# Projektplan Exjobb: Compensating segregation using shared teaching materials: A design perspective on lesson planning

## // Notes from recent meeting with a maths teacher at GTI

- He divides his lessons up in "blocks", for example a "lecture block" and an "exercise block", with many different variations depending on what the lesson requires.

- He thinks the most common layout of a maths lesson is 20 minutes of lecture and 40 minutes of calculation exercises, which he doesn't find optimal since it doesn't adapt to the needs of whatever subject they're teaching.

- "Kunskapsmatrisen" is an online database service with well-ordered maths problems that one can pick from. It's a form of lesson material that can be used for many kinds of lessons and exams, rather than using a "do like this and that"-format of lesson plans. It's also well adapted and ordered according to the lesson plan. According to him, this service is very popular among maths teachers in Sweden, and growing.

- When we do observations in a classroom, he suggested we use observation templates to make sure we look at the same things. One example of an observation template is "lesson studies", called "learning studies" at Gothenburg University, that is popular in Japan. Skolinspektionen also have templates, but they might not be relevant for what we're observing. Worth noting is that we're probably not looking at how well the material teaches a certain subject, but rather how accessible it is for a teacher, and how it affects their planning and time requirements. Learning studies might therefore also be irrelevant.

- To make it easier for us to plan our tests, he suggested we do several tests at one single school. This is because the teachers often work together with their planning, especially long-term. Therefore, it's possible to test a certain material with several teachers, or coordinate things with them so they plan how they use it together.

- An important thing that he mentioned with lesson planning is that the students, from his experience, need to be trained in a way of working to feel comfortable with it. For example, if a group of students are used to beginning their lessons with a lecture, having a full lesson of only exercises might make it harder for them. Thus it's important that the teaching materials that the teachers use fit their usual way of executing a lesson.

- I asked him if it was possible to do our tests at his school, GTI. He said they (the maths teachers) are a bit busy learning programming at the moment, but that they might have time for it. If we're interested, we should send them a suggestion containing when and how before or during the easter holidays. They'd also like to know if they can reject a suggested material or not. In other words if they have to use the material once it's agreed upon, or if they can reject it with a given reason, that might also be relevant data for our study. Another suggestion was to share a certain between teachers at the same school, such as the materials by the "förstelärare".

- A final interesting but semi-irrelevant note was that he said that the easter holidays are a sort of marking point for when "everything should be done". I assume he meant certain parts of the courses, exam corrections, and such. In his words, if a teacher isn't done by then, "they're screwed".

# Introduction

# Background

"Förr var lärarens uppgifter begränsade och mer kopplade till undervisningsarbetet samt till sina egna elever. Det är fortfarande lärarens huvuduppgift men i och med Lpo 94 så har lärarens ansvar ökat till att ansvara för hela skolans verksamhet" - https://muep.mau.se/bitstream/handle/2043/9960/Examens%20Arbete%20HT%2009.pdf?sequence=1

"The demands on schools and teachers are becoming more complex. Society now expects schools to deal effectively with different languages and student backgrounds, to be sensitive to culture and gender issues, to promote tolerance and social cohesion, to respond effectively to disadvantaged students and students with learning or behavioural problems, to use new technologies, and to keep pace with rapidly developing fields of knowledge and approaches to student assessment (see Box 3)." - https://www.oecd.org/edu/school/34990905.pdf

http://pedagogiskamagasinet.se/var-gar-gransen-for-larares-ansvar/ - källa som beskriver problemet med lärarens breda och otydliga ansvar; var går gränsen?

"Historiskt sett har läraren haft en central roll i samhället som kunskapsförmedlare men har ändrats till ett allt mer komplexet yrke, där ständig övervakning och styrning bidrar till lärarens utsatta roll. Detta bidrar till att lärarens rättigheter inte är tillgodosedda." - https://muep.mau.se/bitstream/handle/2043/9960/Examens%20Arbete%20HT%2009.pdf?sequence=1

// Undvika att uppfinna hjulet en gång till: Oekonomiskt.

// Vad händer med nya lärare? Vilket material har de när de börjar? Får från skolan?

// Rapport om segregation i svenska skolor:
https://www.skolinspektionen.se/globalassets/publikationssok/granskningsrapporter/kvalitets
granskningar/2014/segregation/kvalgr-segregation-slutrapport.pdf

"Utbildningen ska enligt skollagen vara likvärdig inom varje skolform och inom fritidshem
oavsett var i landet den anordnas."

