Teaching for Active Learning TAL2020

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SDU

Indholdsfortegnelse

Teaching for Active Learning TAL2020

Special focus: Sustainable Development Goals (SDGs)

In November 2020 SDU's Centre for Teaching and Learning hosted our eighth Teaching for Active Learning conference, which was held online due to COVID 19 restrictions and to facilitate wide participation.
The main theme of the conference was active teaching and learning, which is the underlying principle for teaching at SDU. The aims of the annual TAL-conference are to provide opportunities for teachers, developers, and others with a special interest in teaching:

- to share, demonstrate, reason and analyze their own examples of active teaching and learning
- to be inspired to develop one's own active teaching practice in order for students to learn actively.

Due to SDGs' global significance and young people's commitment to them TAL2020 had a special focus on 'Sustainable Development Goals' (SDGs) and 'how to integrate the SDGs in teaching and the impact on student engagement and learning. International surveys of HE students, including Students Organising for Sustainability and a Danish national survey indicate that SDG Goal 13 - Climate Action is their primary concern. SDU also has its own commitment to engaging with the SDGs through research, education and its own services and TAL2020 provided an ideal forum to share ways across the HE sector in Denmark to integrate SDGs in teaching and learning.

TAL2020's special focus on SDGs provided a space for HE teachers to share their subject-based, cross-faculty and interdisciplinary SDG practices and inspire others to experiment with incorporating SDGs into their courses. To showcase SDG integrated courses from a variety of academic subject areas at SDU, we invited teachers and their students, recommended by their faculties, to participate as conference presenters and panelists.

We had the pleasure of hosting four panelists, from four different faculties, two of whom presented in partnership with their students. You can access their individual presentations and their contributions to the panel discussions from the links below.

- Maria Elo - Associate Professor, Dep. of Marketing and Management, SDU (link)
- Lykke Margot Ricard - Associate Professor, Dep. of Technology and Innovation, SDU (link)
- Janne Liburd - Professor, Dep. of Design and Communication, SDU (link morning) and (link afternoon)
- Sara Egemose - Associate Professor, Dep. of Biology, SDU (link)
- Morning and Afternoon Panel Discussions – (link)

We are delighted to share with you TAL2020's conference proceedings and invite you to read more about a wide variety of ways in which teachers are activating their teaching and student learning as well as incorporating SDGs into their courses.

Only a subset of TAL2020 presenters chose to subsequently write a paper on their presentation for this conference publication. In order to get a more complete overview of the richness, diversity, and quality of the TAL conference contributions and presentations, we highly recommend that readers take a look at the Book of Abstracts (link) including:

- Detailed programme
- Short communications and poster abstracts
- Workshop abstracts

On behalf of the conference organizers

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SDU Centre for Teaching and Learning

Switching from semi-traditional teaching style to modified Team-based learning: Towards better students' engagement in the learning process

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I was invited to the course of "Health promotion planning" in February 2019. I applied a semi-traditional teaching style during the session. At the end of the session, I was not satisfied with the students' engagement in class discussion. Also, I could not evaluate the outcomes with such teaching approach. Based on students' reactions, I realized that they could not get the message of that session. I also assumed that the students did not achieve learning goals of this session according to the course description. So, the aim of my project - for this course, 2020 - is to evaluate the students' engagement and assess learning goals with Team-based learning (TBL) as an alternative to the interactive lecturing attempted last year. So, the meta aim was to enhance students' engagement by using TBL approach.

TBL is a learner-centered approach which moves beyond basic acquisition of facts to emphasize meaningful application of session or course content in real-world scenarios. This typically involves intra- and intergroup discussions of problems that are specifically prepared to foster complex reasoning, debate, and constructive controversy (1). TBL is an effective teaching process enabling educators to offer students enhanced and stimulating learning experiences (2). With TBL, multiple scales of learning goals may be achieved. Students must read all related materials beforehand. So, lower level learning goals in Bloom's taxonomy will be achieved before the session. Their participation in Readiness Assurance Test (RATs) and team application plays a vital role in achieving higher level goals. It means that they will have enough knowledge before coming to the class. Then, during the session, they will apply the knowledge to improve their analytical skills. TBL is an approach designed to eliminate any concerns about students' engagement (3,4).

All in all, I think TBL is an appropriate approach for this teaching session, which has a very descriptive content and is somehow tedious for students and the lecturer as well. TBL provides me the opportunity to evaluate the students' engagement and learning outcomes and make sure that they have received the message.

In this project, I developed a TBL session including Individual Assurance Test (iRAT) and Team Assurance Test (tRAT)) which were well aligned with the learning goals for the session in question. Also, I examined and reflected on the students' engagement and learning in the TBL session. Descriptive elements of TBL and data from the RAT tests in the TBL session were used for evaluation of the mentioned objectives. To operationalize the problem formulation, I identified the following sub-question:

Can the introduction of TBL encourage students to be engaged more in the learning process of such a descriptive session?

Data collection was done 3 times with different questionnaires along one teaching session on February 12, 2020. Approximately 13 students attended the course. They were divided into three groups. The lessons took place once a week from 10:15–16:00, at the SDU Campus, Esbjerg. Poll Everywhere, a student response system, was one of the e-learning tools which was supposed to be used during the session.

In the first session of the course (introduction day), I briefly explained the importance of the preparation beforehand in TBL sessions. Also, I sent a reminder to the students 4 days before the session. Moreover, at the very beginning of the current session, I explained the TBL approach and its aims. The session was started by an iRAT, then followed by tRAT, lecture and team application.

Data from the iRAT and the tRAT was collected by relevant questionnaires. The students were asked to write their own points into "My point" at first. Then they should discuss their answers with the team and write the team points into the column "Team point". The iRAT questions were designed to help students to check their understanding of the important concepts, which they studied before the session. The aim of the subsequent team discussion was to stimulate/support/facilitate critical thinking. Also, team application was used in the last part of the session. This exercise was designed to help them to apply the important concepts. Students were asked questions at the end of the session about their engagement in the TBL session (Appendix A). The student self-report (Appendix A, Table 1) and the teacher´s report on the group (Appendix A, Table 2) contributed reflections on the students' engagement and understanding. The results of this project will provide good insights in switching the teaching style from semi-traditional to modified team-based learning in a teaching session with a very descriptive content.

In the following part, findings will be presented in a qualitative way.

Comparison of two teaching sessions

Based on my observation and comparison of two teaching sessions (last year with using semi-traditional approach and this year with using modified TBL approach), TBL could encourage students to be engaged more in the learning process.

iRAT and tRAT

The results of iRAT showed that even with this approach students' individual engagement was not enough, which means that they were not well-prepared for the session. In tRAT, they could get higher scores which means that during the discussions they could take advantage of peer-feedback.

- Only one group was very motivated and gave right answers
- The second group was in doubt about the answers. They gave me two answers. They had read the available material, but knowledge and effort were not enough to catch up and give right answers.
- The third group went in a wrong direction due to poor preparation. They were not able to engage in the discussion and as such they were unable to engage in the learning outcomes.

Students' engagement questionnaire (Teacher report)

Three items were assessed by using students' engagement questionnaire (teacher report on groups) and results are as follows in Table 1.

Items	Group 1		Group 2		Group 3	
	Yes	No	Yes	No	Yes	No
The focus of students' case-discussion in class were relevant.		X	X		X	
In this session, students do more than required.		X		X		X
I was satisfied with students' preparation before the session.		X		X	X	

Table 1: Students' engagement evaluation questionnaire for TBL approach (Teacher report on groups).

According to table 1, two groups had relevant discussions, just one group was well-prepared beforehand, and none of the groups did more than required. The last finding also was approved by my observation after watching the films of the session. Student reflection after watching the films was not significant for the lecturer. Also, after the session I have not received any feedback from the students. So, they did not do more than required.

Students´ self-engagement questionnaire

Findings of the students´ self-engagement questionnaire are as follow:

- Most of the students believed that guidelines and how to prepare before the team application were sufficient.
- All students mentioned they were interested to discuss and learn as much as possible.
- A few students did not believe that team application could stimulate them to discuss and that they felt insecure in group discussion.

Conclusion

- If the students had been well prepared the results would probably have been better.
- Having not prepared the team application was too complicated.

Moreover, I have to mention:

- The absence of IT staff this day in the Winter holidays was a big hurdle for my concentration.

Overall, students had better engagement, compared with last year in the same session. Also, students' engagement in team application was better than iRAT and tRAT. It might be related to the lecture, which was given by me before the team application. It meant that even if they were not well-prepared, the lecture and included collaborative tasks could give them better understanding about the topic and motivate them to discuss with the other group members.

In the future, in preparation of the questions and team application, I should not focus on the students, who are not interested to read the materials before the session. They are dependent on the teachers' lecture. It

means that the level of currently used questions for them is really high. So, they feel unsafe, and emotionally they are reluctant to be engaged in the discussions.

Another point is that, e-learning tools (e.g., Poll Everywhere) can play a significant role in breaking ice between surface learners and teacher. Even these kinds of tools can improve the emotional engagement of the students in the learning process. Using them is like a game for mentioned students and they will be engaged in learning process inevitably.

Limitation and strengthen of the study

Technical problems can be a challenge in all sessions (See above) (5). Despite having a well-prepared PPT which included Poll Everywhere, the technology did not work, and technical assistant was unavailable. This means that, this session did not include any e-learning tools. According to the external supervisor´s advice, as a teacher it is good to have different tools and try to use them in different situation for more engagement of the students. At the end of this session, I showed some short films based on the content of the lecture. As a teacher, providing relevant films was time consuming, but students' engagement was a good motivation for me to spend that time. The aim of using these short films was to encourage students to think deeply about different theories and models of health promotion planning in real cases. I think using this visualizing tool with a very short explanation about the whole content and putting them on the air, would be a good initiative for student engagement after the session. Time by time and unintentionally they will think about that film, and if they are really interested to learn more, they will ask me to discuss with them even during my office time.

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Appendix A

Table 1: **Students' engagement evaluation questionnaire for TBL approach (Students self-report).**

To what extent do you agree with the statements below.

On a scale from 1-5, where 1 = 'Strongly Agree' and 5 = 'Strongly Disagree', to what extent do you agree with the following statements? (circle your response, please)	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
The guideline on how to prepare before the case discussion was sufficient.	1	2	3	4	5
I am interested to discuss in this class.	1	2	3	4	5
I felt safe about airing my opinion and speaking out in the team discussion.	1	2	3	4	5
The team application has stimulated me to active participation in class discussions.	1	2	3	4	5
I want to learn as much as I can in this session.	1	2	3	4	5

Table 2: Students' engagement evaluation questionnaire for TBL approach (**Teacher report on groups**).

Items	**Group no.**	**yes**	**No**
The focus of students' case-discussion in class were relevant			
In this session, students do more than required.			
I was satisfied with students' preparation before the session.			

Scaffolding students' preparation for a pharmacology practical improves their self-efficacy and learning

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Ctrl + click on the image above to watch the video 'Brug af interaktivt undervisningsmateriale øger de studerendes læring i farmakologi' – 'Scaffolding students' preparation for a pharmacology practical improves their self-efficay and learning'

The UN SDGs are the common guideline for betterment globally- Developed countries carry a special responsibility

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Introduction

The University of Southern Denmark is implementing the UN Sustainable Development Goals (SDGs) in its strategy, which points to the importance of integrating them into the teaching and learning (University of Southern Denmark, 2021). This can happen in curricula, materials, exams and other documented forms but also in many tacit ways applying them in analysis and developing mindsets. We take the stance that the SDGs can be inherent in all courses in multiple ways. In the faculty of social sciences, we see that particularly issues such as sustainable business and economy, inclusive capacity building and knowledge transfer require increased attention in terms of application in the classroom, but similarly also issues such as reduction of inequality, better practices and less illicit behaviour need to addressed. Learning is not only about learning given contents and instruments but also about questioning gaps and missing aspects that are perhaps not yet perceived. Particularly students in developed countries may not perceive the meaning of all SDGs to be relevant if they are not discussed.

A processual approach on applying the SDGs

In teaching, we consider that there is a processual understanding that can foster the application of SDGs in developed countries. For example, in business and management studies SDGs can be integrated in the course contents, methods or outcomes (Peterlin et al., 2018; Mukhi & Quental, 2019). They can also be linked to the expected learning results and form frames of reference for evaluations advancing the capacity building of the students and the related projects. But SDGs can also be applied to foster the way teaching and learning takes place, e.g. by addressing problematic practices or fostering gender equality, see Figure 1. This processual approach offers several loops of learning that incorporate SDGs and build awareness of them, doing that in an explicit and motivating manner as it is linked to learning outcomes on how they are evaluated (Shiel, Smith & Cantarello, 2020)

Figure 1.

