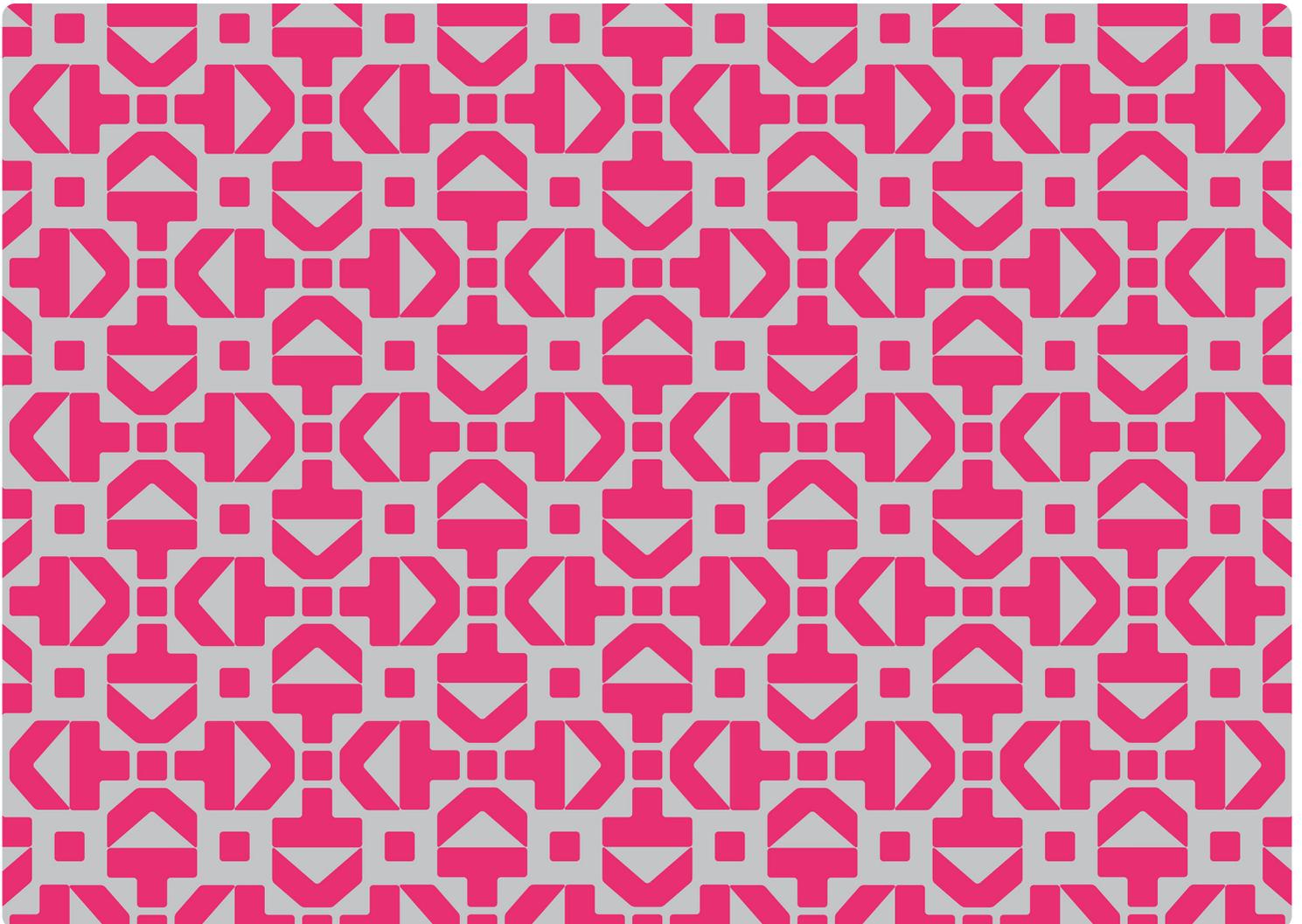


# Institutional visits to the Norwegian Centres for Excellence in Education

A compilation of feedback from external experts



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Editor:

Ragnhild Tungesvik

Authors:

Tina Bering Keiding

Paul Ashwin

Arild Raaheim

Katharina Mårtensson

Helena Gaunt

Siri Fjellheim

Anja Moberg Olsen

Torstein Nielsen Hole

Marit Ubbe

## Preface

The Norwegian Ministry of Education and Research launched the initiative “Centres for Excellence in Education” (Sentre for fremragende utdanning - SFU) in 2010. The programme was established and administered by NOKUT prior to 2019, after which it was transferred to the Norwegian Directorate for Higher Education and Skills as part of the portfolio of programmes that support quality enhancement in higher education.

By means of the Centres for Excellence in Education (SFU) programme, leading academic communities in Norway are awarded resources to further develop their teaching and education. The initiative is a long-term effort to stimulate educational development and innovative approaches to learning in Higher Education at Bachelor and Master levels. The centres have a particular responsibility to disseminate knowledge and practices that lead to enhanced quality in higher education both within and beyond their host institutions.

Each SFU Centre receives an initial grant for a period of five years with the possibility to renew their status for an additional five years after a mid-term evaluation. As part of the administration of the SFU scheme, the directorate conducts two institutional visits to each centre. The first institutional visit is conducted approximately a year into the first centre period, while the second visit takes place in the middle of the second period.

Through 2021 the Norwegian directorate of higher education and skills conducted institutional visits to seven centres awarded funding in 2019 and 2013. These were:

- CELL – Centre on Experiential Legal Learning
- COAST – Centre of Excellence in Maritime Simulator Training and Assessment
- iEarth – Centre for Integrated Earth Science Education
- SHE – Centre for Sustainable Healthcare Education
- bioCEED – Centre for Excellence in Biology Education
- CEMPE – Centre for Excellence in Music performance Education
- Matric – Centre for Research, Innovation and Coordination of Mathematics Teaching

This report compiles the feedback given to the centres after the institutional visits.

The Norwegian Directorate for Higher Education and Skills would like to thank the appointed experts for their thorough contributions during the institutional visits and in the feedback to the centres.

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# 1 Centres for Excellence in Education - Institutional visits 2021

## 1.1 Purpose and process

The purpose of the institutional visits to the Centres for Excellence in Education (SFU) is formative; to give advice on further developments and priorities, and to contribute with insights and reflections on the centres' work based on the centre plan and the feedback from the expert panel from the allocation/mid-term evaluation.

The Institutional visits are dialogue-based and focus on the work of the centre and their challenges. To ensure the relevance of the visit, the agenda was organised in collaboration with each centre and an external expert selected to partake. The role of the experts was to contribute to the discussions with the centre, provide advice during the meeting and write up feedback after the visit. The experts' feedback makes up the bulk of this report. The external experts appointed were:

- iEarth - Associate professor Tina Bering Keiding, Aarhus University, Denmark
- SHE - Associate professor Tina Bering Keiding, Aarhus University, Denmark
- COAST – Professor Paul Ashwin, Lancaster University, Great Britain
- CELL – Professor Arild Raaheim, University of Bergen
- bioCEED – Professor Siri Fjellheim, Norwegian University of Life Sciences
- MatRIC – Associate professor Katharina Mårtensson, Lund University, Sweden
- Cempe – Professor Helena Gaunt, Royal Welsh College of Music, Great Britain

The institutional visits were held over one or two days. The external expert and representatives from the directorate met with different groups of people involved in the centre, leadership at centre, university, faculty and institute level, work package leaders, teachers and students. The institutional visits to Matric, CEMPE and CELL were digital, while the visits to iEarth, bioCEED, SHE, and COAST were physical.

## 1.2 Overall reflections from the institutional visits

The meetings with different stakeholders and experts allowed the centres the opportunity to show and discuss their vision, purpose, goals and challenges. These were open and fruitful discussions that developed new perspectives and understandings of the centres' work. Some overall topics that are relevant across the centres are summarised below.

## **Covid-19 pandemic**

The pandemic and the various restrictions associated with it, have considerably affected the work of the centres. For the centres awarded financing in 2019, Covid-19 caused a delay in the start-up of their work until summer 2020. The institutional visit to these centres thereby took place while the centres were in the phase of implementing their work and establishing their position at their host and consortium institutions.

The digitalization caused by the pandemic forced the centres to make various forms of adaptations to their planned activities and changed the interaction with academic communities, students, institutions, and work life. Nevertheless, the centres responded very well to the challenge by developing and adopting new digital practices such as webinars and online courses, reaching out widely to a national audience. Although at times difficult, the pandemic provided the centres with many useful experiences within a short time and has led to valuable professional and pedagogical innovation.

## **Building of partnership and communities**

As observed by Helseth et al. “[Teaching Excellence] does not thrive in a vacuum or at the level of the individual teacher, it is supported, encouraged, and nurtured by a supportive institutional culture and context”<sup>1</sup>. The key to success for the centres is the building of community and partnerships with different groups and resources. By reaching out, the centres build new arenas for knowledge sharing and the development of new practices. These collaborations include collegial learning environments, consortium partnerships, different academic communities, student involvement and international collaborations. The collaborations are also precipitated by a close relationship and support with management structures at the institutional level.

## **Student involvement**

A reoccurring topic during the institutional visits was how student involvement could be encouraged and facilitated in education development.

Student involvement is approached differently among the centres. Varying from individual participation such as student leaders, representatives, members and assistants to larger student communities and projects. The students are involved in work packages, projects, evaluation, and feedback. Common to all the centres was the experience and belief that the students and their involvement is at the heart of what it meant to be a centre of excellence.

In sum, the students described their experiences from working at the centres as valuable and relevant for future professional careers. In the meetings it was discussed whether the experience and practice of being involved in the centre should give ECTS credits

This opened the question of how and whether students should be rewarded for their participation. While some felt that students should be equally paid for the time they spent performing work for the centre and that this could encourage involvement. It was also debated that wages could funnel the motivation for involvement to economic incentives. This could alter the relationship between the centre and the students as well as the expectations

<sup>1</sup> Ingvild A. Helseth, Christine Alveberg, Paul Ashwin, Helene Bråten, Celia Duffy, Stephanie Marshall, Trine Oftedal & Richard J. Reece, *Developing Educational Excellence in Higher Education*, NOKUT 2019, p. 23.

of work hours performed. This further raised the question of whether employment within the centre changes the legitimacy of the student voice, shifting the focus from broad representation to the competence of the individual as a premise for employment. Some of the students spoke in favour of voluntary work giving a different freedom than a paid assignment.

## **Phases of centre development**

MatRIC, bioCEED and CEMPE are all in their final period of funding as centres for excellence in education and the institutional visits to these centres therefore focused on continuation strategies for the work beyond the financing period. The centres emphasised the importance of thinking about these transitions as “continuation” as opposed to “exit” or “finalising” strategies. This approach to the further development of the centres was supported by the external experts in the various institutional visits. They suggested establishing partnerships among actors with similar interests as the centre as a possible strategy. The experts also suggested that centres explore how accumulated knowledge and experience can be disseminated post financing. Some centres are investigating whether they can continue some activities as an independent centre and while other activities, can be coordinated by institutional support units for learning.

