TEACHING AND LEARNING IN THE DIGITAL AGE

FINAL PROJECT REPORT
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ABSTRACT

Unlike most projects in the Digitalisering for læring i høyere utdanning grant program, the Teaching and Learning in the Digital Age: Online Tools and Assessment Practices (TALIDA) project at the University of Bergen was not situated in one course or study program. Rather, it was designed to impact the entire university by seeking to redesign courses in each of the University's seven faculties. The course redesigns were focused around changing the assessment practices by incorporating from authentic and formative assessment strategies and, when possible, to use digital tools to make these changes more effective and efficient.

The project's main activity has been to recruit and support at least 20 instructors at the University of Bergen to develop new assessment practices for their courses. We have worked to enable those educators to critically evaluate the current designs of their courses and redesign them to improve student learning, particularly in regard to how assessment strategies are employed in the course. Whether this resulted in a complete overhaul of a course or just minor (or even major) changes depended on the original design of the course and the perceived needs for redesign by the instructor.

Through taking a leading role in developing teaching and learning, aligning and supporting existing initiatives and gaining institutional wide recognition for our efforts, TALIDA has become a recognized quality brand at the University of Bergen.

PEDAGOGICAL CHALLENGES IN NORWEGIAN UNIVERSITIES

What pedagogical challenges has the project attempted to solve?

Over the last few decades, there has been a considerable trend in research and development at universities around the world toward more active learning and alternative assessment strategies, particularly in regard to formative feedback opportunities. However, Norwegian universities have tended to lag behind this trend (Lillejord et al., 2018; Raaheim et al., 2018; Norwegian Government White Paper 16, 2016-2017). In the Norwegian system of higher education, the classroom (*forelesning*) typically remains a place for information delivery and the *skoleeksamen* (school exam) is a place for information retrieval.

The the Teaching and Learning in the Digital Age: Online Tools and Assessment Practices (TALIDA) project has focused primarily on addressing the criticisms the OECD had leveled against Norwegian universities before the 2003 Quality Reform, that Norwegian educational institutions are merely "exam giving institutions" (Raaheim, 2016; OECD, 1997; Raaheim, 2013). UiB has had a considerable push to digitize its exams over the last few years, but while this is clearly a step in the right direction, this is only a first step in. This process has, however, made it very evident just how much the skoleeksamen dominates assessment practices at UiB, and the University had started making efforts to change that even before the TALIDA project was funded.

One of the drawbacks of an exam-dominated system like we have in most Norwegian universities, as Biggs and Tang point out, is that "strategy becomes more important than substance" (2011, p. 197), and the best way to prevent this is by carefully aligning assessment methods to what students should be learning. That is, if intended learning outcomes are, in fact, what students are supposed to be able to do at the completion of instruction, it would seem ridiculous for all (or any) of a course's intended learning outcomes to be about performing well on the exam. Indeed, in well-designed instruction, assessment should be the driving force in the design. That is, students should be assessed, as authentically as possible, doing what it is they are supposed to be able to do after learning what they are supposed to have learned.

The major pedagogical aims for the project are:

- Implementing new assessment strategies that incorporate principles of formative assessment and assessment as/for learning
- Introducing new pedagogical strategies that make student engagement and assessment a more central and structured part of the teaching and learning process, where teaching is not simply an act of information delivery and assessment is not simply an act of information retrieval, but rather that the two (teaching and assessment) are integrated into a coherent, synergistic, and intentionally aligned whole.
- Researching and applying suitable digital tools for teaching and assessment
- Utilizing the digital tools available for teaching and learning to the greatest and most appropriate extent possible
- Navigating the constraints of current rules and regulations believed to limit (or that actually do limit or inhibit) teaching innovation and educational development
- Working to make innovations and improvements within the scope of economic and other resource constraints set by the respective departments/faculties
- Finding the right balance between new and old course content and instructional delivery in order to make these course redesigns practical and possible
- Developing strategies for measuring the effectiveness of the learning redesign in terms of the expected increase in student learning

And most of the participants in the project joined because they felt that the "traditional" lecturer-centered model was ineffective for today's students and wanted to find better ways to engage and assess their students. As one participant pointed out,

> *I hadn't been teaching many years when I started in this job and I find the lecturing format a little bit challenging, just being like talking in a monologue to the students, and I don't find it's very motivating, and it's not always motivating for the students either. So I think it was interesting and fun to look into other ways to do teaching. I'm just curious about how you could change, about how you could do it in a different way.*

Another more experienced participant was a little more straightforward,

> *My motivation for joining TALIDA was feeling somewhat isolated as somebody who wanted to do things differently in teaching and thinking it would be fun and interesting and motivating to be linked up with people who were trying to do things differently. My motivation to do stuff differently in my own course, I think it was just a growing realization that doing stuff the way that my forefathers had done it was both unscientific and intensely boring. I think you get to a stage in your lecturing career where just rehashing the same format and variations on the same content every semester just does your head in completely, and the realization that that's not actually where your input to students can really be useful, so why not transmit the information in different ways and actually do creative and interactive stuff with the students instead. It's a lot more fun, actually.*

RE-THINKING LEARNING DESIGN STRATEGIES

What has been the learning design of the project and how has this been implemented?

