

## Format proposal for education innovations

Version: 12-5-2023

This format is meant to submit a budget request for an education innovation project. We kindly ask you to submit your education innovation plan to Stijn Heukels ([stijn.heukels@wur.nl](mailto:stijn.heukels@wur.nl)) ultimately **31 May** for evaluation by the Education Innovation Board in June 2023. If it is not feasible to submit the proposal before the deadline, please submit the proposal before 30 November for evaluation in December 2023.

### Focus area

In 2023 all proposals should contribute to further development of "student centred education". Student centred means that education is interactive, and learners take an active role in steering their learning. There is room for individual choices, contributions, application, or sense making by learners and it is not theory, material or teacher centred. If applicable, there is attention for differences in prior knowledge and (work) experience of learners and education contains real-life cases reflecting the career perspective of the learners.

Proposals will be evaluated in two different clusters:

- Proposals that contribute to WUR's assessment ambitions to strengthen the functions of assessment as integral part of high-quality education. Examples include formative assessment, the role of assessment in longitudinal development, assessment in more realistic settings, and enhanced student learning experiences through the use of digital tools for assessment.
- Proposals that contribute in a different way to "student centred education": the "wild card" cluster.

### Evaluation criteria

Proposals will be evaluated on the following criteria:

- a) It is clear what problem should be solved and this is broadly supported by stakeholders.
- b) The proposal convincingly contributes to further development of WUR education regarding the focus areas as determined by the Education Innovation Board.
- c) The proposal takes into account existing theoretical insights and previous experiences.
- d) The project plan contains a clear strategy for evaluation and dissemination. These strategies will be assessed on the added value for other suppliers of education within WUR and their partner institutions (4TU, EWUU).
- e) The innovation is value for money, also in relation to life span.

### A. General characteristics

1	Project title	<i>Your honest mirror: teaching students to critically assess themselves and their work</i>
2	Course/module/educational programme concerned	Core courses in the BSW programme (the YWU courses), introduction and integration BSW courses, and additional optional courses, e.g., MAQ52806, MAQ52306
3	Contact person for project	Antonija Rimac – van Heerwaarden, dr.
4	Stakeholders involved / supporting this proposal	Arnold Moene, dr.ir. (programme director BSW/MEE)

### B. Aim of the project

5	What is the pedagogical problem you want to solve?	The project aims to <b>teach students</b> to develop an <b>attitude</b> and <b>skill of critical self-assessment</b> . In order to do that, we will implement <b>strategy</b> and <b>tools</b> into selected BSc courses of the BSW programme, i.e., into several core, and introductory and optional courses followed by BSc students. Having a critical and honest view on their <b>skills, learning, work, and themselves</b> is an important step towards becoming self-reliant scientists and citizens. Moreover, critical self-assessment is an essential step in <b>personal leadership</b> development, as a view of one's future self also requires
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		<p>that they know where they stand at this moment, and which steps they should take to reach their desired future.</p> <p>The initiative for tackling this problem comes from the BSW programme director (Arnold Moene) and BSW BSc thesis coordinator (applicant) carefully based on consistent observations obtained through evaluations of programme courses and the BSc-thesis trajectory:</p> <ul style="list-style-type: none"> <li>- A recurring observation by lecturers involved in BSc courses is that students often submit their assignments without sufficiently <b>self-assessing</b> its quality. The cause can be either that students do not reflect on their work at all (i.e., they <i>do not have a trained attitude</i>), or that they are not able to critically assess the quality of the assignment (i.e., they <i>miss the skill</i>). This becomes even more prominent in the group work where students find it hard to assess, and give feedback on, the work of others (i.e., their group peers).</li> <li>- We often hear from students that they <b>doubt the quality</b> of their work. The background of their doubt is diverse: they are uncertain about the quality, they find it hard to interpret the assignment's requirements, or the requirements and assessment criteria are (indeed) absent or unclear. This doubt then reflects on their confidence, and consequently on the quality, when providing a peer-feedback.</li> <li>- Finally, the true motivation for this project comes from observations connected to MAQ52806, i.e., Learn the scientific method in a changing climate course. There, we noticed students' appreciation for receiving consecutively peer-feedback, performing revision of an assignment, and finally receiving formative feedback. In their course evaluation, students stressed that following these steps makes them aware of their knowledge and skills, and it allows them to improve these throughout the course.</li> </ul>
6	<p>What is your aim; what benefit is to be achieved if your educational innovation is successful?</p>	<p>A <b>clear benefit</b> of students' ability to critically assess their work <i>on the course level</i> is a positive <b>attitude</b> towards <b>learning, knowledge acquisition and skills development</b>. <i>On the programme level</i>, development of critical self-assessment supports the <b>longitudinal development</b> of the personal <b>skills</b><sup>1</sup> of collaboration (5), feedback (6), reflection (7), and by itself it is essential for personal leadership (8).</p> <p>For students to be able to perform critical self-assessment, two ingredients are needed:</p> <ul style="list-style-type: none"> <li>• A clear yard stick that allows students to measure their own performance, and</li> <li>• The students' skill to use that yard stick.</li> </ul>

