**Objective**

In an effort to reveal difficulties in learning new software applications, I observed Alan as he learned to use the software application Adobe PhotoShop. Though Alan is a proficient computer user, he had not used PhotoShop prior to this session.

**Method**

In advance of the observation session, I prepared a simple graphic within PhotoShop for Alan to replicate. I also drafted a script explaining the objectives of the exercise, his role as the user, and my role as the observer. These artifacts are attached.

At the beginning of the observation session, I read the script to Alan and showed him the example graphic he was to recreate using Adobe PhotoShop. Throughout the session, I asked Alan to voice what he was thinking and to explain how or why he chose a certain action. At times, I asked him to explain how he accomplished a task to verify that he understood what occurred and why. I refrained from giving him any direct instruction, but rather asked him questions that I hoped would guide him to the solution.

**Results**

Alan was able to successfully replicate the sample graphic provided. However, through my observation and his own conclusions about the program, it was clear that he did not develop a fully accurate mental model of how the program actually worked. With an incorrect mental model, the application seemed to behave inconsistently, reducing the learnability and memorability of the program. Efficiency also suffered as it took Alan 45 minutes to complete a five-minute task.
Discussion

I asked that Alan replicate a sample graphic in an effort to reduce the need for instruction. The sample graphic provided Alan with a clear objective without defining detailed steps of how-to. Alan was given the freedom to execute his objective in any way. In this respect, Alan set the pace for instruction.

Alan freely experimented with the interface, especially after he found the Edit > Undo function on the menu bar and declared, “Oh good!” He quickly clicked around the interface, exploring the top menu bars, visiting each tab of the floating palettes, and hovering over icons for pop-up labels. Happy to find the History tab, Alan used it to confirm and remind him of his previous functions and how he accomplished them. I found this interesting, because I use the History list primarily for quickly undoing multiple commands.

Throughout the session, Alan did a great job of vocalizing his understanding of the program. As his tasks became more difficult, Alan would lean toward the computer screen with his chin in hand. Changing and applying color proved to be difficult tasks, as the required actions did not match Alan’s mental model. While using the fill tool, Al said, “I need to put blue paint in the paint bucket.” However, he just needed to select the color on the color palette and it would automatically apply to the fill tool. The mapping between the two actions was not clear. Better feedback, such as reflecting the newly selected color in the actual paint bucket cursor may have improved the mapping.

In addition to using the Undo command, Alan also ‘started over’ several times by closing his unsaved work and opening a new document. Generally, he was able to
quickly recreate the blue circle and red rectangle, but struggled with the gradient and text tools.

At one point in his attempts to apply a gradient, Alan said, “I lost where I was…I don’t know how to get back.” Previously, Alan had selected the gradient tool and was able to edit its properties on a separate property palette. At the time of his statement, the fill tool was selected, so the gradient tool’s properties were unavailable. Apparently, the mappings between selecting a tool on one palette and changing that tool’s properties on a different palette were not strong or clear enough.

The text tool was also problematic for Alan. In his first attempt, the text color was the same color as the background, essentially making it invisible. Also, a fundamental misunderstanding of the program became apparent in his use of the text tool. After selecting the text tool, Alan began to type without clicking in the graphic area. This pointed to his expectation that just clicking on a tool would initiate a related action. However, clicking a tool merely selects it and action must then be taken in the graphic area.

**Conclusion**

In conclusion, this observation proved that an easy-to-learn application should conform to a good mental model and have consistent mappings, with highly visible and continuous feedback. Though Alan successfully replicated the example graphic, his mental models did not change to conform to the application. As a result, I think it will be difficult for him to remember how to use the same features of the application in the future.
If I were to repeat this observation, I would select a user who is less comfortable with technology in general. Alan’s proficiency in other applications gave him the confidence to experiment and learn trial-by-error. I imagine a less proficient user would be presented with different challenges because of their timid attitude with technology. Also, because Alan is my husband and a really funny guy, I found it difficult to refrain from laughing at his antics. While I think our close relationship made laughing together acceptable, it would be better to practice restraint with other users. Finally, for comparison purposes, I might try this observation without an example graphic and allow the user to decide what to create.