USING PROTOTYPING IN INSTRUCTIONAL DESIGN

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WEBSITE DESIGN USING PROTOTYPING IN INSTRUCTIONAL DESIGN

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Interface prototyping is a technique that has been used for many years in the web application and web development industries. It is meant to solicit end-user and stakeholder feedback early on in the design process. Gathering this critical information helps designers make decisions about the layout and placement of elements, such as buttons, images, and clickable interactions within the overall arrangement of an interface. These critical decisions help designers create an end product that is useful to the target audience, while still meeting the needs and desires of the stakeholders. Prototypes also help designers map out the navigation of a training module so that it is easier for end users to get the information they need.

Design decisions are based on the outcomes of prototype testing, not on one person's ideas. In his book *A Practical Guide to Web App Success*, Dan Zambonini highlights the need for prototyping and user testing. He writes, “This [prototyping] is the biggest test of our work to date. It highlights real issues with the interface, and our implementation of app features while they are still easy and cheap to change.” By obtaining user feedback, you are making decisions based on real data about how people work within a certain design. If a stakeholder questions the choices that the designer makes during prototyping, she can use the data collected from user testing in support of her decisions. Prototypes help reduce misunderstandings between designers and stakeholders by visually communicating the design, making it easier for stakeholders to provide feedback.

While you can describe what the interactions and interface will look like, it is much more effective to actually show both end users and stakeholders a mock-up of the interface. Oftentimes in learning and development (L&D), not enough time and effort are put into the design and layout of elements within a module. All too often the content is added to the module and the module is deployed to the community without completing user testing. Instead of reinventing the wheel, you should examine how other industries use prototyping techniques to create a better user experience.

In this TD at Work, you will look at different examples of prototypes that can be used as you develop the final design for a learning module. Briefly, we will look at the elements of each prototype and how you as the designer can gather feedback from each stage of your interface design. You will then examine each prototype, how they work, and define best practices to follow when creating them.

This TD at Work will:
- define storyboarding and prototyping
- show you how to create a physical prototype for feedback
- explain how to storyboard your e-learning solution
- instruct on how to create a wireframe digital prototype
- help you create a refined prototype for final interface design.

**STORYBOARDING AND PROTOTYPES**

It can be intimidating to think about creating your own interface when starting a new e-learning project. There seems to be a never-ending stream of questions that come up. Where do I start? How do I get approval from the decision makers? Is this going to resonate with the end user? The desire to find a neatly packaged solution to all of these questions can cause designers to focus on creating content so that it fits into a one-size-fits-all template. However, a general template may not be the best way to deliver content to the end user.

While much time is often spent creating high quality content, too little time is spent on how content is presented. You can have the best content in the world, but if the interface is hard to navigate, or the material is difficult to find, you are likely to lose the end user. The key is to get feedback from stakeholders and, if possible, end users as early as possible in the design process.
Storyboarding

As a first step in the design process, storyboarding is very effective for gathering thoughts and ideas in a graphical format. A storyboard is a very high level outline, in pictures, of the intended outcomes of a module. It is made up of very simple sketches and descriptions of what should be taking place as the user interacts with the application. When storyboarding, ask yourself: “What am I trying to accomplish on this screen?” See the job aid on page 12 of this TD at Work for a framework you can use to create your own storyboard.

Storyboards are a great way to make sure that a module is going in the direction stakeholders are looking for. They provide designers with a good visual representation to share with the stakeholders to ensure you are all working toward a common goal.

The initial storyboard should illustrate the intended end result or outcome of the application you are designing. Storyboards are beneficial to create and review during your early meetings with stakeholders. As you discuss the storyboard with the stakeholders, you can continue to jot down ideas on paper.

Remember to keep your storyboards simple. Storyboards should not have much detail at this stage. They should be quick brainstorming sketches that help ensure that you and the stakeholder have a clear idea of what should take place in the module. Make sure you take notes for each sketch to define what is supposed to be taking place on the screen.

There are also many online tools, such as Storyboard That, for creating more detailed storyboards. For your initial meeting with stakeholders, you may want to use pencil and paper. Being able to sketch and take notes on paper is a much quicker way to present your ideas and confirm with stakeholders that you are all on the same page. Online tools for storyboarding can be used later as you finalize your content. Once you have completed the storyboard, you can move on to the next step—the physical prototype.

