

Improving a course module by introducing it differently and including a dialog based summative feedback - analysis of students' perception of changes made

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Context of the project

The project focuses on a two-week course in meat inspection, which is a mandatory part of the veterinary master curriculum. In short the course teaches how to evaluate the safety of meat meant for human consumption at abattoirs theoretically and practically, and how to do inspection and auditing of food safety management systems in food producing companies, in this context at the abattoir and an attached retail butchers shop.

Introduction and aim

Out of the two week course, two full days are spend on a module on inspections and auditing of food safety management systems in food producing companies including both theoretical and practical content. The students team up in smaller groups of 3-5 students and do their own inspections and auditing, which they document in a report. The group report is mandatory to hand-in including at least 80% attendance. The students used to receive a passed/not passed notification and a few general comments via absalon as summative feedback.

Problem: This module have been frustrating and challenging to the students. To my knowledge, there have been problems with a less clear introduction to the topic, to the practical exercise and to the expected content

of the report including cognitive overload. The teaching material has not sufficiently supported the students, and could be better aligned to real life settings. Furthermore, they hand-in a report that they hardly get any feedback on.

Aims: the aim was to have improved or similar learning outcome from this module with less frustration and better congruence to real life situations.

The Danish Food and Drug Administration have an aim of attracting more veterinarians to the jobs in meat inspection, as they desperately need people. Meat inspection does not meet the aspirations for the majority of the students' wish for their career, at least on the short run, so many have difficulties seeing the point in them learning this. Our goal was to give them a more positive and clear idea of what this career path contains. It was important to balance the challenge, as they only have two days to comprehend, do and complete the task. We want to promote the students perception of self-efficacy.

Meat inspection and auditing is taught to veterinary students, as it relates to the competencies required to act as an official veterinarian as described in EU regulation No 854/2004 (EC 854/2004). When reading the course description the ILO's are described and divided into taxonomic levels of a) knowledge; b) skills; c) competencies (Danish) (<https://kurser.ku.dk/course/svek13006u>).

Problem solving - Interventions and methods

In this project, two groups of students were followed. First group (block 3, 2022) were only a partial intervention was made and the second group (block 4, 2022) where the official veterinarian was included as well (full intervention).

1. **Partial intervention:** Include new teaching and learning material and clean up in old material to help the students navigate more easily with the goal of creating less frustration and increase learning.
2. **Full intervention:** Include an introductory lecture of 1 hour given by an official veterinarian, doing this type of job in everyday life; to give the students a better understanding of the tasks and make it more clear how to perform the inspections and auditing. Include dialog based summative feedback on their auditing and inspection reports. The official

veterinarian will receive the reports and skim them. On the last day of the course, she will give summative feedback and try to engage the students in a dialog about any difficulties they might have experienced regarding their findings and conclusions. Include further reorganization of teaching and learning material to give a better overview.

Methods for follow-up: an voluntary online anonymous questionnaire was created to get specific information on the module for which the interventions were implemented. The scheme contained both categorical questions, which were mandatory to answer, and commentary questions the students could chose to answer. The students were encouraged to participate and told that their opinions were important, as we were working on improving the course.

Didactical background for planned interventions

The module on inspections and auditing most closely resemble situated learning, where the teaching is unfolded around the practical exercise of auditing food safety management systems in a food producing company, and the learning environment is the slaughterhouse. The approach build on the idea that our thinking and learning takes place in a context and that context can help carry what is learned (Lave & Wenger, 1991). However, situated learning is connected to the concept of transfer and there is a risk that the teacher will be expected to be a “master” and role model, and that students expect to be guided and get clear instructions and will act less independently (Rienecker et al., 2015). However, to perform the inspections and auditing is a complex task with many different aspects on a rather high taxonomic level, mostly the qualitative relational level according to the Structure of the Observed Learning Outcome (SOLO) taxonomy (Biggs & Tang, 2007). The module seemed to have a mismatch between the teacher as a “master”, who clarify the task and gives clear examples of good performance, and the cognitive complexity required fulfilling the task, and a lot autonomy is expected, but this is not communicated clearly. A key should thus be to communicate the criteria for good performance better, and one way of improving student learning outcome is to incorporate good feedback practice, where the first point mentioned relates to exactly this (see figure 1).

