UNIVERSITY
OF OSLO

Center for Interdisciplinary Education – INTED

Annual Report 2023



Summary

There is an urgent need for interdisciplinary competence in higher education. The grand challenges facing humanity are complex and cannot be solved by a single discipline alone. Innovation in research and technology require coordinated efforts that combine methods from different disciplines. And employers need well-functioning teams that combine mindsets from different disciplines. The center for interdisciplinary education, INTED, addresses these needs by helping students, teachers, leaders, and stakeholders develop interdisciplinary competence to participate in, facilitate and lead interdisciplinary processes. Our goal is to become an international hub for the research-based integration of interdisciplinary competence in education. We will do this by developing approaches and pedagogies and establish a research basis for them, develop a culture for interdisciplinary teaching and learning and disseminate the results.

Establishing the team: In order to build a broader culture for teaching and learning, we need to establish our own internal culture. The first year of the center was focused on building and consolidating the large team supporting the activity of the center. We hired a center coordinator, Victoria Haynes, and established preliminary offices on the premises of the Center for Computing in Science Education. Weekly leadership meetings and longer workshops have been used to build a common understanding of fundamental concepts such as interdisciplinary competence and related knowledge and skills. It has been important for INTED to ensure that the perspectives of all involved Faculties are represented in the leadership, and we will also in 2024 continue to extend the team, with a particular focus on ensuring that the humanities are well integrated.

Building an institutional culture: A major objective for INTED is to impact how interdisciplinary education is organized, supported and incentivized in higher education in general and at the University of Oslo in particular. This requires building a common culture that spans students, teachers, administration and leaders. In 2023, we have initiated several of the support programs of the center. INTED has also started to build relations and contact with the administrative support structure at the university and to the center of teaching and learning at each of the faculties. We have invited key personnel to the leadership group and initiated support programs towards various groups. Our goal is to develop INTED into a hub for interdisciplinary teaching and learning at our new facilities that are expected to be finished in 2024.

Educational development: INTED is supporting educational development with focus on interdisciplinary programs, courses and sessions. In 2023, we have initiated the interdisciplinary facilitator program, which is a learning assistant (LA) program directed towards LAs in interdisciplinary courses. In this program, LAs are provided pedagogical support and instruction adapted to their particular teaching situation. The program has in 2023 focused on supporting new courses in the sustainability certificate. INTED personnel has also worked on developing new teaching approaches in interdisciplinary courses, such as in HON3000, where a new debate based methods was introduced in 2023. INTED has also developed and supported two interdisciplinary sessions, one focusing on dark patterns and one focusing on a sustainable fashion industry.

Developing a research approach: The goal of INTED is to develop a research basis for the approaches and pedagogies developing at the center. However, what constitutes a research basis may be different within various disciplines. It is therefore important for INTED to develop several education research approaches that are recognized as appropriate methods within the three main disciplines involved in the center: the humanities, social science and natural sciences. We have initiated several research initiatives in 2023 to start this process. First, we have applied for and received approval for a research project at Sikt, ensuring our eligibility to collect and analyze education research data. Second, we have established basic research protocols for both longitudinal and pre- and post- research studies. Third, we have hired temporary researchers and initiated interviews with students and teachers to start collecting relevant research data. Fourth, we have initiated a project to use the text embedding methods from large language models to characterize texts, paving the way for studying student, curricular, institutional and research texts on interdisciplinarity.

Introducing student projects: INTED aims to include students in developing both educational practices and research. In 2023, we started by hiring summer students to perform literature reviews and surveys of interdisciplinary courses at UiO. This resulted in three excellent reports and student presentations at our launch seminar, which was very well received. This inspired INTED to launch a report series of student reports that will be published by the center. The student leaders were key in announcing, selecting and supporting the summer research teams and played a key factor in the excellent results achieved by the teams. Similar summer projects will be continued in the coming years.

Student leaders: Three student leaders are closely integrated in the center leadership – one from each of the involved faculties. The student leaders have participated in all retreats and leadership meetings and have taken leadership in defining, announcing, selecting and supporting student summer projects. In addition, student leaders have taken a key role in recruiting students to participate in activities and in developing the interdisciplinary workshops provided by the center. From 2024, INTED will start to work on efficient succession plans to ensure that we have effective selection and onboarding processes for new student leaders.

Building international relations: The push towards interdisciplinary education is international and we were encouraged during the application process for the center to build stronger international partnerships. We have therefore initiated several international collaborations in 2023, in particular with possible collaborators in the Netherlands, where they have over twenty years of experience with interdisciplinary honours programs. In 2024, we will continue to strengthen international relations between educators, researchers and students.

Impact of changed timeframe for the center: INTED will only be financed for a five-year period with no possibility for extension for another five years. This has impact on our plans and activities because the original plans were made to have a ten-year impact. In order to accelerate the activities and improve the impact of the center with this timeline, we plan to shift resources from longtime support for educational developed and instead focus more on hiring personnel to help with rapidly developing and supporting activities at the University of Oslo. This does not change any of the longterm goals of the center.

New facilities: We are looking forward to moving into new facilities in 2024. INTED's office will not only accommodate the center's employees but also offer a dedicated area for honours students to both collaborate in groups and work independently. Establishing such a space allows students to form stronger bonds, which we believe will promote effective communication, build trust, and allow the students to develop a shared language, leading to more successful interdisciplinary collaboration in the honours program.

