Performance Versus Preference

The designs that help people perform optimally are often not the same as the designs that people find most desirable.

Designers and managers often confuse the business maxim "the customer is always right" with "the user is always is right." This is a dangerous confusion, since what helps people perform well and what people like is often not the same thing. For example, the Dvorak keyboard is estimated to improve typing efficiency by more than 30 percent, but has failed to rise in popularity because people prefer the more familiar QWERTY keyboard. If you asked people if they would like to be able to type 30 percent faster with fewer errors, most would answer in the affirmative. Despite this, more than 50 years have passed since the introduction of the Dvorak keyboard, and it is still more of a novelty item than a practical alternative.[1]

This underscores an important lesson for designers: the reasons people prefer one design to another is a combination of many factors, and may have nothing to do with performance. Is the design pleasing to look at? Does it compete with long-standing designs or standards of use? Does it contribute to the well-being or self-esteem of the user? These are all factors that must be carefully balanced in the development of the design requirements. If a superbly performing design is never bought or used because people (for whatever reason) do not prefer it to alternatives, the performance benefits are moot. Conversely, if a well-liked design does not help people perform at the level required, the preference benefits are moot.

The best way to correctly balance performance and preference in design is to accurately determine the importance of performance versus preference. While surveys, interviews, and focus groups try to find out what people want or like, they are unreliable indicators of what people will actually do, especially for new or unfamiliar designs. Additionally, people are poor at discriminating between features they like, and features that actually enhance their performance; they commonly prefer designs that perform less well than available alternatives, and incorrectly believe that those designs helped them achieve the best performance.[2]

The best method of obtaining accurate performance and preference requirements is to observe people interacting with the design (or a similar design) in real contexts. When this is not feasible, test using structured tasks that approximate key aspects of the way the design will be used. It is important to obtain preference information in context while the task is being performed, and not afterward. Do not rely on reports of what people say they have done, will do, or are planning to do in the future regarding the use of a design; such reports are unreliable.

See also Aesthetic-Usability Effect, Control, Development Cycle, Flexibility-Usability Tradeoff, and Hierarchy of Needs.

[1] See, for example, "Performance Versus Preference" by Robert W. Bailey, *Proceedings of the Human Factors and Ergonomics Society 37th Annual Meeting*, 1993, p. 282–286.

Note that the widely accepted belief that the Dvorak layout is superior to QWERTY in terms of typing performance is not without its skeptics. Critics charge that early tests favoring the Dvorak layout were biased and poorly constructed, while modern comparisons show little, if any, performance difference. See, for example, "The Fable of the Keys" by Stan Liebowitz and Stephen Margolis, in *Famous Fables of Economics* by Dan Spulber (ed.), Blackwell Publishers, 2002; *Journal of Law and Economics*, vol. 30(1), p. 1–26, April 1990. Anecdotally, the world's fastest typist when *The Guinness Book of World Records* included the category, Barbara Blackburn, died in 2008—she used a Dvorak.

[2] See, for example, "Measuring Usability: Preference vs. Performance" by Jakob Nielsen and Jonathan Levy, *Communications of the ACM*, 1994, vol. 37(4), p. 66–75.

The QWERTY layout was designed to prevent the jamming of mechanical arms on early typewriters. The Dvorak layout, by contrast, was designed to maximize typing efficiency: it grouped keys based on frequency of use, and positioned keys to promote alternating keystrokes between hands, among other refinements. The result is a 30 percent improvement in typing efficiency, and claim to most of the world records for speed typing. Despite the clear advantages of the Dvorak design, QWERTY enjoys the following of generations of people trained on the layout, which in turn drives manufacturers to continue perpetuating the standard. Dvorak wins on performance, but QWERTY wins on preference.

QWERTY Keyboard

Dvorak Keyboard