

# Resource Decline in Higher Education – Perceptions and Consequences

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**Abstract**—Teaching students is one of the main tasks of LTH, as thousands of students engage on 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. Many different practical strategies for dealing with the situation were documented during the interviews. The strategies are mainly focusing on making the students do more of the work on their own, e.g. working with the course literature. But the approaches to the problem varied greatly, as some lecturers tried to change as little as possible in order to save time, and others who saw a need for restructuring the entire educational program.

**Index Terms**— academic teaching, resource decline, teaching methods

## I. INTRODUCTION

THE planning of educational programs evolves around factors such as desired quality, funding provided and time teachers put in. According to an article in the Swedish newspaper “Sydsvenskan” by Kniivilä [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 works on average 52-53 hours per week, and that the working hours have increased during the last years [3]. This time was divided into 20 hours of research, 20 hours of teaching and 13 hours of administration. Some of the reasons to the increased workload, were identified as: hesitation towards hiring extra staff, larger and more heterogeneous student groups, more demanding teaching, and more administrative tasks which have to be performed by the lecturers themselves [3].

It seems like there is a need for more efficient teaching

methods, whether it is motivated by budget cuts, a wish to spend more time on research, an increase of the quality of the education or to make the workload manageable. The aim of this report is to identify teaching methods that experienced lecturers at LTH use in order to counteract the resource decline. This led us to the following research questions:

1: What is the perception of resource decline in relation to teaching among a limited number of academic lecturers?

2: How do they describe measures to counteract the resource decline?

## II. METHOD

Ten qualitative semi-structured interviews were conducted with lecturers at LTH from four different divisions within the department of Building and Environmental Technology.

Two women and eight men that have experience with teaching from 8 to 33 years with ages ranging from early thirties to late fifties were interviewed. Ten face-to-face interviews were conducted in May 2016, taking between 20 and 45 minutes each. The interviews were conducted in English or in Swedish with the help of an interview guide [4] which included the key questions: 1) How has the decrease of resources for teaching affected your courses? Can you say in what way? 2) Are there any specific methods or techniques you have used to counteract this? What are the strengths and weaknesses with the method? 3) Is your method based on pedagogical theory?

## III. RESULTS

### *A. The lecturers' perceptions of the budget cuts and measures taken to use the lecturers' time more effectively*

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. According to one lecturer, the first couple of years at the programs contains courses in which most of the theory is presented at lectures. This creates a non-interactive environment where the students do not feel the responsibility to go through the theory of the course by themselves using, for example, the course literature.

Many of the lecturers said that once they developed a working model for their courses, they rarely take time to change or modify them further. Other lecturers have acknowledged the need to change their course, but they feel

that they do not have the time to do it.

A couple of the lecturers say that they would like to try other methods (e.g. peer-to-peer reviews, online courses, video clips, electronic media, problem-based learning or oral exams) but they simply do not have the resources or the time to develop it. They are a bit despondent, one of the interviewees said, “We create machines that do not reflect on what they learn, they just memorize”.

A common thought seems to be that it is sometimes unnecessary for the lecturer to go through basic facts, which easily can be found in the course literature. Therefore, many of the interviewed lecturers had reduced the number of lectures and time demanding assignments in their courses. In some cases, the lecture was replaced by questions that the students should work with on their own. In order to answer these questions, the students are required to work with the course literature.

Some lecturers introduced seminars combined with reflection assignments. The assignments were to be handed in before the seminar where applications of the knowledge were discussed.

Introducing guest lecturers, who do not demand economic compensation, to a course has been another way to save money. However, there are a few risks involved when using a guest lecturer, as mentioned by one of the interviewed lecturers. The guest lecturer may not focus on the course material to the same extent as a regular lecturer and it is harder to keep a “red thread” through the course.

One lecturer had recorded short movies in which the lecturer explained important concepts in the course, and encouraged the students to watch the films before asking questions on the specific topics. Another lecturer created a Facebook page for the course, in which the students could ask each other questions regarding the course. Yet another lecturer held a short lecture concerning common difficulties with the exercises of the day. This however had reduced the deep learning of the students, since they did not need to struggle as much with the tasks.

One way to save time when managing project works is to only give a pass or fail when grading reports and not comment upon details. Another way is to ask the students to submit their results, after which the lecturer makes a list of all the common faults. This specific idea has increased student learning according to the lecturer, since they now have to find the error themselves and thereby get a better understanding of what they have done. In one course, with fewer participants, the written exam has been replaced by an oral exam.

Having students read and comment on a report or an assignment written by their classmates is another way to reduce the work load of the lecturers, since the quality of the report will be increased and feedback is already added before it reaches the lecturer. Another measure is to give more written guidance to the project work, to reduce the need of consultation with the lecturer. A negative effect of this measure, according to the lecturer, is when a certain method for solving the project tasks is presented to the students, they are not trained in problem solving to the same extent, which is regarded as an important aspect of the specific course.

To reduce the work load of report grading, one lecturer

increased the number of students in each group. However, this may increase the risk of free riders, who do not contribute adequately to the group work.

Some lecturers have struggled with the students often asking questions at the office, which reduced their capacity to perform their other tasks. For this reason, consultation hours have been introduced.

The funding can be increased if the number of students taking a course is increased. One way to achieve this in courses being held in more than one program is to have a joint course. In the present situation, classrooms are more expensive to rent between 10 to 12 and 13 to 15, and cheaper 8 to 10 and 15 to 17. Therefore, one of the lecturers tries to allocate all scheduled lectures to the early morning or late afternoon.

As the interviewed lecturers come from different divisions, they gave different answers to how they dealt with the budget cuts. Many of them mentioned “the teacher’s pride”, which means that they want to do a good job regardless of the resources and sometimes that means working outside of office hours to prepare lectures and exercises. One of the lecturers mentioned that he took a week off from work to finish writing a book he was going to use in his course.

When it comes to the use of pedagogical theory in teaching, half of the interviewees answered they used bits and pieces of pedagogical theory and from pedagogical courses. These lecturers also actively sought inspiration and help from the Academic Development Unit within the university. The other half did not really base their teaching on any pedagogic method or theory, at least not consciously.

#### IV. DISCUSSION

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 such as removing lectures and exercises or increasing the number of students 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 the lecturer to present all relevant theory in the course for the students [5] i.e. through lectures it is possible to shape and transfer knowledge to the students [6]. This pedagogical method may stimulate a surfaced approach to learning [7], [8]. 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. There is reason to believe that this will lead to a diminished quality of the course.

The second approach is to promote the need for reshaping the courses entirely or substantial parts of it, i.e. leaving the traditional way of teaching at LTH with lectures and exercises, and instead introducing 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 lecturer or seminar i.e. longer “minute papers” [5]. 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 on 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 time is to be saved in the long run. Lecturers may be helped by a practical guideline or best practice on how to change and further develop existing courses, in order to facilitate changes and save lecturers’ time. 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.

## V. CONCLUSIONS

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.

Most lecturers seem to think that the lack of time is a consequence of a reduction of funds for education. Many practical suggestions to make teaching more effective were found, and many have learned their techniques at pedagogical courses. Based on the results from the interviews the lecturers could be divided in to two categories: A) Those who change as little as possible, and just carry on doing what their used to. B) Those who are open to change and want to restructure their entire courses in order to save time in the long run, to increase the interaction with and between students and encourage students to take more responsibility. These lecturers also mentioned that the budget cuts were not only negative, because it forced them to critically evaluate the way they taught and planned their courses.

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