<sup>1</sup> BSc skills learning outcomes, Version May 2023

**The yard stick:**

As courses differ in didactics and organization, and as students develop over time, a diversity of didactical methods is needed (i.e., a toolset). The toolset will contain checklists, skills assessments, rubrics, exam-grade expectation definitions, proposed grading definitions, and similar.

**The skill to use the yard stick:**

We propose to implement a structured didactical method consisting of the following four steps: inner-feedback, reflection, revision, and grading (see Figure 1):

1. **Inner-feedback:** Students *evaluate* their knowledge or deliverable using clearly defined criteria (e.g., learning outcomes, rubrics, checklist of positive assessment necessities, or guidelines for structuring a deliverable, "good practice" examples, etc.), and *define* points that need to be improved.
2. **Reflection:** Students *reflect* on the points of improvement, *prioritise* them (e.g., based on their importance, value, and estimated investment time), and *decide* on the points of action (e.g., additional learning, revising, or restructuring a deliverable) to make the improvement.
3. **Revision:** Students *work* on the improvements and then *decide* either to submit their deliverable (or evaluate their knowledge via an exam), or they *add* an additional revision round to reach their intended level.
4. **(Incremental) Grading:** When students decide to submit their work (or go to an exam), grading becomes an integral part of the procedure. Students *grade* their work by performing honest self-assessment based on the defined criteria (e.g., rubric, list of previous exam questions, etc.). The subsequent feedback of a teacher focuses, for the large part, on the deviations of teachers' assessment from students' self-assessment.

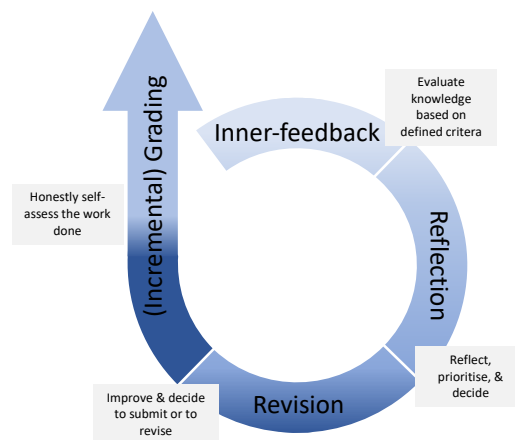


Figure 1: The proposed self-assessment cycle consists of four steps: inner-feedback, reflection, revision, and (incremental) grading. At the end of step three, students can decide whether to add one more "revision" round starting from the first step (i.e., inner-feedback), or to continue to step four, and submit their work for grading.

		<p>Since the development of skills and attitudes takes training and time, the development of critical self-assessment should be embedded and integrated into multiple parts in a study programme.</p> <p>To conclude, it is crucial that <i>an honest mirror</i>, i.e., a critical self-assessment is implemented at strategic places in BSc programme as it can be applied to any form of learning, from preparation of an exam (“Am I well prepared, what should I focus on, how should I learn, and what do I expect from this exam?”) to writing a BSc thesis (“How do I assess the draft version I am about to hand in? How well am I prepared for my symposium?”). Moreover, students that become effective in self-assessment will likely be strong sparring partners for others in their group work.</p>
7	<p>How does the proposal contribute to further development of WUR education related to the focus area determined by the Education Innovation Board?</p>	<p>This project will contribute to development of WUR’s education assessment policy<sup>2</sup> in a following way:</p> <ul style="list-style-type: none"> <li>- “(1) Strengthen formative assessment to help students steer their learning process” – Our project will strengthen this ambition by <b>combining</b> inner-feedback and (incremental) grading assessment forms, and <b>enriching</b> these by using reflection and revision. This will not only help in giving students a more active role throughout the assessment, but will give them a “judge, jury and executioner” role when it comes to their personal development, development of their skills, knowledge, and attitude towards learning.</li> <li>- “(2) Assessment in more realistic, less standardised settings” – In MAQ52806, i.e., Learn the scientific method in a changing climate course, we add peer-feedback moments that contribute to skills and knowledge development, and we combine different assessment methods that can be used in mixed classrooms; mixed if we look at skills, students’ perspectives, and expertise. This project will help in making this more explicit as we plan to explore assessment methods that will contribute to students’ attitude and personal development.</li> <li>- “(3) Assessment in the context of longitudinal development” – Looking at e.g., personal development path and thesis trajectories, this project will help in developing longitudinal approach to assessment as the four-step didactical self-assessment methods will consist of different assessment levels and assessment types for different study years.</li> </ul> <p>In conclusion, this project aims to contribute to formative as well as summative assessment strategies at WUR, by steering students’ learning process, skills and personal development, and critical self-assessment.</p>

