Exploring efficient design of teaching materials / Usability-testing teacher accessibility (in design) of shareable teaching materials

Master's thesis planning report

1 Introduction

1.1 Background

While many studies focus on how teaching materials can be designed to improve student learning, few have tackled how teaching materials can be designed for teachers to find them accessible. Teacher accessibility is a cornerstone of effective education, in that student learning suffers if a teacher can't create efficient lessons from the given or chosen material. In a world where content creation is thriving, accessibility becomes more crucial as availability becomes more trivial.

1.2 Aim

- This study aims to find which aspects of teaching materials contributes to making said material accessible to teachers.

In broad terms, teaching materials can be anything from math books to PowerPoints or Youtube-videos. The teaching materials in this study will be designed by the authors of this study to initially emulate the typical shareable material that can be found on the internet, iteratively evolving to determine how it can be more accessible to teachers.

"Accessible" will be viewed as a complex term, primarily being synonymous with "usable". Secondary meanings include "convenient", "inspirational", "useful", "effective", "flexible" and "suitable".

The question the study is trying to answer is:

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// Define what materials are and what materials we are going to use as concretely as possible, without sacrificing flexibility that will be needed when negotiating tests with teachers.

// Scope: Research question, purpose, and such. Again make it as concrete as possible without sacrificing too much flexibility. Use Beginner's Mind.

// How do teachers use documented education, and how can documentation be formed to maximize gains for the teachers that use it? Gains mean, for example:

- Time, compared to if the teacher had planned their education from scratch
- Knowledge, in that the teacher could use another person’s expertise in an area
- Perspective, in that different teachers contribute to the same documentation

2 Strategy and method

2.1 Risks and bottlenecks

- Teachers stop working in the middle of the project due to the summer holidays. This creates several challenges. It gives us limited time to contact the teachers and plan the tests together with them. It might also make it more difficult to convince them to participate. Our main method for dealing with this is to focus on one whole school at a time, meaning we don't have to adapt to too many teachers' structures and methods, especially if the teachers cooperate in teams. We'll also work actively on contacting schools and teachers even while the planning report is being written.
- After schools close for summer, we can't do any more testing. This means we need to find a way to contribute to the project without the schools. Suggestions are to continue developing the teaching materials without tests, working on sharing/discussing the results online, or finding a summer school or study circle to do tests with.
- [Lärarna har inte tid?]
- [Vi tolkar testmetoderna olika?]
- [Risk: Vi gör materialet bra på usability test, men inte bra på lektionen!]

2.2 Schedule

// Schedule. Gantt n stuff. More detailed than the small project plan, obviously.

//defend report sometime in August...

// 30 hp motsvarar 800 h per person

2.3 Method

// Describe our strategy: Create a suggestion for every school that is interested in doing and participating in tests. Also describe our two test types, the usability test and the lesson observation, or whatever we want to call them. Check the separate suggestion document for details.

3 Deliverables

A collection of shareable resources that result from the master's thesis aside from what is shared in the final report. All resources are part of the final report in some way, but here are some other ways to share the knowledge gained from the thesis outside the project.

3.1 Target groups and how to share the deliverables

While the final report and presentation are technically open to the public, many of our target groups will not likely take part of these resources. To make our results more accessible to the public we propose a few ways to share them with the following audiences:

- Swedish school teachers: There are multiple social media groups where resources like ours are shared, where it's easy to upload files and show a summary of our findings to teachers who might be interested. The schools and teachers that we cooperate with might also want to take part of our results and should therefore be handed the deliverables in an accessible format.

- Students and alumni at Lärande och Ledarskap. These may partake in the presentation, and they have multiple social media groups and similar places where we can share the deliverables that they might be interested in.

- Engineers that work with Knowledge Management or similar subjects: [uh, actually, how do we reach these?]

- [Kleindagarna? Studion? Chalmers-institutioner?]

3.2 Testing methods

With our testing methods we hope to develop a simple yet effective way of studying the accessibility of teaching materials. Inspired by Steve Krug's usability testing script, we want to make our methods similarly accessible to those who are interested in making effective teaching materials.

- A Steve Krug-like script for doing usability testing of teaching materials.

- An evaluation of the testing methods from several perspectives: Its time and resource requirements, its reliability and validity, what kind of information it gives, and eventual other things that we discover with it.

3.3 Models that facilitate the making of teaching materials

During our testing we expect to create and think about new models that describe the process of making teaching materials. We hope that some of these will be useful for understanding the process and for finding new ways of improving one's ways of creating materials. In that case, making them accessible to the public might be advantageous.

- A description of each model and how it's thought to be used.

- And evaluation of each model that describes eventual areas of improvement and what the model might be useful for.

3.4 Teaching materials

While we expect to use a lot of existing teaching materials for testing instead of spending a lot of time making it from scratch, there's also the possibility of improving these materials as part of the testing process. For example, we might try to "patch" one of the shortcomings of one material, and test how this patch changes its quality. Similarly, we might create instructions to increase the accessibility of some materials to the test subjects. In such cases, sharing the improved materials might give something of value to teachers that they may be relevant to.

- The materials themselves in the form of digital copies or blueprints.

- A summarized evaluation of each material according to the test results in the final report.

- Instructions for how each material can be used, and how one can take part of its benefits.

3.5 Testing results

[The testing results are practically our final report, and I was unsure whether this deliverables chapter would be a "non-final report chapter" or "everything we will deliver chapter." I'm leaning toward the latter.]