

## FluidIA: Evaluation Cycle I

### Research Goals

To validate the usability of the product concept and identify areas where users are having the most amount of difficulty.

### Test Setup

A high fidelity usability test was performed in order to obtain preliminary feedback on the usability of the design. Four people have been tested in their natural working environment. The prototype was running on a laptop computer which also recorded facial expressions using a webcam. The users were given a number of tasks to be performed

### Usability Tasks

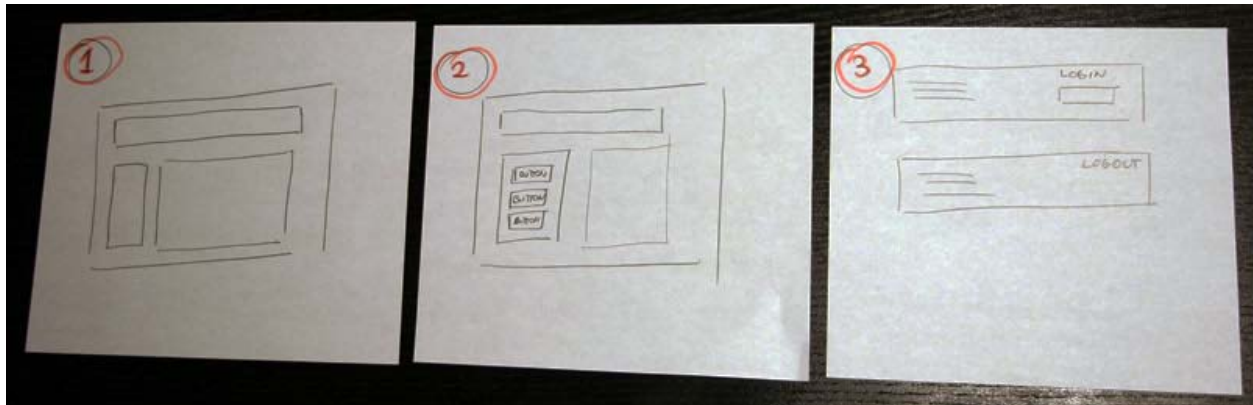
Participants were told the following introductory scenario:

**Background Script:** *A friend of yours has recommended a new prototyping tool and you've decided to give it a try on a small project. It's a web based product and so you've very quickly gained access to it without having to read any tutorials or by passing installation. You managed to catch a glimpse of the tagline: fluidIA – agile UI prototyping.*

The following tasks were asked each participant:

1. You would like to draw a quick sketch of a wireframe for a new client web site. Here is what you have in mind ... [image: 1].
2. Now you're thinking ... the boxes look nice... but if you don't label them you might not remember what they mean in a week from now. Label: "header", "main content", and "sidebar".
3. Widen the sidebar more towards the right, and shorten the leftmost side of the main content area.
4. Populate the sidebar with little boxes [image: 2]
5. A developer runs in and screams to set the header to precisely a width of 800 pixels.
6. Duplicate the sidebar object onto two new pages.
7. Rename the second page to "Second Page"
8. Create two states for the header [image: 3].
9. Shift the whole second state a little downwards and the first state upwards.
10. Make sure both states are now positioned in the same pixel perfect precise way.
11. On page two you would like to make an exception and have the sidebar 20 pixels wider than on pages 1 and 3.
12. Please increase the importance of the header on page one.
13. Please delete the main content area and the last page.

The image samples refer to the following:



## Results – Completion Analysis

The following results for each task, for each user were recorded. Passed meant the task was performed in less than 1 minute. Difficulty meant the task took between 1 and 3 minutes, or required help or hinting. Failed meant that the user did not fulfill the task properly or gave up.

	Test 1	Test 2	Test 3	Test 4
Task 1: Drawing	Passed	Passed	Passed	Passed
Task 2: Labeling	Difficulty	Passed	Passed	Passed
Task 3: Resize	Failed	Failed	Difficulty	Passed
Task 4: Populating Boxes	Difficulty	Passed	Passed	Passed
Task 5: Precise Width	Passed	Passed	Passed	Passed
Task 6: Duplicating Sidebar + Creating pages	Passed	Passed	Passed	Passed
Task 7: Renaming Pages	Passed	Passed	Passed	Passed
Task 8: Creating States	Failed	Failed	Difficulty	Passed
Task 9: Repositioning	Passed	Passed	Passed	Passed
Task 10: Repositioning two states	Failed	Failed	Passed	Passed
Task 11: Making instance exceptions	Failed	Difficulty	Failed	Difficulty
Task 12: Setting Priority	Difficulty	Passed	Failed	Passed
Task 13: Deleting	Passed	Passed	Passed	Passed

## Results - Qualitative Observations

### Test 1

- In order to draw elements, the user has tried to drag the object draw tool icon from the toolbox onto the workspace area.
- The user has accidentally drawn a small element and then had difficulty selecting it due to its small size (1 pixel wide).
- In order to edit the label of an object, the user has tried doing so by unsuccessfully by clicking on the text tool and then clicking the object box in the workspace.