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About the Center



Mission and goals

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Highlights 2023

Mission and goals

Vision

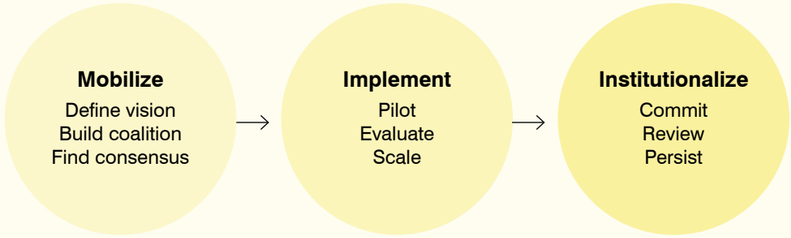
INTED will become an international hub for research-based integration of inter-disciplinary competence in education.

Goal

INTED aims to support and inspire students, teachers, administration, leadership, and stakeholders to develop inter-disciplinary competence and to participate in, facilitate, and lead interdisciplinary processes.

Subgoals

- Develop programs, methods, pedagogies and approaches for interdisciplinary education
- Establish a community and culture for interdisciplinary teaching and learning
- Disseminate methods and approaches to interdisciplinary education locally, nationally and internationally
- Build a research basis for interdisciplinary teaching and learning and measure the impact of our activities



Institutional change

The center will use honors programs, courses and sessions as laboratories to develop, pilot, evaluate and scale new learning approaches and pathways to bring teachers and students into a culture for interdisciplinary teaching and learning. Interdisciplinary teaching and learning cuts across traditional disciplines and requires institutional change. Our strategy for change consists of three stages: mobilization, implementation and institutionalization.

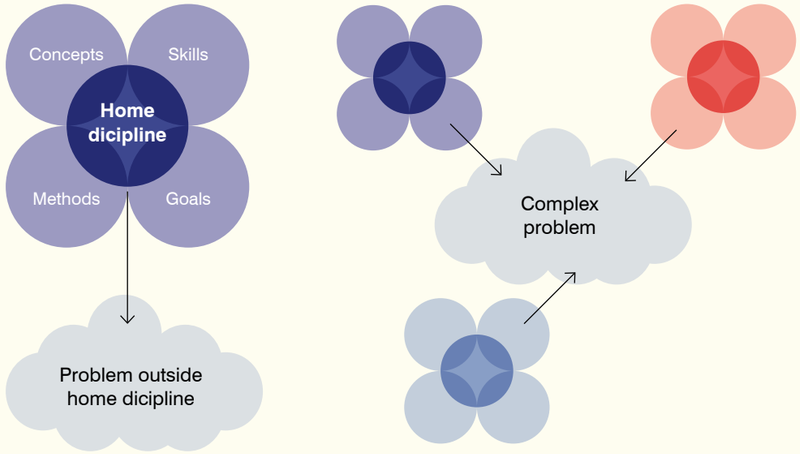
During *mobilization* we have built coalitions, a common vision, and mobilized stakeholders, leadership, administration, teachers and students. We have initiated this process by building a coalition and common vision across three Faculties, education researchers, stakeholders and students. In this way, we can better reach and motivate teachers to become active in educational development processes.

During *implementation* we will follow a pilot-evaluate-scale model. We will gradually increase the reach of programs, courses and sessions, so that more and more teachers and students will collaborate and in this way be introduced to evidence-based principles of teaching and learning and trained as facilitators.

The long-term goal is *institutionalization*, where interdisciplinary teaching and learning is a part of the value systems, culture and norms of the institutions. Pushback is expected at all stages, and will be addressed by alignment with leadership and through incentive structures.

Perspectives on interdisciplinary education

Interdisciplinary competence is a key to employability, innovation, research breakthroughs and societal grand challenges. This requires students and researchers to be proficient in interdisciplinary skills to succeed. However, most educational programs in higher education are primarily disciplinary and driven by disciplinary curriculums and practices. How can we design study programs, courses and learning approaches that provide students with the disciplinary depth to excel in a discipline as well as the skills, experience and knowledge that prepare them for an interdisciplinary workplace? This is a fundamental and timely challenge in higher education that INTED was created to resolve.



We define interdisciplinary competence as *"the capacity to integrate knowledge and modes of thinking in two or more disciplines .. to produce a cognitive advancement .. that would have been impossible .. through single disciplinary means"*[1]. It is the aspect of integration that separates a multi-disciplinary approach, where a problem is addressed by several disciplines in parallel, from an interdisciplinary approach, where disciplinary knowledge is integrated into a common understanding.

Integration is the central aspect of an inter-disciplinary process, which is where interdisciplinary competence is applied to *"answer a question, solve a problem, or address a topic by drawing on several disciplinary perspectives and integrating their insights into a more comprehensive perspective"*[2]. After finishing their education, many students will participate in interdisciplinary processes in for example research, innovation or transformation projects. Students should therefore learn not only to participate in interdisciplinary processes, but also to facilitate them. We will focus on two types of interdisciplinary processes: (i) processes where students apply the concepts, methods, approaches and skills of their home discipline to problems outside of those traditionally in their discipline, (ii) processes where an individual or a group brings together concepts, methods, etc. from their home discipline and other disciplines to form a solution, or (iii) processes in which a group of individuals from different home disciplines collaborate on joint projects, which require them to blend together their concepts, methods, etc. to create a solution.

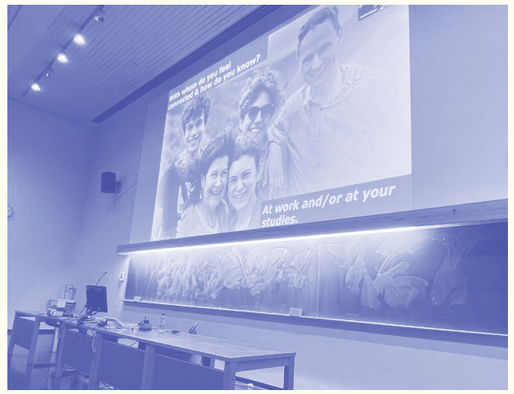
Learning outcomes:

Our goal is for students to develop interdisciplinary competence and to have experience from and the ability to facilitate and lead interdisciplinary processes.

