

I experienced my most pathological example of Tognazzini's paradox while Dave Eisenberg³ and I were working on "Apple Presents ... Apple" back in 1979, the first time an in-box tutorial had been written for a micro. We had earmarked certain sections of the program as being hopelessly difficult, while others were hardly worth testing. Test subjects found most of the "hopelessly difficult" sections perfectly easy, while the one area we knew would have no problems at all proved fantastically difficult:

Problem: In "Apple Presents ... Apple, An Introduction to the Apple II Plus Computer," find out if the user is working with a color monitor.

User profiles: New owner, customer in a computer store, or member of a class learning to use Apple computers.

Test user profiles: Customers in a computer store, non-computerists in a classroom environment, friends, and relatives.

First design: A color graphic would be displayed.

PROMPT: "Are you using a color TV on the Apple?"

ANTICIPATED PROBLEM: Those who were using a monochrome monitor in a classroom or computer store situation wouldn't know whether the monitor was black and white or was color with the color turned off. We reiterated the design.

Second iteration: A color graphic was displayed.

PROMPT: "Is the picture above in color?"

FAILURE RATE: 25%

REASON: As anticipated, but incorrectly overcome, those seeing black and white thought their color might be turned down. They didn't answer the question wrong; they turned around and asked one of the authors whether the monitor in question was color or not. A decision was made that the authors could not be shipped with each disk.

Third

iteration: A smaller graphic with color names, each in its own vivid color was substituted:
GREEN BLUE ORANGE MAGENTA

PROMPT: Are the words above in color?"

FAILURE RATE:color TV users: none
black and white monitor users: none
green-screen monitor users: 100%

REASON: Yes, well, you see, we hadn't exactly thought about monochrome monitors with nice, bright green text. After all, who could have predicted that users might actually think green was a color? Silly twits! Actually, we were extremely fortunate that we accidentally got hold of a prototype green-screen monitor that day. Otherwise, we might have shipped the software with a fatal design flaw.

Fourth

iteration: The graphic remained the same.

PROMPT: "Are the words above in more than one color?"

FAILURE RATE:color TV users: none
black and white monitor users: 20%
green-screen monitor users: 50%

REASONS: The black and white monitor users who answered incorrectly admitted that they did so on purpose. (Our methods for wringing their confessions shall remain proprietary.) 50% of the green-screen folk considered that they were looking at both black and green-two colors- and answered the question accordingly.

Fifth

iteration: Same display of graphic and colored text

PROMPT: "Are the words above in several different colors?"

FAILURE RATE:color TV users: none
black and white monitor users: 20%
green-screen monitor users: 25%

REASONS: By this time, the authors were prepared to supply everyone who bought an Apple II with a free color monitor, just so we would not have to ask the question. It turns out that around 20% of the people were not really reading the question. They were responding to the question "Are the words above several different colors?"

Sixth**iteration:** Same display of graphic and colored text**PROMPT:** "Do the words above appear in several different colors?"**FAILURE RATE:** none

This was a highly interactive tutorial typically taking twenty minutes to complete. This was the only interface issue that required more than one iteration to correct. No matter how many engineers we had crowded into a room to discuss with what areas users were or were not going to have trouble, we would have never hit upon this as the major problem in the application. Had we not tested, we would have had a disaster on our hands: Instead of users having a wonderful first experience, they would have walked away thinking both they and our computer were awfully stupid.