This processual view starts from preparing the study materials, such as readings and exercises to include notions of the SDGs. Then, as the course and the classroom goes "live" the way how things are done, e.g. exercises, should be reflected with some SDG lenses. For example, are team building mechanisms actually following inclusion and equality, or can we see an issue how we act already in the classroom that is not socially sustainable? Further, the outcomes of studying should empower participants to understand that their action has an impact and even future potential to contribute to betterment, in Denmark and abroad. By living through some of the SDG notions in the course, a student may become more aware of the SDGs, more competent to apply them and more committed to use them in their future work as well. A teaching approach that takes students to some more experiential styles of learning can provide important "ahaa" experiences and joy, particularly, if there are well-functioning group work.

How we can link learning outcomes to SDG contents and develop expectations?

In a specific course, the learning goals could already be formulated so that the expected analysis, comparisons and role identification would reflect SDGs indirectly. Additionally, when critical analysis and self-reflection is part of the learning goal, this kind of elements can use SDGs as frame of reference.
The study curricula, readings, discussions and exercises can specifically select suitable notions to match the study topic with related SDGs (Mawonde & Togo, 2019). Further, a flipped classroom presentation format can be a strong tool that is coming from the students themselves and empowers them to question the topic and its extant analysis.

Employing SDGs - linking them to solutions and findings

In terms of teaching, the dynamics of top-down teaching might not be alone suitable for the SDGs.
We suggest that updating and improving expectations should involve students and let them co-develop expectations that touch implicitly and explicitly some SDGs. When students are expected to reflect beyond classic views, such as profitability, and given more freedom to consider, this fosters the expectation level.

Interdisciplinary views, e.g. on unsustainable migration, may open new avenues to approach managerial problems (Emmanuel, Elo & Piekkari, 2019). When the course expectations point to awareness, cultivation of critical thinking, solution-creating approaches, and reflections among and between groups as well as before-after on the individual level, some of these views is likely to reach the student. When students notice that they participate, their views matter and they have a voice, this dynamism of rethinking sustainable goals and practices is likely to be more vivid and the feeling of the students on them more positive. Identifying problems and developing and finding solutions may empower and provide joy of learning. This can be stimulated also with visitors and videos, e.g. via UNCTAD events (UNCTAD, 2021).

Integrating SDGs into students' findings as one frame of reference on what is "good" may offer promising avenues. It is important to respect students' agency as they feel and think as individuals when they do exercises and assignment. Here, they should have the chance to think "what do I study, how do I study, and why do I study". A class case with SDGs may offer views that offer a reason, a motivation or even a purpose to study and use knowledge. A bottom-up approach meeting top down study contents can empower differently than a one-way logic in teaching. (Kirk et al., 2016; Ortiz & Huber-Heim, 2017; Kioupi & Voulvoulis, 2020).

Building on the student perspective

A rather holistic integration of SDG implementation provides different potential than a fragmented approach. From a student perspective, it is relevant for a course that there is a presentation of the SDGs in some form that sets the stage, links SDGs to the curriculum and captures their interest. This can happen upfront and plant a seed that is then cultivated in the course, see Figure 2.

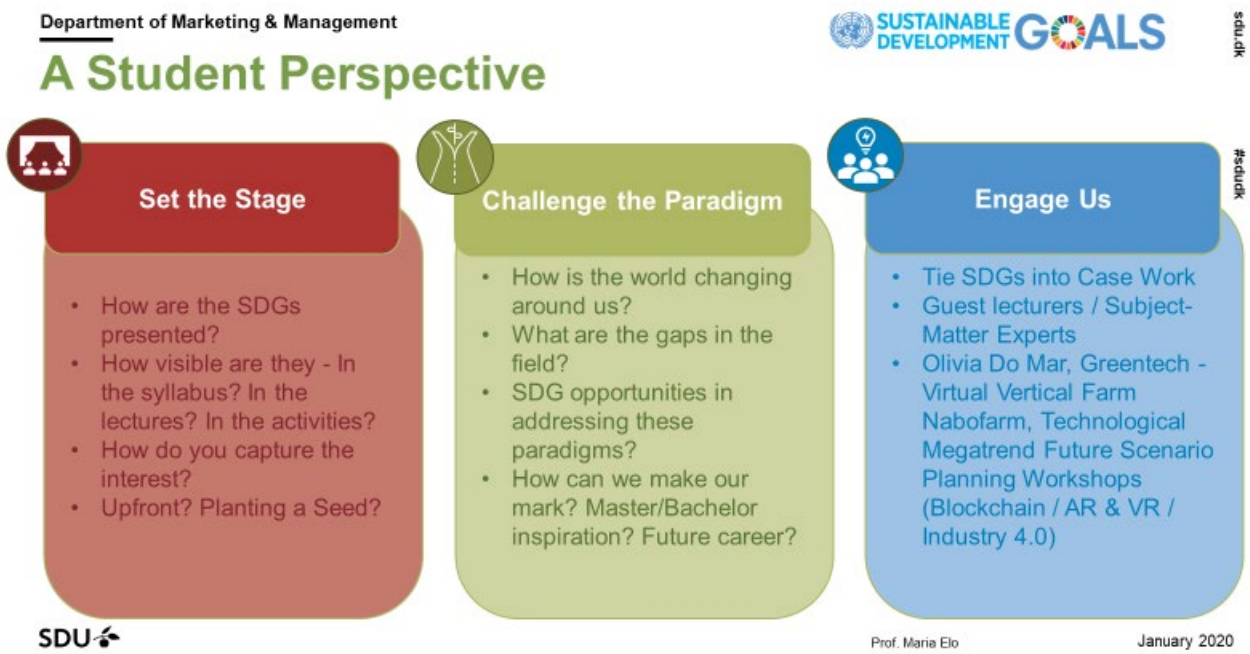

Figure 2.

After setting the stage, the students can start rethinking the paradigms around them, what is happening and how gaps and opportunities evolve. Here, the motivation of challenging the paradigma, doing an impact can trigger long-term interest and empowerment. In the final stage, the course can benefit from integrating SDGs in a course work, such as cases or examination. This allows students to engage and do hands-on efforts in reflecting and using SDGs on real-life challenges and further develop their interests in a meaningful and updated way.

Conclusion

The feedback from the courses where the SDGs have been processually integrated indicate a good acceptance and have not resulted in any negative comments on SDGs, on the contrary. We can see that students experience the issues they study differently when they reflect SDGs as this makes them confront matters from angles that are not necessarily typical for them. Furthermore, these reflections and applications provide students with points of discussions that are new, challenging and not simple to organize with existing tools in the learning materials. The SDGs both allow and push for discussion, even inconvenient discussions. They offer stimuli and orientation in debates that do not necessarily appear from any self-guided initiative or pre-given assessment structures. Finally, the learning can be fostered in a connected manner on individual, group, course and society levels. Many of the SDG relevant discussions, e.g. greenwashing and climate change, disseminate the quest for better understanding beyond the classroom setting and foster interconnected thinking from the forest to the global investment policy (UNCTAD, 2021). Hence, SDGs can assist as food for thought connecting the dots in a developed country learning environment and help facilitating global awareness and mindset of students.

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UNCTAD (2021) see content and events in https://unctad.org/
University of Southern Denmark (2021) https://www.sdu.dk/en/om_sdu/fakulteterne/samfundsvidenskab/verdensmaal

Blended learning: e-modules for academic writing in the health sciences

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Background

English has become the main language for information exchange in the health sciences, and much of the growth in scientific research occurs in countries where English is not the primary language.[1] Researchers using English as a second language often struggle with scientific writing as they need to master both English grammar and the nuances of synonyms and to write with fluency and precision.[1]

The development of written language skills requires active participation by the student, including both practice and reflection over own writing style. One approach to active learning is 'blended learning', which is the combination of traditional face-to-face learning and online learning.[2] It can be student-driven (where the student largely controls the time and pace of their learning) or teacher-driven (where the teacher determines the combination that best suits the student group) and can be more effective than traditional face-to-face learning.[3-6]

This article describes our experiences of using blended learning in an English grammar course for PhD students in a university health sciences faculty who have English as a second language. We developed a series of online modules (e-modules) on specific aspects of English grammar that the students used either as preparation for the course or for further practice during and after the course.

Learning goals and development of e-modules

The department of clinical research at our university offers academic writing courses for PhD and medical students and has a website that provides writing tips and links. The overall goal is to help the participants become more confident and skillful writers so that they can publish journal articles more easily.

Our two-day course on academic English requires active student participation through grammar exercises in small groups, sentence creation, and class discussions. Each student is helped to recognise their own writing style and personal grammar gaps. A maximum of 25 participants encourages students to share examples of poor writing and their possible solutions. All the examples and exercises use academic English from a variety of medical and scientific fields to provide the language complexity that PhD students in the health sciences need to master and to ensure contextualisation of learning.[7]

The limited course time means that we concentrate on the most relevant grammar for Scandinavians writing in English. As our students wanted more information and needed to practise what they were learning, we began to develop a series of e-learning modules as homework assignments during the course. The modules promote active learning, where students build on their existing knowledge and develop critical thinking and self-reflection regarding their own writing style. The main features of the e-learning module are:

- Theory combined with practice – each module starts with an explanation and examples of a grammatical issue, and students put the skill to use through self-completed exercises (e.g. identifying word types, matching parts of a sentence, choosing or writing the correct text). Figure 1 illustrates how an e-module builds up in complexity.
- Needs-based targeted learning – students can choose or be assigned specific exercises or modules.
- Built-up progression – the exercises are ordered from simple to more advanced.
- Feedback is provided as automated answers, explanatory text, and links to further material.

In the e-modules, the students learn about key English grammar aspects and especially those that differ between Danish/Scandinavian and English. While Danish uses the same standard word order as English (Subject–Verb–Object)[8], phrases of time, place, cause, etc. are often placed at the start of a sentence or immediately after the subject (and before the verb), and the Danish comma is typically placed before every sub-phrase and always before 'that' and 'which'. The transfer of these two practices alone produces English texts that are complicated and difficult to comprehend. Our students frequently hear from their supervisors that their sentences lack logic or that their texts are wordy and repetitive.

We have developed eight modules so far dealing with Nouns and verbs, Sentence structure, Sentence clarity, Conciseness, 'Who', 'that' and 'which', Adjectives and adverbs, Modifiers, and Articles. The students are required to complete the Nouns and Verbs module prior to the course, and the Sentence structure module is completed as homework. The other modules are available for further practice.

The example sentences in the grammar modules come from the health sciences to provide complexity and to reflect the students' own writing contexts. Academic text typically involves more complex sentence structure, and the scientific words and constructs can overshadow the grammar issues. We use a combination of students' own texts (with permission and modified to ensure anonymity) and inspiration from published articles. It is often time-consuming to devise sentences that are grammatically relevant but also scientifically valid and interesting, refer to a wide range of medical specialties, and will be relevant for at least 5-10 years. Figure 2 provides an example of a grammar point explained using medical text.

Impact on student learning and engagement

In February 2020, we held a focus group with four PhD students who had attended the two-day physical course and then completed the Sentence structure module as follow-up. The feedback on the module was positive although the students requested more examples for the grammar points and more feedback on incorrect answers. The students felt it was a highly useful supplement to the course, and they especially appreciated that the examples and exercises used scientific language. This made the exercises more realistic, although sometimes also more difficult as they had to first understand the sentence context and then work out the grammar. We had considered presenting the modules as mini-games with fun pop-ups to acknowledge correct answers and badges to show achievements, but the students did not recommend it. This avoidance of sidetracking students' attention fits with the experiences of Lucas et al.[9] with an online teaching tool for pharmacy students doing reflective writing tasks – "As no grade is given, the user's focus is directed toward learning with regards to the writing task and incorporating reflective elements into their writing". The clear structure of the module and the completion time of 1-2 hours helped to keep the students motivated.

As teachers, we found that the completion of the Nouns and verbs module before the course ensured a common understanding among students about the basic building blocks of a sentence and prepared them for learning about sentence structure at the start of the course. The module used as a homework assignment consolidated what the students had learnt in class and forced them to apply the grammar rules in writing. It also gave them a better understanding of how small wording changes can affect sentence meaning.

Potential of blended learning

The positive results from using the e-modules have led us to use blended learning routinely in our academic English courses for the health sciences. Since the onset of the Covid-19 pandemic, we have augmented the course by requiring the students to watch a short video about Sentence structure before the course and to complete writing exercises at home during the course, followed by discussion in class.

We can see that the blended learning approach helps students to relate the new grammar points to their own writing, and also transfers some of the learning control to the student. The integration of e-learning into education promotes a shift in learning, where "educators no longer serve solely as distributors of content but become facilitators of learning and assessors of competency".[10] Barriers to self-directed learning include information overload, role ambiguity, and adaptation to a new learning environment,[11] and the e-learning material must have clear added value for the course.[12] These were major considerations for our approach, and we continually reflect over how we can avoid overburdening students and maintain their attention while presenting as many grammatical topics as possible. Although we follow the same course outline each time, we find that the addition of student-centred, blended learning has given us more time for deeper discussion in class as students are able to analyse their own writing text, and has given greater variation and dynamic to the course.

