ASSESSMENT – DIFFERENT METHODS OF PROGRAM EVALUATION

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ABSTRACT

This paper introduces the thoughts and effects of changing the evaluation procedure for evaluating content and quality of courses and study programs at the engineering college of Aarhus.
There will be a description of the new evaluation method the pro's and the con's in changing from a fixed procedure, to a working tool in education enhancement.

In the spring of 2010 the board of studies at Engineering College of Aarhus proposed a change of the evaluation method for all of the engineering bachelor studies.
Before that time students did evaluate their conception of course quality by using a standard evaluation procedure in evaluating the courses they have attended at the end of each term. The procedure consisted of two steps, first a midterm evaluation held orally, with the purpose of adjusting differences between teacher and student expectations of course activities, secondly a written evaluation with 6 questions addressing the students motivation and skills, the learning goals of the course, the workspace, the course curriculum and work load, the learning activities, and the relevance of the course

In short this evaluation method focused on static half year observation on the student comprehension of the course, the teacher and the facilities. In many occasions the feedback was best viewed as documentation of facts.

The main purpose for developing the new evaluation procedure was to evaluate course issues that could give valuable contribution to the teachers on-going refinement of the learning activities in a course, or to the overall structure of the terms and the education as a whole.

KEYWORDS

Evaluation methods, course and program development

INTRODUCTION

To evaluate is to uncover the value of a given action. The methods chosen for evaluating a specific educational activity is therefore fundamental in investigating and substantiating a particular link between effort and outcome.
One should always question what purpose a given evaluation procedure should fulfil, in order to aim the focus on evaluating the right issues.

THE ORGANISATION OF STUDIES

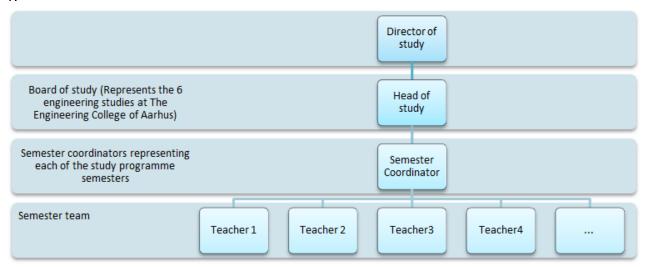The study programmes at the Engineering College of Aarhus is organized as shown in figure 1.

Figure 1: Organization of studies

EVALUATION

To ensure the motivation of both students and teachers in contributing to the evaluation procedure, it is important that only issues that we actually can take action on are included in the evaluation.

For the students and the teachers there is an advantages in obtaining knowledge about the satisfaction or lack of the same from a learning activity, about students' perceptions of whether teaching have been at an appropriate level and whether they have been able to work with their knowledge in an appropriate manner.

The disadvantage not often mentioned is that is it not without personal costs to teachers to be evaluated. While a positive evaluation can confirm the teacher in that he has chosen the right line of work, a negative evaluation can cause the teacher to begin doubt his skills as a teacher. It is therefore important to give thought to the entire evaluation procedure, not just to perform the evaluation but also to work in a constructive manner with the results.(1,2)
The following 4 elements are to be considered:

- What to uncover: The purpose of the evaluation must be clear
- How to uncover: The focus must be on issues that can and will be responded on
- How to engage: The method must ensure involvement and dedication among the students, the teachers and the head of study
- How to take action: Clarity in the methods used for enforcing the evaluation results

What to uncover:

The change in evaluation method rose from a wish to supplement the student satisfaction focus in the evaluations, with a part that could ensure course and teaching development.
The study program should be evaluated in a way so that active students, in addition to giving feedback, also is involved in improving the teaching-, learning- and study environment. The evaluation is to be used as a tool for ensuring the development of training in each course, the coherence and development of teaching across courses, and ensure a study related progression between semesters, as illustrated in figure 2.
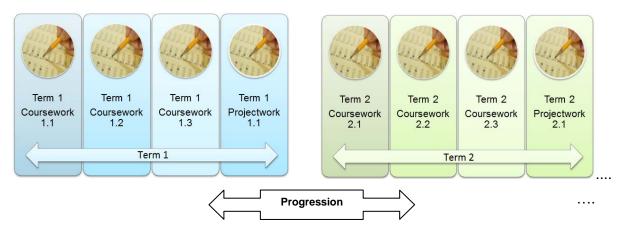
Figure 2: Study program evaluation

How to uncover:

It is important that the educator have a variety of evaluation tools to choose between, when the purpose is to uncover a specific aspect of a learning activity, (that is project work, teaching, laboratory work). The evaluation method should fit the needs to uncover attitudes, knowledge or the conduction of the student integration in the coursework.

Coursework
The courses in the study program are at different development stages and should therefore be evaluated accordingly.
A newly developed course has other evaluation issues, than a well-integrated older course. This is also the case for a course with a teacher new to teaching, or used to teaching but new to the technical field of the course.

The following issues should be evaluated in every term

- Coursework, including course contents, teaching methods and interaction between teacher and student.
- Students' prerequisite before the course.
- Students' preparation and independent work.
- Students' learning environment and the fellow student engagement.
- The learning targets utility and clarity.

These are all issues that measures if the intend of the course is reached, and is a part of the data that head of study needs to ensure that the study programme is with the right content.

