SFU Interim Evaluation

Feedback on Draft Action Plans: MatRIC

Overview

The panel acknowledges the efforts of the Centre to address the recommendations made in the interim report in its action plan, and we are pleased that MatRIC responded positively to the report.

The panel welcomes the more student centred vision in MatRIC's action plan from that proposed in its original application. This change reflects some of the recommendations made in the mid-term evaluation report. At the same time, the panel is concerned that the new vision has not been operationalized in enough detail. Many of the actions proposed remain rather general without an explanation of what they mean in practice, what the intended outcomes of the actions are expected to be, and how the outcomes will be assessed . While the plan contains a number of quantitative goals (to be achieved by the end of 2023), there is no structured presentation of the intended actions, who will be involved in the actions, the expected outcomes of the actions, and the way in which the success of these outcomes will be assessed. Overall, the panel suggests that the action plan:

- explains in much more detail what the intended outcomes of the MatRIC activities in Phase 2 will be, how the intended outcomes will be achieved (incl. information on use of capacity and SFU funding), and how the success of these intended outcomes will be assessed.
- explains how MatRIC will conduct research in Phase 2, and how this research will feed into MatRIC projects and activities.
- sets out more clearly the connections between different strategies to promote students' learning experiences, in order to clarify the overall strategy and to show that MatRIC is greater than the sum of its parts.
- explains more clearly how he MatRIC community will be grown in a sustainable.

1. Vision

MatRIC outlines a new vision in its action plan that follows a 'bottom-up' approach, with students' mathematical learning at the centre of a vision that wants to stimulate '*transformed and improved learning experiences'*. The new vision will be implemented within UiA, Norwegian higher education and with international partners. One important element in the new vision is the aim to strengthen the integration of developments in mathematics education into different disciplines. Although the action plan touches on how the centre wants to manage the tension between supporting mathematics as a service subject and supporting the integration of mathematics education into the teaching of the discipline or professional area (for example, by supporting teams of mathematicians and experts in a specific profession), the panel felt that much greater detail could have been provided about how this tension will be managed.

2. MatRIC objectives

The action plan indicates that in the second funding phase students will occupy a central position in the Centre's vision, goals, and strategy. As a consequence, a key objective for phase 2 concerns the development of students as partners in teaching and learning. This is positive since it reflects the recommendation to shift focus from teaching and learning processes, to students as partners in the Centre's key actions. However, it remains largely unclear throughout the plan what 'student partnerships' will mean in practice, what the intended outcomes of these partnerships are, and how these outcomes will be assessed. The examples of partnerships provided (e.g. 'funding student internships' and 'demonstrating rich opportunities') are not fully developed and do not provide clear insight into how the Centre will realize its student oriented vision and objectives.

The panel also felt that, in a number of places, it was not clear how MatRIC's actions would practically lead to the changes envisaged. For example the action plan states on p. 3: "Substantive and comprehensive changes in students' learning experiences will occur because teachers reflect critically on their practice and introduce innovations to address the difficulties students' experience." Such changes did not occur in Phase 1 and the plan does not indicate what actions will be taken so that these changes in learning experience can be expected to happen in the second phase.

The panel felt that the action plan needed to more clearly operationalize the intended actions, make explicit connections between different objectives, and explain the link between the objectives and the proposed actions and strategies. For example , these concerns were highlighted in the following areas of MatRIC's work:

Students: There are several strategies outlined for improving students' learning of mathematics. However, it would be helpful to have a clearer picture how these strategies are connected. For example, are drop-in centres and movies from MatRIC TV especially for beginning students/all students/students of different faculties? Are both strategies parts of a common plan or are both strategies separated? Are these strategies connected with other strategies that are listed on page 5? Further it is not clear, what the action/strategy is to enlarge the number of users of drop-in centres and also of MatRIC TV, as well as to achieve any of the other goals presented in the table on pp. 5-6.