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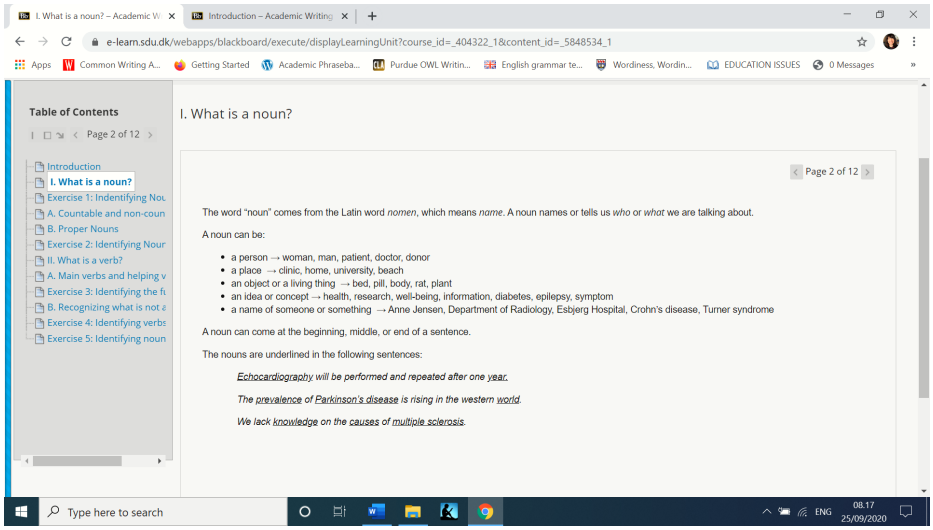

Figure 1. The start page of the e-module on Nouns and Verbs, showing how the e-modules start with basic information and build up in complexity.

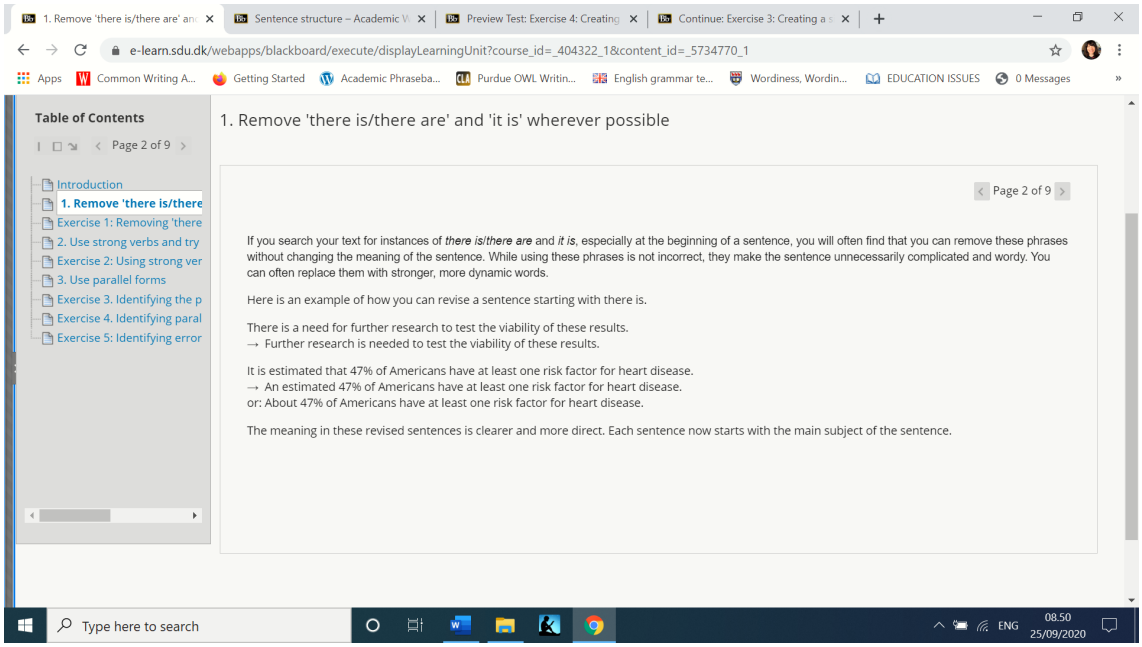

Figure 2. A screenshot of the e-module on Conciseness, showing how the explanations and exercises relate to scientific and medical topics.

Case Camp 2020: 'Sammen sikrer vi det rene drikkevand' - SDU Slagelse-modellen

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Introduktion

Vi vil i denne artikel præsentere, hvordan ledelse og undervisere i SDU-Slagelse har arbejdet med SDU Slagelse-modellen som en helhedsramme for aktiv læring, employabilitet, samarbejde med eksterne partnere og for integration af FN's verdensmål i uddannelserne i SDU-Slagelse.

SDU tog i sommeren 2019 en strategisk beslutning om, at universitetet skal arbejde med FN's verdensmål, bl.a. med henblik på at uddanne studerende til at arbejde med udfordringerne bag FN's verdensmål samt at engagere unge i arbejdet med bæredygtige løsninger. SDU Slagelse støtter op om denne strategi ved bl.a. at integrere arbejdet med verdensmålene i SDU Slagelse-modellens aktiviteter. Dette gøres ud fra en betragtning om, at FN's verdensmål er en ny form for globalt sprog, som det er vigtigt, at vores studerende behersker for at øge deres employabilitet (SDSN, 2020). Via aktiviteterne i SDU Slagelse-modellen kan de studerende opnå viden om verdensmålene og praktisere værdiskabende og bæredygtig innovation og udvikling.

I vores arbejde med udvikling af modellen har vi ladet os inspirere af Barnett (2011), der taler om `the ecological university', hvor samfund, undervisere, forskere, og studerende sammen skaber fremtidig viden og samfundsværdi med fokus på `interconnectedness', og af vores opfattelse af læring som en social og kulturel proces, hvor

> ..*learning is a social and embodied process involving emotions, practical actions and identity* (Hodkinson, 2005, p. 527),

og hvor viden er noget vi gør i praksis, og ikke `noget' vi har i hovedet.

> *Knowledge is always rooted in a context of interaction and is acquired through some form of participation in a community of practice*. (Gherardi & Nicolini, 2000, p. 330).

SDU Slagelse-modellen er vores måde at konceptualisere praksisnær læring, employabilitet, samt vores samarbejde med eksterne partnere.

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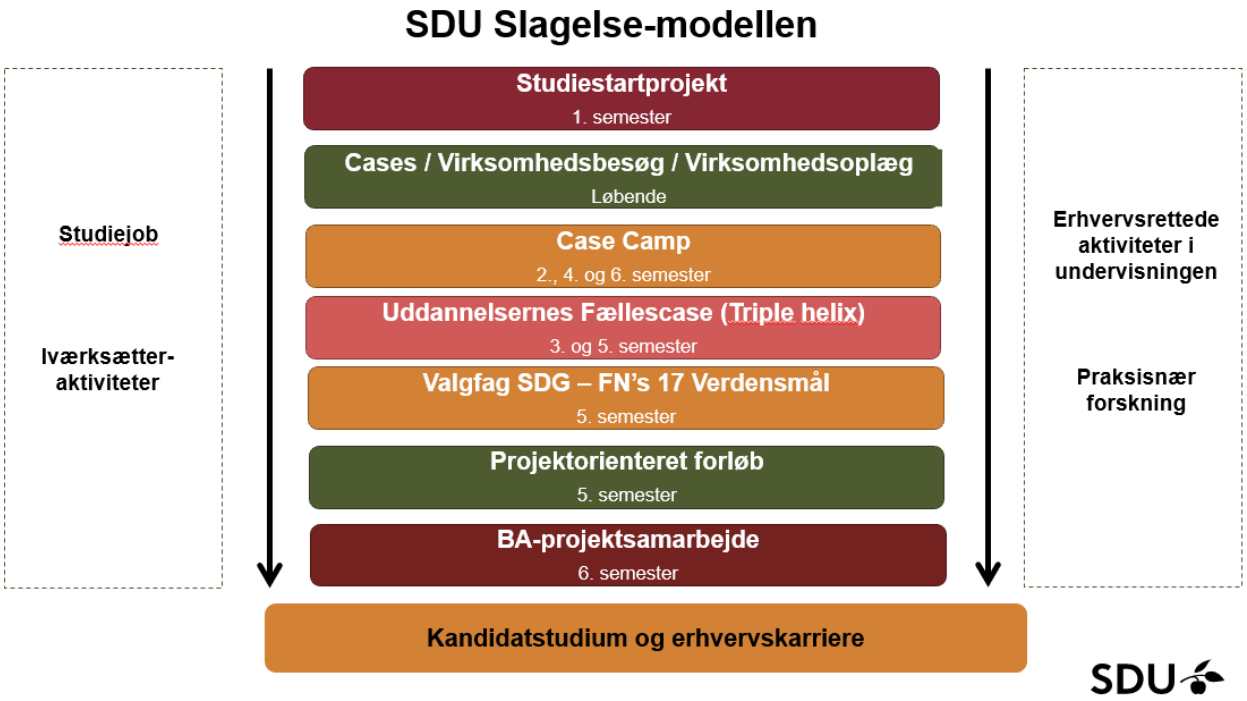
Baggrund - SDU Slagelse-modellen[2]

SDU Slagelse har igennem de sidste 4 år udviklet en model for at styrke uddannelseskvaliteten og de studerendes employabilitet ved at sikre en tæt sammenhæng mellem teori og praksis i undervisningen. Modellen er udviklet i samarbejde mellem ledelsen på SDU Slagelse, studerende, undervisere, SDU Research & Innovation Organisation (RIO), samt repræsentanter for lokale virksomheder, hvilket sikrer institutionel forankring med inddragelse af relevante parter. SDU Slagelse-modellen er således et værktøj til at arbejde kontinuerligt med verdensmål 4 – Kvalitetsuddannelse og verdensmål 17 – Partnerskaber for handling. Modellen fremgår af figur 1, nedenfor.



Figur 1. SDU Slagelse-modellen

Grundtanken bag modellen er, at der i hvert semester er en aktivitet, der involverer samarbejde mellem SDU og eksterne partnere. Modellen ovenfor viser hvordan forskellige aktiviteter integreres løbende igennem de studerendes undervisningsforløb, startende med et studiestartprojekt for alle nye studerende i 1. semester, og en Case Camp, som udbydes til alle studerende hvert forår, samt en række individuelt arrangerede virksomhedsbesøg, projektorienterede forløb samt mulighed for at udarbejde BA-projekt i samarbejde med en ekstern partner.

Vi ser employabilitet som værende tæt koblet til den studerendes kernefaglighed og evnen til at formidle denne (Yorke & Knight, 2006). I employabilitetslitteraturen diskuteres dette under begrebet transfer, hvor fokus er på at kunne overføre eller oversætte sine kompetencer fra en kontekst (praksis) til en anden.
I lighed med Hodkinson (2005) ønsker vi at gøre op med det lineære perspektiv, der anskuer kompetencer

[2] Kilde: SDU Slagelse –modellen version 2.0

opnået gennem uddannelse som en forberedelse til arbejdsmarkedet. I det perspektiv forstås læring gennem en tilegnelses-metafor. Den studerende er en beholder, der skal erhverve sig (fyldes op med) en række kompetencer, og læring bliver dermed et produkt, der skal tilegnes. Efter endt uddannelse skal den studerende transportere dette lærings-produkt fra en universitetskontekst til en arbejdsmarkedskontekst og formå at oversætte det. Dette perspektiv adskiller 'the product of learning' fra 'the learning process'. Hodkinson (2005) argumenterer derimod for, at det ikke er læring (learning), men den studerende (the learner), der bevæger sig fra en kontekst til en anden. I sådant et perspektiv bliver det at kunne bevæge sig mellem forskellige kontekster – eller mellem forskellige praksisarenaer – altså et centralt fokuspunkt i forståelsen af employabilitet. En praksisarena er i denne sammenhæng en samlebetegnelse for aktiviteter, der finder sted i relation til det omgivende samfund, og som giver de studerende mulighed for at prøve deres læring af i en praksiskontekst. I SDU Slagelse-modellen fokuserer vi netop på den studerendes færden i forskellige praksisarenaer.

Via SDU Slagelse-modellen indgår de studerende løbende i praksisarenaer, hvor de kan teste deres faglighed i en konstant udveksling mellem teori og praksis. Formålet med SDU-Slagelse modellen er således ikke kun at ruste de studerende til det fremtidige arbejdsmarked, men også at udvikle de studerendes indsigt i FN's verdensmål og udfordringerne bag, så vi styrker deres evne til at indgå i tværfaglige samarbejder og dermed i fællesskab at bidrage til en bæredygtig samfundsudvikling.

Data og aktivitet

Denne artikel fokuserer på Case-Camp 2020, hvor vi præsenterer, hvordan vi har integreret verdensmålene i undervisningen i samarbejde med Odsherred Forsyning A/S. Vi fulgte aktiviteten i to dage med det formål at indsamle kvalitative data, der indgår i et forskningsforløb omkring collaborative læringsmetoder og employabilitet på SDU-Slagelse.

