Creativity and Design

Robert D. Austin
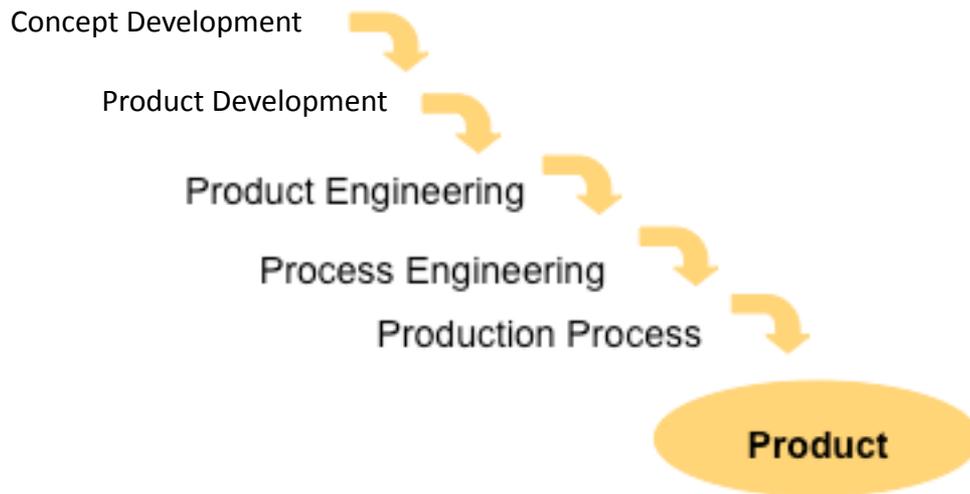
Ivey Business School

Ongoing Creative Industries Study

- Since 2006, based at HBS, CBS, and now Ivey
- About 40 detailed research cases in dataset
  - Focus on range of "making activities," from drug dev, to media, manufacturing/process improvement, product dev, design, IT (e.g., video games), the arts
  - Unit of analysis is group engaged in a "making" task (in a few cases, individuals; sample ranges in extent to which they attempt novelty of outcomes (not all would self-identify as "creative")
- Mostly Europe and US, significant concentration on design in northern Europe
- Examines principles, processes, and practices
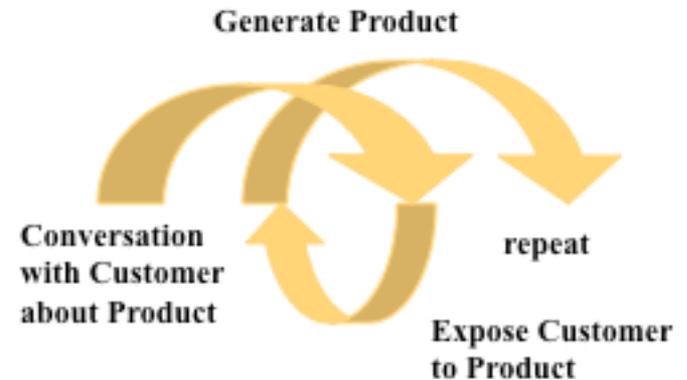- We have identified a number of broad patterns…

Sequential vs. Iterative Process

Sequential

Concept Development

Product Development

Product Engineering

Process Engineering

Production Process

Product

Clark and Fujimoto's
Description of Automaking

Iterative

Generate Product

Conversation with Customer about Product

Expose Customer to Product

repeat

Software Development at
Trilogy

"Experimentation"…"Prototyping"…"*Try*storming"

Pre-requisite Conditions for Working Iteratively

- Iteration can be done cheaply (and rapidly)
  - It must be inexpensive to attempt something new, and inexpensive to "fail" at it
- Demand/need for innovative outcomes
  - Novelty presumed potentially valuable
- These conditions are not met in every business setting, of course

Technology's Influence on Cost of Iteration

- Innovators we studied developed techniques, tools that allowed them to iterate cheaply and rapidly
- Some low tech (cardboard, styrofoam), others high tech (3D printing, stereolithography)
- Technology seems to be transforming the conditions of work in more and more settings, making them more conducive to iterative work approaches, and thus more "creative"
  - The Agile Software Development movement, for example
  - When tech drives down cost of iteration, work tends to become more creative, differentiation focused

Experimentation?

