What Sketches (and Prototypes) Are and Are Not.

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We will never all agree on what "design" is. But we can probably agree that sketching is an archetypal activity associated with design. Hence, for "interaction design" or "experience design" to in fact *be* design, it is reasonable to assume that they likewise have sketching associated with them. But it is equally reasonable to assume that conventional sketching, as practiced in industrial design or architecture is not adequate. This begs the question, what is sketching in interaction and experience design, and how do we recognize it when we see it, so to speak?

To help guide us, here is my best attempt to go "meta" and capture their relevant attributes of conventional sketches. Sketches are:

- **Quick**: A sketch is quick to make, or at least gives the impression that that is so.

- **Timely**: A sketch can be provided when needed.

- **Inexpensive**: A sketch is cheap. Cost must not inhibit the ability to explore a concept, especially early in the design process.

- **Disposable**: Sketches are disposable. If you can't afford to throw it away when done, it is probably not a sketch. The investment with a sketch is in the concept, not the execution.

- **Plentiful**: Sketches tend to not exist in isolation. Their meaning or relevance is generally in the context of a collection or series, not as an isolated rendering.

- **Clear vocabulary**: The style in which a sketch is rendered follows certain conventions that distinguish it from other types of renderings. The style, or form, signals that it is a sketch. The way that lines extend through endpoints is an example of such a convention, or style.

- **Distinct Gesture**: Not tight. Open. Free.

- **Constrained Resolution**: Sketches are not rendered at a resolution higher than is required to capture their intended purpose or concept. Going beyond "good enough" is a negative, not positive. (Which is why I take marks off student's work if it is too good.)

- **Appropriate Degree of Refinement**: The resolution or style of a sketch's rendering should not suggest a degree of refinement of the concept depicted that exceeds the actual state of development, or thinking, of that concept.

- **Ambiguity**: Sketches are intentionally ambiguous, and much of their value derives from their being able to be interpreted in different ways, and new relationships seen within them, even by the person who drew them.

- **Suggest & explore rather than confirm**: More on this later, but sketches don't "tell," they "suggest." Their value lies not in the artifact of the sketch itself, but its ability to provide a catalyst to the desired and appropriate behaviours, conversations, and interactions.

The above describes what sketches *are.* Now let's touch on what sketches are *not.* They are not prototypes. While both sketches and prototypes are instantiations of a design concept, they serve different purposes, and therefore are concentrated at different stages of the design process. To expand on the last point, above, they differ in intent, as is summarized in the following table:

Sketch	Prototype
Invite	Attend
Suggest	Describe
Explore	Refine
Question	Answer
Propose	Test
Provoke	Resolve
Tentative, non committal	Specific Depiction

Table 1: Distinguishing Sketches from Prototypes According to Intent

Sketches dominate the early *ideation* stages, whereas prototypes are more concentrated at the later stages where things are converging within the design funnel. Much of this has to do with how they differ with respect to the attributes of cost, timeliness, quantity, and disposability that we discussed above as characterizing sketches.

Essentially, the investment in a prototype is larger than that in a sketch, hence there are fewer of them, they are less disposable, and they take longer to build. At the front-end of the funnel, when there are lots of different concepts to explore, and things are still quite uncertain, sketching dominates the process.
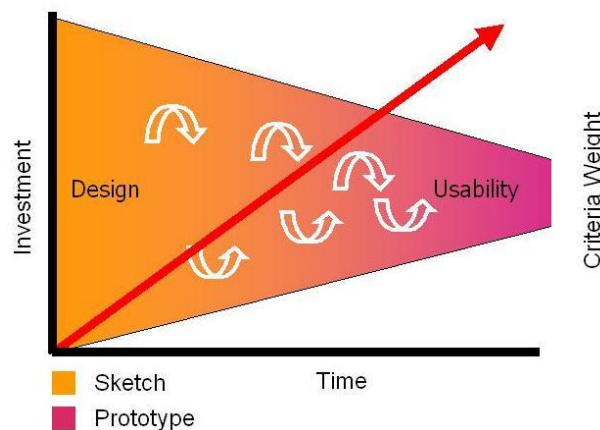
Figure 1: The Dynamics of the Funnel
The red arrow shows that as the investment in the design increases, so does the weight or formality of the criteria whereby concepts are reviewed or accepted. This transition parallels, or perhaps drives, the transition from sketching at the beginning towards prototyping as we get closer to the product engineering. The movement from sketching to prototyping is matched with a change in emphasis from user interface design towards usability testing. (Image: Bill Buxton)

These and related notions are captured graphically in Figure 1. The white circular arrows reinforce that the whole design phase is an iterative, user-centred process. The transition in colour reflects a transition from a concentration on sketching at the front to prototyping at the back. Related to this, and signified in the colour coding is the accompanying transition from user interface (UI) design to usability testing.