

SFU Interim Evaluation

Feedback on Draft Action Plans: bioCEED

Overview

The panel are pleased that bioCEED has adopted a positive stance to the SFU mid-term evaluation. The draft action plan shows that they have taken on-board a number of the panel's recommendations and have produced a coherent action plan for the second period of funding. The draft action plan shows that the majority of the efforts of the centre will shift from those outlined in the original bid to an alignment and optimisation of the different activities already undertaken and a 'mainstreaming' of these innovations. Succinctly put, bioCEED will '*change from being the driving force behind specific concrete innovations to a collaborative partner contributing support and research outcomes*'. The panel welcomes this change in focus, which reflects some of the recommendations made in the mid-term evaluation report

However, the panel feels that the action plan still could be developed further. In particular, the measures of success still largely focus on assessing activities and outputs rather than changes in practices and outcomes. This means there is currently very little assessment of the impact of the Centre. If the Centre is to be able to assess its contribution to changing educational practices then this need to be a central part of how it measures its success.

bioCEED reply: We appreciate the panel's support of our overall vision, goals, and plans. In response to the panel's remaining concerns, we have now revised part of the action plan text, in particular relating to centre objectives, to re-state the goals and intended outcomes for each bioCEED focus area. However, we would like to point out that while many of the assessment criteria (now targets) listed in the tables were, indeed, outputs, they were specifically chosen so that they would also be indicators of success in obtaining bioCEED's goals and intended outcomes. We did this to address the panel's challenge in the previous feedback rounds to set up measurable success criteria. As a general rule, outputs are easier to measure than changed practices, culture and outcomes. We therefore specifically chose outputs for the assessment criteria in such a way that they can only be delivered if the outcome is obtained. For example, the publishing of scientific papers on, say, student learning outcomes from work placement (and other teaching and learning tools and practices that we are developing) can only be realized if the practice has been implemented, and learning outcomes have been researched relative to 'standard' teaching methods, data has been summarized, analyzed, interpreted, and written up for publication. Publication in a scientific journal further entails quality assessment of this whole research process as well as sharing results within HigherEd internationally. In summary: As such, an assessment criterion stated as, for example, 'the publication of 5 scientific paper's' on a specific bioCEED theme such as learning outcomes from work placements can absolutely be criticized for being 'just' an output, but this cannot happen without important goals and outcomes, including changes in practices, also being realized.

1. Vision

The vision for bioCEED in the second period of funding is clearly articulated. It is an extension of, but also distinct from, the vision stipulated in the original bid. This reflects the excellent work that the centre has already undertaken and also reflects the comments made in the mid-term evaluation report. The vision for educating tomorrow's biologists entails '*integrating the current knowledge, practical research and subject skills training, and the societal relevance of biology.*'

This is both laudable and achievable. The focusing of the work of the centre on the integration of these areas should greatly benefit both the partner institutions and biology education in Norway more generally.

bioCEED reply: We are glad that the committee appreciates our vision.

2. Centre objectives

During funding phase 2, it is envisaged that bioCEED will focus on mainstreaming its activities and so will withdraw from many of its daily operations. However, the action plan does not outline specific actions from the centre that will ensure that this mainstreaming process can happen. Central to realisation of the Centre's vision will be rigorous review of the biology curriculum, and accompanying pedagogic approaches, combined with distributed leadership. Both the curriculum and leadership are considered in the objectives, but almost as discrete areas as opposed to core to the realisation of the vision. A number of the action points will only tangentially address the delivery of crucial outcome measures, and a number of the assessment criteria should be focused on assessing the mainstreaming process itself. Similarly, we were delighted to note is that 'care will be taken to involve students as partners at all levels and phases of the actions and projects'. However, it was not entirely clear how this will be achieved. Again, specific action points and outcome measures should be directed to ensure that this happens. 2

bioCEED reply: To clarify the relationship between our goals and intended outcomes and the outputs and assessment criteria we have now rewritten the lead text of the objectives for the four focus areas in the action plan. This text is now more focused on describing overall outcomes (see also the description of our overall vision and the four focus areas in various bioCEED documents that have been provided during the assessment process). We would like to point out that much of the 'rigorous review' that the panel calls for is implicit in, for example, the research and scientific publication of findings from various projects under the four focus areas. See also our comments to the overview above.

As to the 'rigorous review of the biology curriculum' vs. teacher culture and leadership, we see the centre's role in supporting the development of a teacher culture and collegium that is able and motivated to do this, and to keep doing it after bioCEED is over, rather than as a consultancy that will deliver this review to our host departments. We believe that this way of seeing our role vs. the host departments is well in line with our center vision and goals, and with the nature and objective of an SFU.

a) Teacher culture and educational leadership

The panel fully supports the notion that the good work undertaken by bioCEED needs to extend beyond the host institutions. However, it was not clear how the action list on page 2 will achieve this. Holding a series of workshops, etc., is still predominantly going to impact on the "coalition of the willing". How will the work of the centre be disseminated more widely within Norway, and beyond, and outcomes as opposed to outputs be assessed?