The learning design of the project has been focused on assisting university instructors to employ more research-based teaching and assessment strategies to improve student learning outcomes. We have approached this by providing several professional development opportunities and other forms of support. The overall effect of these efforts has resulted in coaching the participants in the ongoing redesign process and addressing the specific needs of their particular courses. This has been accomplished through workshops, seminars, formal and informal meetings, organized peer review sessions (between participants), and one-on-one review sessions.

Creating and implementing the TALIDA course redesign process

The participants have gone through the following steps in the redesign process:

- Critically evaluate the learning outcomes of their course to determine if those outcomes are what they should be.
- Rewrite the learning outcomes where necessary in accordance with the intended learning outcomes and the most appropriate ways to assess those outcomes
- Revise outcomes and assessment approaches through several rounds of feedback from peers and pedagogy specialists.
- Develop and refine the most appropriate and authentic assessments to determine whether students have achieved the intended learning outcomes
- Critically evaluate the teaching methods and activities in the course to make sure that they are in alignment with the intended learning outcomes and newly designed assessment strategies
- Design and develop new teaching methods in terms of the new learning goals and outcomes, with emphasis on the fact that learning better occurs with active learning methods and formative feedback opportunities.

A main element of the project has been to provide professional development opportunities to participants, and while we knew that we were offering far more than any single person could be expected to attend, we have a high level of participation at all of the activities. We offered two special workshops and two specially designed university pedagogy course.

Specialist workshops: Course design, student engagement and learning assessment techniques

In June 2017, Dee Fink gave a two-day workshop on Designing Courses for Significant Learning. This session focused on Fink's version of constructive alignment, Integrated Course Design (Fink, 2013) and provided over 20 participants with advice and experience on how to develop meaningful learning outcomes and design assessments and learning activities that are in alignment with those outcomes.

In September 2017, Elizabeth Barkley gave a two-and-a-half-day workshop. On the first day, she focused on student engagement (Barkley 2010), and on the second, she focused on learning assessment techniques (Barkley 2016). On the last day, participants gave presentations on the learning assessment and/or student engagement techniques that they developed for their course during the workshop.

New pedagogy courses: Assessment and assessment forms and Digital assessment

We offered two specially developed university pedagogy courses for project participants. Vurdering og vurderingsformer (UPED621), was an existing course that was modified to fit the project's specific needs. The course was taught by Robert Gray, the project leader, and Yael Harlap. It focused on the development of learning outcomes, formative and summative assessment strategies, classroom assessment techniques, and rubrics. A second course, Digital Assessment (UPED640) was developed specifically for the TALIDA project and focused on digital assessment tools and appropriate pedagogical strategies for using those tools. The course was taught by Gray and Arild Raaheim. Both courses were three days long.

Creating arenas for ideas and feedback

Most of the major work in the project, however, was done in less formal settings. We held several "small group meetings" where 4-6 participants would meet for a period of about 3 hours. Each participant would present their ideas for new assessment or teaching strategies and receive feedback and suggestions from the project leaders and each other. We also had monthly informal get togethers during the most intense times during the project where we would meet for lunch or a late afternoon beer. Indeed, a lot of the work actually happened outside of any organized events, either where participants worked on their own or when they connected with each other because of the relationships that were developed over the course of the project period. The connections, collaborations, and camaraderie developed between several of the participants became as important as the official project activities. As one participant recently noted,

> What made TALIDA very important and interesting to me was that I had someone I could talk to in order to improve my teaching in my specific situation, my course, and this made it highly interesting for me, and I got a lot of experience and very good feedback…., and I think it has contributed quite heavily to improve the quality of my teaching and of my course.

Or, as another participant stated,

> Sharing with others, learning from others, and then based on that, getting the courage to do things, really trying to do something instead of being just alone, and 'okay, should I try that?' but what's going to happen, at least to have this TALIDA support and knowing that there we could go and ask both experience from others and about methods and tools. That was necessary to dare changing the course.

This kind of collaboration and connection between participants was a vital part of the what made the project successful, as is demonstrated by this participant's comment,

> (TALIDA was helpful…) mostly in making me confident that I was right to make those changes, because I had to discuss with other people who had ideas and who could help me develop my ideas. To be together with people who are interested in the same thing was really, really useful because you might think that this is a good idea, but persuading the colleagues is

hard, and going back to some people who agree with you and say move on, it's because of this and that and you can do it… That was the most helpful part.

Or this one's,

I still think it's all the other people, which were the most valuable thing. Of course, all the other people coming and giving interesting talks, we couldn't have done it without it, but the collaboration with the people around here, who I can phone and talk to tomorrow if I need, that was really, really valuable.

Another unexpected outcome of the project was the power of interdisciplinary and transdisciplinary connections between participants. As one participant pointed out:

It's also the contact with other teachers and especially the contact across disciplines because we do have a tendency to think that the earth science people should teach in a certain manner, and the others in another manner and so on, but actually it was very interesting to be able to discuss with the people in medicine or all different, so this was very interesting.