1 Boix Mansilla, Miller & Gardner. On Disciplinary Lenses and Interdisciplinary Work. In *Interdisciplinary curriculum: Challenges of implementation*.; Wineburg, S., Grossman, P., Eds.; New York: Teachers College Press (2000).

2 Klein & Newell, Advancing Interdisciplinary Studies. *Handbook of the undergraduate curriculum: A comprehensive guide to purposes, structures, practices, and change* 393–415 (1997); Lattuca, Knight & Bergom, Developing a Measure of Interdisciplinary Competence for Engineers. *International Journal of Engineering Education* 29 (3), 726–739 (2013).

Highlights 2023





Launching the center

INTED was formally launched with a conference on September 12 with several invited talks. The conference was opened by vice rector of education, Bjørn Stensaker. The keynote speaker was professor Marca Wolfensberger, the leader of the European Honours Council and initiator of the first interdisciplinary honours programs at Utrecht University. She addressed the fundamental challenges with interdisciplinary educations. The center leader presented the center plan and student leaders presented summer research projects and interdisciplinary.

Interdisciplinary facilitator program initiated

One of INTED's goals is to introduce the interdisciplinary facilitator program to support institutional change. The program is first directed towards learning assistants (LAs) who support interdisciplinary learning in smaller groups. Through the program, the LA are included in a weekly pedagogical program where they are introduced to perspectives on and pedagogies for interdisciplinary teaching and are encouraged to integrate and test this in their own teaching practices. The program was initiated in fall 2023 for LAs teaching in the sustainability certificate program.





Shift to five-year program leads to modifications to plans and priorities

The political decision to close down the Center of Excellence program after the current round of financing will impact INTED's plans and priorities significantly. INTED has therefore started a process to modify its plans in order to optimize the impact of its activities in the shortened time frame. This work will continue in 2024 and lead to a redesigned action plan. Already in 2024, INTED plans to implement necessary changes to its priorities by reducing the amount of resources used to build long-term support structures and increase the resources used for immediate action such as hiring of more support and research staff to accelerate the implementation of the interdisciplinary facilitator program.

INTED report series launched

Three groups of summer students finished the first three reports in INTED's new report series. The first three reports addressed (i) a review of education research in support of interdisciplinary teaching methods, (ii) a review of methods for interdisciplinary case studies, and (iii) a survey of interdisciplinary teaching in courses at the University of Oslo.

Activities 2023



Plans and Priorities

WP1: Approaches and pedagogies for interdisciplinary education

WP2: Build a culture for interdisciplinary teaching and learning

WP3: Dissemination of knowledge and practices

WP4: Evaluation and impact framework – building a research basis

Plans and Priorities

The main activities of the center from 2023 and onwards follow the action plan for 2023–2027 with four main work packages.

Work package 1:

Educational development (2023–2027)

Interdisciplinary competence integrated across scales: We will develop new interdisciplinary study programs, new honor certificate programs, and extend the computational science program. We will adapt, support and develop interdisciplinary courses and course components that can be integrated in across study programs or courses.

Evidence-based approaches: INTED's development activities will include both general principles of teaching, learning and program design as well as principles for interdisciplinary learning. Development and teaching supported by the center will be based on evidence-based approaches that focus on student learning.

Principles for interdisciplinary integration: Our activities will be designed to support interdisciplinary competence through the integration of disciplinary knowledge. Interdisciplinary integration will be supported by (i) letting students establish their own interdisciplinary purpose, (ii) helping them to draw on disciplinary insights, (iii) facilitating interdisciplinary synthesis and (iv) facilitating reflection. These principles will be integrated in educational designs, courses and facilitator training programs.

Supporting interdisciplinary integration: We will develop, pilot and evaluate several approaches to help students learn to integrate insights across disciplines through case-based and project-based learning in interdisciplinary groups. We will ensure scaffolding to demonstrate or structure the process so that students are able to build skills gradually and effectively draw on each other's disciplinary skills and insights in collaborations.

Learning material: We will support development of cases that illustrate principles and practices of interdisciplinary teaching and publish these cases along with reflections on our website. This will provide a basis for exploration and exchange of ideas

Work package 2:

Build a culture for interdisciplinary teaching and learning (2023–2027)

Workshop program: We will stimulate and inform through workshops, summer institutes and pedagogical courses and continuously develop an online, stepwise guide for implementation.

Transformation teams: Each year, teachers and students can apply for funding for an interdisciplinary transformation team, to develop learning material and cases.

The interdisciplinary facilitator program: Students are widely used as learning assistants (LA) in courses, sessions and projects. All LAs who teach in interdisciplinary courses will be enrolled in a facilitator program to certify them as interdisciplinary facilitators. The program will be inspired by the LA program and will introduce both general and interdisciplinary pedagogical principles. Students will also be trained to host interdisciplinary sessions by first participating, then participating as a co-facilitator while being mentored and following the facilitator program, before becoming responsible for organizing sessions themselves – under supervision. This will make sessions scalable, train students to lead interdisciplinary processes, and initiate a leadership track for facilitators.

