10

Implementing Constructive Alignment in a Course of Economics

Tobias Markeprand

Department of Economics, SAMF, University of Copenhagen

Introduction

This paper was written during my practical part of the Adjunkt pædagogikum in the spring and fall of 2009 of the course Higher Education Teaching and Teaching Practice Programme. During the preparation of this paper I have had several benefitting and contributing conversations with my supervisor and fellow Assistant Professors at the department. However, any errors and mistakes are naturally my responsibility.

Problem description

The project is based upon the course ØkIntro which is an introductory, undergraduate course in the program of mathematical economics, at University of Copenhagen. The course objective is to introduce students in the program to economic terms and analysis. I taught the course last fall and the result was very discouraging: only about 47 % of the students passed the exam and the evaluation by the students was very negative. Many students felt and expressed their frustration and insecurity. Furthermore, I had difficulty assessing the students' progress and understanding of the objectives of the course, since any request by me was met with a loud silence. I got progressively frustrated and once burst into an angry tone - blaming them that they had not informed me about their problems.

Problem statement

I want to implement constructive alignment in the course ØkIntro, i.e., to align ILOs, TLAs and assessment methods of the course. With this objective in mind the problem statement is as follows: *How can constructive alignment be implemented in the course ØkIntro?*

Outline

The outline of the paper is as follows: first, we describe the students and their overall background and study program. Then we describe the basic components of the constructive alignment approach to teaching. Next, we describe how the three main components are implemented in the teaching of the course. Finally, we conclude and suggest further adjustments to the course.

I conducted an evaluation in order to get some formalised feedback on the course. The evaluation was issued on the webpage Absalon, and the deadline was 21st of December and consisted of 14 questions. The response rate was 16 %. During the paper I will refer to this evaluation in evaluating the application of the constructive alignment. I will try to use their comments and indications as I describe my implementation of constructive alignment.

The students

The students are 2nd year undergraduate students on the mathematical insurance-science program at the Department of Mathematics, at University of Copenhagen. Their basic skills are to develop and deploy mathematical, statistical and economical tools within the business of insurance to modelling, measuring and controlling insurance risk.

They have no prior knowledge of economics besides the fundamental knowledge they have been taught in "gymnasium", i.e., at the upper secondary level. This was my expectation which was confirmed during the first lecture we had. I asked them about their knowledge of economics and where they had met it. Their prior knowledge was mostly about macroeconomics, which is also the (only) content of most secondary level teaching in economics, whereas this course mainly concerns microeconomics.

Also, the economics part of the program does not include other courses. However, they can optionally take more advanced courses in economics. But it is mostly thought of as a general education - and definitely not a core part of the program. This was also confirmed in my evaluation, where 75 % stated that the content of the course had little or very little relevance to his/her study program. This is in spite of the fact that, as I will describe later, I had tried to focus on issues that I believed would be interesting to the students.

Constructive alignment

The overall purpose of planning teaching is to provide good teaching, and good teaching is, according to Biggs and Tang (2007), that the students satisfy the Intended Learning Outcomes (ILOs) of a lecture/course. In order to obtain this purpose we employ the tools of Constructive Alignment. Basically, Constructive Alignment consists in aligning the ILOs, the teaching and Learning Activities (TLAs) and the assessment task(s) (ATs). Thus, we need the objectives, the means and the measurements of teaching to be aligned.

- The ILOs state the abilities which students should be able to perform after having completed the course/lecture.
- The objective of the ATs is to motivate and test the students in acquiring the ILOs.
- The TLAs are the activities that the students and/or the teacher are supposed to perform during the lecture/course. In general, the TLAs can be deployed to assist in learning two kinds of knowledge: declarative and functioning.

Course ILOs

I will first state the course's ILOs as stated in the SIS information system. Then I will show how these ILOs can be operationalised into ILOs for the different parts of the curriculum. The course ILOs are as follows: *At the end of the course, the student is expected to be able to:*

1. *Demonstrate competences within main problems, concepts and theories within the main themes: Consumer theory, Producer theory, partial equilibrium theory and general equilibrium theory.*

2. *Explain the most important theoretical models*
3. *To some degree discuss strengths and weaknesses of different theoretical models and concepts in relation to the analyzed economic problem*

The distinctive performance is characterized by an overview of the curriculum and the ability to apply relevant methods in the analysis of a concrete problem.

The knowledge used in this course is both of declarative and functioning nature. Since it is an introductory course naturally much time is spent on introducing terminology and shaping their thoughts into that of the economic kind. However, they should also be able to apply these concepts to be able to perform simple analyses of real life cases.

I decided to keep these ILOs for the course without any modification. My contribution was to operationalise these very broad and unspecific ILOs into more specific and narrow ILOs for each main part of the curriculum: consumer, producer and partial and general equilibrium theory.