<sup>2</sup> Education assessment policy, Version 2023, <https://intranet.wur.nl/umbraco/en/about-wur/policy-regulations/education-policy/>

8	How does the proposal take advantage of existing theoretical insights and previous experiences?	<p>This proposal mainly relies on the inner-feedback<sup>3</sup> and incremental grading<sup>4</sup> practices. Inner-feedback (or internal feedback)<sup>3</sup> is defined as the new knowledge students generate when they compare their current knowledge and competences against some reference information. It has been shown that the inner-feedback is more important for students gaining knowledge and developing skills compared to knowledge obtained and skills developed when teachers and peers provide feedback. A mode of inner-feedback model "comparative feedback" has been used in the Education and Learning sciences (ELS) chair group, where students would generate feedback themselves by comparing their work against external information. Here, a teacher provides an information on what to compare, how and against which comparisons.</p> <p>Incremental grading<sup>4</sup> is an assessment approach that is student driven, as students have opportunity to grade their own work based on some defined criteria. It has been implemented in higher education<sup>5</sup> as well as in education of WUR<sup>2</sup>. Specifically, incremental grading has been used in "Food for health and safety challenge" where students used incremental grading in its' basic form to lead the assessment.</p> <p>Although, both, inner-feedback and incremental grading, are known concepts in higher education and have also been used as good practices at WUR, a cycle of inner-feedback, reflection, revision, and grading, has so far not been a standard (or documented as a practice) in BSc programme courses or thesis trajectory. By means of this project, we plan use these known generic skills and teach (and train) students to use them since 1) the inner-feedback and incremental grading are not something that you "just do" out of the box. Instead, they are skills that require training, and 2) they are skills that can potentially have applications beyond the learning environment. In this project, we will bring this to life, and make it a standard part of the assessment of our students.</p>
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### C. Evaluation

10	When do you consider your innovation a success? Please define your evaluation criteria.	<p>The project is deemed successful when:</p> <p>1. <b>Criterion:</b> Active participation of students in the self-assessment assignments.</p> <p><b>Success:</b> About 80% of students involved in a course ask for teacher's grading after performing critical self-assessment.</p>
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<sup>3</sup> Nicol, D., (2020): The power of internal feedback: exploiting natural comparison process, *Assessment and evaluation in higher education*, 46(5), 756-778, doi:10.1080/02602938.2020.1823314

<sup>4</sup> Köppe, C., Verhoeff, R.P. and V.R. van Joolingen, (2020): Incremental Grading in Practice: First Experiences in Higher Education, *Proceedings of the European Conference on Pattern Languages of Programs 2020*, doi: 10.1145/3424771.3424798

<sup>5</sup> Köppe, C., Manns, M.L. and R. Middelkoop, (2018): The pattern language of incremental grading, *Proceedings of the 25th Conference on Pattern Languages of Programs, PLoP '18*(October 2018), 17 pages

		<p>2. <b>Criterion:</b> Students feel comfortable to use the four-step cycle.  <b>Success:</b> Students go through four-step cycle without being urged to do so. Students use the cycle to improve their skills and knowledge.</p> <p>3. <b>Criterion:</b> Correlation between grades.  <b>Success:</b> Grade(s) students propose are in a good correlation to grade(s) lecturers propose.</p>
11	Please indicate <i>when</i> and <i>how</i> you will evaluate the outcomes of the project and <i>who</i> will evaluate.	<p>1. <b>What?</b> The design principles of the strategic critical self-assessment will be evaluated based on observations during implementation and execution of the assignments, as well as based on feedback from students at the end of each course.  <b>When?</b> The design principles will be evaluated at the end of each period.  <b>How?</b> To get honest and objective feedback from students, we plan to create a (generic) questionnaire that will in large part differ from the standard "course evaluation" questionnaire.  <b>Who?</b> Main evaluation will be done by the applicant and the programme director in collaboration with the courses' lecturer(s) and if needed education support. Student assistant will be employed to help in preparation, collection and analysis of answers of the questionnaire.</p> <p>2. <b>What?</b> The effect the critical self-assessment has on students' attitude and grades.  <b>When?</b> At the end of each period and the BSc thesis trajectory.  <b>How?</b> This will be done by statistically analysing achievements of older (e.g., third year BSc) students after performing critical self-assessment in comparison to their achievements in years when the assessment was not yet part of their courses.  <b>Who?</b> Main applicant in collaboration with student assistant and programme director.</p>