Good feedback practice:

1. helps clarify what good performance is (goals, criteria, expected standards)
2. facilitates the development of self-assessment (reflection) in learning
3. delivers high quality information to students about their learning
4. encourages teacher and peer dialogue around learning
5. encourages positive motivational beliefs and self-esteem
6. provides opportunities to close the gap between current and desired performance
7. provides information to teachers that can be used to help shape the teaching

Figure 1. The feedback principles modified from Nicol and Macfarlane-Dick, 2006

Furthermore, it is important to help the students by dividing the task in to smaller bits and organize the study material logically to ease their navigation and avoid cognitive overload (Rienecker et al., 2015). Part of the auditing is connected to overview, knowledge and interpretation of the legislation on the subject, which is something the veterinary students are not especially familiar with. Official veterinarians working with this field have lists available, which help them navigate this legal field, thus one of the interventions was to provide the students with this “helping tool”, which points them to where they can find the relevant information. It is important also to mention psychodynamic learning theories in this context as well where the experience of learning can be blocked by a too high level of difficulty or by the context, in this case to much autonomy expected combined with a poor introduction, and less optimal feedback practice (Rienecker et al., 2015). We want to influence the students motivation by improving the feeling of self-efficacy, which refers to the confidence that one can manage and fulfil a task with the barriers, amount of work and scheduling it will require (Bandura, 1997), and at the same time we want to still stimulate their self-determination, which requires a feeling of autonomy and competences to act autonomously (Deci & Ryan, 2000).

For students to benefit from feedback some conditions need to be fulfilled as identified by Sadler, citing “*the student must know: i. what good performance is (i.e. must possess a concept of the goal or standard being aimed for); ii. how current performance relates to good performance (for this, students must be able to compare current and good performance); iii. how to act to close the gap between current and good performance.*” And these conditions form the basis for improved self-assessment as well (Nicol and Macfarlane-Dick, 2006; Sadler, 1989).

The intension of a dialog based summative feedback relates to point number four on “*good feedback practice: knowledge that encourages teacher and peer dialogue around learning*” (figure 1). When given the summative feedback in dialog the student not only receives initial feedback information, but at the same time has the opportunity to engage in discussion about that feedback with the official veterinarian. Teacher-student dialogue is essential if feedback is to be effective in higher education (Laurillard, 2002). Furthermore, the dialog was incorporated to fulfil point number six as well, thus give the students an opportunity to close the gap between current and desired performance (figure 1).

Results, analysis and discussion

Students’ evaluation before and after intervention: Comparison of the answers from block 3 and 4 on the categorical questions asked (appendix A).

Participation to the voluntary questionnaire was 45% (18/40) after the partial intervention (block 3), but only 28% participated after full intervention (block 4). The results represent answers from two different groups of students, but both veterinary master students. When comparing the scoring, over-all improvement can be seen in all the questions asked, except the question concerning the students awareness of the course ILO’s, which we did not do anything to improve this time around (appendix A, question 6).

The implementation of the introduction to the module by the official veterinarian

This was well received by the students with 64% answering “very good” (appendix A, question 1). By observing the interaction during the lecture, I could see that the structure and time spend in the lecture could be improved. Building on the theory of didactical situations (TDS), the devolution phase could have benefited from one or two smaller activation phases, such as a quiz and/or a practical case, but over-all it was very positive (Brousseau, 1997). In the comments, the students express the importance of a presentation from an official veterinarian connected to the real life practice, as a logical connection to the situated learning situation. They still address the need for more clarification as to the everyday life of the official veterinarian, to be able to know, if this type of job could be interesting for them. Indicating the introduction made some of them motivated as job seekers, which was one of the aims.

The organization, relevance and availability of study material

After the partial intervention 61% of the students responded that, the material was insufficient (appendix A, question 4). The comments concerned lack of a good logical structure in the material on Absalon, and some commented that lack of clear introduction to the inspection and auditing made it difficult to find out what the documents were supposed to be used for. Showing that teaching material and clarification of expect goals, criteria and assessment of the product are all needed to support the students in clarifying the task and giving room for them to use or develop their skills in self-assessment (Nicol & Macfarlane-Dick, 2006).

