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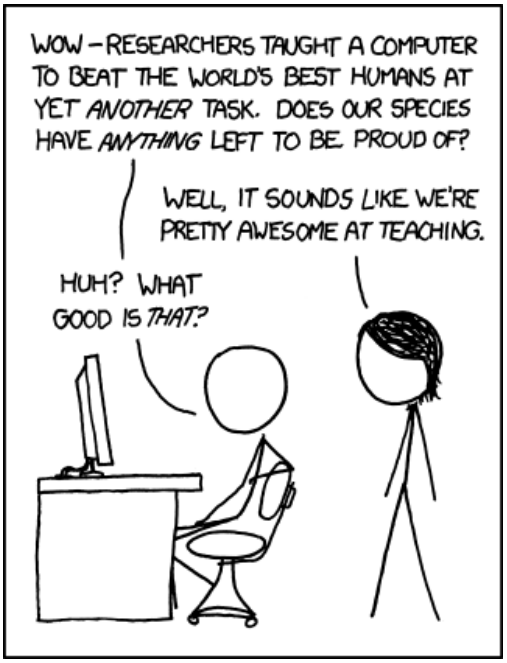


# Accessibility of Teaching Materials

## Exploring Obtainability and Testing Usability in Design of Shareable Teaching Materials

Master of Science thesis in Learning and Leadership

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SEBASTIAN EVERETT ERIKSSON

Department of Communication and Learning in Science
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2018

Master's thesis 2018:NN

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# Abstract

For shareable teaching materials to work as intended, they need to be accessible to possible recipients. In this study, accessibility is defined as being obtainable and usable.

The obtainability aspect is primarily explored via literature study. The usability aspect is analysed by testing of existing teaching materials. The methodology is inspired by usability testing methods found in computer science and IT.

Research questions created to be answered in this thesis are:
- RQ1:
- RQ2:
- RQ3:

Keywords: lorem, ipsum, dolor, sit, amet, consectetur, adipisicing, elit, sed, do.

# Acknowledgements

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# 1
# Introduction

This chapter presents the section levels that can be used in the template.

## 1.1 Section levels

The following table presents an overview of the section levels that are used in this document. The number of levels that are numbered and included in the table of contents is set in the settings file `Settings.tex`. The levels are shown in Section 1.2.

| Name | Command |
|---|---|
| Chapter | \chapter{*Chapter name*} |
| Section | \section{*Section name*} |
| Subsection | \subsection{*Subsection name*} |
| Subsubsection | \subsubsection{*Subsubsection name*} |
| Paragraph | \paragraph{*Paragraph name*} |
| Subparagraph | \paragraph{*Subparagraph name*} |

## 1.2 Section

### 1.2.1 Subsection

#### 1.2.1.1 Subsubsection

##### 1.2.1.1.1 Paragraph

###### 1.2.1.1.1.1 Subparagraph

# 2

# Theory

## 2.1 Krug's theory: What is usability, and how do you test it?

Steve Krug is a usability consultant who wrote books about usability. His usability books are mainly focused on websites, but as he writes himself, his methods are applicable on other things as well.

Krug defines his first law of usability as "Don't make me think!", implying that users should be understand what a website is and how to use it without expending any effort thinking about it:

"A person of average (or even below average) ability and experience can figure out how to use the thing to accomplish something without it being more trouble than it's worth." [SOURCE: DON'T MAKE ME THINK REVISITED, p.9]

Aside from a few principles of usability, Krug puts a lot of effort into describing the usefulness of usability testing and how to do such testing in a cheap and easy manner. In his book specifically about usability testing, he defines such tests as:

"Watching people try to use what you're creating/designing/building (or something you've already created/desgined/built), with the intention of (a) making it easier for people to use or (b) proving that it is easy to use."

Or, in simpler terms:

"A facilitator sits in a room with the participant, gives him some tasks to do, and asks him to think out loud while he does them."

### 2.1.1 Making usability testing scientific

One important difference between Krug's method and the method used in this thesis is that Krug's focus is not tobe scientific, but to merely improve what one is building [SOURCE: ROCKET SURGERY MADE EASY]. Thus, certain parts of his method have been adapted to make it easier to analyze:

1. In contrast to Krug's method, the tasks in the tests are not altered mid-test, to make them more comparable.
2. There is more data gathering involved in the form of recordings and notes, rather than having a group of observers watching the test, to make analysis and comparison easier long after the tests have been conducted.

### 2.1.2 Connecting usability theory for websites to teaching materials

One can argue that there's a large difference between teaching materials and websites. While in some cases these can be the same, such as online materials shared through a blog post, a teaching material can sometimes take the form of a book, a single PDF file, and more. All the materials have in common is that they're used to facilitate and/or empower a teacher's work. However, usability testing is still clearly applicable in the sense that it consists of observing someone use what you're testing.
Since teaching materials can be used in many different ways, the use case had to be narrowed down. Thus, in this thesis, the use case that the usability tests cover consist mainly of how teachers use teaching materials to plan their lessons. This does not mean that other use cases are ignored, such as a teacher simply using a material to learn more about a subject. However, the lesson planning is the main focus of the usability testing in this thesis.

## 2.2 Figure

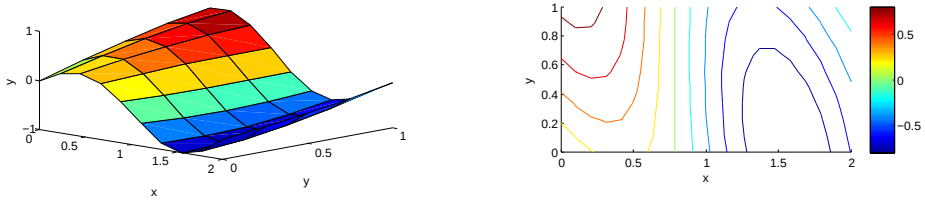



**Figure 2.1:** Surface and contour plots showing the two dimensional function $z(x, y) = \sin(x + y)\cos(2x)$.

## 2.3 Equation

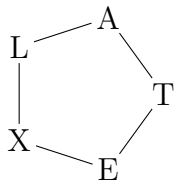
$$f(t) = \begin{cases} 1, & t < 1 \\ t^2 & t \geq 1 \end{cases} \tag{2.1}$$

## 2.4 Table

**Table 2.1:** Values of $f(t)$ for $t = 0, 1, \ldots 5$.

| $t$ | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| $f(t)$ | 1 | 1 | 4 | 9 | 16 | 25 |

## 2.5 Chemical structure




## 2.6 List

1. The first item
   (a) Nested item 1
   (b) Nested item 2
2. The second item
3. The third item
4. ...

## 2.7 Source code listing

```
% Generate x- and y-nodes
x=linspace(0,1); y=linspace(0,1);

% Calculate z=f(x,y)
for i=1:length(x)
 for j=1:length(y)
  z(i,j)=x(i)+2*y(j);
 end
end
```

## 2.8 To-do note

The `todo` package enables to-do notes to be added in the page margin. This can be a very convenient way of making notes in the document during the process of writing. All notes can be hidden by using the option *disable* when loading the package in the settings.

Example of a to-do note.

# 3
# Methods

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# 4

# Results

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# 5

# Conclusion

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# Bibliography

[1] Frisk, D. (2016) A Chalmers University of Technology Master's thesis template for LaTeX. Unpublished.

# A

# Appendix 1

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