Prototypes

The prototype is the physical proof, or draft, of the design concept. The prototype can help you determine whether or not you are heading in the right direction with the design you developed while storyboarding. Training and development professionals can use prototyping techniques from other disciplines to generate stakeholder and end-user feedback during the initial stages of the design process—before writing code or putting pixels on the screen. Obtaining critical feedback while developing the design will help you generate a final design that will make an impact with your target audience.

For this discussion, prototypes can be classified into three categories—low fidelity, medium fidelity, and high fidelity. The low-fidelity prototype is what I call the paper prototype. Paper prototypes are rough physical representations of the initial designs. medium-fidelity prototypes are what I call wireframe prototypes. Wireframe prototypes are a bit more polished; you are starting to get the design to a more finished state.

Finally, you have high-fidelity prototypes, which are almost fully functioning working copies of the final design. I call these refined prototypes. Refined prototypes are going to be very close to the final product, with many interactions and some final content worked into the design.
physical prototypes should be, by their very nature, easy to create, you can start with many designs. You can then explore the different designs very quickly to see what is going to work and what is not based on the feedback that is collected from the end user and the stakeholders. It should be an iterative process that allows you to receive feedback and make changes to the prototypes while you test the design.

When setting up a test with end users and stakeholders, you need to make sure you are finding a representative sample of the target audience. If the testing is limited to specific sections of the user group, the results will be skewed toward that user group. For example, if you develop an application that an organization’s finance department and customer care department will use for different purposes, then you must make sure the product is user friendly and meets the needs of both departments.

Everything about the actual design of the interface should be open to change during this early stage of prototyping. Even if your company has a template you have to follow, you can use the prototypes you have developed to place items within it. The smallest change in the placement of elements can make a difference in whether users are finding the information they need efficiently and effectively. There are several tools and practices to consider during the early prototyping phase—each can help you refine your design.

**Sticky Notes in Early Prototyping**

Sticky notes are a useful tool when designing crude physical prototypes. Common office supplies, such as file folders, paper, and markers, can also be used to build these early mock-ups. You can then use the models you have created to show key stakeholders different ways the proposed interface could function. If you plan to use certain design elements or images repeatedly, and they will remain constant from screen to screen, you can draw them directly on a sheet of paper and then photocopy it to save time.

Sticky notes can be placed in position on top of the static elements drawn on paper to represent different possible stages of the screen.

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**EXAMPLE PROTOTYPE: THE PALMPilot**

Jeff Hawkins used a block of wood from his garage as the early prototype of his well-known invention, the PalmPilot. The piece of wood was about the size of a deck of cards and had a paper screen layout and buttons glued to it.

Jeff carried the prototype around in his pocket for months. When he attended staff meetings, he would pull out the handheld prototype and pretend to take notes or push the imaginary buttons. If he needed to check his schedule or find a phone number, Jeff would pull out the prototype and press the buttons to simulate how he would get the information that he needed.

By testing the different configurations, changing the screen and button placement, to see what felt the best, Jeff was able to determine that pocket-sized, stylus-driven device could be a successful product. He was right. The PalmPilot was the organizational device of choice during its heyday.

For example, you could draw a drop-down on paper to represent a static element on the screen. The menu will be a static element; the “open” state is shown using a sticky note after the user “clicks” the menu. As end users touch items to change them, you can peel off one sticky note and replace it with another, depicting the “clicked” state.

Watching how users interact with the buttons, images, and other elements of the early prototype they have generates valuable feedback. Are users traveling too much across the screen to get to certain elements? Does the layout and functionality of the design, including the elements, make sense in the context of what you want the users to accomplish? For example, are buttons placed so that users can find them easily and be directed to the most important information?

A beneficial aspect of this type of prototyping is that the design can be changed almost effortlessly. It is easy to go through many design iterations in just a few minutes. The sticky notes, for example, can simply be peeled off and placed in a new location on your prototype. You can even give stakeholders and users sticky notes and markers so that they can develop their own prototype ideas. Creating a physical prototype