Data indsamlet er observationsdata, interview med studerende og virksomhedens repræsentanter, evalueringsrapporter, opgavebesvarelser, videomateriale, samt inddragelse af post-it-sedler udarbejdet i forbindelse med en øvelse ledet af RIO.

Aktivitet: Case Camp 2020

Hvert år arrangerer vi en Case Camp, hvor alle studerende kan deltage i en todages workshop, der afvikles i samarbejde med en ekstern partner, omhandlende fx marketing, HRM, m.m. Case Camp har nu haft 4 forløb med forskellige virksomhedspartnere. Formålet med Case Camp'en er at skabe tværfaglighed, samarbejde og refleksion i forhold til viden. Vi ønsker at skabe et forum - hvor ny viden opstår i interaktion imellem studerende og virksomhed, hvor vi træner de studerende i at arbejde målrettet og fokuseret (med korte deadlines) med en konkret arbejdsopgave, hvilket giver de studerende en realistisk oplevelse. Den aktive læring kommer bl.a. til udtryk, når de studerende omsætter deres viden fra studiet til konkrete produkter.

Case Camp 2020 blev afviklet i samarbejde med Odsherred Forsyning A/S og havde som supplement til verdensmål 4 og 17 et casespecifikt fokus på verdensmål 6 – Rent vand og sanitet. Ca. 30 HA- og IVK-studerende fordelt på 8 grupper deltog i aktiviteten. Undervisere cirkulerede rundt imellem de studerende og tilbød vejledning undervejs i processen, hvor nødvendigt. Årets casevirksomhed skulle bidrage til at rette de studerendes opmærksomhed mod den problemstilling, at rent drikkevand ikke er en selvfølge i Danmark. Der blev sat fokus på almindelige husejeres brug af sprøjtegifte og den trussel det potentielt udgør mod vores grundvand. De studerende fik et indblik i Danmarks vandforsyning og de udfordringer

denne branche står overfor. Det resulterede i 8 spændende løsningsforslag med mange kreative bud på, hvordan opgaven kunne gribes an.

Vindergruppen vandt på fortællingen 'Drop sprøjtegifte i haven', hvor Odsherreds svar på Søren Ryge fortalte, hvordan man kan undgå brugen af pesticider i sin have. Kampagnen havde til formål at give miljøvenlige alternativer til brug af sprøjtegift i havearbejdet. I deres arbejde med udfordringen inddrog vindergruppen bl.a. teoretisk og analytisk viden til at identificere problemstillingen og producere nogle flotte kommunikationsprodukter, hvor deres kreative valg var begrundet i viden om målgruppen, informationsbehov og relevansopfattelse samt udgifter forbundet med eksponering af målgruppen. De fik en del medieomtale, bl.a. blev deres arbejde med kampagnen bragt i TV2 Øst nyhederne:

> *Studerende laver kampagne mod sprøjtegift i haver - skal forhindre pesticider i at ende i drikkevandet*: **https://www.tv2east.dk/odsherred/studerende-laver-kampagne-mod-sproejtegift-i-haver-skal-forhindre-pesticider-i-ende-i**

og de blev efterfølgende tilbudt studiejob i Odsherreds Forsyning.

De studerendes udbytte og oplevelse af aktiviteten

I forbindelse med denne case analyserede vi alle interviews med de studerende, samt alle udarbejdede post-it- sedler. I analysen fremkom følgende 4 temaer:

1. Kobling mellem teori og praksis
2. Arbejde med FN's verdensmål
3. Samarbejde på tværs
4. Stabilitet og gentagelse

1. Kobling mellem teori og praksis som læringsmetode

De studerende fremhævede det meget stærke fokus på inddragelse af praksis, samt det virkelighedsnære i problemstillingen som et vigtigt element:

> *... for mig handlede det meget om at jeg synes det er rigtig fedt at universitetet er teoretisk, men det er bare vigtigt også at komme ud i noget praktik og have lavet noget med virksomheder (stud. 2. Sem)*

> *... det er meget rart at bruge det rent praktisk, fordi nogle gange så kan man godt føle sådan lidt at man ikke gør noget, der gør nogen forskel, fordi man bare sidder med næsen i en bog, så det er meget fedt at få lavet noget der rent faktisk er konkret (stud. 4. Sem)*

> *… det er fedt at det er et reelt problem, og det ikke bare er noget der er opstillet (stud. 6. Sem)*

Ovenstående udsagn illustrerer de studerendes positive udbytte af at bevæge sig mellem forskellige praksisarenaer, som her universitetets praksisarena med fokus på teori og analyse og en praksisarena som kommunikations- eller marketingsmedarbejder, der skal forholde sig til en samfundsmæssig udfordring som rent drikkevand under hensyntagen til lokale interessenter, et budget og virksomhedens øvrige

ressourcer. Den studerende (the learner) får dermed lov til at afprøve denne vekslen mellem praksisarenaer, og kan inddrage erfaringerne fra Case Camp´en i sit videre studie.

2. Arbejde med FN's verdensmål

Via vores samarbejde med Odsherred Forsyning A/S, hvor fokus er på at formindske brugen af sprøjtegifte blandt borgere i Odsherred kommune, giver vi de studerende mulighed for at arbejde konkret med verdensmålene og øve sig i at arbejde med værdiskabende og bæredygtig innovation og udvikling i praksis, og dermed udvikle de studerendes kompetencer til at spille en effektiv rolle i indsatsen for bæredygtig udvikling. At det også er en ny måde at arbejde på, kan ses af de studerendes kommentarer:

> *… Det er ikke lige normalt noget man sidder og arbejder med på studiet, med at man skal lave et eller andet for et forsyningsselskab… (stud 6. Sem)*
>
> *… Det her med at vi skal være mere miljørigtige, - det er også et sundhedsproblem – ja det er måske mere et samfundsproblem… (stud 6. Sem)*
>
> *… Jeg har fået større kendskab til konkrete metoder til at formindske brugen af sprøjtemidler i private haver… (post-it kommentar).*

Uddannelse med fokus på FN's verdensmål betegnes Education for Sustainable Development (ESD). Der findes endnu ingen eksakt definition på, hvad ESD skal indeholde, men SDSN betegner ESD som uddannelse

> *that provides people, regardless of their chosen profession or path in life, with the skills, knowledge and mindsets to address the challenges captured by the SDGs and to contribute to the transformations needed in society* (SDSN, 2020, s. 10).

Vi kan se af ovenstående udsagn, at Case Camp 2020 har gjort de studerende mere opmærksomme på rent drikkevand som et samfundsproblem og øget deres opmærksomhed på de skadelige effekter af brugen af sprøjtegifte. Vi argumenterer derfor for, at Case Camp 2020 har bidraget til at sætte fokus på en af de udfordringer, som verdensmålene fokuserer på, nemlig verdensmål 6 – Rent vand og sanitet, og har givet de studerende øget viden om, hvordan nogle af de udfordringer, der ligger bag dette verdensmål, kan adresseres i praksis med en kommunikations- eller marketingsvinkel.

3. Mulighed for samarbejde på tværs

I udviklingen af SDU-Slagelse modellen har vi haft stort fokus på samarbejde med deltagelse af studerende med meget forskellige faglige identiteter, og et centralt element i modellen er også netop at øge det tværfaglige samarbejde. Case Camp giver mulighed for deltagelse fra flere forskellige uddannelsesretninger, og vi har således deltagelse af studerende fra både Samfundsvidenskab (HA studerende) og fra Humaniora (IVK og PBA studerende). Som udgangspunkt fik de studerende selv lov til at vælge grupper, og det viste sig hurtigt, at de primært ønskede at arbejde i grupper med studerende fra deres eget hold, eller medstuderende som de kender fra tidligere projektsamarbejder:

> *.. Ja, teamarbejde synes jeg vi har fået meget ud af Maria, Lisa og jeg … Vi skrev kommunikations-planlægningseksamen sammen og havde et godt samarbejde,* ***så vi synes, det kunne være helt vildt sjovt at udfordre os selv igen***… (stud 2. Sem)

Det kunne således se ud som om trygheden i en gruppe, hvor deltagerne kender hinanden i forvejen, vejer stærkere end lysten til at kaste sig ud i tværfagligt samarbejde på tværs af uddannelser, hvor man ikke kender hinanden i forvejen.

Det faktum, at de studerende helst holder sig til de kendte grupper, understreger behovet for, at de studerende lærer at samarbejde med andre fagligheder, hvor de bliver mere bevidste om deres egen kernefaglighed og professionelle identitet. Det er nok et punkt, der kræver et særligt fokus fremadrettet, hvor vi skal etablere faglige og sociale miljøer på tværs af faglige identiteter.

4. *Stabilitet og gentagelse*

SDU Slagelse-modellen er efterhånden konstitueret som en fælles fortælling blandt undervisere og studerende i Slagelse, hvor de studerende kan trække på erfaringer fra tidligere års cases.

> *Jeg gør det, **fordi vi også var med sidste år,** og det var spændende og interessant at være med (stud 2. Sem)*
>
> *Vi kan arbejde **med de kompetencer, vi har i forvejen, og vi har lavet det her efterhånden nogle gange** - var med i studiestartprojektet (stud 6. Sem)*
>
> *….. **jo flere gange man gør det, jo bedre** bliver man jo også til det (stud 4. Sem)*

Denne fælles fortælling skaber sammenhæng og kontinuitet i uddannelsen, samtidig med at jo mere de forskellige tiltag bliver beskrevet i modellen og bliver del af en fast, tilbagevendende praksis, jo mindre ressourcekrævende bliver det at gentage de forskellige aktiviteter - og ressourcerne vil kunne bruges et andet sted.

Diskussion og konklusion

Det ligger i SDU's vision at uddanne studerende og dimittender, der skaber værdi for og med samfundet ved at arbejde med FN's verdensmål. SDU Slagelse-modellen er vores bud på en metode, der kan integrere arbejdet med bæredygtighed på tværs af fag og uddannelser med et employabilitets-fokus, hvor de studerende løbende indgår i praksisarenaer, hvor deres faglighed udfordres i en konstant udveksling mellem teori og praksis. Via disse praksisarenaer skaber vi et læringsrum, hvor teori og praksis kobles sammen på en måde, der sikrer, at de studerende får de relevante kompetencer til at spille en rolle i indsatsen for bæredygtig udvikling. Modellens fokus på employabilitet ses i denne sammenhæng som transfer, hvor det at kunne bevæge sig mellem forskellige kontekster – eller mellem forskellige praksisarenaer – ses som værende et centralt punkt.

Vi har i denne artikel præsenteret SDU Slagelse-modellen ved at beskrive en specifik case, Case Camp 2020, hvor de studerendes oplevelse af aktiviteten understøttede vigtigheden af, at der sker en kobling imellem teori og praksis i deres uddannelse. Dog understregede dette års Case Camp også vigtigheden af en øget indsats for at skabe sociale og faglige rammer for tværfaglige samarbejder, idet de studerende vægtede erfaring fra tidligere samarbejde tungere end tværfaglighed.

Hvordan kan dette inspirere andre?

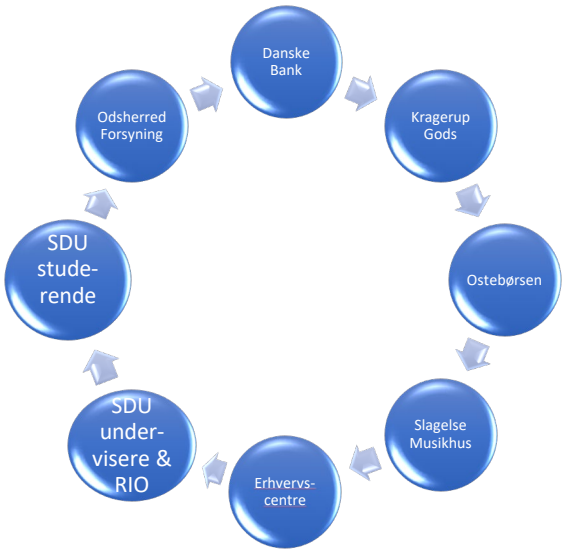
Ved at se SDU Slagelse-modellen som en ramme for læring, der skaber og demonstrerer sammenhæng i uddannelserne både for de studerende, for underviserne og for eksterne partnere, kan modellen inspirere

til inddragelse af undervisere, forskere, studerende og eksterne samarbejdspartnere i SDU's strategiske arbejde med FN's verdensmål. Hensigten med denne innovative og nye tilgang til læring er således at øge de studerendes læring og employabilitet, og samtidig øge SDU's mulighed for at bidrage til den lokale bæredygtigheds agenda.

