

Poster presentation

Co-create your own adventure

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Sammendrag: We have run a 3-year project financed by the Norwegian Directorate for Higher Education and Skills, HK-dir, under the program for student active learning, on implementing student-staff collaborations to co-create learning at the Geophysical Institute, University of Bergen. Throughout the project, we have explored and learned new ways of implementing co-creation at multiple levels within a course. Here, we invite you to join our co-creation journey guided by the Mountain Code. We share ideas on how you can plan and carry out the journey together with the students.

Nøkkelord:

Co-creation, student-staff partnership, mountain code

Co-creation occurs "when staff and students work collaboratively with one another to create components of curricula and/or pedagogical approaches" (Bovill et al., 2016)

But what exactly does this mean? What components or approaches can we co-create, and what does co-creation look like within a higher education classroom? Although we have literally co-created fieldwork journeys with students (Daae et al., 2025), we will here welcome you to join us on a metaphoric co-creation journey through the landscape of opportunities guided by the Norwegian mountain code (Røde Kors, ND). The mountain code (dating back to 1952) is well-known in Norway; kids learn it early, and it is even printed on the wrapping of the popular hiking chocolate, *Kvikk Lunsj!*

Please consider the following rules to enjoy the co-creation adventure while ensuring you and your company stay safe.

1 Plan your trip and inform others about the route you have selected

Planning your journey of a higher education course means defining the course's destination – the Intended Learning Outcomes (ILOs). As a teacher, you have the choice plan the destination alone, based on your experience and the guidelines from the study program board, or you can open up for combining a set of fixed ILOs with a list of, e.g., five optional ILOs where students select one or two, or leave one entirely open for students to choose themselves.

In addition to mapping out the destination, the teacher must plan and select the route or path they will follow to get there. The specific route entails the pedagogical approach, learning activities, and important checkpoints such as completed tasks or due dates for student hand-ins. Will your students be riding the bus of traditional lectures, or can they be actively engaged by walking the path of flipped classrooms or riding on a self-built vehicle, designing their own projects, towards the next checkpoint? And how could you involve students in planning the route? Could you invite students to choose some of the learning activities or even let them design one or two themselves?

Consider how many checkpoints your students require to reach the goal and where the checkpoints should be located. Are the checkpoints easy to reach and well-defined early in the course, or do the students risk falling into a bog of work overload from a piling-up of work in concurrent courses? Did students know about the checkpoints early enough, or is there a risk that they walk down too far on a tempting path of exploration to find their way to the next checkpoint in time?

Informing others about the selected route could mean discussing the course goal and content and the selected route with teachers giving courses for the same students that semester, as well as before and after. Together, you can adjust your journeys to avoid a simultaneous piling-up of workloads from multiple courses. You can also invite students to help set the deadlines and avoid workload conflicts. Knowing what the students are doing in other courses will also help you make references to or adapt your examples to the knowledge and skills they learn in other courses.

2 Adapt the planned routes according to ability and conditions

Before we can adapt the route, we must learn who our travel companions are and what needs they may have. How can we make sure that we include all students and give all of them a chance to reach their destination? Can you make the learning material more inclusive by, e.g., using shorter sentences in assignment instructions, using colorblind-friendly color schemes, being clear about required prior knowledge, or offering students to hand in voice recordings instead of written reports?

To get to know your students, ask them early on if they think the teacher should know anything about them to help them learn. Are there any students who are lacking the relevant background skills and competencies? Are there planned absences or schedule conflicts that will make it difficult to follow your idea of how the course should play out? It may feel unsafe for students to talk about their challenges early in the course or in front of a whole class. Providing multiple channels for students to respond to such questions safely and anonymously, for example, leaving a note in the teacher's mailbox, writing in an anonymous online forum, communicating through the study administration, or inviting them to come see you in your office could help them build trust or share their concerns.

3 Pay attention to the weather and the avalanche warnings

Paying attention to the weather in a classroom could mean regularly checking in with the students and asking how they are doing. Are we, for example, moving too fast, or is anything outside the course taking up the student's time and energy, like the geopolitical landscape or personal experiences? Teachers could ask and listen to the students directly to build trust (Glessmer, Persson & Forsyth, 2024) or use more anonymous feedback methods such as 1-minute papers, continue-start-stop notes, anonymous online discussion forums, talking to student representatives, or mid-term surveys like Teaching Analysis Polls (Kordts et al., 2025). From the feedback you receive, you can decide to adjust deadlines, spend more time on important topics that students struggle with, provide additional material, or allow students to choose different paths toward the next checkpoint.