bioCEED reply: see list of assessment criteria / outputs (targets), and the list of intended audiences in the table of actions for specific information on how we expect to reach intended audiences, and the explanation above for our way of setting up post-outcome outputs. As a clarification to the specific comment, our goal to reach beyond the 'coalition of the willing' will be achieved in part through teacher culture work (locally, in collaboration with others within

biology nationally, bottom-up approach to educational development) and in part through impacting policy (within and beyond biology and our host institutions, top-down approach to educational development through leadership and policy).

b) Innovative teaching

There is much to applaud in this section both in terms of the statements made and the suggested actions. However, the action points seem to be limited to the sphere of biology. How will the work of the centre extend into other science disciplines (e.g., chemistry, physics, mathematics)? What specific actions (and associated outcome measures) will be used to stimulate activity in this area?

bioCEED reply: We would like to point out that limiting this part to be mainly targeting biology was a direct response to the committee's earlier challenge for us to not try to do 'everything' with our relatively limited resources, and to clearly show the subject-specific impacts and implications of our actions and projects.

We found, and still find, this to be a good and important piece of advice, and we are not planning to expand into other disciplines beyond (i) direct collaboration over issues related to biology (e.g., math in biology and for biologists), (ii) by presenting case studies and sharing experience and findings for others to learn from and be inspired by in relevant fora and publications, and (iii) by pushing for and supporting policy change (e.g., teaching merit systems, institutional educational quality action plans). See also explanations above.

c) Practical training

This section is strong. However, we would have liked to have seen specific action points and outcome measures focused on exploring the mechanisms by which the reach and quality of the internship programme could be increased to ensure that a greater number of students were exposed to cutting-edge research.

bioCEED reply: See above for our take on specifically choosing outputs that measure and/or are based on the successful delivery of our intended outcomes.

A possibly under-communicated aspect of this focus area is training in research skills, research-based education, and student-active research, which is, and always has been, a priority and strength at both BIO and ABs biology educations. For example, both BIO and AB offer students research experience through research project courses, and all master degrees include a one-year research project. bioCEED builds on this strong tradition by researching to what extent research and transferable skills training and work-place integration contribute crucial components to the student's experience of becoming a biologist.

When it comes to mechanisms by which the reach and quality of the internship programme could be increased, we are unsure of how to achieve this beyond making the internship/practice courses a compulsory part of the BSc programme, promoting internships, student-active research and research based education as specific actions in institutional action plans, supporting this aspect of government policy (see previous documents), and researching (and publishing results from this research) the effect and impact on internships on student learning, motivation and attitudes. All of these aspects are reflected in our actions and targets.

d) Outreach

This final section is less developed in terms of an explanation as to how the centre will achieve its aims. At the moment the section only really focuses on developing communication platforms (websites) and publishing. The centre should give some more thought as to how its outreach goals may be achieved.

bioCEED reply: The majority of the action points within each focus area have specific outputs, through specific channels for specific audiences to achieve specific outcomes, which entail communication and outreach activities.

More generally, we developed extensive and detailed outreach plans vs. all our intended audiences in the previous documents delivered to the committee. In the interest of space, we therefore do not repeat this in the action plan document. Please refer to the relevant documents delivered to the committee (especially Annual report 2016) for a more general description of our outreach strategy. Although the description in these documents are more retrospective (as they are in reports that were requested to focus on already conducted activities), the plan for outreach will follow the strategy described.

3. Organisation and management

This section largely describes changes that have already taken place. Does this mean that no additional alterations are envisaged during phase 2? How will, for example, the measures of success be monitored and evaluated both individually, and, more importantly, as a coherent whole making a significant impact?

bioCEED reply: We have already implemented organizational changes following the advice of our Advisory Board and the centre's internal needs. We do not envisage that further extensive organizational changes will be necessary during the remainder of bioCEEDs existence. bioCEED has a dynamic organization and management, and continuously monitor, evaluate and make smaller adjustments to the organization to ensure effectiveness in our operation and communication within and beyond the centre management. Measures of success will be reported in annual reports to NOKUT.

4. Centre relations

This final section hints at some wider partnerships (e.g., with other SFUs). However, we would like to see a more detail as to how bioCEED will coordinate and attempt to integrate these disparate activities.

bioCEED reply: We refer to the reporting on dissemination and collaboration and plans provided in earlier documents delivered to the committee.

Summary

The bioCEED action plan is a good description of what is likely to happen during funding Phase 2 for the centre. However, it could still have more of a strategic focus and more fully address the issues identified during the interim review process. We have no doubt that bioCEED will be successful, but if it were able to embrace more of the recommendations made by the review panel then it could play a central role in transforming biology education, both within Norway and far beyond.

bioCEED reply: The midterm evaluation process has made us aware of a number of the challenges, but also many opportunities we face in realizing our vision and potential. In particular, as a small Centre with moderate resources, the panel pointed out to us from the start of the evaluation process that we need to carefully consider and prioritize our resources in order to ensure that we deliver high quality outcomes that have the potential for having lasting impact vs. our priority areas, and that this impact is realized appropriately within our host institutions as well as beyond. This is something that we have taken on board during the evaluation process, and carefully considered. We feel that we are now well placed to carefully balance our ambitions and activities vs. our core priorities and deliverables in the future.

We would like to thank the panel for constructive feedback and suggestions during the evaluation process.

Yours sincerely,

The bioCEED team