SDU Slagelse-modellen er konstitueret som en fælles fortælling og fungerer dermed som en stabiliserende faktor, idet konceptualisering af aktiviteterne gør det muligt at tale om 'den´ – den har et navn. Aktiviteterne får dermed mere vægt, idet det ikke længere er enkeltstående aktiviteter, det bliver en særlig måde at arbejde på. Når noget er beskrevet i tekst, får det et mere selvstændigt liv - løsrevet fra de personer, som oprindelig udviklede modellen (Taylor, 2011). Teoretisk kan vi sige, at modellen fungerer som en non-human (ikke-menneskelig) aktør (Cooren, 2004), som kan aktiveres af alle medarbejdere og andre partnere. Det har en betydning, at modellen er 'materiel'. Den kan printes, ligge på hjemmesiden, sendes på mail, deles rundt til møder, hænge på opslagstavlen mv. Denne repræsentation gør modellen præsent, hvilket gør det nemmere for undervisere at orientere sig og byde ind på forskellige aktiviteter eller udvælge aktiviteter, der kan integreres i deres undervisning, da de kan se progressionen i aktiviteterne.

Fremtidsperspektiver

Den fremtidige udvikling vil gå i retning af at udvikle strategiske bæredygtige partnerskaber, hvor vi inddrager studerende i fagudviklingen og former strategiske bæredygtige partnerskaber imellem studerende, virksomheder og undervisere, jfr. Figur 2.



Figur 2. Bæredygtige partnerskaber

Dette vil indgå i SDU Slagelse-modellen som et nyt valgfag, hvor vi inddrager studerende i fagudviklingen, som vi kobler til undervisernes forskning i konkrete projekter.

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Visual online collaboration facilitating teacher supervision using active learning

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Abstract

The world has recently taken a strong turn towards the online collaboration in education. This turn has required the teachers to transform their materials and means towards online use. In this paper, we describe two cases within active learning: one for designing collaboratively with online materials, and the other for analysing using online materials. We examine these two transformations — a tangible to online and an embodied to online — and discuss their impact towards the education at a departmental level.

Introduction

The recent change towards online teaching has required the teachers to adapt with little to no time to spare. This has posed challenges for the studio-based learning within design-orientated field, where the students and the teachers share a social- and design-space within which they learn in a collaborative manner(Brandt et al., 2013). The majority of the education within IT product design (later ITPD) program at SDU is studio based. Normally the students would read about the methods, usually in the form of a paper, before using them in practice. This approach is common for the studio-based courses, however, with the additional overload from the online work, the students have had less time and energy for actual learning. This issue of learning also influences the purpose of methodology. Do the students actually need to learn the underlying research that led to a method, or can we find an alternative that satisfies learning to use a method?

This paper examines, how can two different studio-based methods be transferred to the online environment? We present two cases for transferring methods that rely on social interaction and some form of physical interaction between students, designed to be either hands-on, or embodied. Both of these methods required physical presence, relying on the in-person experience. First example focuses on designing an embodied teaching-activity, where the students (high-school teachers, via IT-vest Master-i-IT (*Master i it - fleksibel uddannelse og på deltid*, 2021)) planned a teaching-case for the use in their own classrooms. The students had been taught Bodygramming, a method of embodying computational steps as a facilitated sensemaking (Mikkonen, 2019, 2021). We describe what was involved in learning to plan the educational activity, and what steps were taken for the students to implement the activity themselves. This case was done right at the middle of the transition to the online education, i.e., it started as studio course and was changed to an online course after the first classroom exercises. The students were thus able to experience Bodygramming method in person, and this was later followed up with having the students design an exercise involving Bodygramming.

The second case focuses on using an online version of a framework for collocated and mobile interaction, called Collaborative Cards. This online version is based on an existing framework for collocated and mobile interaction (Lundgren et al., 2015), which we first transformed into a set of physical cards. The cards were first briefly tested in the original physical format with ITPD students during Spring 2019 and then used in a

digital format during Spring 2020. This case discusses how the use of the cards transforms from the physical to the digital and focuses mainly on the outcome of the online activity.

Our results suggest that both activities are transferable to online to a certain degree. The results of the embodied activity could not be tested properly due to the restrictions; however, the students were able to reflect on the activity in their own learning. Following this, the students were able to use the insights gained towards their own didactic designs for high schools. The tangible activities were transferred better, and there was no difference between the outcomes of these two activities. In both offline and online cases, the students were equally able to use the cards to indicate the core qualities of the prototypes.

The abrupt transformation to the online and virtual has already produced some insights to the fields that are traditionally studio-based, or hands-on. This transformation within architectural education has already revealed that "The virtual space itself needs to become more interactive to address the importance of background peer learning" (Iranmanesh & Onur, 2021). Similar insight was seen within the medical education, where "the loss of collaborative experiences has the potential to become a detriment to education and is worth studying" (Ferrel & Ryan, 2020). These two insights were found also in our work, as we aimed at creating a collaborative experience that allows peer-to-peer participation within confined and transferable format.

For the teacher, the online approach requires a lot more preparation. In both the embodied and the tangible transfer, setting up the online environment took a lot of time. The offline setup in both cases takes only a few minutes, where the online setup took several hours. Majority of this was spent on digitalising the cards and designing the looks and *the usability* of the virtual space. The learning-experience was very easy to manage during the on-line lecture, as the approach is preparation-heavy. The online environment appears much less forgiving, while the face-to-face session allows for better social navigation. Surprisingly, in both cases the teacher can observe which groups are proceeding well, and which teams require assistance. The use of shared online platform also allows the students to observe and learn from their peers, i.e. how other students proceed forward in a similar situation. Finally, the online approach has been used in several different classes and events since its inception, expressing good transferability.

Method

In both cases, the online platform was google-slides. This was selected due to the free access, being familiar for the students, and the multi-user capability. It should be noted that the environment is not GDPR-friendly, which limited the available learning designs. The slides were designed to be self-contained learning-material that can be referred to afterwards. The slides contained both the information needed to work with the tasks, as well as the tasks for the students. Just before the tasks, a "copy-paste" slide was inserted, where any design-elements could be copied from if they were accidentally deleted from the students' task-areas. An overview of the slides from both cases is shown in Figure 1. The online Collaborative Cards were used by 17 first year Cand. IT students. The online Bodygramming task was done with 24 students, who were high-school teachers with active teaching experience.

The google-docs were first prepared by the author, who designed both the exercises, the materials, and the original methods. To clarify, the author designed the physical version of the collaborative cards, basing them on an existing framework for collocated and mobile interaction (Lundgren et al., 2015) and discussions with Associate Professor Robb Mitchell at SDU/ITPD.

The final slides were copied, so that the originals were available in case something went wrong. While the students were using the slides, a few occasional screenshots were taken. These were not planned beforehand. After the students were finished with their tasks, they were encouraged to take a copy of the whole experiment. At this point, the slides were copied by the author as well, to preserve the result.

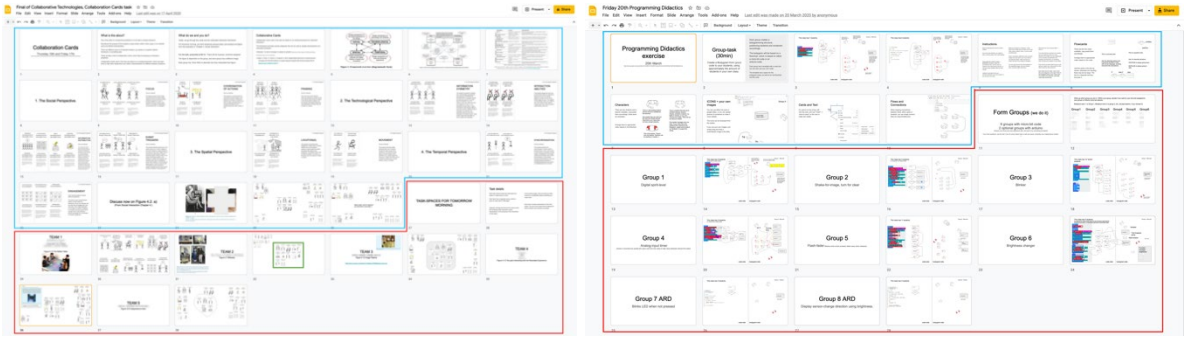

Figure 1. LEFT: The slide-structure for the Collaborative Cards. Slides 1-26 (blue) explain the method and gives an example, slides 27-38 (red) contain five task-spaces. RIGHT: The slide-structure for the Didactics exercise. Slides 1-10 (blue) explains the method and gives examples, slides 11-28 (red) contain eight task-spaces. The example for the didactics includes both how to use the slides-tools to draw, as well as the task itself.

Case — Bodygramming

Bodygramming is an activity where the students collaboratively explore how a program in an embedded processor system interacts with the user (Mikkonen, 2019, 2021). The activity is intended to give a quick insight to how a program works, and what is the purpose of the individual code-instructions. Bodygramming requires the students to use the environment they are in, and the activity has to be designed to with the elements from the environment in mind. The elements that are used are boxes, light-switches and lights, to create a representation of the processor input/output systems, and how the processor makes sense of the data and the inputs. As an example, a box on a table could be a memory, where some kind of data is then physically put in during acting. This activity can be planned with a didactic overlay, which shows how the students should be standing in the environment, and what elements are used. The didactic overlay is a direct representation of the flowchart that is going to be acted out. These three perspectives are shown in Figure 2.

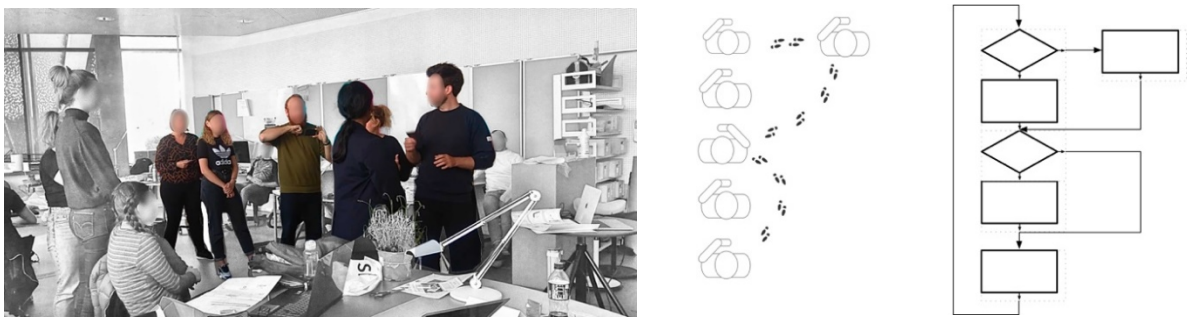

Figure 2. Three equivalent representations of a simple algorithm. Bodygramming in the classroom (left), as an didactic overlay (middle), as a flowchart (right)

Before the students were given the task to design the didactic overlay, they ran a session of Bodygramming under the author's instructions. The author had designed a simple algorithm that was first acted out, and then coded collaboratively as a functional program. As the students experienced the activity first-hand, the foundation for learning using Bodygramming was set, and they were able to see what elements were important and why. A few weeks later, the students were asked to design their own didactic overlays. The author provided simple pre-designed programs, for which the students first designed the flowchart, and then followed this with their own didactic overlays. The process started with the author explaining how the process works, accompanied by a pre-made example, after which the students were given 30min to complete the task. The slides included detailed descriptions of the process, example, and details on using the didactic overlay elements and the task space. Two example-slides are shown in Figure 3. After the task was complete, the students were then asked to present their outputs. Two examples are shown in Figure 4.

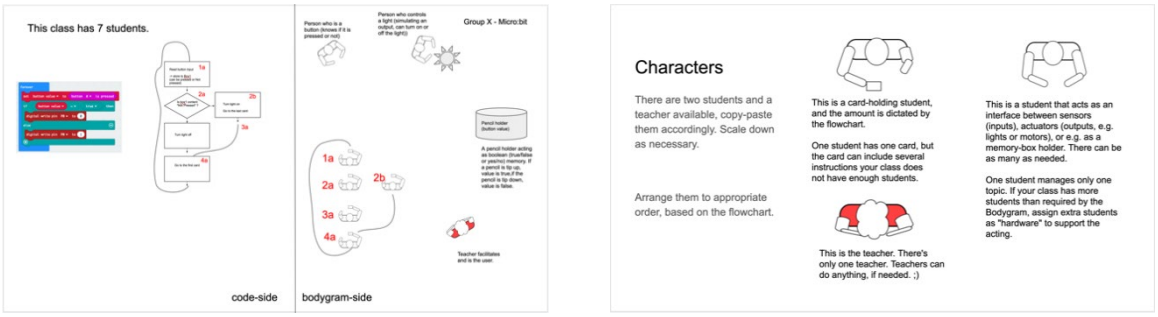

Figure 3. Two example-slides prepared by the teacher. Left: Example task with the didactic overlay (slide 3 in Figure 1., right). Right: Explanatory slide describing character elements for the overlay (slide 7 in Figure 1., right).