4 Be prepared for bad weather and frost, even on short trips

Preparing for bad weather could mean that teachers familiarize themselves with typical misconceptions that prevent students from building new knowledge onto existing knowledge. If the teacher knows the down pits and unsheltered parts of the route, they can prepare resources and learning activities to help students in their sensemaking process or build a bridge that connects one piece of the trail with the next (Daae, Semper, Glessmer, 2024). Keeping an open line of communication with students to help them with their current struggles and letting them ask "no such thing as stupid" questions may

help them stay on track. The teacher can also avoid having a too strict schedule and let students find a shelter to stay warm and dry while a storm of conflicting workloads passes.

Being prepared for bad weather can also mean establishing the space, time, norms, and trust to have difficult conversations before the situation arises where those need to be had (Venet, 2024).

5 Bring the necessary equipment so you can help yourself and others.

Some people like carrying books to read by the campfire, while others would like to listen to podcasts while hiking. Teachers typically recommend what students should bring along for the journey, i.e., what they should master and how they can prepare. But you are never guaranteed that students understand the importance of all items and bring them along.

Sometimes, students literally forget to bring raincoats to fieldwork journeys and become wet and cold, which is not ideal for learning. Could you bring some extra clothes to help them stay dry and warm? And could you offer resources like a metaphoric raincoat and sweater to keep students warm and dry on the metaphoric journey? A targeted, easy-to-understand compendium could be helpful.

Students could also get lost in a wetland full of stinging programming bugs, losing self-confidence and motivation to continue. Could you provide a guiding star (e.g., programming resources or tips on using Large Language Models) to safely navigate the buggy wetlands and enjoy the next leg of the trip? You may also consider trying out an activity bingo as a playful approach to a hidden curriculum packing list (Glessmer et al., 2023).

6 Choose safe routes. Recognize avalanche terrain and unsafe ice

Co-creating teaching and learning for a higher education course does not mean everything has to be up for debate. Offering students the opportunity to express their opinions and take responsibility for their learning is always good and builds positive relationships (Bovill, 2020). However, the teacher is the one who knows the route, the final destination, and which trails are not necessarily wise to follow. It may be fun to raft down the river instead of walking, but the river may have dangerous rapids, and if you choose to raft, you should know where to get out and carry the raft. There are dozens of ways to adapt any given method to your context and purpose that can be explored (Glessmer, Bovill, Daae, 2024). Ultimately, the teacher is responsible for explaining and defending a chosen route to the students, the study program board, and department leadership, so it might be necessary to prescribe some parts of the route to ensure everybody's safe arrival at the destination.

7 Use a map and a compass. Always know where you are.

When you plan the course, you sketch out the map and set the route you will follow. However, the map's resolution may not be sufficient to spot all steep parts of the path in advance. We may, therefore, need to move in the general direction of our goal and figure out the details along the way. When we first wrote about co-creation (Glessmer & Daae, 2021), we described integrating co-creation as tagging on independent short trips onto whatever journey a teacher was on. Now, we are considering much longer timescales and are negotiating with all our travel companions: students, technicians, admin, and others!

You will need a compass to orient and compare the map with the true landscape. Checking in on students regularly (as described under rule 3) gives you a compass to ensure they are on track and/or can follow the pace. A less obvious way to check in is to continuously encourage working in ways that enable sensemaking, confirm students' progress, and provide formative feedback (Daae and Glessmer, 2022).

8 Don't be ashamed to turn around

Sometimes, things don't work according to plans or intentions. Don't be afraid of turning around and/or skipping some parts of the travel. Perhaps there is a safer route you can take or wait out bad weather in a shelter along the way. And sometimes plans change along the way, which is ok, too! Perhaps the students make you aware of conditions that force you on a detour to, for example, pick up necessary concepts from previous courses.

9 Conserve your energy and seek shelter if necessary

Sometimes, the route is long and windy. How can you help your students conserve energy? Could you offer them a bus ride or a bicycle for parts of the journey? Consider the total workload of the course and adjust compulsory activities and expectations of student hand-ins if necessary. Could you make video recordings of lectures to allow students to watch at their own pace when they have time? Or could you provide material students can go through independently if they miss an active learning session?

Even with the means of transportation all sorted, there are still many ways that students can choose to travel together (collaborate) to save energy. On the lecture bus, they can do think-pair-shares, and on the skiing project, they might stick closely together or meet up at the bottom of the slope to check in on each other. Bringing together students from different cohorts can also be a great idea to learn from and with each other to conserve energy and build on each other's knowledge (Daae et al., 2023; Strehl and Daae, 2025).

And sometimes, a little treat, like a good anecdote or comments to relevant news stories, before a steep uphill can motivate the students to start the climb.