#### D. Dissemination

12	How can lecturers and others involved in education use the outcomes of your experiment?	<p><b>Lecturers:</b> Lecturers of the selected BSW courses (core, introduction and integration, as well as elective courses) will be asked to participate in defining the main didactic methods used in their courses that can help in making inner-feedback and grading efficient. These didactic methods will then compose the toolset that can be used in any BSc BSW courses, as well as MSc courses.</p> <p><b>Innovation support staff:</b> Education-innovation staff will also be involved in defining the toolset. Moreover, the education staff will provide support in implementing the correct didactical method from the toolset at strategic places in different courses where the critical self-assessment is needed.</p>
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		<p><b>Students:</b> We plan to make a questionnaire that would focus only on the critical self-assessment; the implementation of the project in a course, execution of the project, students' expectation of the project, and students' satisfaction of the outcome of their self-assessments and their final grades.</p> <p><b>Other programmes:</b> Other BSc programmes will be involved in the project in a way that we will share with them the process we are going through as a programme (main applicant, programme director, lecturers and other staff, and student assistant(s)), and ask for their feedback. The outcomes of that process may also be of interest for other programmes, but it is possible that their process would lead to a different design of the toolset. Here, we will also ask for support and "good practice" examples of ELS group that has a mode of inner-feedback method already implemented (as previously mentioned).</p>
13	Please describe how you will share the results of the project with others.	<p>We plan to share the outcomes of the project, as well as the steps taken to implement critical self-assessment, with WUR staff during <i>Teachers day</i>, <i>Education festival workshops</i>, and <i>Biannual board of education workshop</i>. Moreover, we have an ambition to write a paper to show positive impacts of critical self-assessment on students' skills development, work, knowledge, and learning attitude.</p>

*(Please continue with a description of the project activities on the next page.)*

### E. Project activities

How will you achieve the aims? Please describe the project activities.		<i>Requested budget for scientific personnel (€ 105,-/h)</i>	<i>Requested budget for support staff (€ 60,-/h)</i>	<i>Please describe what support by the Education Support Centre is requested (support is in kind contribution by ESA)</i>
1	Year 1: Defining the toolset*	8960		See *
2	Year 1: Implementing the toolset**	7266		See **
3	Year 1: Constructing the questionnaire (applicant)***	1418	1080	
4	Year 1: Monitoring (and analysing) the self-assessment (applicant)***	1418	1080	
5	Year 2: Analysing the self-assessment and questionnaire results (applicant)****	1418	1080	
6	Year 2: Scientific paper writing****	3780		
7	Publication fee	2500		
<b>Total budget requested:</b>		€ 26760	€ 3240	

\* Here, we will orient on **defining appropriate toolsets** used in the inner-feedback and grading step. The toolset will consist of rubrics, list of learning outcomes, checklists, "good practice" examples, skills-assessment examples, proposed-grading examples, and similar, and it will be made in agreement with courses' coordinator(s) and involved lecturers, and it will be based on the desired attainment level set up by the coordinator(s) for the students. We will work in a close collaboration not only with courses' coordinators and lecturers, but also with the education innovation staff, as their expertise can help in defining the appropriate and innovative didactic methods that will then the toolset contain. The assumed duration of this work package is four to six months.

\*\* Here, we will work on **implementing the defined didactic methods** in several courses of the BSW BSc programme. For the first-year students, we will focus only on one assignment per course, i.e., either written assignment, presentation, research assignment, or written exam, in order to train students' attitude for critical self-assessment. The amount of self-assessment assignments will gradually increase as students progress through their BSc study. Here, we will work again in close collaboration with the education innovation staff as their expertise in correct implementation will be needed. The duration of this part of the project is estimated to be at least one academic year.

\*\*\* After each graded assignment (formative or summative), and at the end of each period, we will **evaluate students**, and **check** their suggested grades in comparison to the grades obtained by lecturers. Here, we also plan to **investigate students' performance** in courses where the self-assessment is not implemented, or how they performed in previous years. This part of the project will run in parallel to \*\*.

\*\*\*\* Here, we will focus on **analysing results** from students' evaluations and constructed questionnaire, and **summarizing** them for a (possible) publication and results dissemination. We expect this part of the project to last about 6 months.