Action	Description	2023 i	2023 ii	2024 i	2024 ii	2025 i	2025 ii	2026 i	2026 ii	2027 i	2027 ii
WP0: Management (AMS)		2023		2024		2025		2026		2027	
0.0	Setup center, hire PhD, PDs, Prof II		M								
0.1	Annual progress reports	D		D		D		D		D	
WP1: Approches and pedagogies (ØL)		2023		2024		2025		2026		2027	
1.1	Honors master program & courses		A				M				
1.2	Honors Cert. Prog. 1: Life Science		A				M				
1.3	New HCP, CS HCP, CS extension						M		M		M
1.4	Co-creation in 2 courses						M		M		
1.5	Develop 2 courses & 2 components						M		M	M	M
1.6	Develop 4 sessions				M		M		M		M
1.7	Pilot for teacher students, evaluate										M
WP2: Culture for teaching and learning (AR)		2023		2024		2025		2026		2027	
2.1	INTED seminars, retreats, conferences	M	M	M	M	M	M	M	M	M	M
2.2	CTLs' biannual teaching workshops		M		M	M	M	M	M	M	M
2.3	Course transformation teams		M		M		M		M		M
2.4	Facilitator program		M		M		M		M		M
2.5	Student research experiences		M		M		M		M		M
2.6	Fellows program				M		M		M		M
2.7	Guide for teachers		M		D						

Action	Description	2023 i	2023 ii	2024 i	2024 ii	2025 i	2025 ii	2026 i	2026 ii	2027 i	2027 ii
WP4: Evaluation and Ed. Research (MS)		2023		2024		2025		2026		2027	
4.1	Hire Profs, PD, PhD1,2,3	1	PD	2		3					
4.2	Research group meetings		M		M		M		M		M
4.3	Postdoc: collaborations										
4.4	PhD1: assessment						M		M		
4.5	PhD2: agency										M
4.6	PhD3: longitudinal study								M		
WP3: Dissemination (EI)		2023		2024		2025		2026		2027	
3.1	Pedagogical course						M				
3.2	Summer institutes				M		M		M		M
3.3	Establish EU/Erasmus+ project							A		M	
3.4	Student conferences		M				M				M
3.5	National HCP collaboration									M	
3.6	Circle-U honours program								A		M
3.7	Publish results: web, book, outreach		M		M		M		M		M
3.8	Artist collaboration						M			M	

M = Milestone; D = Deliverable; A = Apply; Color intensity indicates stages
AMS = A. Malthe-Sørenssen, ØL = Ø. Linnebo, AR = A. Røyne, EI = E. Idsøe, MS = M. Sutphen

Work package 3:

Dissemination of knowledge and practices (2023–2027)

Dissemination through partnership: Dissemination should be an active process, similar to active learning, that includes students, teachers and institutions as partners, open for local adaptations and iterations, and iterates over time. The pilot-evaluate-scale approach is built for effective dissemination through evidence and partnership. Our goal is to gradually spread practices by building community and culture supported by education research projects.

Local dissemination: Practices will be disseminated when integrated in new programs. The approaches developed are well suited to integrate aspects of innovation, computational competencies or sustainability across study programs at UiO.

International collaborations: We will expand international projects to form an international community for interdisciplinary and honors education. INTED students are encouraged to build an European Student Honours Organization, organize a student conferences to create a European student community.

Communication: Center activities, including seminar series, will be publicized on the center's webpage. Examples of learning materials from courses and sessions will be published on the website and collected in a book of examples, practices and reflections. Research results and educational innovations will be published in peer-reviewed research journals, presented at national and international conferences, and popularized through outreach activities.

Work package 4:

Building a research basis (2023–2027)

INTED's goal is to establish a research-based approach to interdisciplinary education by establishing a leading education research activity.

Qualitative studies: The development of interdisciplinary and collaborative competencies will be studied in interviews with students, teachers and leadership. We will assess the impact of specific interventions, such as interdisciplinary sessions, courses or programs, on collaborative competencies. We will organize a longitudinal study on effect of the educational preparation of those who graduate from at least one honors program.

Quantitative studies: We will develop text analysis tools based on text embeddings from large language models by first developing the fundamental tools. We will then apply the tools to understand and map out how students learn and integrate interdisciplinary competence, how inter-disciplinary approaches are used in industry and academic and how we can use these tools to understand and review large bodies of research including research on interdisciplinary teaching and learning. This activity will be in collaboration with the Center for Computing in Science Education and form a common foundation in AI-based education research.

Education research: The center offers rich opportunities for research on interdisciplinary education. We will address: (i) The development of collaborative competencies in students, teachers and leaders in general and as a result of specific interventions such as participation in courses, sessions, the facilitator program, or the Fellows program; (iii) How students' preparation in UiO interdisciplinary courses and programs prepare them for work through a longitudinal study. Our concept opens for comparative studies between students who follow the same program, but where only some follow a particular interdisciplinary activity or where they follow the same activity at different times, which opens for innovative research designs.

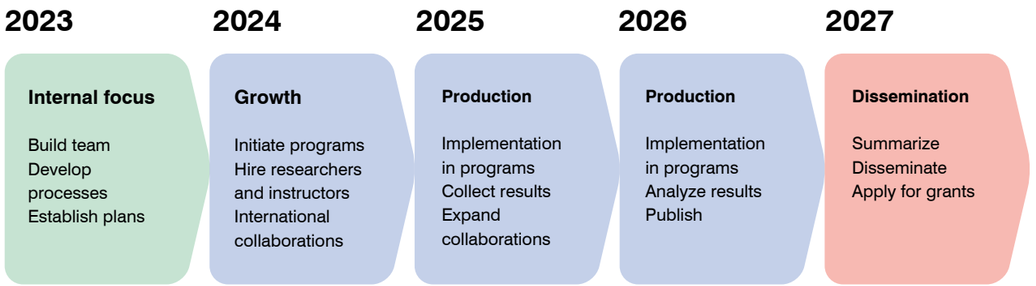


Fig. 1: Outline of priorities in a shortened timeframe of a five-year-program.