"Det finns i granskningen också exempel på kommuner där det bedrivs ett medvetet och
långsiktigt utvecklingsarbete på huvudmannanivå, vilket resulterat i förbättrad måluppfyllelse
för kommunen totalt. I ett sådant framgångsrikt exempel kombineras insatser av vitt skilda
slag, som till exempel fysiska förändringar av skolor och upptagningsområden,
metodutveckling av undervisningen med forskarstöd, program för elever från missgynnade
hemförhållanden, satsningar på föräldrar, lönesatsningar på skickliga lärare och utnyttjande
av arbetstidsavtal för organisationsutveckling." - Metodutveckling av undervisningen med
forskarstöd låter relevant. Lönesatsningar låter ironiskt med tanke på att de vill minska
segregeringen.

// "Alla barn och ungdomar ska, oberoende av kön, geografiskt hemvist samt sociala och
ekonomiska förhållanden, ha lika tillgång till utbildning i det offentliga skolväsendet för barn
och ungdom. Utbildningen ska inom varje skolform vara likvärdig, varhelst den anordnas i
landet. (1 kap. 2 § skollagen)" - https://www.skolverket.se/om-skolverket/publikationer/visa-
enskild-publikation?_xurl_=http%3A%2F%2Fwww5.skolverket.se%2Fwtpub%2Fws
%2Fskolbok%2Fwpubext%2Ftrycksak%2FBlob%2Fpdf2204.pdf%3Fk%3D2204

"Despite the large effect of teachers on student performance, disadvantaged schools are not
always staffed with the highest quality teachers. Policies must raise teacher quality for
disadvantaged schools and students by: providing targeted teacher education to ensure that
teachers receive the skills and knowledge they need for working in schools with
disadvantaged students; providing mentoring programmes for novice teachers; developing
supportive working conditions to improve teacher effectiveness and increase teacher
retention; and develop adequate financial and career incentives to attract and retain high
quality teachers in disadvantaged schools." - OECD-rapporten

"Schools with higher proportions of disadvantaged students are at greater risk of
problems that can result in under performance, affecting education systems as a whole. Low
performing disadvantaged schools often lack the internal capacity or support to improve, as
school leaders and teachers and the environments of schools, classrooms and
neighbourhoods frequently fail to offer a quality learning experience for the most
disadvantaged. Chapter 3 proposes five policy recommendations that have shown to be
effective in supporting the improvement of low performing disadvantaged schools." - OECD-
rapporten

"Evidence shows that successful strategies should take into account the following key
elements (also see Box 3.4).

[...]

Resources. While general increases in school funding do not necessarily improve

student outcomes (Woessman, 2008; Faubert, 2012), some targeted increases in specific school inputs can improve student outcomes (Jacob and Ludwig, 2008). On a case-by-case basis, core funding can be increased on a short term basis, and incentives can also be provided for schools based on student improvement and. Systemic support can also take the shape of extra resources and more teacher time, to have time to participate actively in networks and for common planning, and guidance on improving expertise, among others (Reynolds et al, 2002).

Formal common planning time at school. The reorganisation of the timetable to allow block release for professional learning teams, and for the collaborative planning of strategies for improvement, can lead to a strong alignment between staff in the school and to tangible results.“

// Mattebokens roll i skolan

// Elevens beroende av läraren: segregation, mm.

// Dokumentation av lärarens arbete: hur läraren delar med sig av sitt arbete till kollegor och framtida efterträdare

// Designstrategier: Texten från NTL2; https://ebookcentral.proquest.com/lib/chalmers/reader.action?ppg=54&docID=4558515&tm=1512585235632 s.39

// http://oerhub.net/research-outputs/publications/ ← Hittade något som kallas för "OER" som känns relevant, och som det har forskats på. Tror inte Samuel vet om detta.

// Dokumentation översvämmar

// https://wiki.creativecommons.org/wiki/What_is_OER%3F ← Definition av OER:

"OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge."

OER är intressant för den svenska skolan för att allt material som lärare skapar är offentliga/allmänna handlingar. Med andra ord blir all dokumentation öppen för allmänheten juridiskt, om jag förstått lagen rätt, och kan klassas som OER ifall det är åtkomligt för allmänheten. Kan hända att detta inte gäller privata skolor.