The main thing, however, is that the participants feel like they have become better teachers.

I learned a lot of new methods from the project. I learned that you don't have to do a written, four-hour exam for every topic you teach, which is what we have done until now. There are other loads of possibilities, other ways of assessing what the students have learned, and that, I think, was the main thing I learned from the project, how to do some of those new things and that they are actually good.

Or, as another participant put it,

Teaching isn't giving lectures. I mean, maybe teaching is, but learning isn't listening to lectures. So I think I have been better at doing other things for the students to learn and not for me to teach, but for them to gain what they need to gain. I'm so happy I was offered a place in this course because it has really meant a lot. My teaching skills have improved much more than they would have in any other way. This has done a lot more to make me see what we're doing, why we are doing it. It's not enough to hear you're your lectures are good because you don't really know what people got out of them. I think I've gotten far in thinking about why I do what I do when I teach, and I think that's better for my students than what it was before.

Utilizing technology to drive student learning

How and why is technology included in the redesigned or newly developed learning activities or assessment forms?

The project is not specifically about developing digital learning resources. Rather, it is about leveraging the digital resources that are currently available at UiB but are woefully underutilized. The role of digital tools has primarily been to make the implementation of course designs more effective and efficient for both instructors and students. It should be pointed out, however, that the tools are a means of supporting the innovations in assessment practice developed in the project; they are not the driving force in the project.

Within the scope of utilizing digital tools to enhance teaching and learning, there has been an emphasis of utilizing the current suite of digital tools available at the University of Bergen in the redesign process. The major components of the suite is Mitt UiB (Canvas based LMS) and Inspera Assessment, the former facilitating a wide range of pedagogical approaches to teaching courses,

ranging from traditional classroom education and team-based learning, through blended or flipped classes, to a completely online course.

The tool most widely used tool in the project is the Assignments tool in Canvas, with the peer review function being a primary reason for that. The Quizzes tool has also been used in several courses, most commonly as a practice opportunity before exams, but it has also been frequently used to enforce and reinforce timely reading practices for students. Several instructors are also using the Discussions tool in Canvas. In addition, a somewhat unexpected tool being used is the Modules tool in Canvas. While this doesn't directly involve assessment per se, it does enable instructors to more carefully and appropriately structure their teaching and learning activities into a more coherent offering that can help students progress through each lesson.

Additional digital tools are being used to produce content for use in either platform have been utilized in various projects, including the development of short instructional videos and interactive student-led webinars.

Helping teachers navigate all facets of educational change

What institutional factors, such as organization, management, strategy, support functions, policy, organizational culture, educational and digital competence or other circumstances have been particularly important to the goal achievement, or have particularly inhibited this? In the latter case, how has the project dealt with such factors?

Historically, teaching is a highly personal matter and there are strong feelings and sore toes to be stepped on. There are also many habits, both personal and institutional, that stand in the way of change. However, with increasingly higher expectations being put on University faculty to be e.g. excellent teachers, researchers and communications, it begs the questions to what level they should also be expected to be excellent educational developers, EdTech-gurus and pedagogues. Thus, it was evident from the start of the project that it would be necessary to provide support in navigating all facets of educational development.

The project leadership and support team were intentionally created with expertise in educational development, university pedagogy, educational technology and administrative expertise in order to address the challenges in educational development. A majority of the support was provided in smaller groups or individually in order to address the specific challenges for the individual course. It became evident that there is no one-solution-fits-all with regarding barriers for educational change, be it pedagogical as much as bureaucratic, nor were the origin or complexity of the (perceived) barriers necessarily correct. Over time, the TALIDA brand became recognized, across the University and even the sector, as an important initiative in teaching in higher education. It also became justification for allowing educational change. As one participant stated,

> When there was skepticism from the administration (about making changes to the course), I just could say that this is something we have in TALIDA and they agreed that this would be a very good idea, so this was basically a very good argument in order to push some changes through, so that was really good.

Another participant had a similar difficulty in convincing her department to let her revise her course learning outcomes:

> From the department side, actually there was a discussion about the learning objectives because I didn't follow the NOKUT style on the Knowledge ones, so I had to write a justification for the use of the learning verbs, but I won.

Experiences from the projects participants provided the foundation for a greater review of barriers for educational change at the university, as described in the section on "Creating an assessment policy and quantifying factors detrimental to educational development".

Researching your teaching: Scholarship of teaching and learning

Being an effective "teacher" in higher education often requires using the same tools and mindsets that make one an effective "researcher," and TALIDA was an effort to bridge the gap between those two halves of an academic's professional life. Therefore, the project also involves the systematic evaluation of these course redesigns, primarily consisting of SoTL-style examinations of student performances in response to these new teaching and assessment strategies (McKinney, Bernstein et al., Savory et al., Hutchings et al.), but will also include other types of analysis based on discourse analysis and learning analytics.

The impact of this "SoTL thinking" is demonstrated by one of the participants, when he stated,

> I feel I've learned a lot about how to do teaching better. I got support for changing how I do stuff in my course, and I feel motivated to continue doing stuff in different ways, in innovative ways, and exploring that whole teaching, SoTL approach in the future. It made me aware of that whole domain of literature and practice and interest in how to do teaching and learning in higher education in innovative ways. That's something I was only vaguely aware of before, and that feels like it's opened a whole new horizon in a way, a whole new interest for me.