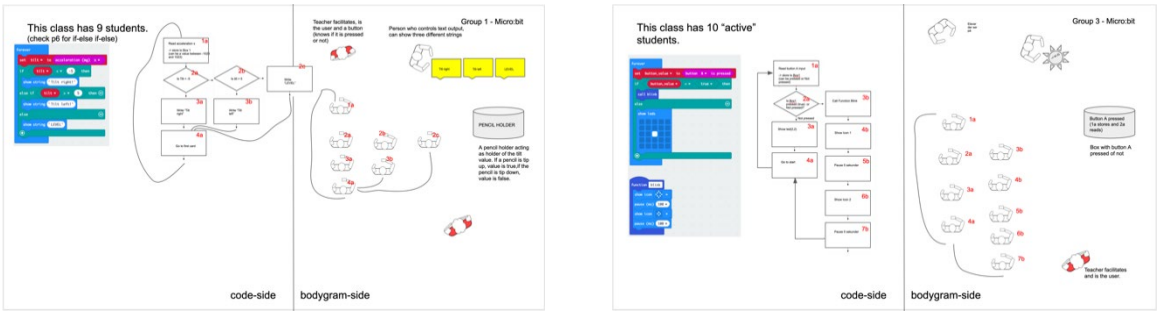

Figure 4. Completed tasks, with full student-developed flowcharts and well-developed didactic overlays. Both slides had originally two sides, and the code on the left-hand side. Left: Simple digital spirit-level. Right: a button-reactive blinker.

Case — Collaborative Cards

The collaborative cards were designed to simplify learning an existing framework, and were initially designed as physical, tangible cards. These cards had two sides, with an icon and a name on the front, and the framework-specific description at the back. During 2019 Spring, the cards were briefly tested with students who analysed a video, in which a team was working together to fire a trebuchet. The outcome of this process is shown in Figure 5, left. For the 2020 Spring, the cards were transferred to the digital format, and a space prepared for the students to work with. The digitised cards were grouped according to their traits, together with the backside of the card. This was done to give the same information as with the physical cards. As a comparison to the previous year, the example-outcome for 2020 Spring is shown in Figure 5, right. The introductory slides contained details of the publication, descriptions of the framework

properties, and the cards themselves. An example card-descriptions for "location(s)" and the cards are shown in Figure 6.

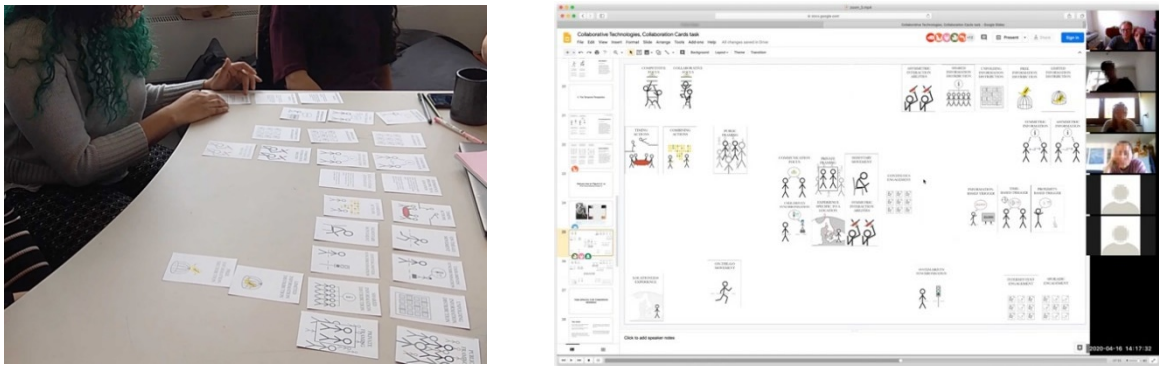

Figure 5. Collaborative cards as tangible and as online version. Left: The cards laid out on a table to explain the properties of trebuchet use (Spring 2019). Right: The cards laid out on google-slides, with the author explaining the use (Spring 2020).

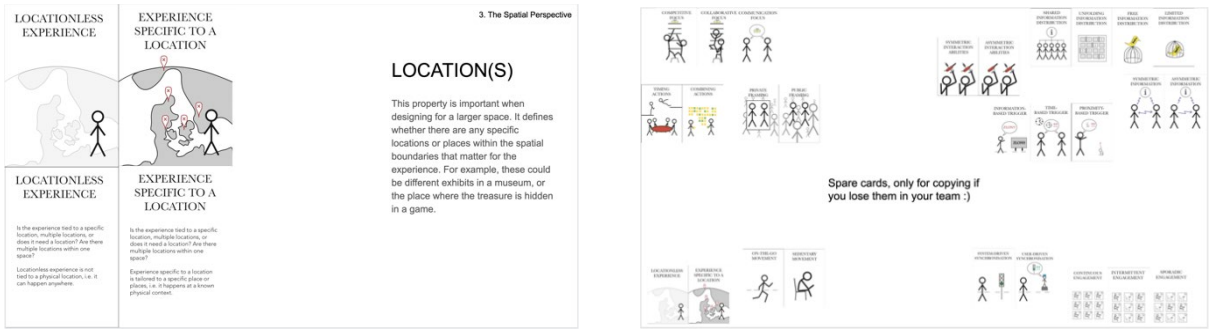

Figure 6. Examples of the instruction slides. Left: Both sides of the digitised cards, and a description from the original framework. (Slide 18 in Figure 1, left.) Right: All collaboration cards grouped, to be used as spares (Slide 26 in Figure 1, left.)

In both cases, physical and online, the students were able to use the cards to describe the properties without difficulty. While the physical version allowed the students to discuss face to face, the online version required a third-party program for communication — separate from the google-slides. The students primarily used Zoom, however, they could have used any kind of program. The task-slide and the outcome of the card process is shown in Figure 7.

Figure 7. Example outcome with the online version. Left: The specific task description, including team-info (Slide 31 in Figure 1, left.). Right: The outcome, with the selected cards in the middle (Slide 32 in Figure 1, left.).

Results and Discussion

Both methods provided positive impact. The students in both cases were able to use the approaches towards their future work. With Bodygramming, the high-school-teacher students were not able to immediately use their didactic overlays due to the pandemic. However, they were able to reflect on the experience in their Master-i-IT education. Several of the teachers were committed to using them in their own teaching, once the situation allows. The teachers were keen on discussing the impact of the method to their own teaching during and after the task. On the other hand, it is unclear if the online task itself was meaningful, or if the physical Bodygramming exercise was remembered better due to the online task. The Collaborative card task appeared equally functional between both online and offline use. In both cases, the students were able to categorise the artefacts sufficiently, and later use them in their course projects. As such, the online cards were successfully transferred to online use.

The author, in the role of a teacher, found the using online tasks to be extremely heavy at the preparation-stage. However, this was compensated by the effortless monitoring and management. Surprisingly, the google-slides platform provided an unexpected benefit. Each user is represented as a symbol in the google-slides (see the left-hand side slide thumbnails in Figure 5, right). This feature allows the teacher to observe how the students are moving around in the slides. As google slides allows working on only one slide at the time, the teacher can easily see how the students move around. This helped the teacher to determine quickly, if the students needed assistance. Another benefit of using google-slides was the students' ability to quickly check their own approach against other students' approaches. As each team had a different artefact or code, and the task was otherwise the same, there was no fear of direct copying from other teams. Finally, the use of google slides during the master-i-IT had such an impact, that the other teachers within The Department of Design and Communication (mainly ITPD and webcommunication) started using similar designs for their own teaching and workshops. The author has seen this approach used with at least three different cases outside their own. As the approach is not tied to any specific teaching platform, it can be used with at least Teams, Zoom, skype, and facetime. Furthermore, it may be transferable to Miro, and will be further investigated for more complex tasks.

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Projekt Mønsterbryder – fra tabere til vindere

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Regitze Misser Klenke, stud.mag. i International Virksomhedskommunikation, tidligere deltager i Mønsterbryderprojektet og i dag studentermedhjælper i projektet

Formålet med projekt Mønsterbryder

Projekt Mønsterbryder er et projekt på International Virksomhedskommunikation (IVK) på Syddansk Universitet i Odense, som har til formål at understøtte mønsterbrydere til fagligt og socialt at bryde den akademiske kode, blive gladere for at studere på universitetet og dermed øge chancen for at gennemføre den valgte uddannelse.

Alle nystartede studerende på IVK præsenteres for projektet ved studiestart. Interesserede optages i projektet på baggrund af en ansøgning, men vurderer selv på baggrund af præsentationen, om man befinder sig i kategorien 'mønsterbryder', og hvad en mønsterbryder er. Alle deltagere i projektet kommer fra uddannelsesfremmede og ikke akademiske miljøer. Nogle deltagere i projektet kommer direkte fra baggrunde, hvor familie og venner er helt uforstående over for og modarbejder uddannelsesvalget, og nogle kommer fra baggrunde med alvorlige sociale problemer af forskellig art.

Projektet startede september 2013 med 17 mønsterbrydere og 14 mentorer. Projektet har hvert år siden optaget 6 – 15 nye deltagere. I alt 87 deltagere har været tilknyttet projektet i perioden 2013 – 20.

Projektet ledes og organiseres af studieleder Flemming Smedegaard med hjælp fra en studentermedhjælper. Projektet har hele tiden været gennemført uden andre økonomiske omkostninger for universitetet end nogle få timers løn til en studentermedhjælper. Alle øvrige indsatser i projektet er frivillige.

Vi vil i denne artikel præsentere projektets aktiviteter, projektets resultater, bl.a. gennem to narrativer, samt diskutere, hvorfor projektet er blevet den succes, som det vurderes til at være blevet.

Aktiviteter i projekt Mønsterbryder

Alle deltagere i projektet får en personlig mentor, der gennemføres månedlige fællesarrangementer, og der tilbydes derudover en række øvrige muligheder for støtte og hjælp i projektet.

Alle deltagere i projektet har en ***personlig mentor*** i form af en ældre studerende eller færdiguddannet IVK´er, som selv har mønsterbryderbaggrund, og som er lykkedes med universitetsuddannelse og akademisk karriere. Mentorerne fungerer som faglige og personlige rollemodeller, som fortrolige samtalepartnere, og som nogle, der kan hjælpe med mange af de udfordringer, mønsterbryderen oplever. De enkelte mentorer og mentees aftaler selv, hvor ofte de taler sammen, og hvad de taler om. De enkelte mentorer og mentees aftaler også, hvor længe de vil have en relation. De fleste mentorrelationer varer et par år. For nogle skabes et varigt venskab.

På de månedlige fællesarrangementer behandles alle emner af fælles interesser, hvad enten det knytter sig til den studerendes studieliv eller privatliv. Temaerne for gennemførte arrangementer er fx

- Hvordan organiserer man bedst sit liv som studerende?
- 360 graders studenterliv: studium, studiejob, aktiv i studielivet, fritidsinteresser, kæreste, familie, venner, bolig, motion, mad, økonomi mv.
- Hvordan besvarer man familie og venners spørgsmål om ens uddannelsesudvalg, og hvordan tackler man direkte modstand mod valget?
- Hvordan knækker man koden i de forskellige eksamensformer på universitetet?
- Angst og bluff på universitetet
- Hvordan danner man faglige netværk?
- Hvad er stress som studerende, og hvordan håndterer man dette?
- Selvværd, selvfølelse og selvtillid
- Hvorfor er sorg en naturlig menneskelig følelse, og hvordan kommer man igennem sorgen?
- Om at lykkes som studerende og som menneske
- Tvivl og tro

Øvrig støtte og hjælp i projekt Mønsterbryder kan være målrettet hjælp til projektdeltagere, der har særlige udfordringer med bestemte fag i uddannelsen og måske dumper det første fag på universitetet. Det kan også være individuelle samtaler hos studieleder/projektleder om særlige udfordringer samt hjælp til uddannelses- og karriereplanlægning, herunder konkrete "redningsaktioner" for at få studie- og privatlivet til at fungere igen.

Projektdeltagerne opmuntres herudover til at engagere sig aktivt i studielivet uden for timerne, og mange har engageret sig som tutorer, i studenterforeninger, fagråd, festudvalg, studienævn mv. Flere af deltagerne har fået studiejobs gennem det netværk, som projektet har givet dem. En meget væsentlig gevinst er desuden det netværk, som deltagerne i projektet får med hinanden, og som har stor betydning for dem i hverdagen på universitetet.

Resultatet af projekt Mønsterbryder

Med nogle år og årgange i projektet på bagen kan vi i dag se, at det, som projektet overordnet set lykkes allerbedst med, er i væsentlig grad at styrke deltagernes både faglige og personlige selvtillid,

Mens målet med projektet var at udligne forskellene, så mønsterbrydere kommer til at klare sig på lige fod med gennemsnittet af studerende, kan vi konstatere, at mange projektdeltagere har endt med at klare sig bedre på universitet end flertallet af studerende. Mønsterbryderne er fx i dag klart overrepræsenteret på IVK´s elitemodul på kandidatuddannelsen. Mønsterbryderdeltagerne har et mindre frafald og en højere gennemførsel end øvrige IVK-studerende. Der er desuden rigtig mange mønsterbrydere, der bliver aktive i faglige og sociale sammenhænge på universitetet. Fx er formanden for studenterforeningen IVKomiteen, de seneste to studenternæstformænd for studienævnet og redaktøren af det interne tidsskrift på IVK mønsterbryderdeltagere.

