

Point of View: **Bill Buxton**

Experience Design vs. Interface Design



Great experiences don't happen by accident. They are the result of deep thought and deliberation.

What is it that designers design? Most people would answer by naming some class of tangible objects, such as, “buildings”, “furniture”, “cars”, “jewelry”, or “graphics.” Those with a bit more liberal sense of ‘design’ might even say something like, “organizational structures”, “business plans” or “financial models.” While all of these answers are as reasonable as they are predictable, I think that they are wrong, and even if not wrong, they at least miss the point.

Despite the technocratic and materialistic bias of our culture, it is ultimately *experiences*, not things that we are designing. Yes, physical objects are often the most tangible and visible outcomes of design, but their primary function is to engage us in an experience – an experience that is largely shaped by the affordances and character embedded in the product itself. Obviously, aesthetics and functionality play an important role in all of this since they attract and deliver the capacity for that experience. But experience is the ultimate – but too often neglected – goal of the exercise.

If we just focus on aesthetics, at best we end up with art, and at worst, decoration that ultimately disappoints. And, if we just focus on functionality, we end up not raising our sights higher than utilitarian questions such as usability and what I will call ‘interface design’. Let me give you a concrete example of the difference between ‘interface’ and ‘experience’ design.

There are two things you need to know about me: first, I split my time between a house in Toronto and a cabin north of the city; second, what gets me out of bed in the morning is fresh squeezed orange juice.

For years, in the city I had a conventional electronic juice squeezer – the

CitrusMate, shown in **Figure 1**. It worked, but I didn't like it much. Especially compared to the manual one that I had in the country, the Mighty OJ, shown in **Figure 2**.

While the juice that each produces tastes the same, it is clear from looking at the photos that these two products are

rather different. They use different technology (electronic vs. manual), and the ‘interface’ through which you interact with each is quite different. But for me, the most significant difference was in the overall experience. Simply stated, I hated the noise that the electronic CitrusMate made, especially first thing in the morning.



Photo: Bill Buxton

Figure 1: The CitrusMate Electronic Juicer
The noise that it made jangled my nerves in the morning.

After a couple years of listening to my complaints, my wife got the hint. For my 55th birthday, she bought me a new manual machine to replace the CitrusMate – the OrangeX Manual Citrus Juicer (Figure 3), designed by Smart Design of New York.

If you look at the photos of the two manual juicers, you will notice that they look very similar, and in essence, they have the same user interface. You pull back the lever and place half of an orange face down in the machine’s ‘jaws’; then you pull the lever to squeeze the juice into the container. If you can use one, you can use the other, and from a distance, you might even



Photo: Bill Buxton

Figure 2: My “Mighty OJ” Manual Juicer
My first manual juicer, loaded and ready to go.



Photo: Bill Buxton

Figure 3: The “OrangeX” Manual Juicer
My second manual juicer. Its feel was a revelation.

mistake one for the other. The juice tastes the same from each, and takes the same amount of time to prepare.

Yet, from the perspective of experience, there is no comparison between the two. True, there was a night-and-day difference between my old electronic juicer and my original Mighty OJ model. But there is almost as much difference between it and the OrangeX. It’s not that the Mighty OJ is suddenly bad – it’s just that the experience using the OrangeX is *so much better* – and with that improvement comes a new standard of expectation or desire on my part.

While the OrangeX is significantly heavier, the meaningful difference in experience has nothing to do with weight. It’s all about the feel of the action when pulling the lever down: there is a cadence to it that is almost musical. This is something that no drawing can capture. It has to do with feel, and it takes place over time. And I just can’t use it without a smile.

Comparing the two manual juicers, usability has nothing to do with their differences. Rather, their difference is in the quality of experience that comes from their use. The important thing is that this difference did not come about by accident: it was the result of conscious design.