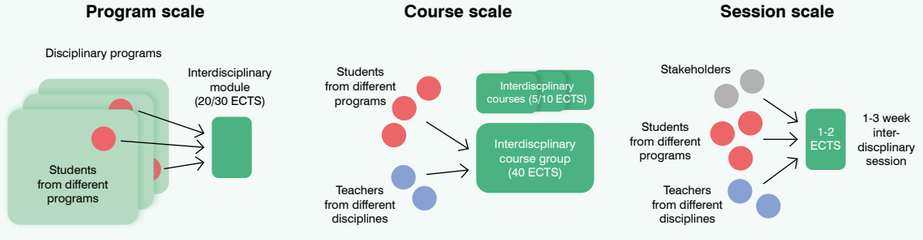
WP1

Approaches and pedagogies for interdisciplinary education

Leader: Anders Malthe-Sørenssen

Goals (2023–2027)

Support development on three scales – programs, courses and sessions – where teachers and students from different disciplines come together. Hereunder: (1) develop interdisciplinary study programs such as a new flagship honors master program focusing on interdisciplinary facilitation and leadership, new honor certificate programs, and extend the computational science program; (2) adapt, support and develop interdisciplinary courses and course components in e.g. innovation, sustainability, computing and data science, energy, and climate; (3) develop interdisciplinary sessions and shorter projects that can be integrated in many different study programs or courses such as innovation sessions, interdisciplinary writing sessions, or interdisciplinary computational essay projects; (4) piloted on small student populations, evaluate the effects and scale to larger programs.



Interdisciplinary basis: Students from different programs take the same courses (preprogrammed)

Interdisciplinary basis: Students from different programs take the same courses (elective)

Interdisciplinary basis: Students from different programs take the same session (elective)

WP1

Activities in 2023

INTED interdisciplinary workshops

The interdisciplinary workshop provides students with the opportunity to collaborate in interdisciplinary teams, develop interdisciplinary skills, and address current issues from an interdisciplinary perspective. Students get to work with socalled wicked problems, referring to intricate problems characterized by high complexity and the presence of numerous interdependent factors, making it highly difficult or impossible to solve the challenges. The workshop spans several days, allowing students to develop interdisciplinary skills as well as gain knowledge and experience interdisciplinary teamwork. Each team is supposed to be assisted by an interdisciplinary facilitator who supports the students in their work. Two workshops were organized in 2023 (see boxes).

Curriculum development and case library

INTED has established a case library that will become a knowledge bank and resource for teachers when designing interdisciplinary sessions. The case library will be continuously developed as teachers and students produce cases that they experience as engaging and relevant. The cases will be supported by reflections on their use and effect as well as insights from interviews, surveys and insight from associated education research projects.

Complementatary models of interdisciplinarity

INTED is working with several programs with differing models of interdisciplinarity. In the honours bachelor program, students are pursuing a full, disciplinary bachelor degree with a 30 ECTS set of honours program on top. This provides students with disciplinary depth and the possibility to pursue a disciplinary master program. Interdisciplinarity occurs in meetings between students with different disciplinary backgrounds. Focus is therefore on integration in meetings between disciplines. In the Politics, Philosophy and Economics program (PPE), students pursue a multidisciplinary bachelor, where integration occurs primarily as students themselves integrates the perspectives from various disciplines. In the Computational Science master program, student bring computational perspectives into a disciplinary context, changing the scientific research questions that can be asked and renewing the disciplines from within. These approaches all have aspects of integration at heart, but how the interdisciplinarity is realized is differing between programs. INTED will support all programs and adapt support methods and structures to provide all these programs with relevant methods and relevant education research to establish an evidence-based practice.

WP1

Plans and priorities for 2024

- Support development of new honors certificate programs in “Life science and innovation” starting spring 2024.
- Support development of certificates in sustainability (started in 2023), innovation (starting in 2024) and digital skills (starting in 2025)
- Support development of two interdisciplinary workshops organized by INTED and three workshops on innovations organized by collaborators at Co-Create.
- Engage students in testing and validation of workshops

Action plan

Action	Description	2023 i	2023 ii	2024 i	2024 ii	2025 i	2025 ii	2026 i	2026 ii	2027 i	2027 ii
WP1: Approches and pedagogies (ØL)		2023		2024		2025		2026		2027	
1.1	Honors master program & courses		A				M				
1.2	Honors Cert. Prog. 1: Life Science		A				M				
1.3	New HCP, CS HCP, CS extension						M		M		M
1.4	Co-creation in 2 courses						M		M		
1.5	Develop 2 courses & 2 components						M		M	M	M
1.6	Develop 4 sessions				M		M		M		M
1.7	Pilot for teacher students, evaluate										M

Progress in 2023

- A1.1: The honors master program is not yet initiated.
- A1.2: Honors certificate program in Life science started and will be supported from 2024.
- A1.3: Two new sessions have been developed based on two different approaches to innovation: one case on sustainable industries and one case about innovation in the ethical practices of industries.

WP1

Introducing debate as a format for interdisciplinary learning



In the course HON3000, the honors bachelor students work on a stakeholder project under supervision. To prepare students for this, they are introduced to aspects of interdisciplinary collaborations as seen from individual, group, organizational and political viewpoints. This ensures that students also are provided perspectives from the social sciences for their interdisciplinary toolbox.