After the full intervention, none of the students reported the material as insufficient, but still 35% said “sufficient” only, indication that further improvement is needed. In the comments, a couple ask for examples of a finished audit report. Essentially, they ask help to clarify what good performance is. The verbal introduction seemed to help, but they needed it complemented by good written materials. This could be both in form of a better scaffold for the report than the exciting one, and by providing students with examples of good performance, which has proved particularly powerful in clarifying goals and standards (Orsmond et al., 2002).

The summative dialog based feedback

In the evaluation the students were asked their opinion of the final feedback given on their report, were in block 3 only 17% answered very good or good, this increased to 64% in block 4, were they received feedback from the official veterinarian (appendix A, question 5). The students were asked whether they considered feedback important to them and their learning. They responded yes, important to know they were on the right track and/or have solved the task correctly. However, four mention they would prefer individual feedback on their report instead for feedback in plenum. Due to time constraints in the course the dialog based feedback could only be summative and not on each report individually, as that would have taken too much of the official veterinarian’s time. The thought of incorporating peer-feedback was discussed, but again, we consider there not sufficient time to run such a process in a good way. However, formative feedback would have been more ideal and the better way to know if the feedback was effective (Sadler, 1989), and provide better opportunity to close the gap (Nicol & Macfarlane-Dick, 2006).

Over-all perception of the course

Interestingly the interventions seemed to have a positive effect on the students' over-all perception of the course (appendix A, question 8), as 17% of the students in block 3 gave the course the angry smiley ("fines and sanctions"), no students gave that in block 4. The happy smiley ("no remarks") increased from 11% to 46%, but still 55% have comments and complaints to the course, again addressing the teaching material that could be organized more logically, and some overlap in lectures and content, and several personal complaints addressing a particular teacher.

Conclusion

The interventions, of improving the devolution phase of the module and give it even more relatedness to practice, cleaning up study material and providing a "help guide to legislations" and including feedback on their final reports, all seemed to have a positive outcome for the students. Comments that mention the module as irrelevant disappeared, and in general, the comments became more positive, as well as the answers to the categorical questions reflect more satisfaction. However, it has to be mentioned that not all students participated in the voluntary questionnaire, and there is always a possibility that the ones who participated represent a bias to those who did not.

Perspectives for further improvement

The organization of the study material needs further improvement to make it more logical to navigate. The scaffold for the report needs to become clearer and mention goals and criteria mm. It should be considered to provide the students with an example of a good report.

The feedback help, but the dialog was not as present as we would like. We develop this further by having the groups prepare a presentation of the inspections and auditing. We will choose which groups should present which topics. Other groups with this topic should act as opponents. In this way, we implement an element of institutionalization and peer feedback, and the official veterinarian can help with the verification. We hope this will promote more dialog. Furthermore we will change the feedback to formative, as the students have addressed one part of the report, the so called

”control reports”, which are the official document for the auditing, to be difficult to understand how to write. This part can be introduced by the official veterinarian after the feedback session, and the students can get time to fill the control report, including have time to correct any misunderstandings they might have discovered during feedback, thus closing the gap. These control report could be the only mandatory hand-in documents.

We also want to address the ILO’s and taxonomy where some of the objectives are described with words such as “understand” and for the competencies “handle the veterinarian’s roll as...” and “handle the roll as an official veterinarian”. These learning objectives will be hard to accurately access and difficult for the students to know if they have reached, similar to the description in the EU regulation “confirmed knowledge to the extent necessary”.