If we look more closely, (Figure 4), we see that the Mighty OJ has a direct linkage between its lever and the jaws, by way of the simple rack-and-pinion gear mechanism seen in the figure. This gives the unit what is best described as ‘a constant gear ratio’, where maximum force must be applied at the end, or bottom, of the stroke.

In contrast, the quality of the OrangeX action is due to the subtle difference of its leverage mechanism. By the nature of the linkage between the arm and the ‘jaws’, there is a kind of camming effect. This is what delivers the cadence that I so love. The effect of the linkage design is to vary the gear ratio, so to speak, so that at the end of the squeeze – where with the Mighty OJ you have to push the hardest – the pressure required is reduced, and you come to a gentle conclusion of the squeeze. This can be seen by looking



Photo: Bill Buxton

Figure 4: Gear Mechanism of the Mighty OJ
Rotary motion of the arm raises and lowers the “jaws” of the juicer by means of a rack and pinion gear. The gear ratio is constant.

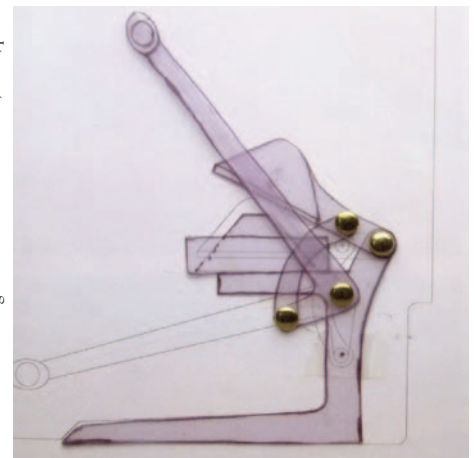


Photo: Industrial Designers Association of America, 2001, p. 25

Figure 5: Two-Dimensional Study of OrangeX Mechanical Linkage.

Cutting the parts out of Perspex, and pinning them onto a board enabled quick testing of the linkage, as well as marking “time lapse” ghost images on the background

closely at Figure 3, or in the mechanical study shown in Figure 5.

What is interesting about this study is how economical it is. It is ‘just’ some Perspex cut out and pinned together at the points of articulation. Furthermore, as seen in the figure, these were mounted on boards, which enabled the designers to trace key positions of the mechanism onto the background, thereby achieving something like the effect of a time-lapse

photograph. It is, in fact, a 2D dynamic exploratory 'sketch' of the mechanism.

But this is only one of a number of studies that led to the final design. A selected sample illustrating the process can be seen in **Figure 6**. By means of working through such a series of renderings and studies, the team was able to achieve the dramatic experience described above.

At this point, step back and remember that here we are speaking about orange juicers. Yet by means of these types of dynamic 'sketches', the team was able to

