Teachers' approaches to handle budget cuts in Higher Education
shaping the future of teaching at LTH
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Artiklarna i detta nummer av Lärande i LTH har ursprungligen presenterats i samband med LTH:s nionde pedagogiska inspirationskonferens, som arrangeras av Genombrottet, LTH:s pedagogiska stöd- och utvecklingsenhet. Fokus i de utvalda artiklarna ligger på hur lärarna tänker och känner inför olika utmaningar i sin pedagogiska gärning vid LTH. I den första artikeln undersöks hur lärare vid LTH har valt att hantera budgetnedskärningar inom undervisningen. Den andra artikeln beskriver lärarstategier som används då kursdeltagare uppvisar stora skillnader i förkunskaper. Betydelsen av handledarens motivation och egenintresse vid handledning av examensarbeten studeras i den tredje artikeln.

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Response på fråga 1 i den lärarenkät som beskrevs i artikeln ”Teaching students with heterogeneous prior knowledge - a teacher survey”. Frågan lades: Which topics are required as prior knowledge in your course?
Teachers’ approaches to handle budget cuts in Higher Education

Shaping the future of teaching at LTH

Björn Arvidsson, Erik Gottsäter, Magnus Hagelsteen, Oskar Linderoth and Shifteh Mobini, Department of Building & Environmental Technology, LTH

Teaching students is one of the main tasks of LTH, as thousands of students engage in their engineering studies at the faculty every year. The funding for teaching these students is an essential source of income for LTH, but in recent years there has been an increased worry for diminishing financing for lecturing at the faculty. This study aims to investigate how lecturers perceive the development and what practical measures they have taken in their courses to counteract it. Interviews with ten lecturers at the department of Building and Environmental technology were performed.

According to an article in the Swedish newspaper “Sydsvenskan” by Knitilä [1] the decline in resources is threatening the quality of education at Lund University, especially in areas where the money per student is the lowest. The state funding for education has not kept up with the increased costs during the last years. For example, during 2010-2016, the funding has increased with an average of 1.8% per year, compared to the salaries, which had a yearly increase of about 2%. The rents for offices, lecturing halls and other facilities have increased as well [2].

In 2008 the Swedish National Agency for Higher Education presented a report which showed that lecturers in higher education in Sweden work on average 52-53 hours per week, and that the working hours have increased during the last years [3]. The working hours were divided into 20 hours of research, 20 hours of teaching and 13 hours of administration.

More than half of the lecturers that were interviewed talked about a 10% budget cut in lecturing that was decided upon a few years ago at the Department of Building and Environmental Technology. Many lecturers see time as their most fearsome enemy when it comes to educational duties. It is the main factor preventing them for making the sometimes necessary changes in their courses. Due to “teacher’s pride”, several lecturers use their vacation and outside office hours to prepare, update, change and develop lectures and courses.

In the interviews, two different approaches were found in dealing with the discussed problem. The first approach consists of making none or as few changes as possible in one’s course. When changes were made by these lecturers, they were generally simple to make - for example removing lectures and exercises or increasing the number of students per group in group projects. The strategy is likely to save time for the lecturer immediately, but might also reduce the quality of the course. If the time available for teaching continues to decrease for a longer period of time, this approach might be insufficient. It seems like the lecturers using this approach believe that it is necessary for them to present all relevant theory in the course for the students [4] i.e. through lectures it is possible to shape and transfer knowledge to the students [5]. This pedagogical method may stimulate a surfaced approach to learning [6], [7]. There is a risk that the lecturers start removing a few parts of the course that are essential, once they run out of superfluous parts, which...
could lead to a reduced quality of the course. The second approach is to promote the need for reshaping the courses entirely or substantial parts of it, leaving the traditional way of teaching at LTH with lectures and exercises, and instead introduce more self-study of theory and interactive seminars or exercises. The students would have to learn the facts and basic concepts of the course by reading the course literature, possibly with some help of guiding questions or videos provided by the lecturer. Other lecturers let the students hand in individual reflections before the lecture or seminar, so called longer “minute papers” [4]. Another way of achieving more time efficiency related to grading reports, could be for example having the students commenting on each other’s reports before handing in to the lecturer. The lecturer can also choose to only point out which answers that are wrong and then give the students a list of common errors, so explanations do not have to be written in each report. The scheduled time would then be more focused on interaction between the students and the lecturer, which avoids spoon-feeding students with information and resulting in a deeper approach to learning. This approach to teaching puts more responsibility on the students themselves to go through and learn the material. It requires motivated students and that they are informed properly of their responsibilities. Reshaping a course in this way requires a significant amount of time, although it could save time in the long run.