HON3000 is a third-year subject of the honors program at UiO which is co-taught by associate professors Cato Bjørkli and Nikolai Czaijkowski. The fall semester of HON3000 consists of six lectures and six seminars. In the seminars, students are grouped into different teams and asked to debate different topics as proposed by the UiO Honors Debate format. The UiO Honors Debate is an interactive and competitive debate that stimulates participants to delve into and thoughtfully discuss complex issues. By creating a dynamic and invigorating environment, the debate promotes critical thinking and interdisciplinary learning for both debaters and audience members. The debate format is inspired by the Oxford Debate style and promotes effective communication and the construction of well-rounded arguments.

The UiO Honors Debate format involves two opposing teams, one in favor and one against the motion, engaging in a timed and structured debate to convince the audience of their stance. The debate commences with each team presenting their case, followed by a period of rebuttal where teams can address and refute the opposing side’s arguments. Subsequently, the audience is given the opportunity to pose questions and challenge the debaters. The debate culminates with closing rebuttals from each team, summarizing their main points and addressing any remaining concerns. The audience’s opinions are measured before and after the debate to assess which team has been most persuasive.

Debating allows students to take on an active role in the classroom and promotes participation among all students. It challenges students to engage with and defend their assigned viewpoint, even though they may not personally endorse it. Debate further fosters collaboration skills and stimulates students to think openmindedly and approach topics from different angles.

WP2

Build a culture for interdisciplinary teaching and learning

Leader: Anja Røyne

Goals (2023–2027)

WP2 and WP3 act in concert to build activities and structures to bring more teachers and students into the activities in WP1 and to support them in building a culture for teaching and learning. In this WP we will (1) motivate and guide teachers to interdisciplinary development through workshops, biannual teacher workshops, summer institutes and pedagogical courses; (2) provide teachers with student transformation teams; and (3) develop and run the interdisciplinary facilitator program.

WP2

Activities in 2023

Individual training

When developing pedagogical training programs INTED believe it is important to understand the teachers or facilitators needs and focus on building on experiences, often in real time. By reflecting on experiences, the program becomes interactive and makes the participants a part of a learning community. In the fall of 2023, the first of INTEDs individual training activity started, Interdisciplinary facilitator program, that was directed to students working as LAs in interdisciplinary initiatives.

Through the IFP, we observed how facilitators became more aware of the strengths and skills they possessed, as well as ways of adjusting their practices. Furthermore, by facilitating a common space for the participants, IFP initiates a deeper dialogue between the facilitators. The participants may share experiences and learn from each other and thus reflect on their own practices, experiences, and viewpoints. This allows LAs to enhance both their own and students' performance. In 2024 the IFP will broaden to include LAs who are involved in facilitating INTED's interdisciplinary workshops and LAs from other interdisciplinary initiatives.

Interdisciplinary facilitator program

The interdisciplinary facilitator program (IFP) provides pedagogical tools and methods for learning assistants (LAs) of interdisciplinary student groups. The IFP support facilitators in developing essential skills to create conditions for a supportive and encouraging social learning environment where teachers and students share and co-create knowledge, solutions, and ideas. These skills include organizational, technical, and interpersonal competences.

The first group of students to participate in the interdisciplinary facilitator program was LAs at a course in the sustainability certificate program. One important learning outcome of the course is to provide students with knowledge and experience in collaboration across different disciplines. The LA's task was to facilitate the group activities and support the groups in collaboration. The IFP program offers LAs the opportunity to learn methods on how to facilitate interdisciplinary processes, become familiar with common challenges in interdisciplinary collaborations, and gain knowledge on how to establish a learning environment that supports interdisciplinary collaboration.

Establishing collaborations for interdisciplinarity across UiO

There are several pedagogical support structures for faculty training and support at UiO. INTED is interacting with both the Center for teaching and learning at UiO (LINK) and disciplinary centers for teaching and learning in the disciplines (CTLs) that have been established by the disciplinary Faculties during the past five years. One of INTED's goals is to strengthen and support the CTLs at the three collaborating Faculties. INTED is integrated in a collaborative pedagogical coordinating network hosted by LINK, which serves as an effective means for dissemination of practices across the institution. In 2023, the main focus for this network was AI in education.

WP2

Activities in 2023

Supporting interdisciplinary initiatives

As a part of establishing INTED's network and gaining knowledge on interdisciplinarity at UiO INTED collaborate with several interdisciplinary initiatives, investigating and learning different ways of practicing interdisciplinarity. Two of the initiatives, the Honours bachelor program and Philosophy, Politics & Economics program, present different models of interdisciplinarity. The former understanding interdisciplinarity as disciplines represented by individuals meeting and collaborating in groups, the latter as individuals integrating several disciplines within their own knowledge base. INTED supports both of the initiatives, helping them make the integration more explicit in the learning process, within the learning outcomes/goals and a clear part of the activities.

Establishing a network for administrators

Interdisciplinary education also requires competence in administration and system understanding. A common hurdle for success in interdisciplinary education is to build down the internal barriers toward interdisciplinarity and this requires a coordinated effort from leadership, faculty, administration and students. There is substantial experience from interdisciplinary initiates in the study administration. INTED has therefore established a network for administrators to exchange experiences, knowledge and solutions to difficult challenges that they experience when working with interdisciplinary initiatives in a disciplinary system. The network is open to all administrators involved in interdisciplinary education at UiO and addresses the administrator's needs.

Establishing a student network

INTED through its student leaders have an ambition to build a student network to help student voices and perspectives be heard when forming new initiatives and study programs. The student leaders have taken the first steps to build such a program in 2023.