These research efforts will be supported by the new interdisciplinary, interdepartmental, and interinstitutional research group, TeLEd (Teaching and Learning in Higher Education), which is housed in UiB's Department of Education. This group has attracted over 90 members and will devote a substantial portion of its efforts to supporting the SoTL follow up on TALIDA course redesigns.

Learning from best practices

Another important part of the project was visiting teaching and learning centers at universities in other countries in order to see how they, as teaching and learning experts in different places and different kinds of institutions, view the role of assessment in the learning process, as well as how they have approached creating cultural change at their institutions. As one of our participants noted,

> *One of the things I did within the context of the TALIDA project was travel to other universities to see how they were approaching teaching support and teaching development, and I was just gob-smacked by the difference between what some of these other places were doing outside of Norway and the kind of support infrastructure we have here, and to have dedicated staff whose job it is to come in and offer their support and advice to people who want to make changes to the way they teach. I think it's an invaluable idea and something which TALIDA is kind of starting, but I think that has to be continued.*

In all, we visited 13 universities in the United States, 2 in Denmark, and 2 in Sweden.

- **Georgia State University, Atlanta, Georgia, USA**
  They have a large number of courses with just midterm and final exams, but they are working to discourage that and pushing the use of multiple assessments that address multiple learning outcomes. They require instructors to map their assessments to learning outcomes.
- **Emory University, Atlanta, Georgia, USA**
  They try to get students to do "public scholarship" and promote self-reflection and peer evaluation and try to focus on students' needs, and emphasize that new teaching strategies require that you educate students on how the new strategies will work.
- **Georgia Institute of Technology, Atlanta, Georgia, USA**
  They said that 80% of their courses are still lecture heavy, but they are trying to encourage their instructors to create more opportunities for formative feedback. They also run twelve-hour workshops on course design that are based on Dee Fink's process.
- **University of South Alabama, Mobile, Alabama, USA**
  Their center is focused primarily on online and blended learning and is largely composed of an instructional design and development operation. They have implemented substantial course redesign initiatives and recently fostered a university-wide initiative on team-based learning.
- **University of West Florida, Pensacola, Florida, USA**
  Their strategy for impacting university-wide change is to start with the "choir" (i.e., those who are already committed), build their success and publicize it, and then count on others to envy their success. They also believe that when you "force" people to do something, you have to be very open and clear on WHY you are doing it.
- **Tulane University, New Orleans, Louisiana, USA**
  The director of their center emphatically stated, during a discussion about the strategy of using class time to deliver information then leaving the students on their own to process it on a higher cognitive level, that "none of the research supports that!"
- **Xavier University of Louisiana, New Orleans, Louisiana, USA**
  They do a lot of work helping people to do formative assessment, including how to do active learning as formative assessment and how to write good assignment tasks. They recognize that using multiple people to teach one course really drives people toward lecturing and away from active learning and formative assessment.
- **Texas A&M University, College Station, Texas, USA**
  One of their primary initiatives is a program redesign process that UiB is now implementing and adapting to the Norwegian context. They are also committed to the belief that sustained change requires sustained fostering of change. It has to happen over time and requires changing a mindset, not just changing a thing.
- **University of Texas, Austin, Texas, USA**
  They strongly believe that having Canvas "in the cloud" allows for decisions to be made in the interest of instructors and students, and not the IT department. They focus on using technology to improve assessment, especially formative assessment, and emphasize the Outcomes and Rubric tools to provide clear criteria to students.

- **Boston University, Boston, Massachusetts, USA**
  Their Center gives significant attention to course redesign, offering several intensive workshops and substantial incentives for instructors. We were able to attend the first couple of hours of a five-day course for instructors that was well run and appeared to be very well designed.
- **Boston College, Boston, Massachusetts, USA**
  Their center has been focusing on creating an assessment paradigm and are basing a lot of it on critical thinking development. They contend that assessment is not going to be done well unless you think of it in terms of how it fits into the teaching, that assessment must be done to help students learn.
- **Tufts University, Boston, Massachusetts, USA**
  We attended their three-day Institute for Learning Assessment. The primary concern of the workshop is how to make learning endure, that the primary focus of course and assessment design is about what we want to endure with the students from the course, and that traditional exams are not conducive to this kind of learning.
- **Massachusetts Institute of Technology, Boston, Massachusetts, USA**
  They do a lot of work on how to make technology a transformative tool in teaching and meaningful learning, and how assessment can help or hinder that. They stress that every learner creates their own framework, quite often poorly. As instructors and learning designers, we must help them develop a better framework.
- **University of Copenhagen, Copenhagen, Denmark**
  They say that it takes more than talking about change; you have to provide a means for that change and intentionally approach it from the perspective that you can't change everything overnight. They also pointed out that our job is not always to teach people about something, but rather to lower the entry costs.
- **Malmö University, Malmö, Sweden**
  The Scholarship of Teaching and Learning (SoTL) is the starting point of all of their university pedagogy training, and the university has a central strategy of student active learning. When they launched Canvas, they focused on pedagogy and learning and have intentionally created good examples to show people how to do things well.
- **Lund University, Lund, Sweden**
  The driving principle of their program is that having teachers talk to each other about teaching and learning will lead to change. We discussed their basic pedagogical training program and their Excellent Teaching Practitioner model. They are also trying to improve their digitization and wanted us to help them with that.
- **University of Aarhus, Aarhus, Denmark**
  They said that almost all of their courses have been based on one final assessment, but they have been trying to implement a continuous assessment culture where courses have a series of low-stakes assessments followed with a mid-stakes final assessment. They have about 25% of their courses doing that now.

