workshop leader, draw from over three decades of teaching spatial design studios and a decade of teaching creativity classes to students of a wide age range and from diverse disciplinary and cultural backgrounds. Exercise topics include taking risks, making connections, manipulating perceptions, sorting, and the influences of beliefs and values on thought patterns. An overarching exercise integrates workshop activities, group discussions and personal reflections. Describing workshop activities in detail presents a dilemma as an element of surprise is essential to ensure that participants approach activities with fresh, creative minds unburdened by preconceptions about 'right' ways to think and respond. This description is therefore a skeleton rather than a detailed explication of workshop activities. Participants are asked to enrol on faith, which, I understand, is a lot to ask. However, over many years this approach has proved to pay off handsomely for those willing to take the risk of signing up to participate in the unknown. Ambiguity is an inescapable characteristic of the world inhabited by creative minds and a willingness to take calculated risks is a defining characteristic of creative attitudes of mind. The workshop's first 'creativity exercise' thus consists of participants' willingness to enrol in something little known. Outcome: a willingness to take a risk.

MAKING CONNECTIONS: creativity is commonly equated with making, discovering or noticing connections. No less an authority than Steve Jobs confirms this: "*Creativity is just connecting things. When you ask creative people how they did something, they feel a little guilty because they didn't really do it, they just saw something. It seemed obvious to them after a while. That's because they were able to connect experiences they've had and synthesize new things.*" One exercise explores participants' abilities to make connections. It makes us aware of--and celebrates--our remarkable, but often latent and unnoticed, ability to make connections. Outcome: participants are surprised to discover that the process of making connections far from difficult and unusual can be easy, enjoyable and can come 'naturally'.

MANIPULATING PERCEPTIONS: creative attitudes of mind are frequently employed to manipulate the perceptions of others. An exercise explores this ability although this goal is not stated explicitly because a characteristic of creative attitudes of mind is the ability to discern deeper questions underlying questions being asked.

SORTING: fundamental to creative thinking is our propensity to sort, whether it be materials, activities, ideas, or explanatory words--i.e. communication. Sorting is so all pervasive that we are typically unconscious that we do it all the time. Outcome: this physical sorting exercise makes participants aware of their innate tendency to sort. As with other exercises, participants discuss different approaches to the exercise--an assortment of sorting--and reflect on what the exercise revealed to them about their own thought processes.

MOTIVATING VALUES AND BELIEFS: our values/belief system is the field in and with which we think and the boundaries that contain and constrain our thinking. Outcome: becoming conscious of our preconceptions is fundamental to freeing creative thought. This exercise explores the 'loaded' topic of values and beliefs afresh by presenting the topic metaphorically rather than literally. The exercise poses a question in a way that defies the use of 'logical' thinking and builds from Lakoff and Johnson's assertion, in *Metaphors we Live By*, that all verbal communication is fundamentally metaphorical. Outcome: discussions and reflections are fascinating and revealing; they provide insight into our own belief/perceptual system, how these differ from others' and how they guide and limit our thought patterns.

REFLECTION: participants are provided with booklets in which to describe and reflect on how workshop activities affect their thinking and perception of their own creativity.

Timeline of activities (max 3 hours):

INTRODUCTION	5 mins.
CONNECTIONS EX.	30 mins.
PERCEPTIONS EX.	20 mins.
REFLECTION	10 mins.
SORTING EX	40 mins.
REFLECTION/BREAK	15 mins.
VALUES/BELIEFS EX.	30 mins.
REFLECTION	25 mins.
WRAPUP	5 mins.

Necessary equipment in the room:

Easily movable tables & chairs
(each table to seat approx. 6 participants)

Expected number of participants:	+/-30
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Alignment with conference topic (please tick):

Innovation in engineering and product design practice:	
The changing innovation landscape in engineering and product design education:	*
Industrial involvement in engineering and product design education:	
Creativity in engineering and product design education:	*
Ethics and social issues in engineering and product design education:	*
Assessment methods in engineering and product design education:	*
New engineering and product design paradigms:	
Cultural practice in engineering and product design education:	*
Engineering and product design for the general public:	

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