Curriculum and course design: The action plan highlights MatRIC's intention to disseminate teaching innovations through "exchange of experience, expertise and good practice between mathematics teachers within Norwegian HEIs" and to foster curriculum development by exposure to (international) excellent teaching examples. However, it is not clear how MatRIC staff will strengthen the knowledge base for better understanding excellent teaching in mathematics education. In footnote 1 the notion of 'best practice' is problematized, however, it is not clear what this means for MatRIC's dissemination objectives, given that MatRIC does not offer any courses or study programmes. Here, and in other places in the action plan, the panel felt that MatRIC needed to be clearer about how it will use its (staff) capacity, and its SFU funding in order to realize its objectives.

Programme structure: the action plan discusses the consequences of the fact that MatRIC does not provide any study programmes. This is an important barrier to MatRICs ability to promote changes in programme structures. The main strategy for handling this barrier presented in the action plan is 'sharing examples of better practice'. This strategy is dependent on an effective system of dissemination (see below). The panel felt MatRIC could develop other strategies to overcome this barrier. The idea of 'MatRIC White Papers' is mentioned but not developed in the plan. Another possibility would be to use MatRIC's capacity and SFU funding in order to support certain change projects, such as organizing 'smaller classes'.

National Influence: the action plan indicates that ambassadors will support the dissemination of MatRIC's ideas to other HEIs. However, the strategy underpinning this is not fully developed. MatRIC currently has stakeholders from a number of institutions and disciplines. Is the intention to work with stakeholders at every Norwegian HEI? Will MatRIC work with a core group of stakeholders from certain HEIs, which will be gradually enlarged to include more institutions? Will the ambassadors be responsible for recruiting stakeholders from additional institutions? What are the plans for developing and supporting this stakeholder community so that it grows in a sustainable manner?

3. Leadership and Management

The panel particularly welcomes the commitment to reduce the strong dependence on the current Centre Director, by appointing a co-Director, and activating the present Network Coordinators. It also welcomes the proposed changes to the Centre's Management Board (wider representation from UiA) and its International Advisory Board (inclusion of Norwegian stakeholders). These changes can be expected to strengthen the strategic management capacity of the Centre and its embeddedness in UiA as well as Norwegian higher education considerably.

4. MatRIC relations

The action plan discusses, in a number of places, the Centre's intention to strengthen its strategic role and place within UiA. While this is positive, the panel felt that the action plan does not explain how this intention will be realized in practice. The action plan could also set out how the University understands and intends to further develop MatRIC's role in strengthening the quality of teaching and learning (of mathematics education and in general) at UiA. Whilst the action plan seeks to link the work of MatRIC to the UiA strategy, it does not explain the nature of this relationship. Currently the actions for the enhancement of relationships within Norwegian higher education, and internationally are presented at various places in the plan, and are clearer and more convincing than the intentions for strengthening the role and place of MatRIC within UiA.

5. Support for mathematics education

At the moment, the action plan provides a strategy for supporting mathematics education as a whole. However, the panel felt that in some parts of the action plan, it might be

possible to focus more on a coherent set of goals. For example, the action plan could explain:

- the connections between different strategies (drop-in centres, MatRIC TV, student summer internships etc.). The list of different strategies to enrich students' learning is on the one side quite impressive, but does not exhibit an overall strategy.
- how MatRIC's ideas will be disseminated across Norway in a sustainable manner.

Summary

The panel feels that the shift in the Centre's vision from a focus on teaching and learning processes to a student orientation is positive and realizable. The panel also strongly welcomes the proposed changes in the management and leadership structures and bodies of the Centre. However, in its current form the MatRIC action plan focuses more on general intentions than providing a presentation of clearly thought through and well-structured objectives, actions, the intended outcomes of these actions, how these actions and objectives will be achieved and how the achievement will be assessed. This implies that while the action plan presents a convincing new strategic vision, it is less convincing when it comes to addressing the other issues brought up during the interim evaluation process. Thus on the one side we acknowledge the high potential of MatRIC to lead innovation in the teaching and learning of mathematics. On the other side MatRIC's potential and how this potential can be more fully realized could and should be outlined in a more convincing way for a possible second phase of the centre. This implies that the action plan should clearly describe how the Centre wants to assure that it provides an effective, relevant and assessable contribution to the necessary strengthening of mathematics education at UiA, in Norway and internationally.