RESULTS OF COURSE REDESIGNS

What goals has the project achieved so far?

The primary goal of the project was to redesign at least 20 courses from across the University's 7 faculties. We recruited 34 participants in total, and while a few of them didn't participate at all and a few others participated in some of the activities but did not complete a course design, but in the end we had at least 23 participants who completed course redesigns. What follows is a summary of those participants' courses.

1. **Henriette**, Faculty of Mathematics and Natural Sciences
   Course: GEOV229 Geomorphology

   Main Changes
   She added essay assignments with peer review and exercises on generating research questions. She also added a Contemporary Issues Journal, as well as optional quizzes to practice for the exam. She has also significantly reduced her lecture time in the classroom and recently implemented a student poster session for her course.

   Results
   Improved student engagement and student learning. She has also been recognized as an Excellent Teaching Practitioner and is one of UiB's most creative users of Canvas and has made significant changes to her courses to allow for multiple assessment and active learning opportunities.

2. **Mark**, Faculty of Psychology
   Course: PROPSY305 Cognitive Psychology

   Main Changes
   He moved to a flipped classroom approach to replace traditional lectures in class. He also replaced the school exam with a series of essays and added active learning strategies in the classroom and online.

   Results
   We are starting the formal evaluation of the learning outcomes now, but student evaluations have been extremely positive. He accompanied us on our trip to Denmark and Sweden and has applied for funding to continue a collaboration with a connection he made at the University of Aarhus.

3. **Gidske**, Faculty of Social Sciences
   Course: GEO110 Cartography & Thematic Maps

   Main Changes
   She moved from a 5-hour school exam (100% of grade) to a portfolio consisting of a short midterm exam (30%), a written essay (30%), and an authentic map-making assignment (40%). She has also moved some lectures online to make time for active learning in class, used online discussions, developed rubrics for assignments, and *godkjent* assignments are shared among students as common resource pool.

Results

The course has just finished, so there are no hard results yet on learning outcomes, but attendance is way up and students are more active and asking more questions than before. She said it was obvious that giving the students the rubric with the assignment had a substantial impact on their final submissions Perhaps more interesting, she gave a talk in her department about what she has done in her course, and "now suddenly a lot of people are really interested in these kind of changes you can make, or how you can use Canvas, or how you can use different tools to make changes. And that's also a way I think TALIDA will be an advantage for people who have not been involved."

4. **Lone**, Faculty of Medicine
Course: FARM103 Social Pharmacy

Main Changes

She changed parts of the course to team-based learning (and will continue changing the rest of it over time). She added a pharmacy visit and customer interview where students write a reflection with peer review. She added a Contemporary Issues Journal and replaced the exam with portfolio assessment.

Results

Course is running now so no results yet, but the students much preferred the TBL to lectures. She says that she "learned a lot of new methods from the project. I learned that you don't have to do a written, four-hour exam for every topic you teach, which is what we have done until now. There are other loads of possibilities, other ways of assessing what the students have learned, and that, I think, was the main thing I learned from the project, how to do some of those new and that they are actually good."

5. **Søren**, Faculty of Law
Course: JUS134 Comparative Law

Main Changes

Created new digital group assignments to help students better prepare for class. He wanted put more emphasis on active discussion in the classroom and to engage students throughout the length of the course. He saw that they were "working together on one difficult question, actually, that was, in the beginning, much too hard for them. But there was a need to work together in order to solve the problem. And they managed to do so. So I was very satisfied with the results."

Results

Students were better prepared and significant increase in the quality of this year's exam. He said that "they were learning from each other. They were working together on one difficult question, actually, that was, in the beginning, much too hard for them. But there was a need to work together in order to solve the problem. And they managed to do so. So I was very satisfied with the results."

6. **Isabelle**, Faculty of Mathematics and Natural Sciences
Course: GEOV111 Geophysical Methods

Main Changes
She most recently changed the course from "free" lectures, 7-8 obligatory exercises (P/F), and a 4-hour school exam (100% of grade) to a flipped classroom model with required attendance, quizzes, discussions, in-class tasks, rehearsal quizzes, 2 mandatory quizzes (20%), 5 exercises (30%), and 3-hour school exam (50%). She has also implemented team-based learning.

Results
The course is running now so no formal results yet, but she says that students are "now much more interacting with me and I can see where they don't understand. In the past we didn't have that information."