Some lecturers said that the budget cuts were not only negative, because it forced them to critically evaluate the way they taught and planned their courses. Some examples of ideas that the teachers would like to explore are peer-to-peer reviews, online courses, video clips, electronic media, problem-based learning and oral exams. At the same time as these teachers have ideas of how to develop their courses, they simply do not have the resources or the time to do it. One of these lecturers commented on the traditional way of teaching as “We create machines that do not reflect on what they learn, they just memorize”.

Our suggestion is to have a practical guideline or best practice on how to change and further develop existing courses in order to facilitate changes and save lecturers' time at LTH. Already today there is a possibility to receive help from the Academic Development Unit at LTH through direct communication, but a suggestion is to also provide workshops on this specific topic. This could be of great help for lecturers at LTH, since it could both save time and increase teaching quality.

References

Teaching students with heterogeneous prior knowledge
A teacher survey

Emma Fitzgerald and Michael Lentmaier, Department of Electrical and Information Technology, LTH

In an increasingly globalised academic system, classes are made up of a diverse student body with heterogeneous backgrounds and prior knowledge. This is especially true in international programs, such as the Masters in Wireless Communications program at LTH. This program is the focus of this article, which is an abridged version of our paper presented at LTHs pedagogiska inspirationskonferens [1].

Students in the Wireless Communications program are recruited from around the world and as such have a diverse array of prior studies and workplace experience. The common requirement for students to enter the program is a Bachelors degree in electrical engineering or a related field, however the content of this degree varies from institution to institution and country to country, leaving some students lacking in assumed knowledge for the program. Many students have worked for a number of years between completing their Bachelors degree and enrolling in our Masters program, meaning that some prior knowledge may have lain unused for some time and is thus not readily available to the student. On the other hand work experience can provide students with valuable prior knowledge of other kinds, such as skills in teamwork and communication.

In order to assist students lacking in prior knowledge, teachers often adapt courses to those with less prior knowledge (the “lowest common denominator”), causing other students to lose motivation [2]. However, catering instead only to better-prepared students is just as problematic, as the course then becomes too difficult for those students without the needed prior knowledge. In [2], advanced students were taken out of the class to do activities tailored to their needs. Beichner et al. [3] propose instead a new teaching method, named SCALE-UP, intended to include more group work and problem solving even in large classes, which can assist students with lower levels of prior knowledge. However, while these methods were successful, they can be difficult to implement, requiring more teaching hours, or a re-design of course materials or teaching spaces. Another key ingredient in teaching students with hetero-
In your experience, to what extent do students have the required prior knowledge? Many of these problems relate to academic culture: the types of assessments and learning activities encountered, the expectations teachers have of students and vice versa, and the academic attributes or skills that are valued. Teachers are therefore encouraged to acknowledge the students’ background and consciously teach the academic culture of the host institution [5]. Course objectives, expectations, and instructions should be explicit and clearly formulated [5, 6]. Since expectations for assessment may be different than what students are used to, there should be opportunities to practice what will be assessed without penalty, and there should be multiple opportunities for assessment – no “sudden death” moments [6].

To improve our understanding of the problem of heterogeneous prior knowledge in our particular case of the Masters in Wireless Communications program, we conducted a survey of teachers in the program, as well as interviews with selected survey respondents. The list of items in the survey is found below, and the full response data is available on request. The survey was filled in by 13 individuals and three of them were interviewed in order to provide further insight into their experiences.