COAST, CELL, iEarth and SHE are at the beginning of their first financial period, working on the establishment of the centre. During this phase the centres introduce several initiatives and are still developing their core activities. The experts investigated the reasoning underlying specific priorities, and how activities and work packages contribute to the overall goal of the centre.

A common denominator in the feedback of the experts was the need for the centres to prioritise, both to ensure the continuation of crucial activities and to ensure that the centre completes and realises the full potentials that can be derived from specific development projects. At the same time, the centres are interested in building on initiatives and exploring possibilities, which in turn can lead to a less focused approach. Thus, exploration and prioritisation of activities and how they support the centres' vision needs to be continuously balanced as the centres plan future activities.

## 2 CELL – Centre on Experiential Legal Learning

CELL was awarded status as Centre for Excellence in Education (SFU) in December 2019 and is hosted by the Faculty of Law at the University of Oslo. The Centre's vision is to educate future lawyers who are better equipped for the workforce and through the introduction of experiential learning "...*tackle the internal challenges of grade pressure, student competition, exam-retakes, and lack of contact with the Faculty's social science students*". By this the Centre aims to move from a highly competitive and performance-focused culture to a learning culture. This has been elaborated to comprise: (1) influence learning (to educate future lawyers who are better equipped for the future), (2) dissemination and dialog (be a pedagogical hub for legal education nationally and internationally), and (3) cultural change (development of internal and faculty culture for pedagogical innovation and student participation), acknowledging the tension between them.

### Organisation of CELL

In order to achieve its goals and visions, CELL has organized its work in five work packages which were slightly modified in 2021 from its original 2019 plan. It is evident from the material reviewed as well as from the conversations with CELL representatives that student participation is at the core of CELL's work. Students are a central part of all work packages as well as in projects under each work package.

Although each initiative within each of the five work packages are important in moving CELL towards its visions, the skills ladder (work package 1) holds a central place and serves to some extent as a support beam in the 'CELL building'. The skills ladder has not only changed the way teaching is organized and how students work their way through their studies. It has also challenged, and to some extent changed what may be understood as the "organizational conception of a lawyer". As commented by the dean during the institutional visit, one cannot – as one in theory could in earlier days - graduate moving backwards through the studies. The skills ladder functions in practice as a skills taxonomy, and it aligns well with the main ideas in the National Qualification Framework.

Since the Centre was awarded the SFU status, the level of activity has been high, and CELL already experiences that it has become a knowledge hub at the University of Oslo, and nationally, within two fields: digitalization within law education, and learning analytics.

As is evident from both the Annual Reports (2020, 2021) and interviews during interviews CELL has, despite having experienced the same challenges as others due to the Covid situation, kept a high level of activities. During this time important changes have been made to the organizational model of the centre. What was earlier described as a 'tripartite' model – staff, students, and administrative staff working together - has moved to a 'quadripartite' model where individuals with a pedagogical expertise are also included in all project activities. The organization has furthermore moved from one, which was based on seminal pillars, to one that is based on projects. According to CELL (Annual reports), this is believed to create better manageable conditions for academic staff, a belief I share.

While the Covid situation has created challenges in terms of teaching and other activities within the faculty program, CELL members have been able to share both core ideas, knowledge, and experiences with an attentive audience through webinars and other media communication, thus contributing towards part of its goals (work package 2 and work package 5). Cell has continued its work on the developments of the skills ladder, it has carried out several large-scale evaluations resulting in written reports (e.g. students' experiences with home exams), published its first academic article, established an innovation lab with a prototype for the digital courtroom, launched several initiatives towards practical training including providing students assistance in academic writing, established CELL Norway as a national network, appointed PhD students, and more.

## **Comments**

One cannot but be impressed by the high level and quality of activities that have taken place during this first part of CELL's period as a Centre for Excellence in Education. CELL has succeeded in drawing on, and in involving, academic staff and students who are eager to make a difference and to contribute towards achieving CELL's visions. Students are involved as co-leaders (e.g. student leaders employed in 20% positions), as researchers, and as pedagogical assistants. The number of students who are directly involved in CELL activities is, however, low in relation to the total group of students who are the recipients, but also the enthusiastic or not so enthusiastic partner that are not always easily heard or seen. It remains, therefore, to be seen how CELL activities positively affects important aspects of a learning culture, specifically the ones pointed out (in both the application document and in annual reports) related to grade pressure and competition among students. One may for example ask how, or to what extent, competition and grade pressure are reflections of individual attitudes and disposition or whether/to what extent they are expressions of a specific culture. It was interesting to notice in the institutional visit how student representatives during interviews responded to questions about their role in CELL, and how/why they had been appointed. The partnership - 'quadripartite' - model adopted by CELL comes with a certain imbalance in power relations, and it was not always clear why students were included in different activities. When asked how they saw their role as a representative of the students, we received the following reply: "We are not here to represent students. We are here because of our personal qualifications. We are here because we are students".

It will be interesting to follow how ongoing work with the skills ladder, and specifically the implementation of practice activities as described in the annual reports are followed up. For instance, in terms of systematic experimentation and documentation with regards to assessment.

## **What are the strengths that the centre draws on in achieving its aims and vision?**

The strengths of the centre are easily detectable: an ambitious, visionary and inclusive centre leader; enthusiastic student leaders and student researchers (including PhD students); an enthusiastic, scholarly and motivated group of professors and teaching staff; professional network and cooperation, including pedagogical staff; backup, support and contribution from administrative staff; and goodwill and support from faculty leadership. And, one might add, a mass of competent and motivated students.

Even before achieving the status as a Centre for Excellence in Education, CELL had a concrete, tangible and pragmatic goal and visions tied to the future lawyer, but also the benefit of a common understanding within the Faculty of Law as to “state of the art”. Two out of three important prerequisites for success in terms of change were thus in place. Knowing where you are and where you are heading means that what is lacking is a good plan, and as John Hattie has taught us, change (learning) starts when we know which step to make first in order to fill the gap between an existing and a desired situation. In CELL this first step was establishing a solid organizational structure which involved students, and academic and administrative staff. And later supplying this structure with pedagogical staff. Restructuring from having an organization built on seminal pillars to projects, seems sensible both in terms of effectiveness and in terms of recruiting and involving more people. Staff as well as students. An assumption that was supported during the institutional visit. From what is described in the annual reports, it is evident that CELL has established itself as a central force in promoting experiential learning and digital working methods both at the Faculty of Law, at the University of Oslo, and at national level. Representatives from CELL have contributed to the local and national debate on teaching, learning and assessment, not least because of its evaluation work and reports.

A high level of activities is often, but not always or necessarily only, a positive sign. There is always a danger of “running too fast for others to follow”, or “biting off more than one can chew”. Organizational change takes time and relies on systematic and thorough analyses of measures that have been implemented. There is no evidence of this constituting any current problem in CELL. On the contrary. From what we read in its annual reports and from what we have learned during interviews, CELL is constantly evaluating its activities, its organizational structure, and is attentive to different viewpoints. Having said that, it is worth mentioning that any organization that builds on trust, and on partners who go at length to realize common goals, often offering more of their time than can normally be expected, is vulnerable. Following an initial and enthusiastic start of an initiative comes a long period in which the activity is to be run. And where does all this lead? Well, perhaps each start should be an evaluation? An evaluation that also considers what will remain how when the person initiating the activity no longer is responsible.

### **What possible challenges does the centre face in realizing its aims?**

Whether or not the following can be said to be challenges in realizing its aims, is an open question. I suggest the points below as challenges but certainly not as obstacles, more like opportunities.

- **Teacher-student ratio.** During the institutional visit it is stated as being much higher at the Faculty of Law than in many other subjects/faculties, as much as 1:43. Admittedly this creates some challenges of a logistic nature, but may, at the same time, present opportunities when it comes to testing different teaching/study designs, and/or different forms of assessment.
  
- **Cooperation with the faculty.** Although CELL experiences support from the faculty, and that communication is good, challenges exist in that CELL activities involve the study program “owned” by the faculty and that CELL exists outside the traditional faculty structure and decision chain.

- **Sustainability.** The level of activities is very high with much depending on the founding leader professor Malcolm Langford. This is not unnatural during a first stage, but worth paying attention to if continued. Both from the perspective of the individual (exhaustion) and from an organizational perspective (involvement).
- **CELL Norway.** The study programs, and teaching and learning designs, between different faculties of law across Norway differ in many respects. If such a network is to become a success, not only communication and cooperation on activities, but in-depth analyses of study designs are vital. How may these differences create organizational learning, and what may CELL learn from other universities?
- **Limited personnel resources.** The quadripartite model adopted by CELL comes with a weakness: if all projects are to involve a person with pedagogical expertise (as presently understood) one faces the fact that this is a very limited resource.
- **Student involvement.** Student involvement is deeply rooted in CELL structure. It is, however, somewhat difficult to get a grasp of the thinking and experiences of the large mass of students at the faculty. Since one of the centres expressed goals is to move from a performance-focused culture to a learning culture, one would expect that CELL had established a firm baseline as a starting point.

CELL exists for several reasons, but it all boils down to this: developing a sustainable study program in law. The quantity and qualities of CELL activities are indeed convincing. However, even though CELL has surveyed pedagogical consequences of the Covid situation and that this carries information towards identified goals, it is difficult to understand which measure(s) of success CELL has. It cannot be students' grades? Or number of candidates employed in high-ranking firms?

### **Summary and advice going forward**

CELL has, despite some very challenging times under Covid, made some convincing changes to the study program at the Faculty of Law. It has earned recognition both locally, at the University of Oslo, and nationally for its work and its expertise. It profits from the involvement of a large body of scholarly and enthusiastic academic staff, engaged student co-workers and PhD's. Based on readings of available material, and conversations with several parties during the two-day digital institutional visit, I am utterly impressed. I am convinced that CELL has what it takes to achieve its goals and visions, which includes strategies to handle the challenges mentioned above, and others. I am also convinced that CELL is able to make necessary priorities in order to avoid exhaustion and possible disengagement.

### **3 COAST – Centre of Excellence in Maritime Simulator Training and Assessment**

The Centre of Excellence in Maritime Simulator Training and Assessment (COAST) was formally established on 1st of June 2020. It is a consortium of four institutions providing maritime higher education: the University of South-Eastern Norway (USN), which hosts the Centre, The Norwegian University of Science and Technology (NTNU), Western Norway University of Applied Sciences (HVL), and The University of Tromsø - The Arctic University of Norway (UiT).

The vision of COAST is to “be the world’s leading provider of simulator training and assessment for maritime education” and its mission is to “to promote student-centred learning by innovative simulator-based education”.