7. **Øyvind**, Faculty of Mathematics and Natural Sciences
Course: BIO201 Ecology

Main Changes
His course evolved from portfolio-based design to hybrid design combining portfolio, traditional exam and team-based learning. Students now do three group projects, peer assessment, and sophisticated spreadsheet exercises.

Results
No hard data yet, but attendance has improved markedly and students are much more committed and engaged. He has been recognized an Excellent Teaching Practitioner and was highlighted in a keynote address at last year's International Society for the Scholarship of Teaching and Learning (ISSOTL) conference in Bergen for his innovative teaching.

8. **Wei**, Faculty of Mathematics and Natural Sciences
Course: FARM211 Pharmaceutics Physical Chemistry

Main Changes
He introduced new video lectures and, most importantly, implemented a problem-based learning approach in some modules in the course and supplemented that with short quizzes.

Results
The learning gains for the PBL modules were significant. A comparison of learning outcomes between a PBL module and a traditional module showed that the students in the PBL module scored over 25% better than those in the traditional module. Wei was one of the first TALIDA participants to gather, analyze, and disseminate data about his course redesign.

9. **Martin**, Faculty of Medicine
   Course: ELMED318 Modern Endocrinology

   Main Changes
   Developed a sophisticated eLearning network connecting Canvas with his own Moodle server and a medical imaging program. He also created short video lectures and gave students diagnostic exercises using authentic tools and reinforced them with online quizzes in Canvas. He also used an OSCE format for the assessment instead of a traditional exam.

   Results
   Not enough data yet on actual learning outcomes, but 96% of students found that these new exercises promoted their learning. Even though Martin was only able to attend the two workshops early in the project, two articles on this redesign have already been accepted for publication.

10. **Iselin**, Faculty of Social Sciences
    Course: SANT660 Intercultural understanding and communication

    Main Changes
    This is a new course that conspicuously departs from the "traditional" teaching style in her department. She has implemented digital teaching strategies for to enable students to do self-assessment, to foster interaction between the students and instructor, and to enhance the individual self-studying experience

    Results
    No hard data yet, but she has received very good feedback from students.

11. **Ingvar**, Faculty of Humanities
    Course: HIS130 History of Ancient Greece

    Main Changes
    Implemented a flipped classroom approach and added digital resources with MCQ quizzes. He also added student presentations and incorporated more student active learning into the classroom sessions.

    Results
    Students were much better prepared for class discussions, but no learning outcome analysis has been performed yet.

12. **Ingunn**, Faculty of Humanities
    Course: RUS121 Russian History and Culture

    Main Changes
    From 12 sessions of mainly lecturing to 12 units with video lectures and work packages including reading assignments, questions, tasks, and activities such as student presentations, group discussions, TBL sessions, quizzes, etc.

Results
Course was just offered for first time in Spring 2019.

13. **Bodil**, Faculty of Mathematics and Natural Sciences
Course: PHYS111 Basic Mechanics

Main Changes
She added weekly quizzes, which students seem to really like, and plans to include online discussions. She has also implemented in-class hands-on activities to make lecture sessions more engaging and interactive. Finally, she has implemented a "state of knowledge" test using Canvas to assess students' readiness for the course topics

Results
Course is running now for the first time, but feedback from students states that this is the "best course in using Mitt UiB (Canvas)." She started out very skeptical about the use of digital assessment tools in her courses, but by the end of the project, she was one of UiB's leaders in the use of Canvas. She also figured out clever ways to leverage existing online resources to improve the "blended" design of her course.

14. **Jan Reinert**, Centre for the Study of the Sciences and the Humanities (SVT)
Course: VIT215 Major Issues in Research & Society

Main Changes
The course was changed from traditional readings, lectures, & a large school exam to quizzes, reflection notes, discussions, instructor and peer feedback (using rubric), & a final essay drawn from the reflection notes.

Results
Students were able to make stronger interdisciplinary connections and demonstrate more sophisticated thinking than in previous versions of the course. He worked hard to give the students more tangible opportunities to make integrated interdisciplinary connections and observations about major social issues by building in more structured opportunities for reflection. We presented the course redesign at the 2018 ISSOTL conference, and the course was written up in UiB's newspaper, På Høyden.

15. **Vigdis**, Faculty of Psychology
16. **Kjersti**, Faculty of Psychology
Courses: PPUDEL101 and PPUDEL102 Combined pedagogics and didactics

Main Changes
They redesigned this two-course sequence into a blended model where students were asked to write several reflections on the course content and how that related to their experiences in the practical application of that content. They also de-emphasized the exam and created some very innovative inter-course assignments.

Results
The course redesign won't be fully implemented until this coming fall.

17. **Aklilu**, Faculty of Social Sciences
Course: GEO-SD309 Model Based Interactive Learning Environments

Main Changes

He developed a custom interactive online environment with conditional branching, which makes it adaptive to students' needs. The course, which used to be strictly lecture-based, has gone to a more interactive classroom experience with the added online environment which leads students through case studies by solving a series of problems and questions.

Results

The course completion rate improved from 75% with the traditional course to 100% with the online format. Also, they have found that 50% of the students have gone through the online exercises a second time and 10% of the students did it a third time. The students' learning curves have also shown a significant improvement.