- Item 1: Which topics are required as prior knowledge in your course?
- Item 2: In your experience, to what extent do students have the required prior knowledge when they enter your course?
- Item 3: Please give more details or comments about students’ prior knowledge in your course.
- Item 4: Have you observed differences in prior knowledge between students in your course? (level of prior knowledge and/or topics covered)
- Item 5: What measures, if any, have you taken in your course to deal with differences in students’ prior knowledge? Have these measures been effective?
- Item 6: Do you think it would be helpful to have online tools for students to complement any missing prior knowledge?
- Item 7: What would you like to see included in these online tools? (topics, types of exercises, etc)
- Item 8: Would you be willing to participate in a short interview about your experiences teaching in the Masters in Wireless Communications program? If so, please enter your email address below.

The responses to item 1, with larger text representing more frequently mentioned topics of prior knowledge, are found on the front page of Lärande i LTH. Looking at the responses to item 2, Do students have the required prior knowledge?, shown in Figure 1, there is no strong tendency towards either a poor or a good level of prior knowledge. Most teachers report a medium prior knowledge of the students in their classes, and only a few tend slightly towards either side. However, this result should be considered in conjunction with the comments given in response to items 3 and 4. Here all respondents reported a clear difference between the students: some students appear to have a much better prior knowledge than others. This observation was also confirmed in the interviews. While it is encouraging to see that most students appear to have sufficient prior knowledge for our courses, it also seems to be a fact that there commonly exist a number of students who lack elementary skills, e.g. in mathematics or programming, that we normally take for granted in a Masters level program.

In item 5, What can we do about differences in prior knowledge?, the teachers could describe how they dealt with the gaps in prior knowledge within their courses. The measures taken differ from case to case. Some teachers refer to course books that cover the prior knowledge while others have extended their lecture notes with some additional material (e.g. mathematical background) or provided some specially designed tutorial materials (e.g. programming examples). Some have adapted parts of their teaching time in lectures or exercise classes and provide more basic knowledge in order to help those students having difficulties.

When asked about online tools for students to complement missing prior knowledge (survey item 6), 75% of the respondents believe that such tools can be helpful or very helpful, as shown in Figure 2. Some further comments and suggestions were provided in the free text responses and within the interviews. A few teachers are more critical, pointing out that it may be difficult to cover the wide range of topics and that the outcome may not be worth the required effort. For some courses, the teachers believe that
Handledning av examensarbeten

En studie om betydelsen av handledarens motivation och egenintresse

Helena Svensson, Avdelningen för Trafik och väg, LTH, Alexander Cedergren, Avdelningen för riskhantering och samhällssäkerhet, LTH, David Andréen, Avdelningen för arkitektur, LTH och Maria Messing, Avdelningen för fasta tillståndets fysik, LTH

Mycket av den högskolepedagogiska forskningen tar sin utgångspunkt i vad studenter tycker och hur de upplever sin utbildning och sitt lärande. Som lärare vid en högskola, ville vi i stället ta vår utgångspunkt i lärandets situation och utföra denna reflektera kring studenternas lärande. Syftet med den studie som vi genomförde var att på ett explorativt sätt undersöka vad som motiverar handledare att ta sig an ett examensarbete och vilken syn handledarna har på studenternas lärande och upplevelse i förhållande till handledarens egen motivation och eventuella egenintresse.

Undervisningsformen examensarbete är en speciell undervisningsform, bland annat därför att undervisningsformen är så individuell och att de interpersonala relationerna ges betydligt större utrymme jämfört med exempelvis undervisning i form av föreläsningar. Trots att handledning av examensarbete är mycket vanligt förekommande finns relationer mellan handledare och de handledade i form av möten eller kontaktpunkter. Dessa möten kan utföras i form av telefonkalla, tillfälliga möten eller e-postmeddelanden.

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Handledning av examensarbeten

The teachers’ responses in the survey and interviews confirmed that there is a wide spread in prior knowledge amongst the students, and teachers were positive towards the idea of establishing online tools to help address this problem. Following from the insights gained from the survey and interviews, we are now investigating strategies to address the problem of heterogenous prior knowledge, both within individual courses and the program as a whole. Two strategies in particular, online tools and group-based teaching and learning activities, are explored in [1], and the interested reader is referred to that paper for more information. These strategies are currently being implemented in the Masters in Wireless Communication program.