An example of a lecture ILO is as follows:

1. Explain and state the concepts of an exchange economy, an exchange economy with private property and the Edgeworth box.
2. Explain and state the concept of Pareto efficiency and evaluate if a specific allocation is Pareto efficient.
3. Explain an exchange process and why the result is always Pareto efficient.

At the start of each class I presented the ILOs to the students. At first I just read them out loud, but after some peer-supervision I gave a motivation for each ILO. In the above example, I explained each ILO as follows:

- This will enable us to understand and comprehend the economic issues and problems on a higher abstract level
- Pareto efficiency provides us with the tools to determine which allocations are good, and in the end allows us to answer the question if markets are "good"
- The understanding of exchange processes provide us with a better understanding of how the market functions since this is a more fundamental concept than the organized markets.

As an experiment I sometimes stated the ILOs after I had taught the lecture. However, it was my impression that this was not preferable. At the end of the lecture I restated the ILOs and furthermore stated the main conclusions from the lecture.

Evaluation: The explicit statement of the ILOs seems to have been a success, as every student answering the question stated that it was clear or very clear what the students are expected to be able to do.

TLAs

I will now describe the new teaching and learning activities that I have deployed within the course, and for each of the new TLAs I will evaluate their effects. The course has allocated 6 hours of lectures and 3 hours of exercises. I tried during the first lecture to "sign" a didactic contract with the students: I announced that I expected them to actively participate during the lectures as well as the exercises. I also tried to make it clear that this was not meant as a test of them, but rather as a way for them to learn better and to break the monotonicity of the lectures.

I have added several new activities to the course since I last run the course:

1. Initiated the use of the discussion forum at the course web-page.
2. Student résumés of lectures
3. In-class summary of last class teaching
4. Students exercises
5. Economics of insurance-topic

I tried to launch a more active use of the possibility of the discussion forum at the web homepage of the course on "Absalon". I launched it by writing the message stated in Appendix A. The students could point out parts of the chapters that they have read prior to the lecture which they thought was difficult. They could discuss questions they had concerning the curriculum and, finally, they could ask questions prior to the exam since I do not have a "spørgetime" prior to the exam.

Evaluation: In general the students' use of these facilities was very, very poor. In the evaluation 50 % stated that they considered it unimportant which was also reflected in the students' participation in the discussion forum.

I also suggested that the students formed groups in which they could write résumés of the lectures. Since I could not make it mandatory without large administrative trouble, I made it voluntary. The idea was to activate the students during and after the lecture. During the lecture by forcing them to pay attention and after the lecture by forcing them to, at least one time prior to the exam, think of the teaching.

Evaluation: At first the students actually participated in this TLA. But as the work load of other courses increased, the students dropped this part of the course, as it was not mandatory. However, the summaries that were launched were actually very good and showed a good understanding of the main points and were comprehensive.

In the in-class summary session I asked the students to remember what we covered last time. This was thought of as both an alternative way of framing the current material and a way of testing the learning.

Evaluation: The students revealed a very bad learning of the things they had met during the preceding lectures. But it was a good starting point for the today-curriculum in much of my teaching, and hopefully the students remembered the curriculum better this way.

During the class, I tried to use exercise-in-class techniques: by asking them minor questions they could do during class in a few minutes, the students were forced to be active and allowed me to verify if they had understood what I had taught them. This TLA had several purposes: to activate, to assess and for the students to evaluate the teaching.

Evaluation: The students were very reluctant to do these exercises. Each time I tried they would not even try to solve the exercise - they just sat and did nothing. Even if I tried to wait for 10-20 minutes! Perhaps I should recollect for them the didactic contract. At first their response was that the exercises were too easy. Then I changed the exercises to be more difficult, and now I think they were too difficult. But it is very difficult to make the exercises in between those that I have stated during the course. The solution has become that I just do the exercise with their assistance.

I also added a special application of the curriculum to the course on the economics of insurance. The purpose was to show how economists consider insurance and thus I was trying to make the curriculum more relevant for them. The point of this part was to show how the insurance industry and its affect on households and the economy can be studied using the tools of our general consumer theory. Actually, I started the first lecture by asking them to apply the theory that I had just summarized rather deeply to an insurance example.

Evaluation: The experience with this inclusion of a relevant application of the theory was rather mixed. On the one hand, my impression during the lectures when I taught the topic was that the students had more comments to the teaching and was thus more active. However, the evaluation did not reveal any significant impact on the students view on the relevance of the course.

Assessment

The students are obligated to do a 3 hour written exam at the end of the course with all remedies allowed. Also, the students can hand in an assignment during the course which they get feedback upon. Usually the assignment consists of an old exam. The more specific formulation of the ILOs complied with the ministerial directive of examination, which states that the assessment should be absolute, based upon a complete assessment of the test and explicitly according to the course's ILOs. Furthermore, we need to specify the requirements for obtaining the highest possible grade 12.