18. **Knut**, Faculty of Law
Course: JUR601 Introduction to Law for Business

Main Changes

Created short video lectures and decided to "stop giving students all of the information," choosing instead to give them some information and then lead them to fill in the rest. From an assessment standpoint, so far most of his changes have been in the formative assessment and active learning area.

Results

Not enough data yet, Students are much more engaged and active in class and with their learning

19. **Audrey**, Faculty of Mathematics and Natural Sciences
Course: BIO208 Environmental Effects of Aquaculture

Main Changes

One of her mains goals is to reduce the amount of lecturing, and a lot of the assessment is based on writing. She implemented a very novel tool for measuring participation in in-class discussions and, at least for Norway, a very innovative grading formula based on system of accumulating points. Attendance/participation is also included in the grade.

Results

Audrey left UiB before any measurements could be attained, but early indications were very positive.

20. Kjetil, Faculty of Social Sciences
Course: Several courses in Comparative Politics

Main Changes

His main focus has been to utilizing more digital tools in Canvas to improve the connection between lecture sessions and seminars, as well as to keep students engaged throughout the semester with opportunities for formative feedback. He has had some difficulties getting approval to overhaul the exam for the course's graded assessment task, so he has been working to make incremental changes that will hopefully lead to fundamental changes down the road.

Results

Not enough data yet to make any definitive claims.

21. Simon, Faculty of Fine Art, Music, and Design
Course: MUTP302 Music Therapy Improvisation

Main Changes

He developed some new assessments for his music therapy students where they use video recordings of themselves to learn improvisation skills. He hopes to explore how digital media use contributes to the learning, practicing, and teaching of music improvisation skills.

Results

Not enough data yet to make any definitive claims.

22. Marina, Faculty of Psychology
Course: PSYK109 Motivational Psychology

Main Changes

This is a very large course, so she wanted to increase the number of seminar sessions to better enable active learning for the students. She also wanted to add quizzes and short essay assignments to activate information retrieval and improve long-term learning retention.

Results

Her department would not allow her to make any changes to her course. She was a very active and energetic participant in the project, attending all of the major workshops and most of the small group meetings and other informal gatherings. She was genuinely inspired to make several substantive changes to her courses.

23. **Marco**, Faculty of Psychology
Course: PSYK319 Cognitive Neuroscience

Main Changes
He wanted to shorten and deemphasize the school exam and add an additional exam earlier in the course. He also wanted to add a written exercise.

Results
His faculty would not allow him to make the changes because they felt "one exam is more pedagogically sound." Marco was very active in the project and attended multiple workshops, courses, and meetings. Of all the participants, he had some of the most innovative ideas.

24. **Christian**, Faculty of Mathematics and Natural Sciences
He primarily served as a resource and inspiration for the other participants, but he attended some workshops and claims to have received a good bit of validation regarding the changes he had already made to his course.

25. **Jill**, Faculty of Humanities
She was on research leave during most of the project, but while she didn't formally redesign a course, she did experiment with some new assignments and assessment strategies.

26. **Hans**, Faculty of Medicine
He is one of UiB's leaders on innovation in the use of Canvas and contributed greatly through the development of resources and strategies for digital teaching and learning.

27. **Yael**, Faculty of Psychology
She joined the project to consider redesigning UiB's basic course in university pedagogy. That work has been ongoing and won't be implemented until next year. However, she was a great resource throughout the project.

28. **Gry**, Faculty of Psychology
She was on research leave for most of the project and was not able to participate in many of the activities. She was, however, a valuable resource for the project leader on several matters regarding pedagogy.

29. **Kristine**, Faculty of Fine Art, Music, and Design
Kristine is an administrator who attended some of the meetings and workshops to support the instructors she works with in her faculty. She did not have a course to redesign.

A HOLISTIC APPROACH TO EDUCATIONAL DEVELOPMENT AT THE UNIVERSITY LEVEL

What goals has the project achieved so far?

TALIDA has been instrumental already in reshaping policies and practices at the university in terms of assessment practices and administrative policies. The project has had strong support from the University leadership from the beginning, and that support has only grown stronger as the project has progressed. TALIDA has been closely connected to several university-wide developmental efforts regarding teaching and learning.

It is evident that one (relatively small) project cannot solve all problems regarding teaching and learning development at a university, and TALIDA would not have been possible without the joint support from and collaboration with existing support structures whose extensive knowledge about their solution has been detrimental. In that regard, TALIDAs biggest contribution is perhaps creating a best practice example for how interactivity and collaboration between teachers, pedagogues, technical and administrative support can function to support teaching and learning development.

Creating an assessment policy and quantifying factors detrimental to educational development

What goals has the project achieved so far?

What institutional factors, such as organization, management, strategy, support functions, policy, organizational culture, educational and digital competence or other circumstances have been particularly important to the goal achievement, or have particularly inhibited this? In the latter case, how has the project dealt with such factors?