Vi vil illustrere projektets resultater gennem to narrativer fra deltagere i projektet: Sasja, som var med på det første hold i 2013, og Regitze, der startede i projektet i 2017.

Narrativ 1: Sasjas narrativ

Jeg har været tilknyttet Projekt Mønsterbryder som deltager, siden projektet blev etableret i 2013, og jeg kunne i sommeren 2020 afslutte min uddannelse med 12 i tre af uddannelsens vigtigste eksaminer (BA-projektet, elite-projektet og mit speciale), og en stilling på Syddansk Universitet som undervisningsassistent. Med en familiebaggrund præget af misbrug og lavt eller intet uddannelsesniveau lå det bestemt ikke i kortene, da jeg startede på universitetet, at jeg skulle afslutte min uddannelse med de resultater.

Min primære bevæggrund for at melde mig til projektet var, at jeg havde oplevet en gymnasietid, hvor de tre år i høj grad blev en eksperimental fase. Jeg havde ikke et fagligt stærkt sprog at trække på, jeg havde ikke den samme almene viden som mine medstuderende, og min familie var ikke i stand til at hjælpe mig med at absorbere og reflektere over det faglige stof. Jeg måtte derfor konstant prøve mig frem.
Det lykkedes – jeg blev i 2012 student med flotte karakterer. Men da jeg startede på universitetet samme år, blev jeg hurtigt klar over, at jeg nu stod overfor en helt ny udfordring, hvor de læringsstile og det faglige sprog, jeg havde tilegnet mig i gymnasiet, ikke længere strakte. Jeg stod derfor med udsigterne til endnu en eksperimental fase, men denne gang på et trin højere i uddannelsessystemet og et væsentligt højere niveau. Jeg forsøgte i fire måneder, men da jeg fik 00 i min allerførste eksamen, vurderede jeg, at jeg ikke havde det rette niveau til universitetet og droppede ud uden at diskutere det med nogen. Det gjorde jeg på trods af, at jeg oplevede en meget stor interesse for det faglige stof. Herefter arbejdede jeg forskellige steder, men jeg mærkede aldrig den samme interesse for arbejdets indhold, som jeg havde oplevet på universitetet. Jeg besluttede mig derfor for at søge om optagelse på universitetet endnu engang i 2013, men jeg vidste, at jeg denne gang skulle gøre noget anderledes end ved min første studiestart, hvis jeg skulle ende med et andet resultat.

Da jeg blev præsenteret for Projekt Mønsterbryder, øjnede jeg derfor en hjælpemulighed, som jeg ikke havde haft til rådighed før, og hvor der var mulighed for at få kompensation for de vanskeligheder som jeg havde med i bagagen i kraft af min baggrund. Jeg fandt det meget motiverende, at jeg kunne få kontakt til medstuderende med de samme vanskeligheder som mig, og at jeg ikke nødvendigvis skulle bruge 3 år mere på at udkæmpe en kamp alene.

I projektet oplevede jeg at kunne få al den støtte, motivation og hjælp, som jeg tidligere havde oplevet, var forbeholdt studerende med akademiske og fagligt stærke hjem. Jeg kunne få hjælp til alt lige fra hverdagsstruktur til karrierevejledning. Gennem projektet fandt jeg min egen faglige niche, som jeg udfoldede i mit BA-projekt, eliteprojekt og speciale, og som jeg også i dag beskæftiger mig med og søger ph.d.-midler til at udvikle. Men mest af alt var projektet for mit et safe space, hvor jeg kunne dele usikkerheder, bekymringer, sejre, familiære udfordringer og faglige problemstillinger. Gennem projektet fik jeg hjælp til at identificere mine styrker og svagheder i relation til mit akademiske arbejde, og projektets deltagere såvel som mentorer spillede en stor rolle i min udvikling, fordi jeg kunne trække på deres fagligheder i udviklingen af min egen.

Netop fordi projektet drives af mønsterbrydere for mønsterbrydere, så bliver de deltagende i projektet ikke bare mødt i øjenhøjde, men de mødes også af ligesindede. Det har været helt afgørende for mit uddannelsesforløb, at jeg fik hjælpen til at vende min baggrund som mønsterbryder fra at være en svaghed til at være en styrke på godt og ondt.

Narrativ 2: Regitzes narrativ

I 2017 startede jeg på IVK og blev efter kort tid en del af Projekt Mønsterbryder. Dette projekt tiltalte mig, da jeg kunne mærke, at det var et sted, som var netop til mig, hvilket jeg sjældent har oplevet før. Jeg har altid følt mig lidt anderledes, og derfor tøvede jeg ikke med at sende en ansøgning af sted til Projekt Mønsterbryder, da jeg fik følelsen af, at det var det rigtige for mig. De efterfølgende tre år er der sket meget, men den største udvikling har jeg oplevet i forhold til min selvtillid og mit selvværd.

I folkeskolen var jeg udsat for mobning gennem mange år, hvilket har tæret på min tro på mig selv og troen på det gode i livet. Herudover er jeg vokset op med en far, som havde et alkoholproblem, og i dag er han ikke længere i live.

Mine forældre har ikke gået på universitetet og har ej heller en studentereksamen. Derfor er jeg ikke vokset op i et akademisk hjem, hvilket jeg tydeligt kunne mærke, da jeg kom på gymnasiet som 18-årig. Jeg kom ikke direkte på gymnasiet, da det ikke var det, som havde min interesse i 9. klasse. I stedet tiltalte en erhvervsuddannelse mig, og jeg søgte ind på uddannelsen som Web-integrator. Da jeg som 17-årig stod med et svendebrev i hånden, kunne jeg mærke, at jeg ville noget mere, hvilket fik mig til at søge ind på et studenterkursus, hvor jeg kunne få en almen studentereksamen på blot to år. De første par uger på gymnasiet var en kæmpe omvæltning for mig, og jeg gik med følelsen af, at jeg ikke hørte til grundet min mønsterbryderbaggrund. Jeg kom dog igennem de to år og søgte derefter ind på IVK med spansk og medier.

Den første dag på universitetet var en endnu større omvæltning, da jeg pludselig stod ved hovedindgangen og kiggede på den store trappe, som for mig symboliserede noget stort og seriøst, som jeg var bange for, at jeg ikke kunne leve op til. Jeg havde igen den samme oplevelse af ikke at høre til, og dette fik jeg bekræftet, da jeg trådte op i forelæsningslokalet, hvor min første introdag blev afholdt. Jeg havde aldrig set et så stort undervisningslokale før, og jeg var bange for, at de andre kunne se, at jeg ikke hørte til. Jeg var sikker på, at det strålede ud af mig, at jeg var malplaceret, og jeg ventede blot på, at nogle afslørede mig og kaldte mig et bluff.

Til det første møde i Projekt Mønsterbryder blev jeg dog opmærksom på, at der var andre som mig. Vi var flere mønsterbrydere samlet på ét sted, og jeg kunne selvfølgelig overhovedet ikke se det på dem, så min egen nervøsitet for at blive opdaget var på ingen måder berettiget. For første gang på universitetet havde jeg en følelse af at høre til. Dette betød, at jeg lidt efter lidt fik mere selvtillid. Dog kæmpede jeg med en stor studietvivl, da jeg ikke var så glad for det spanske sprog, som jeg troede. Denne studietvivl endte med, at jeg måtte droppe ud af min uddannelse, men med hjælp fra projektet fik jeg modet til at søge ind på IVK igen, denne gang på engelsk og medielinjen. Jeg er sikker på, at det var Projekt Mønsterbryder, som fastholdt mig på universitetet og forhindrede mig i at droppe ud for bestandig.

I forbindelse med min nye start på IVK fik jeg lagt en individuel studieplan, som skulle sikre, at jeg kunne blive færdig med min uddannelse i 2021 blot ét år senere end mine studiekammerarter fra min første omgang på IVK. Et enkelt år lyder ikke af meget, men for mig betød denne forsinkelse utrolig meget, da jeg var faldet godt til socialt. Jeg søgte derfor rådgivning gennem Projekt Mønsterbryder og fik hjælp til at kunne færdiggøre min bachelor i 2020 sammen med alle mine gode studiekammerater, således, jeg kunne starte på IVK-kandidaten sammen med dem. Dette krævede en stor indsats fra mig selv, da jeg skulle have mere end de 30 ECTS pr. semester, og sluttede endda mit 6. semester af med 45 ECTS på én gang. Men jeg klarede den, og i september 2020 kunne jeg se mit bachelorbevis dumpe ind i mailindbakken, og her havde jeg endelig følelsen af at jeg var god nok.

Hvorfor er Projekt Mønsterbryder blevet en succes?

Vi kan i dag konstatere, at projektet er blevet en større og anderledes succes, end vi havde turdet håbe på ved projektets start i 2013. Det er selvfølgelig vanskeligt entydigt at pege på årsagen til succesen., men ud fra egne analyser og mange samtaler med projektets deltagere gennem årene vil vi pege på fem årsager:

Den første årsag er, at projektet ikke er et resultat af et topinitiativ eller en del af en strategi, men projektet er startet af en studieleder – ikke som studieleder, men fordi han selv er mønsterbryder og projektet drives frem af ildsjæle, der brænder for opgaven. Flere deltagere har beskrevet projektet som "meget ægte".

Den anden årsag er, at projektet er meget jordnært og møder de mønsterbryderstuderende i øjenhøjde. Der etableres fra dag 1 i projektet et fortrolighedsrum, hvor der kan tales om alt det, der er svært, og om alt det, der ikke kan tales med medstuderende om, og som der normalt heller ikke kan tales med familie og venner om.

Den tredje årsag er, at projektet prioriterer at se alle deltagere i projektet som enkeltindivider og giver hver enkelt individuel støtte og hjælp. Projektet prioriterer højt, at hver enkelt deltager føler sig set og hørt. Projektets resultater kan ikke undgå at give anledning til en refleksion over, hvilket frafald der kunne undgås, og hvilke resultater der kunne opnås, hvis universitetet i det hele taget begyndte at se og behandle alle studerende mere som enkeltindivider, fx ved at indføre SUS (studenterudviklingssamtaler), hvor man på samme måde som til MUS (medarbejderudviklingssamtaler i virksomheder) evaluerer, hvordan det er gået i den forløbne periode, og planlægger, hvilken udvikling der skal ske i den kommende periode.

Den fjerde årsag er, at der ikke er nogen hverken faglige eller personlige udfordringer, der er for store eller for små til at kunne rummes og bearbejdes i projektet. Nogle udfordringer er så store og af en art, så vi hjælper videre til professionel hjælp hos psykologer o.l., men erkendelsen af behovet for denne hjælp sker ofte i projektet. Nogle udfordringer kan betragtes som små og uvæsentlige, når man først er erfaren studerende eller er blevet lidt ældre, men projektet fastholder et fokus på, hvordan det er at være en tvivlende og usikker 20-årig, der efter en måske turbulent og ikke særlig vellykket ungdomsuddannelse som den første i sin familie nogensinde er blevet optaget på en universitetsuddannelse.

Den femte årsag er, at projektleder, studentermedhjælper og mentorer også alle selv er mønsterbrydere. Alle i projektet har den fælles baggrund at have startet på universitetet på den samme usikre og tvivlende måde som de nye deltagere og kan derfor leve sig fuldt ind i, hvordan det opleves og føles. Samtidig kan projektleder, studentermedhjælper og mentorer bidrage med den vigtige erfaring, at de alle – på hver sin måde – er lykkedes med at bryde den sociale og uddannelsesmæssige baggrund

Group forming lottery: combining shared interest and chance

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Abstract

This paper outlines a group forming method that provides student ownership. It has proven fast and transparent while ensuring an explicit, systematic, and psychologically safe process that reduces the chaos often otherwise related to group forming processes. The name of the method is the group forming lottery.

Introduction and learning objectives

Recent years have seen increased interest in educational approaches that ensure active, engaged, and highly involved students as it improves learning outcomes. Group projects are important learning vehicles that increase student involvement in the subject matter while teaching students critical collaboration skills. Group projects are essential to ensure student involvement. For instance, problem-based learning unfolds primarily in problem-based groups-projects, and problem-based learning is no better than the quality of these projects. One aspect of student projects is forming groups, which is often difficult in particular for the students. Students independently forming groups involves many risks. The uncertainty in the situation may entice some students to make decisions that lead to worse outcomes than is possible. For instance, students may play it safe and select teammates they have worked with before. Other students may team up with students like themselves, although it probably benefits them more to work with people different from themselves. Doing so likely nurtures creativity (Søberg, 2011; Søberg and Chaudhuri, 2018; Søberg, 2021) and learning. Choosing teammates with many similarities to one-self could limit the innovative potential and the learning potential of the group.

The students will likely be more engaged when working with a topic in which they have a particular interest. The students will also probably feel more commitment towards the group if they have had some autonomy and ownership in the group forming process.

