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Interaction Design Research Paper

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What role or relevance does a successful alignment of user and developer mental models play in the usability (or not) of skeuomorphic user interface designs?

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Abstract

This essay describes what skeuomorphism is, and how it is used to construct different user interfaces. Diverse implementations of skeuomorphic objects are described through the paper to exemplify positive and negative cases in which skeuomorphism helps or not aligning users and developers mental models and increasing or not the interface usability. This paper concludes that the use of skeuomorphic design can be useful when implemented properly.

On mental models

A **mental model** is someone's perception of how a particular process functions on the real world. For system's designers and developers **mental models** play a core role on communication with the users of the systems being designed. The image designers provide to the users can shape the way users interact with a system, and can remarkably increase the satisfaction and efficiency that users get out of using a particular system.

On Usability

The **usability** of a product measures the level of efficiency at which its consumers learn how to use it to achieve their goals, and how much satisfaction they get out of the interaction with the product.[1] There are also several measures that help designers and developers create their products, and determine that the essentials for which their product was designed are fulfilled. This is what Jakob Nielsen, author of the book *Usability Engineering,* refers to as "**usability measures**", and they are learnability, efficiency, memorability, errors and satisfaction. Each of them represent a different focus of usability that is enhanced depending on the goal of the system at hand.[2]

Skeuomorph

The word **skeuomorph** (derives from the greek skeuos - tool and morph - form)[3] is now use to refer to designers technique of resembling features that were necessary for functionality on the original product, but that become ornamental on the designer's version. Numerous websites and computer programs make use of **skeuomorphism** design on their graphical interfaces with the purpose of resembling real objects. **Skeuomorphism** affects designs more than in a merely ornamental way, and sometimes it comes to improve or weak the **usability metrics** of designs.

What it is not?

There might be certain unawareness of what bad and good **skeuomorphism** really means and to clarify that I will lay out a some examples.
Skeuomorphism is the opposite of **mixing metaphors**, but the use of mixing metaphors can still help create useful effect on an interface. For instance, applying a very distinctive purple velvet texture to an element on a design where everything is wooden will give an strong emphasis to that element even though that element was not originally made out of velvet.

No longer helps usability

Skeuomorphic approach could lead to visual perfectionism rather than improving **usability** and functionality. Emphasizing the visual section of interfaces can lead to the creation of useless elements that will not extent the user understanding of the interface. As a case in point, the animated paper shredder that was uselete e-tickets in the mobile iOS 6 does not improve the users **mental approach** to more than a simple "drag to the trashcan" deletion would.[4]

Realism complexity leads to confusion

Users **knowledge** is also an important matter to take into account when designing skeuomorphic interfaces. Using outdated objects as a base for skeuomorphic design can decrease the **learnability** of an interface, rather

than helping to create a mental image from a physical object. A possible strategy to solve this gap between users mental image and interface is to use a skeuomorphic example based on a more common object, or simply to rely on a more self explanatory object to implement on the interface.


iDial
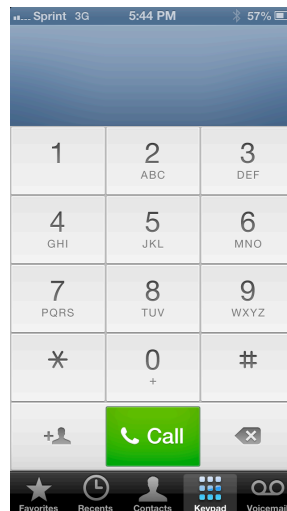
iPhone5 dial

Misses the point of good skeuomorphism

The misuse of **skeuomorphism** will sometimes lead to misdemeaning important **usability metrics**. For example, News Kiosk offers a perfect representation of the issue previously discussed while the Pulse interface accomplishes its purpose better with a much simple interface. In this case the skeuomorphic metaphor limits efficiency of other design techniques and reduces the overall **information** that is delivered to the user. This derives on creating a much stronger resemblance of a physical element by missing on the content of information that could be delivered to the user.