It seeks to realise these by creating a community of learners made up of students, instructors, researchers, academic and industrial partners and alumni. The Centre is organised around four focus areas, with each member of the consortium leading one of the focus areas:

1. Synergistic simulation curriculum led by HVL

This focus area seeks to develop a synergistic simulation curriculum that can be disseminated internationally and to other professional areas that use simulator-supported education. The design of the curriculum will be informed by dialogue with a range of stakeholders and a review of state-of-the-art simulator practices. The curriculum will then be piloted and tested by consortium members. So far an initial draft review of effective simulator practices has been developed.

2. Innovation in simulator training and assessment methods led by USN

This focus area seeks to develop the training and assessment processes used in maritime simulators. This will involve the review of current practices and an examination of the potential of new technologies to support more effective practices.

3. Student engagement led by NTNU

This focus area seeks to enhance student engagement in COAST, particularly through the ‘Think Factory’ which acts a student advisory board. There has been clear successes in students acting as Simulator Student Assistants, which has provided students with greater opportunities to make use of the simulators. There has also been ongoing engagement with Student Unions, although it is not clear how consistent this is across all of the institutions of the consortium.

4. Institutional development led by UiT

This focus area seeks to develop the professional competence of maritime instructors in simulator-based training activities. It will identify effective practices from cognate professional areas and support the continuous evaluation of simulator-based training. This focus area has also developed partnerships with external agencies including the Norwegian

Coastal Administration, simulator trainers at Scandinavian Airlines.

### **What are the strengths that the centre draws on in achieving its aims and vision?**

COAST began its work during the global Covid-19 pandemic. Given this incredibly challenging context, it has made excellent progress in less than 18 months. There are four key strengths that have underpinned this success:

- a) The strong commitment to the success of COAST and the importance of its educational mission amongst all of the staff and students involved. This came across incredibly clearly during the institutional visit.
- b) The impressive collegial approach that has been taken to the leadership of the Centre and the strong commitment shown by COAST's Steering Committee.
- c) The ways in which COAST builds on a long-standing partnership between consortium members.
- d) The strong institutional support for COAST by the institutions involved in the Consortium.

In its work, there are further strengths that will play an important role in supporting COAST to realise its mission and vision:

- e) It was very clear from the institutional visit that COAST was clearly focused on how it could use simulator-based training to support the development of understanding in students. There was no sense that the technology on its own would provide solutions and a clear awareness that it was how the technology was integrated into educational practices that would lead to valuable outcomes for students and the consortium.
- f) Related to this, there was also a clear focus on understanding the relations between the virtual and real world, as well as the simulations and 'out in the water', and exploring how these could be used in a variety of ways to support a rich educational experiences.
- g) There was a clear focus on the importance of building a community within COAST, the included the centre leadership, focus area leads, instructors, students and others.
- h) The students involved in the institutional visit were highly impressive. They clearly greatly valued their involvement in COAST and how it had given students greater access to the simulators. It appeared that one key benefit of this greater time on the simulators was that it gave them experience of a greater variation in the scenarios they engaged with and this allowed them to develop a greater understanding of why things worked in the way they did.
- i) Overall, there was a clear sense that COAST was addressing urgent and important educational issues.

## **What possible challenges does the centre face in realizing its aims?**

The Centre is at a fairly early stage of its development, particularly because of the challenges it has faced as a result of the Covid-19 pandemic. The following comments are intended to offer the Centre a sense of how it can best achieve its potential rather than expressing any concern about the work of the Centre.

The following areas were discussed during the visit:

- a) The danger of focusing overly on activities that the centre generated rather than the 'effects' (Saunders 2011) of these activities and how they supported important outcomes for the Centre.
- b) The success of COAST is dependent on the continued partnership between consortium members. It is really important that members communicate with each other clearly and share what they are doing in a clear and timely manner. It is also important that the Steering Committee develop a shared understanding of their role in supporting the success of COAST.
- c) It was recognised that a significant proportion of the Centre's resources were committed to the PhD students. Ensuring their integration into the work of the Centre and being clear about how they contribute to the realisation of the Centre's vision and mission will be key to the success of the Centre.
- d) The importance of ensuring that focus theme leaders had sufficient time allocated to fulfil their roles;
- e) The importance of integrating instructors into the work of the centre and ensuring that instructors feel ownership of COAST;
- f) There needs to be consideration of what student engagement might mean beyond students' gaining additional access to the simulators. It would be useful to be clearer about and differentiate the different objects of student engagement: student engagement with the simulator; with their degree programme; with knowledge; with the maritime curriculum, with their wider institution (see Ashwin & McVitty 2015; Holen et al 2021) . This will help to identify which kinds of student engagement the Centre is seeking to develop.
- g) The Centre would benefit from further consideration of what it means by 'curriculum' and 'curriculum development' (see Ashwin et al. 2020). The work on changing assessment could be usefully integrated into the discussions for curriculum development.
- h) As noted at the time of the award of the Centre, it could be helpful if COAST developed closer relationships with the future employers of the graduates from Maritime Education.
- i) It would be useful to develop an explicit theory of change to inform COAST's dissemination strategy. This would set out the nature of the resources that will be disseminated by COAST and explain the ways in which these would support changes in practices as well as the kind of change in practices that these resources will support.
- j) On reflecting on the visit and COAST's documentation, I wondered whether the Centre might benefit from closer relationships between their research and their development

work. Currently the approach appears to be to review the existing literature and undertake empirical research, which is then used to form recommendations for practice that are implemented. Rather than focusing on recommendations, there could be value in using the research to inform discussions between stakeholders in order to design new approaches that are then evaluated.

Overall, there could be value in COAST examining the educational effectiveness of different configurations of students, instructors, simulations, practical know-how, theoretical knowledge, academics, assessment, and industry partners in reviewing and redesigning maritime education curricula.

## **Summary and advice going forward**

COAST is in a strong position to make an important contribution to the development of simulator-based maritime education and simulator-based education in other disciplines and professional areas. In moving forward, I would make the following points:

- It is important that COAST develops a clear account of what counts as success for the Centre. This should be a realistic target for the Centre to achieve that explains what the work of COAST is 'good for' as well as what COAST is 'good at'. In other words, it should explain how COAST will use its excellence to make a sustained and positive impact on simulator-based education.
- To support this, COAST could benefit from an explicit community building strategy that explains how the different stakeholders (students, instructors, PhD candidates, academics, institutional leaders, industry partners and employers) can come together to undertake meaningful work aimed at reviewing and redesigning simulator-based maritime education.
- To help the Steering Committee to develop a shared understanding of their role in the success of COAST, it could be helpful to identify some important work for the Committee to do for the Centre. I suggest creating a schedule of this work that is related to the timetable of Steering Committee meetings and the overall plan of the Centre's work. I would include a space to discuss this work at each Steering Committee meeting.
- COAST could benefit from developing shared definitions of key terms including 'student engagement' and 'curriculum development'.
- COAST would benefit from a mechanism that allows for a periodic review of how the different elements of the consortium are working together in order to realise the vision of the Centre.

COAST might find the following references helpful in supporting their work:

- Chapter 9 'Curriculum' in Ashwin, P., Boud, D., Calkins, S., Coate, K., Hallett, F., Light, G., Lockett, K., MacLaren I., Mårtensson, K., McArthur, J., McCune, V., McLean, M., & Tooher, M. (2020). *Reflective Teaching in Higher Education*. Second Edition. London: Bloomsbury.
- Ashwin, P. & McVitty, D. (2015). The meanings of student engagement: implications for policies and practices. In Curaj, A., Matei, L., Pricopie, R., Salmi, J., & Scott, P. (eds.) *The European Higher Education Area*. Springer International Publishing. (pp. 343-359).
- Bovill, C. (2019). A Co-Creation of Learning and Teaching Typology: What Kind of Co-Creation are you Planning or Doing? *International Journal for Students As Partners* 3 (2): 91–98
- Holen, R., Ashwin, P., Maassen, P., & Stensaker, B. (2021). Student partnership: exploring the dynamics in and between different conceptualizations, *Studies in Higher Education*, 46:12, 2726-2737.
- Saunders, M. (2011) Capturing effects of interventions, policies and programmes in the European context: a social practice perspective. *Evaluation: the International Journal of Theory, Research and Practice*. 17 (1): 89-10

## 4 iEarth – Centre for Integrated Earth Science Education

The initiatives set up to support the vision of iEarth are:

**Organizing the consortium:** iEarth is one of two centres for Excellence in Education that are based on a national consortium. One of the main tasks of the centre has been to build an organization, which on one hand offers an effective daily management and on the other hand ensures a broad and inclusive representation of the local communities and stakeholders. An important element has been the establishment of student communities at each of the four partner universities. Also setting up iEarth Digital Learning Forum (iEDLF) as a forum for stimulating a collegial teaching culture among the staff and students is an important initiative in pursuing the vision.

**PD1- Curriculum analysis and development:** The aim is to develop an innovative cyber-infrastructure for a competence-oriented redesign of Earth science curricula. The first initiative has been a pilot project, implementing a graph database to represent the "reality" of teaching and learning, starting with a single course at the University of Bergen (UiB). Using a graph model is innovative and an intriguing approach to curriculum studies. The aim is to be able to construct a "flow chart" describing how competences and topics are linked and contributes to a coherent profile of the graduates. As regard to content, the structure is based on relevant, but also comprehensive, input from teachers. A critical question is whether even the most detailed mapping of teaching practice (the taught curriculum) can stand alone in creating the curriculum of the future, or whether a theoretical and/or vision-based model is needed to fulfil this progress domain.

### **PD2– A learning environment for students**

A most important - and impressive in the light of Covid19 – initiative is that iEarth has succeeded in forming strong student organisations at all four campuses. The institutional visit revealed a highly committed, inclusive, and sustainable student commitment. Despite Covid19 it seems that the student environment has gained momentum and are day by day engaging and enrolling more and more students. Students take part in the iEarth core group. Hereby they become closely linked to the daily management. Furthermore, students are involved in a career day aimed at geoscience students, GeoOrackel events (peer-to-peer learning cafes) and social events. The fact that the student organisation is growing indicates the relevance and sustainability of the communities.

**PD3- A learning environment for teachers.** The aim is to develop teaching as a collegial enterprise. To stimulate for a cultural change iEDLF was established as a forum for sharing knowledge. Furthermore, iEarth has funded more than twenty educational development projects at the partner institutions and started the national Geolearning Forum. Together these activities form steppingstones in building a learning environment for teachers. However, in due time it might be necessary to manage the broad and inclusive approach to funding with more rigid criteria, e.g. the general relevance of an individual project and broader more collaborative projects. Both steps will contribute to more sustainable and powerful projects.

The iEarth Research Group including six PhD-students, has been formed under the leadership of adjunct assistant professor at iEarth, Professor Anders Ahlberg. The research

projects cover a wide range of topics from organisational perspectives on educational and cultural change processes over discipline/subject specific issues, to students as co-creators and co-developers of organizational change. Seen from one perspective the projects cover the overall scope of iEarth. From another perspectives attention must be paid to the balance between topics within general educational research and discipline specific research topics, where the latter must have priority in a centre for Excellence in Education.