- When editing a label, the user has tried to reposition the input cursor to the beginning of the input field with the effect of losing the ability to input text. By clicking to the beginning of the input box, the focus has been lost.
- In order to select an element, the user has tried doing so by selecting the edges. This took time and sometimes the edges would be missed during a click as the user clicked outside the object.
- User has drawn a text area and began typing automatically with the expectation that text would appear, with no effect.
- User has expressed verbally the uncertainty about which item was being in a selected state.
- User has pasted an object inside another object which grouped both objects. Upon repositioning one object, the user stated verbally the uncertainty about why they have been “grouped” when it was noticed that both objects moved. Interpretation: the act of pasting of an object does not communicate beforehand where it will be pasted.
- Right clicked the selected box without understanding that the menu which appeared was intended for selection of overlaying objects.
- Technical bug: pasting of an object into itself causes a crashing loop.
- Verbally the user has said that a separate page with both states drawn out would typically be done in order to document multiple states.
- Verbally: the user has said that there is no indication that there are multiple states of a particular element.
- “One state” button suggests misleadingly that there is only one state. Interpretation: “hold z” text is visually weak in relationship to the “one state” button. The holding interaction is quite new.
- User has typed in a value in an input field for width and nothing happened. Technical: program should be more sensitive for changing value.
- The user selected “editing all states” and was not certain what to do next.
- Verbally the user explained that there was no expectation that during a paste, the pasted object was somehow related back to what it was copied from.
- The user did not know that the “instance” area in the footer was clickable.
- User is not sure if the “priority” function is more related to the object or to the “state”.

## Test 2

- User was a bit uncertain whether the object tool should be dragged or clicked.
- Was not sure if the text on an object was a label or text.
- User has tried to duplicate an object using ctrl and drag.
- Thought perhaps that the instance arrows left and right would perhaps nudge the selected object.
- Was not sure why a label disappeared once a second item was drawn within the selected item. Interpretation: User has not understood the idea of auto nesting elements.
- The resize functionality was not found on double click. Resize handles were expected on click.

- In order to select multiple items, a drawing select operation was tried around the desired items, without any effect.
- During a page rename, when the editable text is reselected with a mouse, the editable field is very sensitive and loses its focus.
- After drawing a text space, at first the draw operation was followed by keyboard input for the actual text. This expected interaction did not have any effect. The user had to double click the text box first to make it editable.
- Uncertain how to name new states, or create new states. The mental model is to have two states side by side each other on a new page.
- Technical bug: after input of numbers into the input boxes with size and position, the focus is not lost and when the user continues to interact with the interface, additional letters can unintentionally appear there.
- Was not aware that the copy paste action keeps elements linked by means of instantiation. Interpretation: the default mental model is to keep elements separated on a paste action.
- Technical bug: during a resize, only the height and width values change, yet occasionally the y, x positions should update as well.
- The user found much difficulty in realizing that the instance and master fields were clickable. Interpretation: wording “master”; “instance” is a bit technical, the cursor hinting is not available to indicate a clickable area; and the 3d buttons stand out more as clickable in relationship to the instance “button” and grab the attention away.
- User has expressed that the ability to toggle inheritance was not very clear.
- User has expressed that the default fill for text elements, the lines, were not too clear if they were representing text or rows in a table.

### Test 3

- The user was only able to resize using the input fields, and could not resize using the handles. Interpretation: the resize on double click is too difficult to find.
- User was also not sure what the right click menu meant “ins1” etc.
- Was not sure if the text on an object was a label or text.
- User drew the text field and then began typing automatically with the expectation that the lines would change to text. The software however, required first the user to double click the text lines.
- User held Z for the state manager, but then let go and the menu disappeared, while at the last second the user tried to press the “add new state” icon. Interpretation: state manager disappears too quickly.
- Initial reaction to the state selection, vs. “default starting state” is a little confusing.
- The mental model of drawing numerous states is that they are drawn all visibly together side by side each other.
- Verbally expressed that “states”, “instances” and “inheritance” are more technical terms.
- Expressed verbally a mental model behind pages having multiple states (not unique elements having multiple states).

- The user found much difficulty in realizing that the instance and master fields were clickable.
- The user was used very much to organizing pages using master templates or page types.
- Showed preference to alternate between sketchy and precise views for the whole document as opposed for individual objects.

#### Test 4

- User typed in a width value and left it at that. This did not effect the width of the object.
- The user nested items within each other and was not sure where the “labels” disappeared.
- User did understand that certain items were pasted inside each other – nested.
- When entering text to a box, the focus disappeared upon clicking the beginning of the input box.
- User has selected the “starting state” radio button unintentionally thinking it was a mechanism for changing the object state in the workspace.
- Unchecked position inheritance which transformed the element to a size 0, 0 – making it difficult to select. Technical bug.
- Entered non numerical text into the input box of the position field which caused the element to become very small. Technical problem.

#### Concluding Summary

The biggest problem in the first testing cycle included the following:

- Users were not aware that a paste action created an automatic instance relationship between the pasted item and the item from which it was copied. This is perhaps as a result that most users are used to a completely different mental model when pasting – one which during a paste operation separates the elements from each other completely.
- Users were not able to toggle between the edit as master or edit as instance modes. This is perhaps that the language of master and instance is a bit technical. Another reason is due to the lack of cues hinting that the two modes can be switched. For example, near the “instance edit” mode 3D buttons are present which look very clickable, yet the area in which they exist is very flat. Thirdly cursor hinting could be improved to suggest that the areas are actionable.
- The general visual structure and relationship between object / instance / state and inheritance was not too clear. This is a very complex relationship which requires more clarity.
- Users also did not understand the nesting behavior resulting from pasting inside objects. (For example: that shifting a parent item would mean that the children or contents would also shift.) This is a new interaction which is relying on a new mental model.
- Users experiences difficulty enabling the resize controller handles on double click.
- Users had trouble creating multiple states. This is because the state controller’s visibility was not visible enough. More so, a hold key interaction is also a new way of interacting which requires learning.
- In addition, there are numerous minor usability problems relating to focusing when interacting with input boxes and text areas. A number of input elements either are too sensitive or not enough sensitive to input.