WP2

Plans and priorities for 2024

- Initiate a seminar series to share experiences from interdisciplinary teachers and inspire interdisciplinary practices by inviting external speakers with experience and evidence from educational innovations.
- Support course transformation teams to teachers who are in the process of transforming their courses. Particular focus will be given to new honors certificate programs, the sustainability certificate program, the innovation certificate program, and the digital skills certificate program.
- Develop and expand the interdisciplinary facilitator program.
- Initiate a guide for teachers and a collection of case examples on the INTED website.

Action plan

Action	Description	i	ii	i	ii	i	ii	i	ii	i	ii
WP2: Culture for teaching and learning (AR)		2023		2024		2025		2026		2027	
2.1	INTED seminars, retreats, conferences	M	M	M	M	M	M	M	M	M	M
2.2	CTLs' biannual teaching workshops		M		M	M	M	M	M	M	M
2.3	Course transformation teams		M		M		M		M		M
2.4	Facilitator program		M		M		M		M		M
2.5	Student research experiences		M		M		M		M		M
2.6	Fellows program				M		M		M		M
2.7	Guide for teachers		M		D						

WP2

Interdisciplinary workshop – test case



In fall 2023, INTED organized its first interdisciplinary workshop. The workshops present an opportunity for students to work together with students from other disciplines and collaboratively find solutions to contemporary issues. This year's workshop focused on how we can make the textile and clothing industry more environmentally friendly and fair. A range of experts on the subject were invited to present their knowledge and to explore the topic from multiple perspectives. The students got a basic understanding of a circular industry model and learned about the challenges associated with transitioning from a linear to a circular economy. They also got to further develop their experience with interdisciplinary teamwork and cooperation.

The course was planned and arranged by Anja Røyne, Nina Simon, and Line Horgen Thorstad. There were 5 participants, 4 students from the honours program, all from the Faculty of Social Sciences. 2 in their first year, 2 in their second year. The last participant just completed a master's degree in psychology.

The invited external experts were Veronique Pouillard, professor of history at UiO, who talked about the history of the fashion industry, as well as Anna Schytte Sigaard from SIFO, who talked about her research in the use and re-use of clothes in a sustainability perspective.

The students worked collaboratively with activities that included system analysis of impact of interventions and a mock debate where students acted out different stakeholders' positions in the face of sustainability issues in the clothes industry. The workshop utilized tools from design thinking, which includes and emphasize on the explorative phase, and holding students back from immediately jumping to solutions on the complex problem. This entailed that a lot of time was spent on introducing and exploring systems analysis as a tool for understanding complex problems and interactions.

To foster interdisciplinary cooperation the workshop also spent some time on icebreakers such as banagrams, and discussing concepts and integrative framing devices needed for interdisciplinary cooperation. Participants were introduced to estimation theory to provide students with methods for making better estimates in uncertain situations.

The workshop served as a good pilot for testing methods and approaches and demonstrated the value of using systems analysis as an integrative framing device in interdisciplinary work. Students also valued the meta-perspective that was provided on interdisciplinary work through lecture and writing of reflection notes. Further, the workshop tested INTED's ladder-based approach to student involvement, where a student first is a participant in a workshop, then joins as a co- facilitator of a workshop, and in the end have an overall responsibility for the workshop. Our hope is that this makes the workshops scalable and enables us to tap into students interests as resources not only for their own learning but also for the centers gain.

WP2

Workshop on Dark Patterns

INTED organized a workshop on dark patterns in collaborations with "Young Entrepreneurship Oslo". The students were tasked with finding an ethical solution to combat the extensive use of "Dark patterns online". The workshop was anchored by The Consumer Authority as a stakeholder as they had recently published a rapport on the matter. The rapport highlighted the need for common ground to keep companies from pushing each other in a "race to the bottom". The students worked in interdisciplinary teams to make an ethical framework and certificate to answer the demand

Young Entrepreneurship Oslo facilitated the workshop together with student leaders Jakob Sønstebø and Line Horgen Thorstad. This entailed that the workshop utilized methods originating from design thinking. This included developing personas, gathering information about the "market", retrieving information from proposed "consumers" and pinpointing the "job" the product should do. It was interesting to utilize these tools in a workshop that were not centered around innovation, but rather developing a more abstract product.

WP3

WP3: Dissemination of knowledge and practices

Leader: Ella Maria Comsovici Idsøe

Goals (2023–2027)

Develop a dissemination partnership strategy that treats dissemination as an active process similar to active learning, that includes students, teachers and institutions as partners, open for local adaptations and iterations, and iterates over time. (1) Locally, practices will be disseminated by integration into study programs and certificates; (2) Nationally, we will organize summer institutes and connect with CTLs at other national universities; (3) Internationally, we will establish close collaborations with honours programs and centers for interdisciplinary education, students will initiate an European Honors Student association and workshops to create an international student community for interdisciplinary studies, and we will initiate joint interdisciplinary programs across institutions; (4) center activities, learning material and student reports will be published on the website, research results will be published in peer-reviewed research journals, presented at national and international conferences, and popularized through outreach activities.

WP3

Activities in 2023

INTED communication

INTED has established an initial website and started a student research report series. The web-site will be updated with activities, learning materials and case study examples. We have developed several communication actions, such as establishing internal communication platforms. We have also published an article describing INTED's main objectives in the European Honours Council Journal in order to inform and facilitate future cooperation with international partners.

International collaborations

INTED has initiated several international collaborations in 2023. INTED has initiated several international collaborations in 2023. A main objective in our project is to design and pilot different interdisciplinary methodologies and therefore we have established cooperation with Prof Dr Anne-Mieke Vandamme from KU Leuven, Belgium, who shares a similar interest in her practice and research.