#### **PD4- Field based learning**

PD4 aims to test and document methods to improve student field-based learning, and to improve knowledge transfer back and forth between the classroom and the field. PD4 is the part of the iEarth initiatives that has suffered most from the Covid19 pandemic as there were only a few master students at UNIS and no classes were taught the entire fall semester. One of the main focusses in PD4 is the opportunities provided by digital technologies in field-based learning. One Ph.D. project is directly linked to this topic and might serve both as inspiration for educational development within iEarth but has at the same time broad relevance for other disciplines where in-situ studies are vital.

#### **PD5 Alumni and outreach**

PD5 covers a broad range of initiatives and has made impressive progression despite Covid19-related limitations. Beyond the iEarth grant, PD5 has been strengthened by further funding. This has among others been used to fund an internship coordinator. The coordinator helps curating proposals from external partners to ensure the best possible match between student qualifications/interests and internships. One of the main achievements has been developing and testing the course GeoIntern which is a course for internship for students. The course consists of three work packages preparing the students for, and supporting their academic work during the internship. During the pilot phase at the University of Tromsø (UiT) the course has also succeeded in involving and committing industrial partners. The preliminary results are promising, and the model will be integrated into the entire consortium.

### **What are the strengths that the centre draws on in achieving its aims and vision?**

- The consortium model. Although a consortium brings along a lot of coordination at all levels, close attention should be paid to the model. One of the advantages is that dissemination of knowledge and practices across similar programs and disciplines are literally build into the daily work of the centre.
- The curriculum work is innovative in its approach, and it is interesting to see how the centre uses digital technologies mostly know from other disciplines in curriculum research.
- Student engagement. The commitment from and collaboration between the student communities across the partner universities is impressive and both students and daily management should be acclaimed for the achievement. The students should be acknowledged for their professionalism, e.g. in involving newcomers as the tasks and activities grow.
- Geointern and the conscious curating of proposals from external partners. Geointern supports a continuously focus on the internship as a learning arena. The curating ensures a good match between student and internship.

## **What possible challenges does the centre face in realizing its aims?**

- The organization. The value of a broad representation in the forming phase can hardly be underestimated. However, it might be relevant to reconsider the management model in the future. Would it be relevant with a more hierarchal model with a few members in a core group responsible for the daily activities and weekly meeting, e.g. one 50%-person from each partner institution + head of student community.
- The curriculum work. Attention should be given to whether and how a very detailed and thorough mapping of current teaching and learning activities can form the basis of the curriculum of the future. Does the centre need a more analytical and theoretical curriculum framework to build a curriculum that balance core academic expertise and real-world problems? Furthermore, the effort needed to provide meaningful input to the model must be balanced with the outcomes (return of investment). Nevertheless, it is a very innovative and interesting take on curriculum mapping.
- The profile of the research group/school. The aim is not to question the freedom of research. Nevertheless, it seems important to discuss and negotiate the borders between general educational research (change process and student engagement) and the overall mission of the centre.

## **Summary and advice going forward**

The institutional visit gave an impression of an academically sound and well managed centre. The advice for going forward should be understood within this condition. Points to consider:

- the organisation after the forming phase
- more systematic use of course evaluations as a framework for local development projects
- the complexity of the curriculum analysis tool
- the coherence of the research projects and how these connect to core activities of the centre.

## 5 SHE – Centre for Sustainable Healthcare Education

Centre for Sustainable Healthcare Education (SHE) is hosted by the Faculty of Medicine, University of Oslo. The aim of the centre is to develop, implement and disseminate innovative education strategies providing students and healthcare workers with knowledge and skills needed to incorporate sustainability values and principles into comprehensive medical decisions.

The centre opened in June 2020, in the midst of the first Covid 19 lock down. Despite difficult conditions and the need to adjust plans, the centre has reached some significant results during the first one and a half year:

### **A management structure based on a**

- A Centre Management Board, which beside the director Professor Kristin Heggen, the executive chairman Professor Eivind Engebretsen and the administrative coordinator, Trine Kleven, includes members from the three departments and the rectorate. The composition of the management board has the potential to ensure close links between the centre, the executive strategies of the university and the core activities of the departments. However, it seems that the link between the centre activities and the academic programs at the departments is quite weak. The board should be encouraged to clarify the links between centre activities and the academic programs.
- An International Advisory Board chaired by the former rector of UiO, Ole Petter Ottersen. The board also includes Professor Trisha Greenhalgh, Oxford University, Helen Clark, former prime minister of New Zealand and Professor Jonathan Grant, King's college. The advisory board can be an important contribution to the international obligations and ambitions of the centre.

### **Student-involvement has high priority in SHE**

- During the first period, the collaboration with the students has been formalised by establishing a student management - a group of four students, who will lead WP4, Digital Solution Development. The group represent students at the faculty and have their background in different educational programs (nutrition, medicine, health economics and management). Delegating the management of WP4 to the students has the potential to benefit from the students' engagement in the SDG-agenda and to transform the vision of "students as change agents" into concrete and transformative actions.
- During the Covid 19 lock down, international students were facing a hard time both socially and economically. SHE decided to combine student engagement and a wish to support international students by offering a number of scholarships, engaging the students in storytelling, ideas and concerns of living through the coronavirus pandemic. Some of the essays form the basis of the podcasts "Folkefeber" and "Pediatri smertepodden". In a short-term perspective, the initiative contributes to the dissemination and public awareness of the activities of the centre.

Whether the initiative has more permanent value remains to be seen.

## **Research-based education**

A strong, but sometimes a bit implicit or overlooked, value of the educational activities in SHE is to raise the students' awareness about how concepts related to the SDG's gain form and might serve many and sometimes conflicting agendas as they find their way from the political to the professional and practical levels of the healthcare system. Such agendas and transformations can be difficult to identify and substantiate, but new digital methods open new opportunities to reveal underlying structures in SDG-related communication. This is convincingly described in one of the centre's research papers.

During the first period, an intensive work has been done to adopt and adapt the Genealogies of Knowledge research network (GoK) software interface, where students get the opportunity to explore how SDG-terms are used and linked to different discourses. The next step will be to develop so-called "datatons", where the students in collaboration identify and explore inherent norms and dilemmas in discourses on sustainability in the healthcare system. Mirroring the initiative in experiences from similar initiatives in other disciplines, the centre's work with the medical corpus has a generic and formative profile that could be useful for other study programs and professions.

In addition to these efforts, the centre has worked on developing the elective course *MED3066 Klimaendringer og helse: Din innsats teller*.

## **What are the strengths that the centre draws on in achieving its aims and vision?**

The centre has several strengths that might serve as strong drivers in the accomplishment of its aims:

- A management board with direct link to the rectorate and the three healthcare departments
- An international advisory board which might be an important partner for international attention and collaboration of research and education
- A dedicated group of students representing different programs
- A well-established research group (KNOWIT)
- International collaborations on both research and education. An important element is the collaboration around the open access resource Genealogies of Knowledge<sup>2</sup> providing a digital corpus that can be used for exploring sustainability discourses in relation to healthcare

## **What challenges does the centre face in realizing its aims?**

The visit also revealed some challenges for the centre in its current form. Some of the challenges are not simple problems that can be solved, but rather conditions that the centre must deal with on an almost daily basis

<sup>2</sup> <https://www.med.uio.no/she/english/research/groups/genealogies-of-knowledge.html>

## Broad involvement

A reoccurring topic – raised from both management team and students – is an apparently modest interest and engagement from both academic staff and students in SHE's agenda and activities. As the institutional visit did not include sessions with representatives from the department, it is not possible to validate and gain further insight in this experience. The introduction of the elective course *MED3066 Klimaendringer og helse: Din innsats teller* could have been a window for such discussions but was hindered by a technological breakdown.

One reason for the modest involvement might be the uncertainty of the concept "sustainable healthcare education" and what it might mean to the topics and competences acquired in the programs.

Almost all academic programs experience an external pressure for integrating what the programs might see as "additional topics" (e.g. sustainability, employability, digital competences and generic competences, expressed in for instance 21<sup>st</sup> century skill). If sustainability is understood as a new generic topic or perspective that must be taught or included in almost every module, i.e. sustainability as a driver for curriculum transformation, the academic staff might rightfully be concerned about both how to teach this topic and the consequences for in many cases an already overloaded curriculum. If sustainability rather is understood as an elective topic, i.e. as an academic aim/topic, that some students might choose, the experience of modest engagement might be a simple side effect of the "division of labor" well-known – although not necessarily fruitful – from other electives in an academic program.

The need to create a broad understanding of the aim and relevance of the centre seems urgent. Possible initiatives could be:

- 1) A go-home seminar arranged by the students: Why is sustainability also something that healthcare education must deal with – and what does it mean?
- 2) A small reference group with academic staff that can give academic staff "a voice" in the centre. This might create an opportunity to clarify if/how sustainability competence can be integrated as a perspective in the current curriculum and if/when the sustainability agenda requires new subjects and how these subjects should be integrated in the curriculum, as mandatory elements and/or electives or offered as extra-curricular courses.

Regarding students' engagement a development from "talking about" to "working with" activities might be an important driver. The "datatons" might be one important initiative here. Another approach to support students' involvement might be a formal recognition of involvement based on micro-credentials.

The challenge regarding broad involvement also raises the question about how the centre gains the most impact of its efforts. A strong focus on international collaboration around electives and extra-curricular initiatives might be a very efficient approach. The current international network and the fact that UiO is part of the European university alliance Circle-U offers a strong platform for realizing international ambitions.

A possible negative backwash of this approach is that the collaboration between the centre and the HE-departments are neglected. This might be handled through partnerships, where academic staff from the departments are involved in specific and strategic element of the international activities.

## Balancing academic and activist agendas

The institutional visit revealed two agendas that must be dealt with and continuously negotiated:

- The academic and analytical agenda striving to enable students to make professional decisions in complex situations where different – and sometimes conflicting – considerations must be taken into account. An important aspect of this agenda is to teach students to reflect critically on how concepts, e.g. sustainability, carries different and potentially conflicting meanings in different domains and discourses.
- The activist and normative agenda insisting that sustainability is and must be a part of the future healthcare system and hence a part of the healthcare education. A fundamental task for SHE is to provide suggestions to what this means and how it can be done, i.e. a didactic track. Another task is to ensure the capacity to reflect critically on the normative agenda.

### **Master program, honors, or micro-credentials?**

In the application the centre has committed to developing a master program in sustainable healthcare. During the visit the question, whether this is the right solution, turned up. The question was not whether a master program is relevant or feasible, but if the impact of the centre would be higher focusing on a portfolio of micro-credentials that can be taken individually or build together to an honor-degree. The micro-credentials also have the potential to open for life-long learning activities for professionals in the healthcare system on what the sustainability agenda means to the healthcare profession.