References

Handledning på Lunds Tekniska Högskola
(Foto Helena Svensson)
LTH:s Högskolepedagogiska kompetensutvecklingskurser våren 2017

Nedan ges en kortfattad information om de olika högskolepedagogiska kompetensutvecklingskurser som ges av Genombrottet under våren 2017. Förutom de allmänna högskolepedagogiska översiktskurserna erbjuds även mer praktiknära kurser samt individuella fördjupningskurser med förhoppningen att kunna möta intressemångfalden bland lärarna. För utförligare information (kurstitel, detaljerad kursinnehåll, med mera) hänvisas till Genombrottets hemsida http://www.lth.se/genombrottet, där det också finns information om kurser av andra kursgivare öppna för LTH:s lärare.

Högskolepedagogisk introduktionskurs (3v)


Communicating Science (3v/1v)

Communicating Science is an elective course of the qualifying programme in teaching and learning in higher education and of third-cycle studies at LTH. The aim of the course is to prepare doctoral students and teaching staff at LTH for situations requiring communication of science. Apart from lectures, the course consists of practical and individual exercises followed by group discussions and analysis. The exercises in rhetoric take the form of role play and group discussions. The course includes components such as techniques of scientific presentation skills and feedback, voice and speech, poster presentations, rhetoric and the writing of popular science. This course has replaced the two former courses Kommunikationsteknik och Spoken Technical Communication and is given in English. The course corresponds to 3 weeks of full-time work of which 1 week is part of the qualifying programme in teaching and learning in higher education at LTH. The course is given 5 credits in third-cycle studies, if this is in line with the individual study plan. Last day to register is February 24 2017 and the course starts March 20 2017.

Projektbaserad kollegiekurs (2v)


Introduction to Teaching and Learning in Higher Education (3v)

As a PhD student or a new teacher at LTH you are invited to Introduction to Teaching and Learning in Higher Education (this course is equivalent to the course Högskolepedagogisk introduktionskurs but given in english). This course introduces you to current concepts of teaching and learning in higher education in order to develop your ability to improve student learning. The course provides an introduction for your further professional development as a university teacher. It is focused on students and their situation including students with special needs, the role of the teacher and his/her professional development, learning as a cognitive process, different teaching methods and their effect on students learning, assessment and its impact on students learning, evaluation at different levels, communication and pedagogical qualifications for teachers in higher education. Last day to register February 12 2017, course start March 13 2017.

Den goda föreläsningen (2v eller 3v)

Kom ihåg

**LU Case Day, April 26-27 2017, Lund University, Lund**

LUCA – Lund University Case Academy was formed as a network across faculties in February 2012 to promote case-based student active learning. It was started by a group of teachers from the Faculty of Engineering LTH, School of Economics and Management (LUSEM) and the Faculty of Medicine, who share an interest in case-based methods. These include the Harvard case method, today used at LUSEM and the Faculty of Medicine, project-based learning, often used in LTH, and problem-based learning used in the Faculty of Medicine. LUCA is interested in widening the participation in the network to more teachers and faculties at Lund University. LUCA organizes since 2014 a local conference each year, LU Case Day, to share experiences and contribute to development of teaching and learning practices. All teachers, researchers and PhD-students who take active part in teaching are welcome to LUCA and LU Case Day 2017.


**EuroSoTL, June 8-9 2017, Lund University, Lund**

Conference theme: Transforming patterns through the scholarship of teaching and learning (SoTL). Ever since the start, SoTL has had an agenda to change and improve higher education, and this conference adheres to this call. The conference will address the general theme in a variety of formats – papers, workshops, symposia, roundtables, and posters. The conference will include merging, ongoing, and finalised inquiries on how SoTL contributes to transformed patterns of learning and behavior in and between: students, teaching and teachers, collegial communities, departments and institutions, leaders, managers and society. Last day for Early Bird registration: March 15, 2017. Last day for registration: May 15, 2017. Conference home page: [http://konferens.lt.lu.se/eurosotl-2017](http://konferens.lt.lu.se/eurosotl-2017)

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