This paper presents an educational method: the group forming lottery that facilitates forming of groups. This paper does not relate to any particular learning objectives. Groups may be beneficial for students to train their collaboration skills etc.; however, such deliberations are beyond the focus of this paper. Instead, the paper focuses on the method itself. Even if no explicit learning objective relates to the group forming lottery method, it likely nudges students in the direction of more diverse groups that gather around shared interests. Hence the group forming lottery method gives students slightly more experience working with people different from themselves and increases the chance they will discover the related creative potential.

Contents of the activity – the group forming lottery

This section of the paper outlines the rules and the steps (see Table 1) for using the group forming lottery method in forming student groups.

Rules

The group forming method caters to many different rules that the teacher may want to implement. To prevent problems down the line, the teacher underlines that no one is in a group before all students are in a group, and the teacher has approved the group formations.

It is much easier to use the group forming lottery method if the teacher has decided how many groups the class should form. It will likely benefit having approximately the same number of students in each group. In other words, the predefined number of groups will determine the desired minimum and the maximum number of students in each group.

Other rules that may be relevant could consider ways to maximize within-group diversity. Diversity is often helpful for creativity (Beeby and Booth, 2000). The teacher can ensure that the rules for the group forming promote diversity in the groups if this is relevant. For instance, to provide a mix of genders, each group should include two to four girls (while respecting any binary identities). Similarly, suppose the student population consist half of business administration students and half of engineers, one can enforce, e.g., that each group includes two to four engineers. However, excessive rules complicate the process since students need to consider these rules rather than just choosing what they want. It is probably advisable only to include strictly relevant rules.

Table 1 outlines the steps involved in the group forming lottery method.

Step	Content
1	Gather the students in the class (or online).
2	Explain the rules for group formation. (minimum and maximum group size, no one is in a group until everyone is in a group, and the teacher has approved the group formations, etc.).
3	Write the project's name on the blackboard (whiteboard/brown paper, or similar) and explain the project ideas further while allowing for questions from the students for further clarification. If the teacher has not predefined the projects beforehand, the teacher can skip this step and go immediately to the next step.
4	Write the group numbers for each project group on the blackboard (if the number of groups is predetermined)
5	Each student draws a number from a bag of numbers. The lowest number in the bag is one, and the highest number is equivalent to the total number of students.
6	The student that has drawn number one writes his/her full name in the preferred group on the blackboard; the student that has drawn number two writes his/her full name in the favorite group on the blackboard, and so on until everyone has written their full name in a group.
7	The teacher checks the groups are ok, makes any necessary changes (so far, this has not been necessary), and approves the groups.

Table 1: Group forming lottery method steps

Experiences

I have tested the group forming lottery method at Aalborg University and the University of Southern Denmark. At Aalborg University, the group forming lottery method found application forming groups for semester projects that run throughout a semester at master level. At the University of Southern Denmark, I used the method in a course where the student groups should work together for several months and write a paper. Both examples included a bit of customization.

At Aalborg University, we formed six groups around six predefined projects that I (the teacher) had defined with relevant companies. At the University of Southern Denmark, I (the teacher) had predefined two projects. Four groups carried out each of the two projects (eight groups).

The group forming lottery process is easily applicable in many group forming processes, and it is adaptable to different needs. If you want upfront to allow a small number of students (a subgroup) to work together, it is possible to allow them to draw one number on behalf of the subgroup, and they then get to work together. A reason for allowing this could be if they say run a start-up company together besides studying or similar. As part of the group forming process at Aalborg University, such a subgroup was allowed after consulting the rest of the class.

At Aalborg University, the group forming lottery speeded up the group forming process. Previously forming the groups for the semester projects had taken weeks and sometimes close to one month. When using the group forming lottery method, it takes only a couple of hours in total.

Students report that the group forming lottery is a simple and easy method that limits uncertainty and chaos often otherwise involved in forming groups. Students that usually have a terrible experience when forming groups will likely feel safer with the group forming lottery method.

The experience is that the students experience increased ownership for the projects because they choose the project groups within the structure outlined. This increased ownership also seems to have a positive effect on resolving subsequent group conflict.

Further research and experiments with the group forming lottery method can further validate and clarify the advantages and challenges involved. One aspect for further research concerns experiences using the group forming lottery for group forming where projects are not predefined. It would be possible to write the group numbers, and then students could join the groups they want in the lottery order. The students can then subsequently decide group-wise on the detailed content of the project. This adaptation would decrease the “shared interest” element in the group forming that was an initial motivation behind creating the group forming lottery method, but it may still be beneficial. However, this is a question for further experiments and research. Regardless of whether projects are defined or not, some students will still choose their project based on who they get to work with rather than the project content. Such behavior is not necessarily all bad. As one student from Aalborg University explained to me: “I find all the projects interesting, and once I get started, it will be super interesting anyway, so I choose the group based on who I think I could work well with.”

I have so far used the group forming lottery method in face-to-face settings. However, the dynamic may differ in online environments – something to explore in further research.

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Online teaching & learning activities during the COVID-19 pandemic: A case of hands-on oriented course

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Introduction

The COVID-19 pandemic has forced university education to make considerable changes to their teaching and learning activities. Social distance requirements, national lockdown in Denmark and the closing of university campus have rapidly converted teaching and learning activities suitable for online delivery. Due to this change, both teachers and students have had to learn online teaching and learning techniques, with no (or minimal) prior experience and training (Dwivedi et al., 2020). The Applied analytics course at SDU, Campus Odense, was no exception to this unprecedented challenge. Denmark introduced lockdown measures, starting on 13th March 2020, and restricted us to mass quarantines and work from home (OECD, 2020). Over a few days, teachers had to convert teaching material to an online format for masters and undergraduate students' cohorts. Thus, the sudden pedagogical shift from traditional teaching and learning methods to online teaching and learning became intensive and demanding for teachers and students. In addition, the teaching and learning shifted from personal to virtual, from classroom to Zoom, from seminars to webinars (Mishra et al., 2020). Popular online communication platforms like Zoom, MS Teams, Itslearning, MS Whiteboard, Poll Everywhere and many more gave directions to the whole teaching-learning process during the pandemic. However, in a report by OECD (2020), the COVID-19 have prompted a potential hysteresis in the education sector when students went off the grid due to institute closures (Figure 1). In the same report, OECD (2020) encompassed that the socio-economic factors (like inadequate digital resources, difficulties in re-engaging with different course activities, demotivation and curbing of educational aspirations due to the uncertainty, erosion of basic skills due to lack of practice etc.) are influencing students learning pace from home. COVID-19 has brought a shift from traditional into online teaching and learning activities due to anticipated uncertainties (Sandars et al., 2020). Thus, it becomes paramount important to understand readiness and motivation among students towards online teaching and learning activities (OECD, 2020).

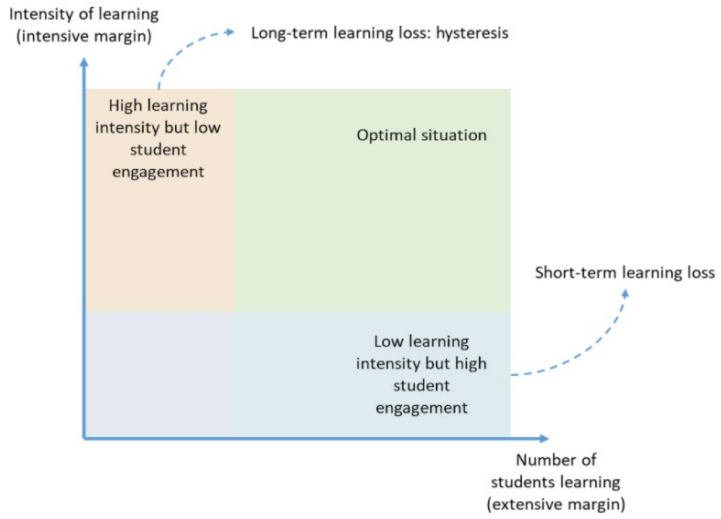

Figure 1: Learning loss during educational institute closure due to the COVID-19 (source: OCED, 2020)

The background of online teaching and learning activities

The Department of Marketing and Management at the University of Southern Denmark offer an Applied analytics course to master students in the spring semester. The nature of the course, which is more on the applied side, warranted for varied teaching activities to be incorporated throughout the course. The course was taught for the first time at university to business management master students. In 2020 the lectures were during the COVID-19 lockdown period, and therefore, to ease this transition I structured and aligned the learning outcomes basing through online learning activities including online synchronous and asynchronous lectures, tutorials and discussion forums. More specifically, I uploaded asynchronous video recordings of theories and techniques (e.g. data collection/generation, datafication and methods for analysis) 3-4 days prior to the online lectures to let students learn and work during the lockdown at their own pace. To improve students' engagement in synchronous sessions, I explained how the session would be delivered, what students would learn and my own expectations from the students' activities (Barron et al., 1998). To increase collaborative learning in online sessions, the students were asked to 'hand up' functionality or post in online chats if they had questions or comments. Further, students were asked to engage in small talk to share their subject/topic experience on materials and exercises (Dillenbourg, 1999). On online teaching, I strongly feel that communication is the key to reduce uncertainty. Thus, I asked students to present their individual and team results in an online classroom for self and peer evaluation. I also gave them pre-captured datasets for self-exercise to learn and explore different data analysis techniques with guided video and discuss ideas for their own project. These teaching and learning activities helped the students acquire knowledge and skills to analyse and interpret real-world business and management problems. To ensure research-based collaborative learning, the students were asked to interact during online discussions in break-out rooms for online activities. To facilitate research-based learning, topics were divided into small sessions of 15-20 minutes, and the students were asked to engage more and more in virtual field work, problem solving using live problem and short quizzes. Further, I shared a live walkthrough demonstration of programming codes and asked the students to share their screen to develop and complete coding exercise together and share their results and problems with their peers. I adapted the learning outcomes from Mehdi and AbouNaaj (2013) who developed an assessment model

for computer programming courses. Table 1 maps the online teaching activities and learning outcomes for an applied analytics course.

Online teaching activities	*Learning outcomes*
➢ Online lectures and brainstorming ➢ Virtual field work for collecting the data ➢ Concept mapping through short asynchronous videos ➢ Peer-review in online break-out room ➢ Presentation of results in online synchronous sessions	➢ Critical and analytical thinking for problem solving ➢ Knowledge, skills and use of advance analytical techniques ➢ Understanding of principles and theoretical foundations of advance analytics ➢ Ability to work independently and in team ➢ Ability to communicate the implications of analytical results effectively

Table 1: Mapping online teaching activities to learning outcomes

Learning from online learning activities and conclusion

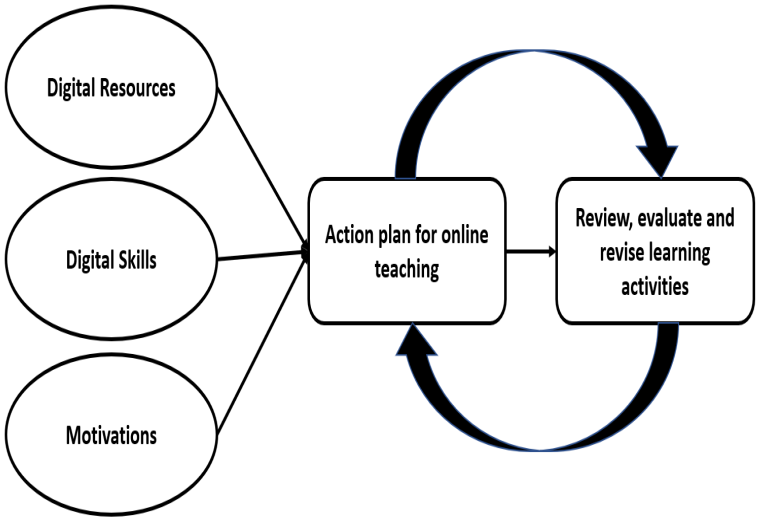

Figure 2: Learning from online learning activities

Due to the prolonged effect of the COVID-19, adaptability is important. Thus, it is important to plan for hybrid (online and offline) sessions for teaching and learning activities. Figure 2 shows the process and learning from online learning activities. The main learnings from the online teaching and learning activities are as follows: (1) Digital resources: optimizing the synchronous and asynchronous online lectures.
To increase the students' learning, lectures could be recorded and uploaded to Itslearning to ensure the learning of students who have missed the class due to lack of internet etc. Further, to increase the engagement of the students, break a session into series of modules with small learning activities.

Also, encourage students to open their cameras and post their thoughts in chatroom to improve student engagement. Further, active learning and engagement could increase by giving questions in between the lectures based on topic discussed.; (2) Digital skills: Optimizing asynchronous online tutorials. For research-based learning, online multimedia learning activities includes the use of several asynchronous resources like video, text-based materials and quizzes. However, for multimedia learning activities, students need digital knowledge and skills to combine information from several different media.; (3) Motivations: Optimizing online reflection for research-based learning and optimize online collaborative learning through small break-out groups. Reflection towards learning activities by uploading their activities results in form of video or case and sharing with peers can lead to transformative collective learning experience.

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