

# Adding Delight to Web-IDE

## Thesis Related Work

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March 14, 2012

## 1 Related Work

As I have been doing research into the topic of delight in software, I have been unable to find any research directly related to my topic of adding delight to software in education. In the absence of directly related research, I have looking into other research areas that overlaps with my topic, and some of it is more relevant then others. There are three main paths of research that I have gone down, Delight related research, General HCI (Human Computer Interface) and IDEs (Integrated Development Environments).

### 1.1 Concept of Delight

The first main area of research is the area of delight. The first area of research that I have looked into is research that actually uses the word delight.

#### 1.1.1 Delight

The main research paper that I found was a paper titled "Delight by Design: The role of hedonic versus utilitarian benefits" by Chitturi et al.[1] This paper is a marketing paper that is focused on customer retention. They categorized delight as a "hedonistic" benefit and compared it to utilitarian benefits. The example they used is that Anti-Lock brakes and airbags are utilitarian benefits where a premium sound system and panoramic sunroom are delightful or hedonistic benefits. It was their conclusion that they demonstrated a correspondence between hedonistic benefits, delight and customer loyalty. They also showed that delighting customers improves word of mouth and repurchase intentions more then merely satisfying them.

#### 1.1.2 Cool

Karen Holtzblatt published an article "What Makes Things Cool? Intentional Design for Innovation" [4] which is very closely related to the concept that I am trying to explore. While this is a very nice paper, it is more a high level discussion about what makes good design then research into applying good design to an application. The main concept that the author explores is what she titles the joy wheel and the joy triangle. These are how the creator can create joy in their end users. The joy wheel consists of core life motivators, which are Accomplish, Connection, Identity and Sensation. These are the motivations in the user that the designer should try to satisfy. How this plays out when the product is actually in use is the joy triangle. The joy triangle is how the user will find joy while using the product. The joy triangle is compromised of the Hassle Factor, Direct into Action, and the Delta. Direct into Action is how the soon the user can use the product to accomplish their needs. The goal for Direct into Action is to let the user start using the system and accomplish their goal as quickly and directly as possible. The Hassle Factor is the opposite, it is the amount of hassle the user must deal with in order to use the product. A good design will minimize the Hassle Factor according to the author. The delta is just a measurement of the difference between the two. While I feel that this paper has a lot of great principles, it is not as focused results as my thesis will be.

## 1.2 HCI

In a generic sense, adding delight falls under the principles of Human Computer Interaction (HCI).

### 1.2.1 User Judgement Framework

One of the most helpful papers I found in the HCI area was "Towards a Theory of User Judgment of Aesthetics and User Interface Quality" by Hartmann, Sutcliffe, De Angeli [3]. The article introduces a framework for users design quality judgments based on Adaptive Decision Making theory. The framework that they describe is refined with three experiments. The main question that they are attempting to answer is whether the aesthetics of a website has a direct impact on User Interface quality. My research is different in that user Delight is not only based on the aesthetics of the user interface, but at its core is based on the overall experience the user has when interacting with the software, which while it includes the User Interface, is also very much tied to the software functionality. The conclusion that the paper arrives at is that the link between aesthetics and usability is more complex than the claim made previously that "what is beautiful is usable".

What is also of high interest to me in this paper is how they conducted their study. For their study they used a random sample of students and asked them to fill out a survey in the format of a 7-point Likert scale, before and after using the software that they were conducting the survey on. This seems to me as if it will have to be a model for how I conduct at least some of the validation for my research.

## 1.3 IDE

Another Area of research for me is in the area of Integrated Development (IDEs). This research has less overlapping areas of interest with my work, as I am not trying to push the boundaries of what a web based IDE can do as much as I am attempting to give the best experience possible to beginning computer science students. However, there is some interesting research being done in this field, and it would be foolish to ignore it.

### 1.3.1 Web-IDE

Dvornik was the initial developer of Web-IDE and he wrote and published a paper titled "Supporting Introductory Test-Driven Labs with WebIDE". [2] It was important for me to read this as it is the foundation of what I am trying to build upon. One of the main threats to validity that he encountered was that the system had numerous errors which caused the students to get extremely frustrated. While Delight is more than just error prevention, clearly the students who were forced to deal with a significant number of errors were not having a delight filled learning experience. It is my hope that I can learn from the past uses of Web-IDE and include that as I try to make the Web-IDE experience a delightful one.

### 1.3.2 Other IDEs

Adinda: A Knowledgeable, Browser-Based IDE [5] is a paper about a browser based IDE. While they are trying to build a collaborative IDE which is out of the scope of what I am trying to do, they do have implemented some features that I believe that would add delight to Web-IDE such as code completion and syntax highlighting. These features are in the software that they based their system on, a browser based IDE called, WWWorkspace, which is open source and is online. It is my hope that I can implement some of these features based on the source code that is already available.

## References

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