News Kiosk
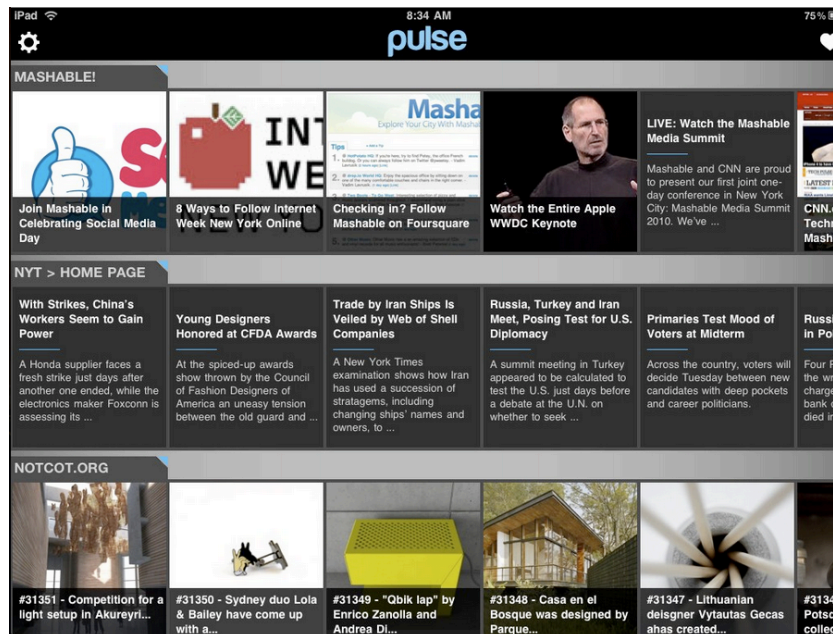
Pulse

What is it ?

As previously mentioned, **Skeuomorphism** is the opposite of mixing metaphors. More precisely, good use of Skeuomorphism implies the user

understanding of an efficient metaphor to facilitate interaction with an interface. From the examples above it can be inferred that the overall usability of a system can be negatively influenced by mixing or misusing skeuomorphic metaphors. Conversely, I will provide some more cases to illustrate that good use of skeuomorphism successfully **aligns** user and developer **mental models** and **improves usability**.

Some good stuff

One of the improvements that well used **skeuomorphism** provides to user interfaces is increase on **learnability**. Well designed skeuomorphic interfaces provide users with easily recognizable icons which functions can be related to field experience. Well design metaphors tie user mental images to experience and generate expectations that the user can rely on to learn how to accomplish a task on a given program. For instance, this is shown on the iOS6 iPad book app, which allows users to turn pages simply by recreating the motion that they would have to do on a physical book.
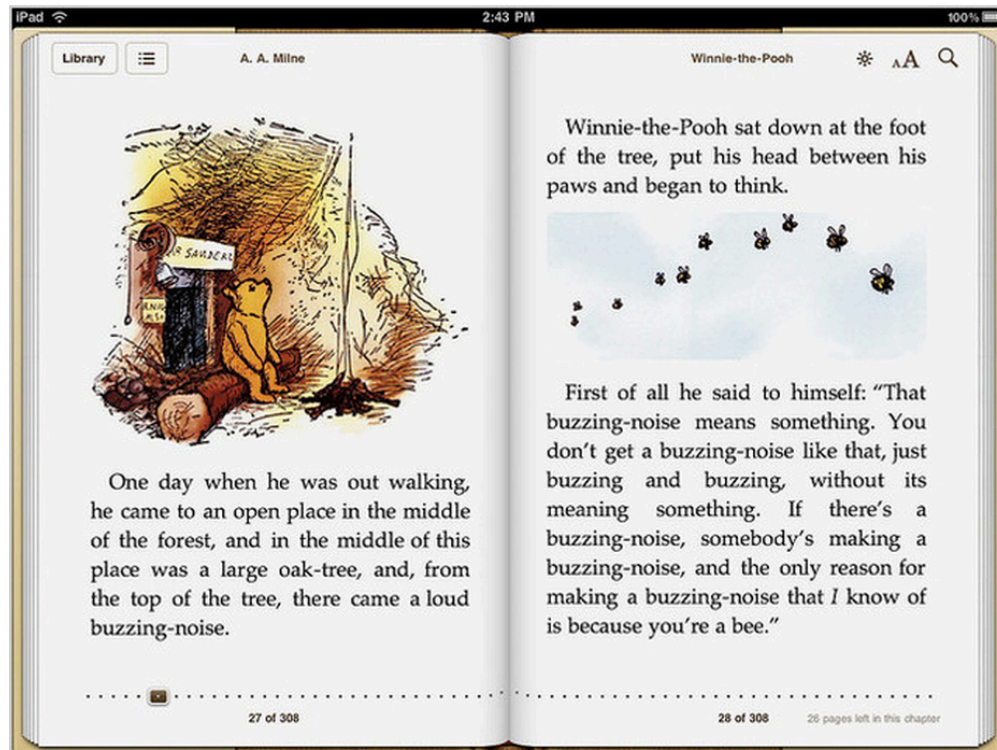