References

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Biggs, J., & Tang, C. (2007). *Teaching for quality learning at university* (3rd). Open University Press/McGraw Hill.
- Brousseau, G. (1997). *Theory of didactical situations in mathematics: Didactique des mathématiques, 1970–1990* (N. Balacheff, M. Cooper, R. Sutherland, & V. Warfield, Eds.). Kluwer.
- Deci, E., & Ryan, R. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. <https://doi.org/10.1017/CBO9780511815355>
- Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199–218.
- Orsmond, P., Merry, S., & Reiling, K. (2002). The use of formative feedback when using student derived marking criteria in peer and self-assessment. *Assessment & Evaluation in Higher Education, 27*(4), 309–323.
- Rienecker, L., Jørgensen, P. S., Dolin, J., & Ingerslev, G. H. (Eds.). (2015). *University Teaching and Learning* (1st ed.). Samfundslitteratur.

A Student evaluations on the audit/inspection and report writing

STUDENT EVALUATIONS ON THE AUDIT/INSPECTION AND REPORT WRITING

These are the responses to an evaluation scheme created by Bolette Skive to get information on the specific audit exercise and report writing part of the two-week mandatory master course in meat inspection for veterinary master students. The evaluation contained a commentary part as well from which essential points will be drawn out, as the students mention names of particular teacher, which makes the comments GDPR sensitive material.

The charts in the grey nuances represent the evaluations from block 4 after intervention and 11 students out of 39 submitted the evaluation.

The charts in grey with dashing represent the evaluations from block 3 before the intervention, and 18 students out of 40 submitted the evaluation.

Danish translation to the categories: Meget god = very good; God = good; Tilstrækkelig = sufficient; Mangelfuld = insufficient; Ved ikke = do not know

1. Hvad syntes du om introduktionen til audit/tilsyn givet af embedsdyrlægen Mette? *

Antal deltagere: 11

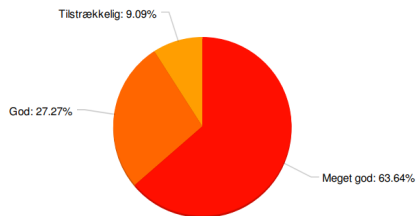
7 (63.6%): Meget god

3 (27.3%): God

1 (9.1%): Tilstrækkelig

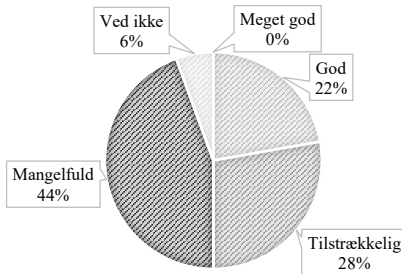
- (0.0%): Mangelfuld

- (0.0%): Ved ikke



First question "what do you think of the introduction given by official veterinarian Mette?" was not asked in the first round of evaluation, as the official veterinarian Mette was an important part of the intervention, and thus only present during the second round the course was running (block 4).