### **The work-packages**

The annual report describes 8 work-packages that form the basis for the deliveries of the centre. Each work-package has a WP-leader. However, the link between the work-packages is somewhat unclear. There seems to be quite many and strong interdependencies between the work-packages. For instance, it is unclear how WP3: Educational Material Development in ESD and WP4: Digital Solution Development in ESD meaningfully can be seen as two work-packages and if that's the case: how mutual interdependencies are identified and handled.

This raises the question whether the deliveries and activities should be reduced to a few but bigger work-packages including the current work-packages as sub-deliveries. Furthermore, the conclusion on the question on how the centre gain most impact might generate a need for an in-depth reflection and adjustment of the work packages.

### **Summary and advice going forward**

During the first year the centre has focused on:

- Creating a clear management structure
- Formalized and binding student involvement
- Educational activities: development of an existing elective and designing the so-called "datatons" where students are invited to explore how sustainability emerges in various discourses

The centre faces some genuine and yet unsolved challenges in relation to broader involvement of academic staff and students.

Regarding the modest involvement of academic staff, this might be a consequence of an organizational structure based on the management level. A fundamental task for SHE is to provide suggestions to what this mean and how it can be done, i.e. a didactic track. Another task is to ensure the capacity to reflect critically on the normative agenda. Possible initiatives to bridge the gap and start reciprocal conversation could be a go-home session arranged by the students and a reference group with academic staff.

At student level, the sustainability agenda is only one among many other agendas competing for the students often limited resources. A driver for enhanced and binding student involvement could be the development of a portfolio of micro-credentials.

During the visit the question arise, whether the impact of the centre would be higher focusing on a portfolio of micro-credentials rather than striving for a full master program. Besides gradually building a platform for integrating sustainability as an integrated perspective in health-care education, the micro-credentials have the potential to open up for life-long learning activities for professionals in the healthcare system.

## 6 bioCEED – Centre for Excellence in Biology Education

bioCEED is an ambitious centre aiming at transforming the way biology is taught in academia today. bioCEED aims at connecting both theory, practical skills and societal relevance. The centre is focused on developing a learning culture for teaching as well as a portfolio of various teaching activities aimed at creating student activating teaching. Furthermore, the centre actively communicates their findings and actively use their own activities as basis for research.

bioCEEDs vision for the last part of the centre period is “to develop relevant biology educations that fulfil future needs in science and society by connecting scientific knowledge, practical disciplinary and transferable skills, and societal applications. These connections should guide the development of curricula as well as teaching and learning methods throughout course portfolios and programmes”. bioCEED has since the mid-term evaluation in 2017 focused on mainstreaming the learning activities and imbed it into relevant formal structures. For this, the centre has developed a collection of platforms and resources that can function to streamline the pedagogical outputs. There is still work going on to develop more learning resources. bioCEED will use this to construct aligned study programs where the students’ key competences and skills will be developed. Lastly, bioCEED will continue the work on creating a scholarly learning and teaching culture and transfer this from a coalition of the willing to be imbedded in structure.

On a general level, the centre has an active voice in discussions about higher education in Norway and been active in developing the merit system for excellence in teaching, which I believe has been instrumental to raise focus and the standard for quality in higher education.

The centre has developed a notable portfolio of student active learning resources, and this is still in development. From the institutional visit, my impression is that bioCEED now will put much focus on educational research.

### **What are the strengths that the centre draws on in achieving its aims and vision?**

From reports and action plan as well as the institutional visit it is clear to me that bioCEED is an ambitious centre characterized by engagement, enthusiasm, creativity and passion for developing stellar teaching in biology. The biology program at UiB is very strong, with scientist of very high international standard. There are also high standard educational scientists in the centre. Together, this makes a very strong research environment well suited to fulfil the visions of the centre and with ample capacity to both develop and research biology education.

The centre has developed an impressive collection of new learning methods and clearly base their development on educational science. Their focus on how to develop a scholarly teaching and learning culture that go beyond the coalition of the willing is exemplar and the centre has clearly understood that this is essential to engage the whole set of educators in developing better teaching, not only in biology, but in all sciences.

Members of the centre have also been active in communicating their work at seminars and in papers and there is also engagement to put focus on the relevance of high quality education through op-eds.

A strength of the centre is that they have very active and engaged students that are involved both in developing the different learning resources, but also in running several of the platforms, such as biorakel, biospire and biopitch. This is a strength in that it the students can get more help since it is not dependent on professors, and not least, there is very good experience for the students that are involved in running the platforms. Clearly, this means that a lot of students are engaged in and benefits from the program. Furthermore, students have been involved in developing the curriculum for the biology program, which I believe is quite innovative.

### **What possible challenges does the centre face in realizing its aims?**

The centre has ambitions to establish themselves as a model for educational transformation and curriculum development in a way that ranges beyond the host institutions. It seems, however, that the centre struggles with the goal of reaching out to other universities biology programmes and establish themselves as a leading force in developing the biology education in Norway. The centre has developed a large portfolio of student active learning activities that should be interesting for all biology programmes in Norway. There is a risk that the centre becomes more introvert in the final phase in their pursuit to research all the activities they have developed in the first phase instead of reaching out. The centre has an explicit aim in phase two focus on developing external collaborations and contributions. This will obviously require resources and focus and to achieve this aim the centre needs to allocate enough resources. There will be a conflict between research and outreach in allocation of time and resources that needs to be considered carefully so that the centre fulfils aim of being a source of knowledge about modern biology teaching.

The centre is focusing on three pillars, of which one is societal relevance. It is difficult to see what role the centre thinks biology education should have in society, or how the centre works to investigate or develop the potential role of biology education in society. Even though bioCEED cannot define the curriculum, it is appropriate to evaluate the role of biology in society, just as what is stated in the vision. How can the biology education become more relevant.

The centre has a new leader and there is a new leader at UNIS. In general, new leadership is always associated with some risk. Awareness of this is important to keep momentum and to use the new leadership constructively and build on new competences to strengthen the centre further.

### **Summary and advice going forward**

In summary, the centre has through the years developed a large portfolio of student active learning activities, and a volume of research on their own projects. A strong emphasis has been put on how to develop a scholarly teaching and learning culture, which has been successful. The centre has had an active voice in the public space about excellence in teaching and should continue to use this voice. However, the centre struggles to establish themselves as a go-to source of knowledge and experience for biology education across Norway.

The centre should develop a continuation strategy well ahead of the end date for the grant period. The centre will need to work together with the university, faculty and department to consider the ideal placement of the centre and the resources needed to run the centre. In the strategy, it needs to be determined what is unique for the biology education and what is generic, to find the ideal placement of the centre and to see what activities could be transferred to a generic learning centre. There is a well-established set-up with platforms and teaching resources in the centre that can be brought forward beyond the centre of excellence period. Even so, the centre will be in need of resources to continue and develop. Resource availability from the university should be considered and negotiated early in the development of the continuation strategy.

The centre should work on a strategy to transfer knowledge to higher education institutions nationally. They may consider some kind of inspirational toolbox that can inspire other institutions to establish their own activities based on experiences from bioCEED (an inspiration could perhaps be the toolbox for improving faculty gender balance developed by a group of researchers at department of interdisciplinary studies in culture, NTNU, [https://www.ntnu.edu/documents/1267482954/1278817547/Tool+box+for+gender+balance\\_.pdf/7446b4f7-acb9-a58b-6d6d-945f7515d6ef?t=1599550733663](https://www.ntnu.edu/documents/1267482954/1278817547/Tool+box+for+gender+balance_.pdf/7446b4f7-acb9-a58b-6d6d-945f7515d6ef?t=1599550733663)). The centre has a very active and engaged pool of students. The centre should actively engage students in reaching out to other institutions, it could be useful to work through the students organizations to implement changes bottom-up. There is a large focus on student active learning activities in the sector of higher education in Norway, and also research integrated teaching. However, research integrated teaching is not developed to any significant degree. In this respect, I believe that the course BIO299 Research practice in biology where students are integrated in research projects and given practical experience with research as process and work method, will be of great interest for the rest of the sector and that many will be interested in learning from what the centre have accomplished. This could serve as a case that the centre could transfer to other institutions.

In developing their approach to define the role and relevance of biology in society the centre should also consider the work life relevance of the biology education and develop strategies for how work life relevance can be increased. This could for instance be how involvement of external actors can be used in development of curriculum and study programs, similar to how the centre has used students to develop the biology curriculum at the department. It could also be to establish dialogue forums with relevant external institutions and stakeholders. The project "Biopraksis" where the students are interns at different external work places, is an excellent example of increasing work life relevance and this should be continued. In developing how the centre and the biology education is relevant outside the centre, the centre could reflect on the how the biology education is placed in the multidisciplinary landscape and how students can be trained in multidisciplinary. In this respect, it could be interesting to study how the biology education is relevant for the global work towards increased sustainability. In particular, how does biology study integrate both economical, ecological and social sustainability.

## 7 CEMPE – Centre for Excellence in Music performance Education

CEMPE has continued to work tirelessly through an incredibly challenging set of circumstances through the Covid-19 pandemic, and without doubt much has been achieved. I suspect that this success is underpinned both by key concepts introduced to drive CEMPE: *student-centred learning*, *collaboration*, and by growing focus on technology and digital learning, and on student participation and projects identified in the revised vision for Phase 2 of the centre. These elements have surely contributed positively to sustaining student learning through the period and to bringing the community within NMH together through this unprecedented time. CEMPE's publications provide a powerful trace of the direction.

The principle of collaboration has been developed with particular vigour in the last years, and at multiple levels. The addition of involving students proactively has been a notable feature. This has included initiating paid student roles within the core CEMPE team; student projects supported with funding and involving staff as collaborators and coaches rather than as teachers; and student talks to enable a different kind of institutional conversation, and empowering diverse student voices to be heard.

In addition, national collaboration with the other higher music education institutions has evolved, in particular opening up access to innovation grants for teachers in these institutions. International collaboration with the European Association of Conservatoires (AEC), launching the platform LATIMPE, has given CEMPE a strong leadership position with the ability to disseminate CEMPE outcomes more widely, and most importantly to stimulate dialogue and knowledge exchange at the international level to help shape the future of the field.

A thread throughout CEMPE's life has been a focus on activating teachers in developmental work, enabling them to propose areas of interest, and to work collaboratively. It has been key to allow teachers to work to their strengths, and to navigate around potential barriers such as negative perceptions of 'reflection' or 'research', or an overly burdensome approach that requires teachers to write rather than work through their artistic expertise.

It is very good to see the fresh leadership of CEMPE now working further to develop the vision and purpose of the Centre for these next few years, and working to distil a stronger sense of the difference in higher music education that is aimed for and why. This feels to be an important step, perhaps particularly so coming through the Covid-19 pandemic, one that can connect the original dual aims of the Centre more strongly: enhancing individual and group-based teaching and learning activities on the one hand, *and* preparing students for successful engagement in a rapidly changing globalised music society on the other hand. These two aspects are intimately connected, but this has not perhaps always been so clear within CEMPE's activities, and while the introduction of the principle of *collaborative and student-centred learning and teaching* along with digital technologies and learning have begun to make the bridge more visible, clarity about the big picture vision for music performance education, the 'why' behind the changes being sought, can make an important contribution to this next phase. It will help to articulate a theory of change as identified in the mid-term evaluation report.