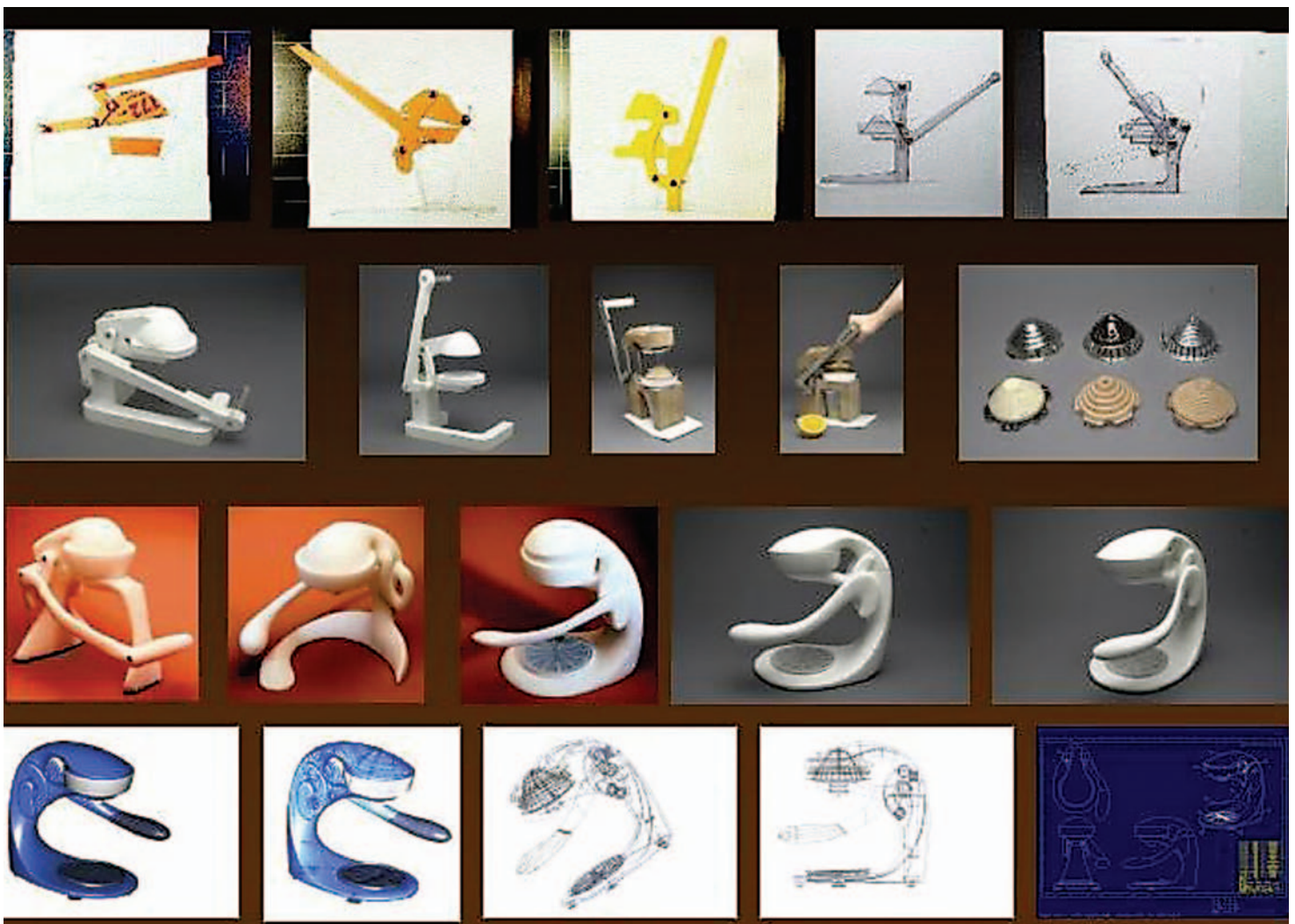
achieve the dramatic experience that I have described. The lesson to take away from this can be gained by contrasting these orange juicers with the behavioural complexities of other types of things that we might be asked to design.

This example makes clear that great design is no accident. It does not reliably result from some undisciplined 'flash of genius'. Which then begs the question: if it takes this much effort to achieve a high quality experience with a simple product such as a juicer, why would we ever expect to achieve quality experiences

from more complex products and services unless we acquire the appropriate skills and adopt deliberate, specialized processes for doing so? R

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For 30 years, Bill Buxton has been involved in the design of technologies for creative endeavour, including music, film and industrial design. The one-time chief scientist of Alias Research and SGI Inc. is currently the principal of Buxton Design, a guest lecturer in the Department of Industrial Design at the Ontario College of Art and Design, and a visiting professor at the University of Toronto's Knowledge Media Design Institute. This essay is adapted from his forthcoming book, *Design for the Wild: Sketching Experience*. For more about Bill, visit www.bill-buxton.com



Photos: Smart Design

Figure 6: Selected Thumbnails of the Progress of the Design
 Left-to-right, top-to-bottom, we see the evolution of the concept rendered in increasing detail, starting with exploratory 2D sketches of the mechanism, through to 3D mechanical studies, then to physical 3D explorations of the form, and then to technical renderings that lead to manufacturing drawings.