- Innovators in our sample resisted the use of some words …"experimentation" was one of these
- Does it imply too much methodological structure? *A priori* understanding of the problem space?
  - Sometimes it *is* testing of hypothesis ("trying out an idea")
  - Sometimes, though, iteration is an effort to induce greater variety in outcomes…to make something, more than test it
  - The motivation, then, is to escape habitual behaviors and patterns, to achieve something actually novel ("Sometimes I need to burn my hand many times before I break through…")
- Likely that the word "experimentation" describes a number of conceptually distinct activities that we need to unbundle

"Cone of Expectation"

Innovator: *How can I escape my cone of expectation?*

Action
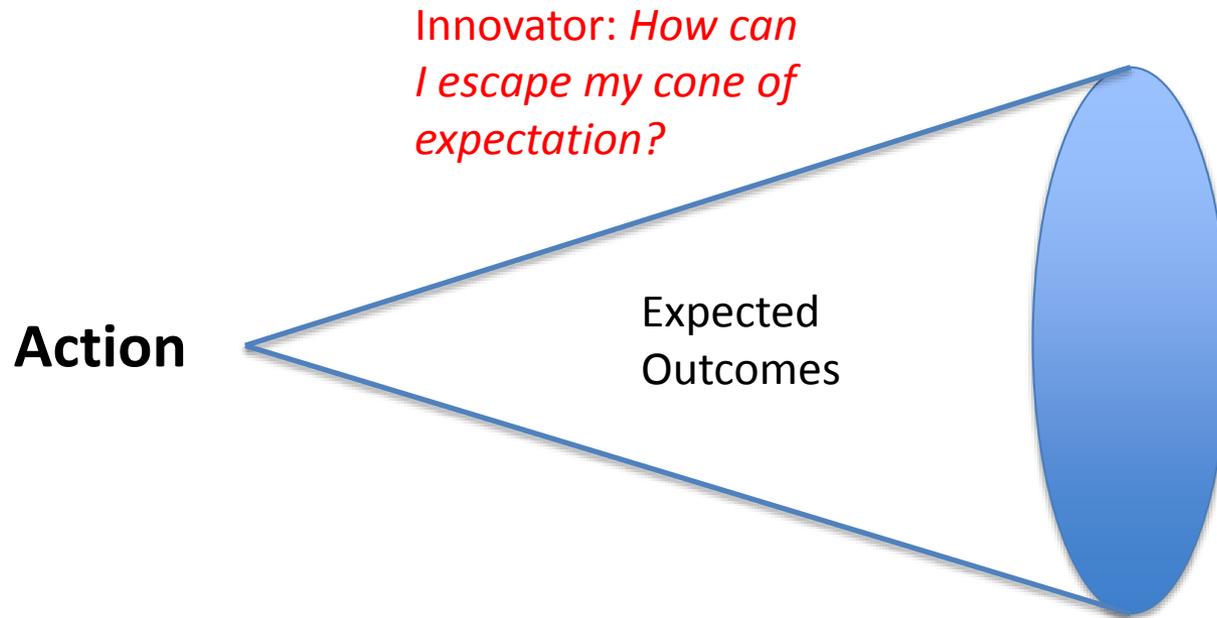
Expected Outcomes

Mastery makes it _less_ likely that you will experience unexpected outcomes…otucomes outside the "cone"…innovators in our sample see this as a problem…The need to "forge into an accident"

Austin, Devin, and Sullivan: Supporting Valuable Unpredictability in the Creative Process
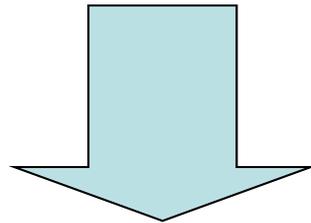Organization Science 23(5), pp. 1505–1522.

Campbell Model (1960)

BLIND (RANDOM) VARIATION

(Create new variants)

+

SELECTIVE RETENTION

(Decide which variants to keep

and which to throw away)

Commercialize
the kept variants

Stage One

Problem: Overcoming habitual behaviors, to achieve greater novelty

Stage Two

Problem: Developing ability to recognized new forms of value, better judgment to select what to take forward