Some changes to the main streams of work are also now being made, and the Centre is to be commended on its determination to reflect and adapt. The revised streams already look clearer.

## Current main areas      New main areas

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- |  |   |
|--|---|
| 1. Connection between study and music industries             | 1. Musicians in society and professional practice |
| 2. Students' artistic development                            | 2. Students' artistic development                 |
| 3. Collaboration in performance teaching                     | 3. Performance learning and teaching              |
| 4. <del>Interaction between subjects and across genres</del> | 4. Digital learning environments                  |
| 5. Everyday musicians  | 5. Musicians' health and well-being               |
- 

By way of dialoguing with these:

- I wonder whether no. 2, *Students' artistic development*, needs to be a discrete area, or whether it could actually run as an underpinning priority throughout the other areas? Currently I find it hard to discern which particular projects/initiatives in CEMPE may be dedicated to this strand rather than to *Performance learning and teaching* or to *Musicians in society and professional practice*.
- With each main workstream, it will be helpful to identify priority goals with deliverables and measures of success (KPIs). These do not necessarily need to be on the same scale in each area – for example the work on *Digital learning environments* may well be less developed given that it is a more recent addition. *Musicians in society and professional practice* and *Performance learning and teaching* seem to be the biggest two work streams.

CEMPE has developed its governance, with the structures becoming clearer and membership of the various committees a little more diverse in terms of stakeholder groups. The approach seems to be maturing and is well-suited to the task in hand. There is good support for the Centre in achieving its aims, and increasing diversity in representation will add further value.

### **What are the strengths that the centre draws on in achieving its aims and vision?**

#### **Leadership**

CEMPE has strong leadership, including vital collaboration with student members. The appointment of the new Centre Leader is visionary, providing continuity in experience of the Centre as well as fresh ideas. Individuals appear to be growing quickly into their roles, and should be well-placed to connect effectively with both NMH leadership, the AEC and other international partners. The range of expertise in the core team, some with academic strengths, others more practice oriented is a strength.

The role of students within the core of CEMPE staff was much appreciated by all those involved in the institutional visit, and the students felt that these roles are clear and empowered. This feature of CEMPE was highlighted as good practice for student representation in NMH as a whole, where students' agency within the institutional quality process was considered to be less clear and well-harnessed.

The CEMPE leadership team has recognised the need to develop a vision that does more than describe what the Centre does, and actually also expresses the difference the Centre seeks to make. Work in progress on this looks promising. It is also clear that involvement in the AEC-SMS project (Strengthening Music in Society) has had considerable influence on the Centre, and has resulted in a broader set of issues coming into play beyond the

exploration of core performance teaching. There are both opportunities and challenges in this for CEMPE, and the leadership team will want to balance these carefully. In these next years crystallising outcomes from CEMPE and making them and their impact visible will be vital. At the same time thinking forward to the future of the Centre will also be critical. There is a danger that tightly focused work on core performance teaching remains too introspective, refining and enhancing approaches that fail to connect to important change in the wider profession, higher education sector and society. On the other hand, broadening out to a more encompassing and contemporary vision for higher music education in CEMPE runs the risk of making CEMPE's work in the next few years too diffuse.

## **Projects and interventions**

The student projects are a great success, offering opportunities for students to gain invaluable professional experience, to collaborate across departments and establish relationships with their peers in different disciplines, and to explore their own creative directions and to gain confidence in these. Accessing both financial support and professional mentoring through bringing in guest teachers adds significant value. The integration of student projects into an elective course within curriculum is an excellent step forward, enabling the initiative to become hard-wired into student experience.

CEMPE has been a gift in enabling cooperation and collaboration between teachers across departments and across institutions. This is celebrated by staff not necessarily in the core of CEMPE. During the institutional visit they drew attention to the opportunities afforded by CEMPE to be more brave and creative in their teaching, and to develop better relationships with students. CEMPE 'changes you, helps you to be brave and take risks'. These are excellent outcomes, and NMH will want to consider ways for such opportunities to become embedded within the institutional process.

The Student Talks have created an excellent forum for students to meet and discuss important topics in a space that feels safe for them. This issue of 'safe space' is clearly highly valued, and in this particular instance is ensured by Student Talks being for students only, without staff present. The evidence of these talks creates important opportunities (and some challenges) in terms of how issues discussed and their institutional implications are then taken forward. This may be important to consider further, for example, in the context of equality, diversity and inclusion where there is also a reputational risk for NMH in facilitating discussion but not then following through into action. There are also probably valuable insights from this project for NMH in terms of 'safe space' within the learning environment of the Academy for staff as well as students. During the institutional visit, students expressed convictions about safe spaces being an essential foundation for developing artistic potential. They also noted their awareness of considerable hierarchies and at times problematic power relations within the institution, for example between disciplines of performance and pedagogy, or between larger instrumental groups and smaller ones that could feel to be outsiders to the mainstream. Further discussion of 'safe spaces' for student voice within the institutional process may be valuable.

The initiative of the podcast for CEMPE is a bold and fresh departure, with the leaders of it clearly highly motivated and engaged in its development, offering considerable potential.

During the institutional visit, important points were raised about the physical presence of CEMPE within NMH, the value of its co-ordination and administration being integrated with the central academic administration, and the potential for the Library to develop its capacity as a space to meet and to host collaborative discussion and exploration of possibilities. Further work may usefully be done in this direction to imagine the future physical presence of CEMPE aligned with key principles and values of its vision and mission (including perhaps a focus on porosity!)

## **CEMPE and NMH**

There is growing recognition within CEMPE of the key differences between the Centre and NMH as an institution that also aims to generate considerable cultural change. Further evolution of this relationship and interaction seems desired on all sides, and the conditions for such evolution look promising.

An essential part of CEMPE's work now may therefore be to work with NMH leadership to plan strategically around which outcomes are most important in terms of institutional development and NMH's learning environment, and how they can best be implemented for the long term. A diverse range of interventions and approaches to supporting change has been explored through CEMPE, with many different types of outcome. All of these can be reflected on further, and will bring valuable insights into the sustainability of this work, and how to continue to stimulate learning and teaching development in higher music education.

A large number of staff and students as well as external stakeholders have also now been engaged in CEMPE. How many of these people are still engaged in CEMPE in one way or another is less clear. Some analysis of this will support strategic planning for the ongoing partnership between CEMPE and NMH, and the development of change agents and advocacy for CEMPE.

## **Outputs**

The initiative of CEMPE Learn is starting to edit material from CEMPE projects and to explore how best to present them in distilled forms. This work is essential at this stage of the Centre's development, and the digital platform has potential to be a powerful way to open up access to CEMPE for the longer term.

## **Agility and governance**

CEMPE's ability to work responsively and swiftly with teaching staff and students at NMH is evidently a strength, inspiring many and bringing dynamic energy into the institution to facilitate change. Results show that issues long thought about (for example digital portfolios for students as part of their principal study area) have finally been acted upon.

CEMPE has been monitored systematically through its governance processes and external review throughout its lifetime, thereby ensuring both quality standards and strategic development. Externality recently coming into the steering group has added fresh dimensions. These principles will continue and may be further developed by CEMPE in this next phase.

A new 'think tank' around the Centre leaders as a more informal group looks promising in terms of creating an agile approach to evolving the work. It can also operate in a porous way, bringing in external representation from industry, alumni, or international partners as appropriate. As a mechanism for organisational change, the idea of 'think tanks' may be a valuable tool for NMH to support other change programmes.

## **What possible challenges does the centre face in realizing its aims?**

### **Focus**

A huge number of projects has been generated through CEMPE's life. This is clearly positive given the objectives to activate staff and to take an inclusive approach. However, a

turn is now being made towards impact, legacy and sustainability, and in this context there is a danger of an overwhelming collection of disparate small projects that fails to add up to more than the sum of the parts or to give direction to the future. Finding focus and making strategic choices now seem vital if CEMPE is to draw out robust insights to inform the future *and* is also to engage wider communities both internally and externally.

### **CEMPE core team**

Although a careful and successful transition to the new Leadership team has been made, there are a number of roles within CEMPE that at the time of the institutional visit remained unfilled. This may present a challenge if the roles continue to be vacant as there is clearly an ambitious agenda planned and a lot to do!

Taking up the agenda of musicians' health and wellbeing is clearly important for the NMH community as a whole. What is less clear, however, is how this initiative adds to existing work already being undertaken elsewhere within higher music education, or what particular focus is envisaged for CEMPE.

### **Engaging performance teachers**

The relationship of CEMPE to the research centres in NMH (the centre for artistic research and the centre for research in music education) seems opaque, and in some ways less advanced than the relationship with the AEC-SMS project and LATIMPE. There is an opportunity to consider these internal relationships further, not least with a view to future sustainability. A stronger connection between artistic research and pedagogical development offers a fruitful line of development in this respect, and it is likely to be helpful for teachers to better understand these connections in their own practice as well.

During the institutional visit strong perceptions were expressed about performance teachers not wishing to, and not being so skilled in using words to describe and critically appraise what they do. This is an issue widely recognised across the sector. However, it increasingly sits in tension with the importance for the next generations of professional musicians to be articulate in words, both orally and in written form, not least for example in being able to pitch projects and in advocating for music and professional practice. Increasing urgency in this direction may help to make a shift for CEMPE in how to address this status quo expressed. Although it appears that this has been discussed in different ways within CEMPE, there also seems rather little sense of a chosen strategic direction.

Addressing this issue also opens up potential to make progress on quality in multiple directions, allowing different practitioners largely to work to their strengths (ie not necessarily requiring artistic teachers to write a lot, but supporting them to present their work in a considered way that clarifies their intention and methods to target groups; and equally ensuring that formal written outputs are of real quality with clear purpose.) The directions of artistic research in this respect over the last years are helpful – championing the importance of practice itself, of working through practice and the quality of work that can take place in this way, plus then working to discover ways in which additional modes of knowledge generation/dissemination (including writing, but not exclusively writing) may further illuminate practice and help to drive critical exploration. Similar directions of methodological travel are perhaps needed in relation to learning and teaching in higher music education, and will require collaboration of practitioners and researchers.

## **Porosity and externality**

The porosity of CEMPE has evolved considerably over the course of the project in relation to higher music education, nationally and internationally, and internally in terms of involving students rather than just staff. CEMPE's porosity, however, in relation to alumni, the music professions, and indeed wider society seems to be more limited, with less structure or strategic planning evident. Alumni seem to be involved in Student Talks, for example, but are less present in other parts of the Centre's activity.