// Artikel om offentlighetsprincipen i friskolor: http://www.friskola.se/starta-driva/vart-att-veta

"Något som är viktigt att känna till är att en friskola inte är en myndighet och därför inte omfattas av offentlighetsprincipen eller sekretesslagen. För friskolor finns i skollagen däremot en särskild bestämmelse om tystnadsplikt. Det här medför också att om kommunen använder sig av sin insynsrätt och vill ta del av en friskolas dokument behöver

tystnadsplikten beaktas och man är inte heller skyldig att lämna ifrån sig material som inte är offentligt genom andra bestämmelser, exempel på sådana handlingar är årsredovisningar, verksamhetsberättelser och årsbokslut."

// Ett examensarbete om matteböcker genom historien:
https://muep.mau.se/bitstream/handle/2043/3734/Microsoft%20Word%20-%20Abqari_Shaur_Valfridsson%5B1%5D.pdf?sequence=1&isAllowed=y

"Den första riktiga läroplanen kom 1962. I den är detaljrikedomen vad innehållet beträffar så stor att man nära nog bara hade att kopiera de föreslagna exemplen till en nyskriven lärobok. Tillsammans med de metodiska anvisningarna fanns det nästan inget utrymme för läraren att improvisera om han eller hon ville följa reglerna och böckerna blev också därefter."

"Lpo 94 är den mest liberala läroplanen hittills, med i teorin stora möjligheter till improvisation och tolkningar, i princip skulle man inte ens behöva använda någon lärobok. Ett inslag i läroplanen hävdar att eleverna för att kunna påräkna högsta betyg måste delta verbalt i undervisningen. Läroböckerna är följaktligen också välförsedda med uppgifter som skall utföras i grupp och/eller diskuteras i klassen."

// En rapport om OER, Open Educational Resources:
https://oerresearchhub.files.wordpress.com/2014/11/oerrh-evidence-report-2014.pdf

Några intressanta saker från rapporten:

"Knowing where to find resources is one of the biggest challenges to using OER"
"General knowledge of well-established OER repositories is low"
"Only 5% of educators say they don't share information about OER"
"The more educators use OER, the more they are willing to share"
"Only 12.4% of educators create resources and publish them on a Creative Commons license"
"Videos are the most common type of OER used"
"Cost of and access to materials can have an effect on student retention"

Mycket som rapporten tar upp är däremot riktat mot andra nivåer än grundskola och gymnasium och pratar mycket om tillgängligheten utanför skolan. Det skulle kunna vara relevant, om det visar sig att elever själva kan hitta och använda material.

// Artikel som kritiserar matteböcker (inte för vetenskaplig referens, men för att visa att diskussionen existerar): http://sverigesradio.se/sida/artikel.aspx?programid=112&artikel=5749535

// Lärarens roll bör tas upp någonstans. Om vi ska kompensera segregation så är det till exempel relevant att tid och resurser en skola/lärare har att lägga på lektionsmaterial och -planering minskar i s.k. "Problemskolor" pga de behöver fokusera på ledarskap. Tror det går att referera till OECD-rapporten angående det.

// Theme music till när vi skriver slutrapporten: https://www.youtube.com/watch?v=sPlhKP0nZII

// A teacher can be ill or for other reasons be unable to execute their lesson plan. Oftentimes a substitute is then available to take the teacher's place, but for different reasons most of these lessons won't be as successful as they otherwise would. This scenario describes that the students' education is highly dependent on the teacher. Being dependent on a teacher also means that students in different classes/schools/countries will be offered education of unnecessarily different quality. Other reasons a students education would need to depend on a "lower quality teacher" (the teacher could for example lack experience, or be uninterested in improving as a teacher) could be how willing the potential teacher is to move or commute to the schools' municipal or what salary the potential teacher can be offered. This could for example affect socioeconomically poor regions negatively, and would thereby be a factor that maintains current segregation. Reducing dependency on a teacher, without reducing the quality of the education in the process, should therefore be desirable. // https://www.oecd.org/education/school/50293148.pdf Grym källa om segregering och jämlikhet i skolan och vad som kan göras åt det.

// Till Sebastian: skulle lärarberoende minska genom en lektionsplanering som är helt öppen för elever, som alltså inte kräver att läraren presenterar den (vilket är det typiska scenariot)?

# Aim

// 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

# Limitations

# Specification of issue under investigation

# Method

// Metodpraktikan?

//

# Schedule

// 30 hp motsvarar 800 h per person

// Gantt-schema
// -> Deadlines

// Vill använda Critical Path för detta. TL;DR hitta flaskhalsar och prioritera dem.


# 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.

## 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?]


## 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.


## 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.

## 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.

## 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.]