As mentioned above, the interdisciplinary project leader team supported the day-to-day course development in the project on a case-by-case basis, often due to the uniqueness of the challenges the teachers were facing in their redesign process. However, a returning factor in course development is the combination of so called "administrative hurdles" experienced by teachers wanting to develop their course.

> *"Administrative hurdles (for that's the way they feel) put such a time lag into course development that your motivation to try and implement changes is just killed on the spot. This kind of administrative straight-jacket seems to keep getting worse. I think the "powers that be" have a perception that a top-heavy bureaucracy protects teaching quality. For me as the guy on the classroom floor it is just the opposite."*

The above quote well sums up the teaches' experiences attempting to make changes to their course. As an extension of the TALIDA project, UiB has completed an extensive review of the barriers for educational change based on the experiences of TALIDA participants and the implementation of digital assessment (Nerheim et al. 2018). The results break down and expand the so called "administrative hurdles" and provide a more nuanced picture regarding the real challenges for educational development.

The report summarizes the main hurdles as:

- Fragmentation of information and support services
- Pedagogical competency in the organization
- Motivation and expectancy
- Economy, and cost for assessment
- Bureaucracy for change
- Physical spaces, campus development and learning spaces
- Assessment system, -routines, 100% digitization of assessment
- Limitations in rules and regulations

In most cases, a combination of many or all of the above hurdles were the foundation for the factors limiting educational development in TALIDA. This proves a greater challenge as there not surprisingly is a single change or changes in a single area that alone would solve a majority of the challenges. Whilst supporting the TALIDA Development, the project leaders worked closely with key players in addressing the long-term solutions to reducing the experienced hurdles wherever possible. Consequently, TALIDA has started to break down the wicked problem of "administrative hurdles" for educational development and initiated and or contributed to starting up or reinforcing efforts to reduce or remove these.

THE TALIDA LEGACY

What goals has the project achieved so far?

Whether or not all course redesigns supported by TALIDA becomes successful remains to be seen; however, it appears evident that TALIDA has had a great impact sparking and reinforcing the bigger picture regarding teaching and learning development at the University of Bergen. Although TALIDA as a project is coming to an end, its legacy and brand lives on in several areas of the educational development scene at UiB:

- The upcoming university pedagogy course on course redesign is highly influenced by the TALIDA course redesign process and is expect to be implemented in late 2019/early 2020.
- The UiB Learning Lab structure and design was influenced by the TALIDA summary of Centers of Teaching and Learning structures experienced from other Universities.
- The ongoing development of a Program redesign model at UiB is based on a model brought back from a TALIDA trip (Texas A&M University).
- The suggested UiB Assessment policy and guidelines for assessment is heavily influenced by experiences from TALIDA participants
- The Teaching and Learning in Higher Education (TeLEd) research group, involving many TALIDA participants, was established in the spring of 2019.
- Presented the TALIDA course redesign process and the ongoing educational development efforts at numerous international and national conferences and events, including:
    - International Consortium of Educational Developers (2018)
    - International Conference for the Scholarship of Teaching and Learning (ISSOTL) (2018, 2019)
    - South Alabama Conference on Teaching and Learning (2017)
    - Nasjonal konferanse om vurdering I høyere utdanning (2017)
    - EuroSOTL (2019)
    - UK Digital Examinations Forum (2019)
    - Nasjonal konferanse om digitalisering i høyere utdanning (2017)
    - UiB læringskonferanse (2017)
    - Digital myldredag (2017)
    - Aarhus University (2019) and University of Hong Kong (2017)
    - Norgesuniversitetes høstkonferanse (2017, 2018)
    - And many other presentations to groups, departments, faculties and universities.

This list only reflects presentations involving the project leaders. Several participants have also presented their course redesigns at national and international conferences, and at least one participant, with the project leader, has published two articles about his course.

We will also have a PhD candidate starting in the Program for University Pedagogy this fall who will be conducting research on the project's impact under the supervision of the project leader, so the dissemination of the project's impact and outcomes will continue for some time.

SUMMARY AND RECOMMENDATIONS

Based on the above points, what four or five overall recommendations or advice do project experiences provide for?

1) Effective course redesign cannot be done with participants who are unprepared or unaware of basic pedagogical concepts.
2) To ensure this, we have chosen to focus on the following key areas in building participants' knowledge:
   a. Pedagogy: constructive alignment, integrated course design, strategies for student engagement and learning and assessment for learning
   b. Digital tools: how to utilize tools in UiB's LMS and assessment platforms
   c. Barriers for educational change: address perceived but also actual barriers for development of innovative pedagogical strategies.
3) Redesigning a course is a continuous process that takes time.
4) Having participants from different disciplinary backgrounds is essential for finding the best solutions for development challenges, and this is best accomplished through intentional discussion and peer review.
5) Digital tools should never be reason for change, but when a change is needed, the right tool can make the change happen much more efficiently and effectively.
6) Quality redesigns demand that focus is placed on making changes that are appropriate for each individual course rather than searching for a "magic recipe" that would be applied to all courses.
7) Being an effective "teacher" in higher education often requires using the same tools and mindsets that make one an effective "researcher," and TALIDA was an effort to bridge the gap between those two halves of an academic's professional life.

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