A question arises then about whether CEMPE's work is sufficiently connected to the outside world in terms of the contemporary music professions in their diverse forms, and wider communities impacted by fast-moving societal issues. Multiple external factors such as gender, race, neuro-diversity and disability discussions, cannot be ignored, as the Student Talks have started to evidence. Connections to major waves of change in societies such as climate change and digital transformations, and most particularly to changes in how music making takes place in the society and what makes this important are increasingly essential for higher music education.

## **International partnerships and platforms**

There seems to be quite some overlap between CEMPE and LATIMPE, perhaps particularly at the level of digital platforms, without a really clear rationale for the need for both and their distinctive offers. With CEMPE Learn being a recent development and inevitably demanding resource and time, it will be useful for the CEMPE leadership to assure itself of value for money in these respects, and perhaps to consider the longer-term partnership trajectory for CEMPE and the AEC.

## **Summary and advice going forward**

There is no question that CEMPE has continued to do a lot of excellent work, innovating with new directions based on experience and feedback from the first phase of funding, and then adapting to the Covid-19 pandemic.

With the conclusion of the second period of funding now coming into sight, this is a critical turning point, where the temptation to jump into lots of new initiatives, which undoubtedly will feel attractive, may need to be avoided, and a firm focus established on completing existing projects, maximizing their impact, distilling learning from across the different strands of work undertaken in the last years, and preparing for CEMPE's sustainability and perhaps even expansion in the new phase beyond 2023. The following recommendations are made in this context, and are structured in relation to some of the key challenges identified by the CEMPE team and issues raised during the institutional visit.

## **Vision and focus**

Develop a revised vision as well as mission for CEMPE, that also looks with ambition towards the further development of CEMPE from 2023. Such a vision and mission should build on the excellent preliminary already done on this, and should reference some of the key themes of CEMPE to date, including for example 'student-centred learning', 'learning culture' and 'collaboration'. It should also articulate the difference that such a vision for higher music education could make and why this important in contemporary times. In doing so CEMPE's vision will crystallise the relevance to the professional industry and to wider

society of the Centre's fundamental work in learning and teaching; in other words it will crystallise what makes these concepts of student-centred learning, collaboration and learning cultures so important. And it will equally draw attention to the significance of striving towards greater reciprocity and collaboration between higher music education and the professional music sector, and of connecting with diverse communities. In the context of strong potential for an ongoing relationship with the AEC and LATIMPE, it may also be valuable to reference their vision documents and the AEC's revised strategic plan which also encompasses a vision for the future of higher music education. CEMPE will want to be distinct, yet complementary to the AEC.

- I. Commission some focused projects on meta-level analysis and evaluation of CEMPE's work, with a view to theory generation and/or distilling toolkits and relevant outputs to support learning and teaching in practice. This work will help to prepare for and demonstrate the impact of CEMPE's work across a range of communities in higher music education and beyond. Several areas of activity lend themselves to this kind of approach, including for example the student talks; student projects; staff development projects; and the innovation grants. Theory generation would also be invaluable for the wider higher (music) education sector in relation both to key concepts to CEMPE such as 'student-centred learning', *and* to processes of effecting cultural change within the institution. It may well be helpful in the next few months to identify 1 or 2 specific areas where strategically the most value can be gained from dedicating resources to such theory generation.
- II. Ensure strong focus to all areas of activity in the remaining years, with projects having clear objectives and deliverables within the context of CEMPE's vision and mission, and identified work streams. Notwithstanding the potential for CEMPE's future-focused revised vision, there is a need to gather up, distil, critically reflect on and engage people in the work done to date, in order to support CEMPE's impact, and to prepare for future sustainability. In this regard, I encourage CEMPE's leadership to prioritise carefully, testing initiatives against the Centre's objectives, and working with project leaders to identify relevant KPIs. This feels particularly important in the context of a smaller team with reduced project management. In addition, while the revised vision for CEMPE is likely to make a stronger turn towards the profession beyond higher music education and towards connecting in wider society, this should not be taken as an imperative to start a whole new set of initiatives – rather the principles can be integrated within CEMPE's existing work, for example through student projects, innovation grants, and through all layers of CEMPE's governance. Student projects may be encouraged/incentivised to develop societal connections (artistically or in terms of audiences/participants) and to be bold and innovative in this respect where appropriate. For Performance learning and teaching projects, consideration can be given to how these will help prepare students for professional life in society, and their need to be able to keep adapting forms of engaging with audiences and communities in different settings.

## **Projects and initiatives**

- I. Continue to champion the work streams developing students as partners. Student projects should develop, with further work to enhance the ways they are embedded within the curriculum. There is an opportunity to consider a structured set of possibilities for students to engage in self-directed innovation, starting small with ideas generation and mentoring support, and growing in scale, independence and funding. It may be useful for CEMPE to look at a range of existing frameworks in

other institutions across Europe and beyond, some of which also extend to alumni as a way of bridging the transition from study into professional life.

- II. Further focus project calls on CEMPE priorities by including requirements to respond to specific principles, for example connecting with the professional field, or equality, diversity and inclusion. The team could consider potential for including an equality impact assessment as part of project proposals.
- III. Decide on a strategic approach to re-energize the process of activating teaching staff to engage with CEMPE and development projects. One possible approach may be to create circles of teachers around key topics/thematic interests for CEMPE (for example digital technologies in learning and teaching; de-colonising the curriculum; or coaching/facilitator approaches in teaching), while also embracing individual interests through open call for projects.
- IV. Assess ways in which methodologies that CEMPE has developed in one area may be transferable to other areas. For example, the breakfast talks planned for students on business skills for professional practice: might the format of these also be applied to Health and Well-being, or to aspects of students taking greater ownership of learning?
- V. Develop and strengthen the objectives, deliverables and KPIs for the podcast series in line with CEMPE's revised vision and mission, with a particular focus on target audiences and relevant approaches to engaging them. This would inform for example choice of language, structure of the podcast, and marketing strategy (which needs to be worked up). It struck me at this point that the podcast has quite a scholarly slant and might therefore be particularly aimed at programme leaders and those involved in curriculum development in higher music education. If this is the case, greater reach may be achieved in English. On the other hand, the podcast could also be shaped more towards engaging teachers and students on the ground in Norway, in which case Norwegian may be preferable, and the content may need to be developed in terms of its accessibility and to stimulate the kind of change that is envisaged. It might be helpful for this new initiative to develop a small resonance group or sounding board to support its early stages of its development, including students, staff and external stakeholders, and with a clear set of tasks to support the podcast as a strategic initiative for CEMPE in this phase.
- VI. Further clarify how concepts of a 'learning culture' and an 'enquiring culture' connect, and critically examine the ways in which in practice processes of curriculum/pedagogical may interact with processes of artistic research. There is an important opportunity to work on this in the context of NMH given that these activities are both being significantly developed. Their intersection and collaboration should be supported in exciting ways, avoiding different centres within the institution operating in silos.

### **CEMPE, NMH and institutional change**

- I. Proactively explore ways for CEMPE and NMH leadership to collaborate strategically to deliver cultural change that is an institutional priority. The need to 'de-privatise' one-to-one tuition expressed by NMH's leadership is a direction shared by many institutions internationally and is clearly complex. It is likely to include both structural developments in contracting teachers as part of a long-term staffing plan alongside diverse initiatives to engage staff in pedagogical and curriculum developments.

CEMPE is already a mechanism supporting the embedding of a 'learning culture' at NMH. CEMPE has contributed vital work, for example, in exploring group teaching practices, and broadening teaching strategies with coaching strategies. Important questions remain, however, about what may be needed to evolve a learning culture amongst *all* performance teaching staff. Carefully choreographed strategic partnership between CEMPE and NMH can create the conditions for powerful and constructive development in this area, with world-leading potential. Further consideration and planning, then, of a coordinated approach using 'carrot and stick' methods of institutional leadership interconnected with the developmental and research methods of CEMPE could be invaluable at this stage, and with reference to a clear theory of change. At a detailed level, this may include further refinement of what CEMPE can deliver to support NMH's teacher training courses (both initial and later stage courses), and how the outcomes of projects on for example group teaching in principal study, or coaching strategies as an integral part of teaching can engage NMH teachers in reflective practice. Proactive exploration of this kind may initially be usefully undertaken by a 'think-tank' comprising CEMPE and NMH leaders and perhaps also one or two external voices. By the conclusion of the current phase of CEMPE funding, a sustainable and embedded structure should be identified (perhaps led at Vice Principal level) to support ongoing institutional change. This could also provide a connecting point for ongoing international partnerships in this area.

## **Porosity**

- I. Articulate the degree of porosity desired for CEMPE particularly in relation to alumni, the music profession and wider society, as well as higher music education, and plan to facilitate this proactively. The issue of porosity is of course central to CEMPE's revised vision. As mentioned above, in order to sharpen focus in terms of CEMPE's activities and ensure that it is not derailed by attempting to undertake too many initiatives, it may be helpful to think in terms of porosity and dialogues with these wider stakeholders and communities taking place as integrated parts of the main work streams. They can, for example, inform the design of CEMPE's operating structures and methods, as well as with initiatives such as student and staff projects, podcasts etc.
- II. Strengthen CEMPE's responsibility for bringing back to NMH and the Centre key projects and evolving thinking from other institutions and initiatives, nationally and internationally, in ways that connect to central points of focus for the Centre and engage both students and staff. An example could be the emerging issues relating to equality, diversity and inclusion as raised in the student talks. These have many implications for curriculum and pedagogy, and work on approaches to decolonising curriculum has been growing rapidly in a number of arenas in the last few years. There is an important opportunity for CEMPE to strengthen the channels for bringing in fresh thinking as well as offering out the developmental work of CEMPE.

## **International partnerships and platforms**

- I. Further consider the objectives of CEMPE Learn and how these interconnect with other similar resource platforms, not least LATIMPE. Reflect on specific audiences for this site, particularly teachers, students, those leading curriculum development institutionally: where the priorities lie for each of them and in what forms the knowledge and outputs from CEMPE can best be shared.

- II. Reframe CEMPE's relationship with LATIMPE with a view to CEMPE's longer term sustainability, particularly in terms of websites, written and digital assets. Key aims should be to avoid duplication, and to enhance quality by targeted approaches. Further development work can usefully be done on how to reach and engage teachers in higher music education with 'best pedagogical practices': written case studies are not always so accessible, but videoed presentations, video documentation of a teaching session with annotations of critical moments, video documentation of innovative teaching methods with annotations to highlight the methodology, podcasts to illuminate perspectives all offer possibilities, and need to be explored in greater depth. A longer-term partnership with the AEC, (which might usefully also identify a small network of international partners rather than being a single bilateral partnership) could focus on such methods to develop a powerful framework and set of methods for use across CEMPE and key AEC projects, with an integrated digital platform to provide access to them. The scale and potential of this work suggest that a partnership of CEMPE, AEC, perhaps the Innovative Conservatoire (ICON) and 2-3 other institutions across Europe/further afield, might be appropriate. In the short term, it could be helpful to implement the idea of an international advisory board (or even a more informal international 'think-tank'), mentioned during the institutional visit, and to use this to test potential international partners for a re-envisioned international centre of excellence in learning and teaching, building on the legacy of CEMPE and LATIMPE. This would be a powerful way forward to realise a bold vision for the next phase of CEMPE beyond 2023, as well as bringing in another dimension of externality to support CEMPE's current phase.