iPad's ibook app

Another way, Attractive vs Ugly

While sharing the same functionality, different interfaces can create very distant user mental images. Moreover, **skeuomorphism** can play an important role on increasing the **satisfaction** that users get from playing with different interfaces. In this case, **realism** is a characteristic of skeuomorphic interfaces that when used wisely adds **elegance** and **clearness** to interfaces, and will lead user to prefer one program over another that shares the exact same features.
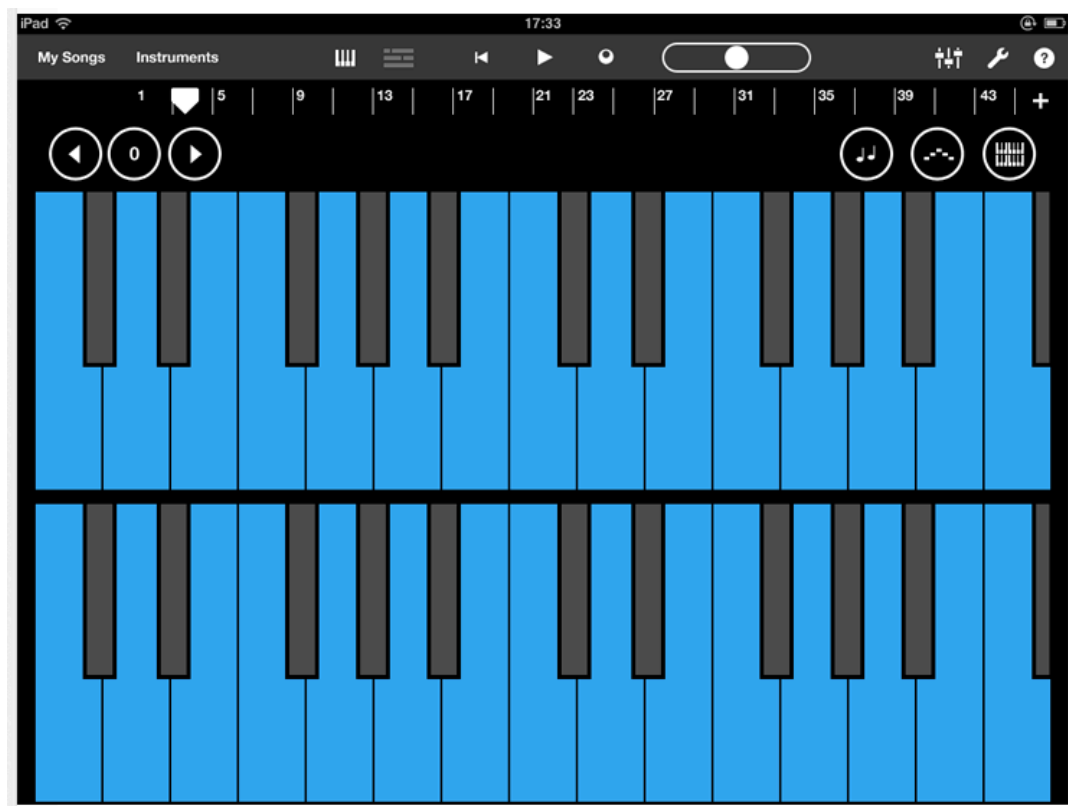
sample for Garage band iPad app

Garage Band for Ipad

How can it become useful ?

It can be inferred from the previous examples that the use of skeuomorphism design can lead to positive result when implemented properly. Further, for this to be pursued the designer needs to be aware of the context of the skeuomorphic metaphor, the knowledge of the user, and the presumably cognitive inferences of the same (user). Skeuomorphism is a powerful tool that will lead to important improvements when design promises tie up to user functionality expectancies.

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