This implementation of constructive alignment in the assessment task of the course is then very straight forward: any question at the exam should be founded upon at least one ILO. Almost any important topic is represented in the exam which provides the student with the opportunity to demonstrate his/her overview of the curriculum. Moreover each question consists of subquestions that are designed so the good student can demonstrate his/her ability to apply the acquired knowledge.

The first part of the exam consists of true or false questions where the students are tested on their declarative knowledge, forcing them to state the definitions and decide if the claims are correct or not. This part represents 30 % of the grade. The second part tests their functioning knowledge by asking them to solve simple problems using the skills they should have obtained during the course.

My impression when discussing different assessment methods with the students was that they were not deprecatory towards handing in assignments during the course and making this a part of the final grade.

Conclusion

Overall, it is my impression that the learning has improved much compared to the previous class. Even without having the results from the exam. My implementation of Constructive Alignment has foremost consisted of:

1. Operationalise the course ILOs into more specific lecture ILOs
2. Adopt various TLAs to activate the students and support their learning
3. Apply the new more specific lecture ILOs to construct the exam and thus align the assessment with the ILOs

The students generally think that there is a good alignment between what they have been taught and the exercises that they are expected to do in the exercise class. However, one answered that he/she wanted to await the exam before answering the question. Based on this, I will preliminary conclude that at least part of the constructive alignment has been a success.

However, the students are very reluctant towards the activation part of the TLAs during the lecture. One of the students directly states *"I do not like the idea of activating students by assigning exercises during lectures"*.

Also, simultaneous with this course the students have followed a very important core course in statistics which consumes much of their time. During two weeks of the 7 week block, they have to hand in an exercise in this course. This reduces the number of student participating (from normally 8-10 to 2-4!) in my course lectures and those actually participating are very remote and exhausted.

Suggesting improvements

There are many possibilities of improving upon the course and the teaching in the course. First of all, the textbook needs to be reconsidered. Also, one could imagine that for each lecture I state an exercise which the students should be able to do by searching the WWW.

Also, one could use multiple choice questions both in the in-class summary session of the lecture and in the concluding part of the lecture, as a part of student activation. Making questions based upon actual real-life examples taken from e.g. newspapers or journals may improve the perceived applicability of the course content to the students. Here a database containing articles relevant would be very helpful, which could receive contributions from teachers in the area from several universities.

Even though the impact of the inclusion of a study-relevant application of the curriculum in the course was ambiguous, I believe that one can go further by developing this part. One could more extensively convert many of the examples used to the insurance case. A further issue to consider is the textbook of the course which is too non-technical for the students with a good mathematical background. Many alternative textbooks have been considered however none has been considered better. One alternative I seriously consider is to publish teaching notes I have written myself.

A Appendix

Discussion forum launching form

Kære deltagere i ØkIntro blok 2,

Jeg vil forsøge at bruge diskussionsforummet som en aktiv del af undervisningen. Det er derfor vigtigt at I deltager aktivt her på forummet. Det tager måske lidt tid at vende sig til - det er også relativt nyt for mig - men vi kan kun få det til at fungere vi forsøger aktivt. Jeg opfordrer jer til at bruge forummet til at

1) Senest 3 timer inden forelæsningen angive spørgsmål og emner i synes der er sværere i dagens pensum. Jeg vil så adressere disse spørgsmål til forelæsningen. Indlæg i denne kategori skal starte emne angivelsen med "A:" + Dato for forelæsningen + Emnet.

2) En diskussion mellem jer som studerende - Det vil således i høj grad være op til jeres initiativ hvilke emner der skal diskuteres og at debatten holdes i gang. Hvis der er gjort et ihærdigt forsøg men debatten er gået i hårdknude kan jeg bidrage i debatten - men det er undtagelsen! Det er i høj grad jeres forum. Indlæg i denne kategori skal starte emne angivelsen med "B:" + Emnet.

3) Vi skal danne grupper, der skal skiftes til at lave resumer af forelæsningerne, og resuméerne lægges ud på diskussionsforummet - hvor I andre kan kommentere på resuméerne. Indlæg i denne kategori skal starte emne angivelsen med "C:" + Emnet for forelæsningen. Disse indlæg skal uploades som en ny tråd.

4) Op til eksamen vil spørgsmål der er eksamensrelevante. Indlæg i denne kategori skal starte emne angivelsen med "D:" + Emnet.

Jeg håber at vi kan få rigtig meget ud af dette forum. God debatlyst

Mvh, Tobias Markeprand

All contributions to this volume can be found at:

http://www.ind.ku.dk/publikationer/up_projekter/2009-2-1/

The bibliography can be found at:

http://www.ind.ku.dk/publikationer/up_projekter/kapitler/2009_vol2_nr1_bibliography.pdf/