The change in course evaluation provides the teacher with a new dimension in evaluating course activities. Now the teacher can beforehand identify important issues, included in the course, which is to be evaluated. These issues are in the category of efficiency of specific learning activities, and are individual to every course. Some examples are evaluation of specific cases used in teaching a certain subject, a text book introduced, laboratory work, project work in the course or alignment between teaching and formative evaluation.

Toolbox:
The teacher is provided with a "inspiration toolbox", which consists of 9 different methods to evaluate (3).

Expectation letter:
Each student writes down their expectations to the course, based on what they have gathered of information from the curriculum or elsewhere. The teacher keeps the expectation letters and provides the students with them at the midterm evaluation, now the students can

reflect on their first expectations, what they have learned and what is to be changed if anything.

Course contract:
The contract is characterized by its commitment to the teacher as well to the students. The contract is drawn up by the teacher and students together, emphasizing their mutual expectations to the course, and each other. The contract typically links to various elements in the teaching situation, that is how teaching is organized, what types of instruction is to be included, the preparedness of the students, the extent to which students are expected to make presentations / participate actively, and so on. By course's mid-term contract may be used as a starting point for evaluation.

Questionnaire:
The including the topics to be evaluated: Student learning, Co-operation and commitment, Structure and teaching.

Interview and wall newspapers:
The students interview each other in pairs or threes from a widely formulated topic question, it could be "What is your personal learning outcomes of the course? Does it redeem your expectations, why or why not, what can be done better?" Each group creates a wall newspaper, including short formulations of the answers to the topic. Finally the wall newspapers are to be read by the course participants, and together with the teacher they reflect on the overall picture of the course.

Dialog between teacher and reference group:
The teacher and team chooses from the first day at the course, a group of students who will act as a reference group. The other students can give their feedback to the reference group, who will discuss the issues with the teacher.

Dialogue between teacher and selected students:
Used as a direct feedback tool right after a lesson. 2-3 students are selected to give the teacher a spontaneous and informal feedback on the lesson content and teaching.

Delphi method:
On a piece of paper the students individually write 3 great things about the course and 3 things that can be improved. Then all the papers circulated simultaneously in the same direction until they come back to the author. Every time a student receives a paper, he is to read the opinions and make a dash at them, he agrees in.
Once the papers have been read and marked by all of the students, the result is a collection of statements concerning the teaching and a expression of how many students agrees in the individual statements.
After this team and teacher jointly discuss and reflect on the outcome.

1-minute paper:
In the last minutes of a lesson the students write their immediate and spontaneous reaction to teaching. The method can be used systematically after each teaching session or occasionally as needed. The teacher can for example ask the students to write what may be helpful for the teacher to gain knowledge of. For example do the students see the connection between the just completed lesson and the overall subject? Is the dissemination of material well-functioning? Is there an adequate interaction between teacher and student? Are there unresolved issues?

Essay Evaluation:
An expansion of the1-minute paper, which invites students to a further reflection of contexts. Therefore, the method is best at the end of a course. If the students at the beginning of course have written down their expectations, the essay evaluation can be based on this.

Evaluation of a term:
The teachers involved in courses taught on the same semester, forms the semester team. The team has a joint responsibility in coordinating the different course learning activities in such a way that the technical issues taught, forms continuity in the term. The process of evaluating this is as follows:

• The first meeting of the semester team establishes the evaluation purpose
 and -fields
• The team coordinator presents the evaluation fields and process to the students
• The evaluation purpose, priorities and process is presented to the head of study within the first month.
• After the evaluation the semester coordinator is responsible for organizing and preparing a evaluation conclusion memo and present it to the head of study.
• Head of study and the semester coordinator jointly develop a action memo

How to engage:
Involvement ensures engagement. It is important that all of the course stakeholders are contributing to the course evaluation. The experience otherwise (and upon till now) is that the students loose interest in the evaluation procedure, the head of study looses a tool for improvement and the teacher a tool for reflection.

The following dialog based procedure, has been introduced, for evaluating the course
Or any well-defined parts of the course:

- In one of the first lessons, the teacher proposes evaluation method (s) for the course. The teacher presents evaluation type and tracking method for course participants.
- Within the first month of the course, the teacher presents the evaluation method, the purpose, priorities and process, to the head of study.
- The Teacher conducts the evaluation; conclusion memorandum signed by the class representative and teacher are sent head of studies.
- After the course, the head of studies and teachers jointly develop action memo on the upcoming course development.

How to take action:
For both the evaluation of coursework, and evaluation of the terms, the head of study gathers the information or action points in a summary to the director of study. The given action points are included in the preparation of the courses for the next semester, and in all they draw the outlines of the course development wanted to ensure a dynamic and active study environment.

Evaluation of the evaluation procedure
The evaluation methods used during the past year, shows that the primary method chosen by the teachers is the questionnaire, with additional questions regarding specific course issues. A small number of teachers has been using different methods as the Delphi method, and responds positive to the personal outcome of this method. It is easier to discuss course issues with a set of student statements to set the scene.
The involvement of students is still a issue to be addressed, students respond is in average less than 30%, but fortunately these 30 % is very enthusiastic in giving qualified feedback to the teacher about the course and the involved learning activities.

There is still a work to be done regarding how to respond in an appropriate way to course issues, and how to ensure that action points are set in order to develop the course in a way that responds to the overall program development.

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