## Impact and platforms

- I. Define key areas of intended impact and map possible pathways to them. The most central areas of impact appear to be:
  - Knowledge, skills and mindset in people, partnerships and networks
  - Use of methods and toolkits in higher music education (learning and teaching; institutional change)
  - Contribution to knowledge through research
  - Quality and quantity of dialogue and debate in higher music education and the music profession about relevant developmental issues linked to the future of professional music practices in societyIt will be critical for CEMPE to focus efforts in targeted ways towards impact, and a mapping exercise of pathways should assist in prioritizing efforts appropriately.
- II. Consider how best to capitalise on the anniversaries for NMH as well as CEMPE in 2023-24. This could be a golden opportunity to celebrate the achievements of CEMPE, and also to launch its future, particularly if an exciting and perhaps expanded international form for can be identified.

## 8 MatRIC – Centre for Research, Innovation and Coordination of Mathematics Teaching

In their Action Plan for the second phase of Centre funding (nd) MatRIC writes: “Securing durable improvements in educational provision is a multi-layered task including the teaching and the contexts and systems in which learning is intended”. I completely agree, and in my view the centre has really taken this into account in their work. MatRIC has created an impressive array of multi-layered activities, locally, nationally and internationally. Those activities have focused on three main objectives (pillars):

1) **Improvement of students’ learning experiences**, with activities such as drop-in support (by students for students), mentors who are liaisons between students and the centre leadership, camp for teaching assistants, and a forum for the MatRIC-team and mentors (MatRIC Forum).

2) **Improvement of teaching** with, for example, projects about mathematics for engineering and economics students; annual national/international conference on mathematics education; Induction course for mathematics educators in collaboration with German centre for mathematics education; development of a course for mathematics teacher educators; forum for learning about digital assessment; development of national guidelines regarding mathematics for engineering education, and Partnership for learning and teaching (Platinum) – promoting the centre’s work internationally.

3) **Research into learning and teaching mathematics**, including four PhD-candidates completing their education in 2020/2021, engagement in national and international conference/s (including the MNT-conference which is a conference focused on the STEM-disciplines, as well as INDRUM, SEFI SIG and more), and collaboration with MERGA which is a research-centre at University of Agder (UiA) focused on mathematics-didactics at all school levels, including higher education.

Based on that information it appears as if the centre has worked intensely and systematically towards the overall aim, as expressed in their Action Plan for the second phase (nd): “*Students enjoying transformed and improved learning experiences of mathematics in higher education.*”

To its help there has been an International Advisory Board. Having a multitude of activities in parallel at many levels like the above, some coordinative and synergetic effects have been made possible. For example, the student drop-in and mentoring initiatives appear to have grown organically and proven to be very efficient in reaching many students and the development continues. Furthermore, inviting internationally renowned researchers within the area of mathematics didactics, has made it possible to create networks and boost local as well as national competence building. Likewise, through participation in the Induction course for mathematics educators, the possibility to both enact educational development activities as well as engaging in a systematic, scholarly evaluation of it, has supported a possibility to shape a SoTL-trajectory (SoTL: scholarship of teaching and learning) at the individual level, beneficial for students’ learning. This, in turn, has potential to influence other educators both within mathematics education as well as in other disciplinary areas.

## **What are the strengths that the centre draws on in achieving its aims and vision?**

My impression from the site-visit of the centre and its activities is that they are very engaged and ambitious, and a well-functioning SFU.

The centre has, in my view, multiple strengths. They have already developed a number of activities, locally, nationally, and internationally, as exemplified above. The centre leadership comes through as highly engaged, knowledgeable and thoughtful, with an ability to continuously evaluate and develop the activities of the centre, and to engage a number of colleagues and students in the centre's vision and mission: to create collegial arenas for mathematics educators and to contribute to quality development at UiA. It also appears to me as if the Dean of the faculty (Engineering and Science) as well as the Vice-rector of UiA are knowledgeable and supportive of the centre's activities and demonstrate an explicit willingness to make sure that the centre's activities continue to thrive and come to the benefit of the faculty as well as to UiA as a whole.

The student engagement, which is an explicit aim for MatRIC in the second phase of being a SFU, is strikingly high. The examples presented at the site-visit of drop-in, mentorship, and teaching assistants are very inspiring and of increasing importance (not least because of the past year with education during a pandemic). It appears very much in line with what has recently been highlighted in a book by Peter Felten and Leo M. Lambert (2020): *Relationship-Rich Education*. Based on big empirical data they demonstrate the importance for students, particularly from a non-academic background, to build relationships with fellow students and with staff members as part of a crucial sense of belonging at university. In my view the activities related to student engagement at MatRIC, including the faculty's FYSE-initiative (First Year Study Environment) appear to relate to that importance.

Yet another strength that I can see is the presence of MERGA, a mathematical-didactical research group at UiA, with which MatRIC already has some collaboration. In relation to the aim to develop more SoTL-activities at the centre, MatRIC could probably have good use of this resource. Didactic research within a discipline is an excellent resource when developing education. Furthermore, since SoTL includes using public, theoretical/didactical knowledge as a source to interpret one's inquiries (into teaching and learning), there is apparently a lot of knowledge already to draw on.

## **What possible challenges does the centre face in realizing its aims?**

In my view, and based on previous documented experiences from Sweden and the UK, the most obvious risk that an externally funded centre like MatRIC faces is that many activities and engagement fade away if/when such funding stops. Hence, the most obvious challenge is to find ways to make sure to secure continued activities (if not all of them, then prioritised) and to keep the current momentum going forward. I think the most fruitful pathway is to continue to make sure that the centre's activities are further disseminated and embedded beyond the centre, particularly within UiA. The leadership of UiA, of the faculty, and the PULS-unit are key players, together with MatRIC in such a strategy.

Another challenge is continuation and long-term sustainability, to make sure that people who have now been champions and leaders of the centre's activities during the SFU-funding stay on board and continue to get more and new people involved, so that activities are

collectively and collegially embedded rather than carried by (or dependent on) single individuals.

There may be a challenge in relation to the aim of developing a culture based on SoTL, partly because it takes long-term patience to change an academic culture, and partly that there may be potential (hypothetical) tensions between the MERGA research group and mathematical educators who want to engage in SoTL. However, as indicated above, I consider the presence of MERGA as a strong resource for the development of SoTL-activities, in which the mathematic educators themselves conduct inquiries regarding their own teaching, and their own students' learning.

## Summary and advice going forward

In sum, I think the centre has come far already towards its aims. I also think it is important to keep the momentum, for the benefit of the centre itself, and of UiA as a whole. In my view MatRIC can continue with their national and international outreach and networking, as well as being the catalysts of further development at UiA. In order to do so, I have the following recommendations:

- Make sure to develop a “continuation-strategy”, in collaboration between Diku, UiA and MatRIC, in order to keep momentum of the so far invested resources. Such a strategy could preferably be developed/discussed in collaboration with other SFU's and their institutional leadership.
- In my view, it is important for UiA not to be entirely dependent on external funding, even if such funding is desirable and important. I suggest that the leadership of UiA develop a local continuation-strategy, in collaboration with MatRIC, to find ways to embed the positive results and learning-oriented activities from MatRIC across UiA as a whole. There is clearly an ambition to do so, but this ambition needs to be operationalised. I see before me that UiA could make such activities a strategic, integrated institutional high-profile issue, across faculties and disciplines. For example, in the development of the UiA PULS (centre for educational development and learning), MatRIC should be an important collaborator, and UiA PULS could become an important node and 'broker' in the educational development across different disciplinary boundaries at UiA, not least to reach the institutional goals of focusing on student-active learning and educational innovation.

In order to develop a SoTL-culture within MatRIC, and potentially across UiA as a whole I recommend:

- Aim initially for low thresholds to get started. Start off in what are current important issues (locally and nationally), and activities that already exist (such as the SoTL-examples that were shared at the institutional visit), and organise arenas for sharing and discussing locally. Such arenas can be lunch meetings, seminars (f-2-f or online), a teacher's retreat, a local symposium, conference etc. Focus – at least initially – on the local level (meaning MatRIC, the faculty and UiA) as “receivers” of the SoTL-work.
- Develop and establish a multitude of support for those who might want to engage in SoTL. Such support might come from UiA PULS, from MERGA, from 'meriterede lærere' at UiA, from external experts, from other SFUs in Norway that have developed a SoTL-culture (such as BioCEED), as well as from already existing

resources in other places (a list of potential such resources is provided below).

- Make sure to establish incentives to engage in SoTL both within MatRIC as well as at the UiA-level. Incentives might be project funding, support of various kinds, making SoTL count in strategies, decisions, formal employment and promotion structures, resource allocation, awards, and career opportunities.
- Explore in which ways the desired development of a SoTL-culture might relate to, possibly coordinate and have synergies with the plans for introducing “kollegaveiledning” at UiA. There is much to gain to think about these initiatives as related, since both entail moving beyond a ‘private’ silo-nature of teaching and learning, and instead promoting a collegial understanding of and engagement for teaching and educational development. A forthcoming book, based on a large-scale project at University of Oslo, could be a good inspirational source (as well as the colleagues who have led this project): Line Wittek & Thomas de Lange, ‘*Kollegaveiledning i høyere utdanning*’.
- Continue to develop your student engagement. It is already impressive, and I think you could contribute to the international ‘movement’ of Student Engagement, Students as Partners and Students as Co-Creators. For instance, students could be active partners in further educational development initiatives (courses and programmes), as well as in SoTL-projects.

Some resources suggested to use when starting to engage in SoTL and developing a SoTL-culture:

- Nancy Chick, online resource: ‘The SoTL Guide’  
<https://nancychick.wordpress.com/sotl-guide/>
- Lund University (Sweden), Division for Higher Education Development, open online resource “[Developing as an Academic Teacher](#)”, with a substantial section about SoTL.
- Book: Chick, Nancy (ed. 2018) *SoTL in Action. Illuminating Critical Moments of Practice*. Stylus Publishing.
- Article: Mårtensson, Roxå, & Olsson (2011) Developing a Quality Culture through the Scholarship of Teaching and Learning. *Higher Education Research and Development*, 30(1), 51-62.
- International Society for Scholarship of Teaching and Learning, ISSOTL (website: [www.issotl.com](http://www.issotl.com), resources, annual conference, special interest groups etc)
- The international, peer reviewed journal [Teaching & Learning Inquiry](#) publishes results of SoTL-work, there are examples from mathematics.
- The [International Journal for Students as Partners](#) has a number of inspirational contributions for how to support and increase student engagement in educational development as well as in SoTL.

I congratulate UiA for having a centre like MatRIC as a resource and potential driver of continued educational development and innovation at the institution. I wish you best of luck with the future work.

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