2. What do you think of the introduction given to audit and inspection (by the teacher at Slagteriskolen)?



2. Hvad syntes du om introduktionen til audit/tilsyn givet af dyrlægen Carsten på Slagteriskolen? *

Antal deltagere: 11

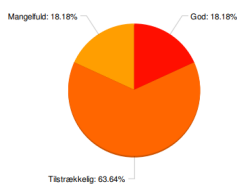
- (0.0%): Meget god

2 (18.2%): God

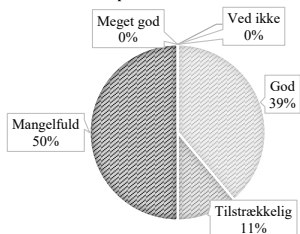
7 (63.6%): Tilstrækkelig

2 (18.2%): Mangelfuld

- (0.0%): Ved ikke



3. How was the help and feedback during the audit and inspection exercise?



3. Hvordan var den løbende støtte og feedback fra underviser/undervisere i forbindelse audit/tilsyn? *

Antal deltagere: 11

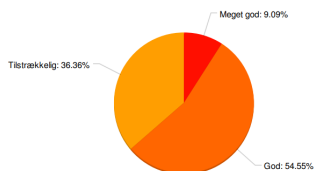
1 (9.1%): Meget god

6 (54.5%): God

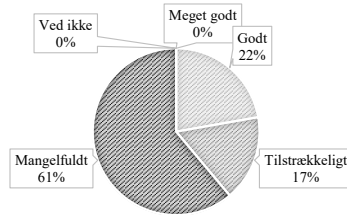
4 (36.4%): Tilstrækkelig

- (0.0%): Mangelfuld

- (0.0%): Ved ikke



4. Was the teaching material helpful for your learning and solving of the



4. I hvilken grad understøttede undervisningsmaterialet fra audit/tilsyn din læring og løsning af opgaven? *

Antal deltagere: 11

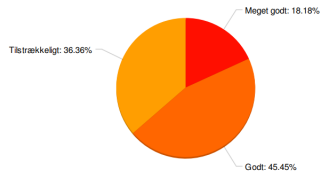
2 (18.2%): Meget godt

5 (45.5%): Godt

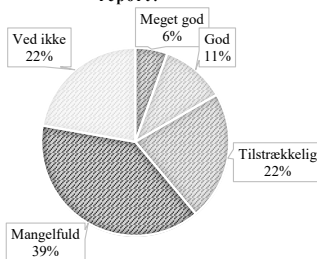
4 (36.4%): Tilstrækkeligt

0 (0.0%): Mangelfuldt

0 (0.0%): Ved ikke



5. What did you think of the final feedback you got on your report?



5. Hvad synes du om slutfeedback på jeres rapport? *

Antal deltagere: 11

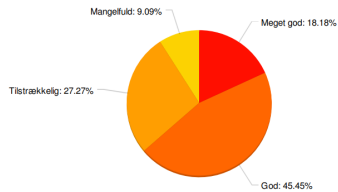
2 (18.2%): Meget god

5 (45.5%): God

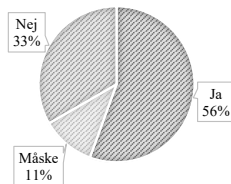
3 (27.3%): Tilstrækkelig

1 (9.1%): Mangelfuld

- (0.0%): Ved ikke



6. Do you know what the intended teaching and learning outcomes (ILO's) are for this course?



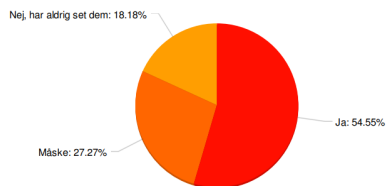
6. Er du bekendt med læringsmålene for kødkontrolskurset? *

Antal deltagere: 11

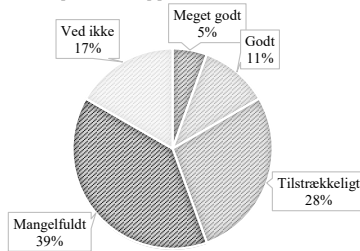
6 (54.5%): Ja

3 (27.3%): Måske

2 (18.2%): Nej, har aldrig set dem



7. To what extend do you think that the exercise on audit and inspection supported the ILO's?



7. I hvilken grad synes du at undervisningen og øvelsen i audit/tilsyn understøtter læringsmålene og din forståelse for embedsdyrlægens opgaver i kødkontrollen? *

Antal deltagere: 11

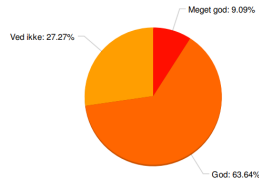
1 (9.1%): Meget god

7 (63.6%): God

- (0.0%): Tilstrækkelig

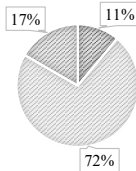
- (0.0%): Mangelfuld

3 (27.3%): Ved ikke



8. Give the meat inspection course as a whole a smiley

- 1 :) Ingen anmærkninger
- 2 :) Indskærpelse, påbud, forbud eller daglige tvangsbøder
- 3 :(Bødeforlæg, politianmeldelse, karantæne, autorisation eller registrering frataget



8. Tilslut giv kødkontrolsundervisningen som helhed en smiley *

Antal deltagere: 11

5 (45.5%): 1 :) Ingen
anmærkninger

6 (54.5%): 2 :)|
Indskærpelse, påbud,
forbud eller daglige
tvangsbøder

- (0.0%): 3 :(Bødeforlæg,
rpelse, påbud, forbud eller daglige tva...: 54.55%
politianmeldelse,
karantæne, autorisation
eller registrering
frataget