10 Take chances – what if it works?

Rule 10 is not part of the official mountain code, and we will not be held responsible for anyone following this rule in a real mountain hike. This rule was made by one of the author's grandfathers, who was an adventurer and who thought any list of rules should contain 10 rules. We believe this unofficial rule number 10 works well for our co-creation journey. Sometimes, you must take chances and dare to try something new to learn new ways of making the journey engaging for both the students and yourself. During our project, we tried many new things that we were not sure would work or that we initially thought we might not be allowed to do. One example is letting students vote for the weighting of different assessment elements toward the final grade. The students could vote for the final exam, counting between 50% and 90%, with the remaining weight distributed equally between two reports. The students were positive about discussing the assessment weighting and appreciated having a say in the decision.

Looking back, looking forward

Looking back at our journey, there are various ways of assessing whether and how well we reached the goal as a group or as individual students. How much did the students learn, and how could they demonstrate their learning? And is reaching the goal the only measure that matters? Courses that base their assessment on final exams only check where or how far the students reach, not what they experienced along the way. Implementing various partial assessments, where students could, e.g., help decide the weighting of the assessment elements, could increase the student motivation for multiple pieces of their travel and encourage them to enjoy both a view towards the horizon and closely observing a little bug on a blade of grass, and shift the focus away from just checking how far they reach.

Everybody loves telling the story of their adventures. Sometimes, snowstorms get deeper over time, or mountains less steep. We tell our story to inspire you to start your co-creation adventure - but do not follow our map blindly. We might have forgotten about the bogs of skeptical peers or the maze of administration. The legal avalanches might have gone off and taken the forest of choice with them. But it is an adventure worth starting, so have a nice trip!

Takk for turen!

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Referanser

- Bovill, C., Cook-Sather, A., Felten, P., Millard, L., & Moore-Cherry, N. (2016). Addressing potential challenges in co-creating learning and teaching: Overcoming resistance, navigating institutional norms and ensuring inclusivity in student–staff partnerships. *Higher Education*, 71, 195-208.
- Bovill, C. (2020), *Co-creating Learning and Teaching: Towards Relational Pedagogy in Higher Education*. Critical Publishing, 96 pp, ISBN : 9781913063818
- Daae, K., Steen-Larsen, H.C., and Glessmer, M. S. (2025). Students taking ownership in a jigsaw approach to fieldwork. In press for the book: *Teaching Fieldwork in Geography, Earth and Environmental Sciences*, by editors D. France, L. Batty and D. Swanton, Edward Elgar Publishing}
- Daae, K., Semper, S., and Glessmer, M.S. (2024). Supporting sensemaking by introducing a connecting thread throughout a course. *Oceanography* 37(4), <https://doi.org/10.5670/oceanog.2024.604>
- Daae, K., Årvik, A.D., Darelus, E., and Glessmer, M.S. (2023). Student guides: supporting learning from laboratory experiments through across-course collaboration. *Nordic Journal of STEM Education*, 7(1): 98-105. <https://doi.org/10.5324/njsteme.v7i1.5093>
- Daae, K., and Glessmer, M.S. (2022). Collaborative sketching to support sensemaking: If you can sketch it, you can explain it. *Oceanography*, 35(2), <https://doi.org/10.5670/oceanog.2022.208>.
- Glessmer, M. S., Persson, P., & Forsyth, R. (2024). Engineering students trust teachers who ask, listen, and respond. *International Journal for Academic Development*, 1–14. doi.org/10.1080/1360144X.2024.2438224
- Glessmer, M.S., Bovill, C., and Daae, K. (2024). Adapting a teaching method to fit purpose and context. *Oceanography*, <https://doi.org/10.5670/oceanog.2024.603>.
- Glessmer, M.S., Latuta, L., Saltalamacchia, F. and Daae, K. (2023). Activity bingo: Nudging students to make the most out of fieldwork. *Oceanography*, <https://doi.org/10.5670/oceanog.2023.217>.
- Glessmer, M.S., and Daae, K. (2021). Co-creating learning in oceanography. *Oceanography* 34(4), <https://doi.org/10.5670/oceanog.2021.405>.
- Kordts, R., de Vareilles, M., Daae, K., Gandrud, E., Årvik, A. D., and Glessmer, M. S. (2025). Teaching Analysis Poll (TAP) for Student Feedback. *Oceanography* (in print)
- Røde Kors, The Norwegian Mountain Code (2016), https://www.rodekors.no/globalassets/_vart-arbeid/beredskap/fjellvett/fjellvettreglene_engelsk.pdf (accessed 15.2.2025)
- Strehl, A.M., and Daae, K., (2025), Co-creating course projects in introductory Meteorology and Oceanography – enhancing/building motivation through group supervision and collaboration with former students, Proceeding submitted to the MNT conference 2025
- Venet, A. S. (2024). *Becoming an Everyday Changemaker: Healing and Justice at School*. Taylor & Francis.