We have also connected with the Dutch interdisciplinary community. For example, we have initiated contact with the Institute of Interdisciplinary Studies (IIS) at the University of Amsterdam, which has over twenty years of experience with teaching and learning in interdisciplinary education, and we have established contact with prof. dr. Iris van der Tuin who is the Dean of Interdisciplinary Education at Utrecht University. INTED has an established collaboration with Professor Marca Wolfensberger who is currently establishing a transdisciplinary education with a dedicated building at Avance University of Applied Science. In 2023, INTED was invited to participate in several conferences and collaborations and has become a part of an international network for interdisciplinary education in traditional and discipline-based universities. INTED personnel attended two conferences, one in Gröningen as a part of the STEAM + project, and one in Wageningen Campus addressing border-crossing in education (see box).

Initial collaborations and practice sharing

A Transition Maker Toolbox was presented as part of the Wageningen Campus conference. This toolbox was developed to empower students and provide them with competence to drive social change. The Transition Makers Toolbox is a collaborative initiative of the Institute for Interdisciplinary Studies (IIS) at the University of Amsterdam and the alliance of Technical University Eindhoven, Wageningen University & Research, Utrecht University and University Medical Centre Utrecht (EWUU). The toolbox was piloted on 7 higher institutions in Nether-lands. INTED was inspired to introduce the Transition maker toolbox to the Norwegian educational context.

WP3

Plans and priorities for 2024

- Establish partnerships and collaborations with relevant international institutions such as the ISS at the University of Amsterdam, the Center for Teaching and Learning at Utrecht University and Avance University.
- Establish student partnerships, collaborations and exchange between INTED and European institutions
- Plan and co-organize together with European Honours Council an international conference on Inter/transdisciplinarity in higher education. The conference will take place at Oslo University in 2025.

Action plan

Action	Description	i	ii	i	ii	i	ii	i	ii	i	ii
WP3: Dissemination (EI)		2023		2024		2025		2026		2027	
3.1	Pedagogical course						M				
3.2	Summer institutes				M		M		M		M
3.3	Establish EU/Erasmus+ project							A		M	
3.4	Student conferences		M				M				M
3.5	National HCP collaboration									M	
3.6	Circle-U honours program								A		M
3.7	Publish results: web, book, outreach		M		M		M		M		M
3.8	Artist collaboration						M			M	

Comments

A3.4: Student conferences were not organized in 2023 due to the short runway, but a major conference is planned for 2025.

A3.7: Website is up and running with the first reports from student report series.

WP3

INTED international visits

Gröningen Conference

INTED personnel participated in the Groningen Conference which took place on March 30th and 31st. The conference was part of the STEAM+ project and focused on the importance of interdisciplinary studies and their impact on education. INTED was represented by student leaders Line Horgen Thorstad and Sigrid Hauge Nustad, and Ella Marie Cosmovici Idsøe who also participated in a panel discussion. Participants had the opportunity to engage in interdisciplinary discussions and witness how interdisciplinary skills can be applied in practical contexts. The conference brought together intellectuals, education policymakers, businesses, and students from various academic and professional backgrounds to exchange ideas and experiences. The purpose was to highlight the significance of interdisciplinarity and present results from the STEAM+ project, including two educational tools developed for interdisciplinary education.

The STEAM+ conference in Gröningen was a great platform to expand INTED's network with others working on interdisciplinary education in Europe, and it contributed to enhancing our understanding of interdisciplinarity and its role in education. Speakers shed light on the importance of interdisciplinary teaching, and the conference included interdisciplinary workshop and conversation methods that INTED later incorporated into its own program. Following the conference, Sigrid Hauge Nustad was invited to publish a report about her experiences from the conference and the project, which was posted on the STEAM+ blog page: steamtalent.eu/steam-conference-in-groningen-march-30th-and-31st/



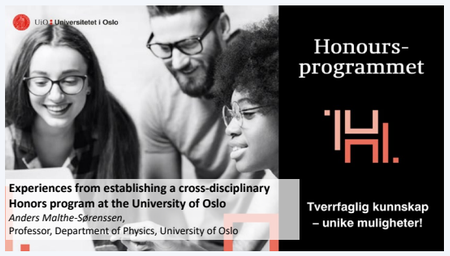
WP3

INTED international visits

Dutch National Interdisciplinary Education conference



INTED was invited to participate in the 5th National Interdisciplinary Education (NIE) conference at Wageningen Campus on 15 November 2023. The theme was ‘Boundary Crossing: Transdisciplinary Teaching and Learning’. The conference was hosted by the alliance TU/e, WUR, UU and UMC Utrecht (EWUU). INTED coordinator Haynes and professor Idsøe were invited to provide an introduction to a workshop hosted by Dr. Marca Wolfensberger. This session tested a group facilitating tool called “the Trail”, which is designed as a mountain trail with pit stops and milestone accomplishments to help the interdisciplinary group navigate and negotiate in the collaboration. The conference provided an overview of current views and practices on interdisciplinary education in the Netherlands.



Visit from Stockholm University

Three study deans from Stockholm University initiated a visit INTED to learn about the honours bachelor program. On December 6th, INTED organized a day-long presentation addressing (i) how the honours program was developed and organized, (ii) teaching principles and lessons from the honours program, (iii) administrative challenges and solutions, and (iv) student perspectives. how it is organized, taught and administered. The group met with current and former students, teachers, mentors, administrators and leaders.



WP4

WP4: Evaluation and impact framework – building a research basis

Leader: Mary Preston Sutphen

Goals (2023–2027)

Develop an evaluation framework to assess progress and impact of the center's activities. Evaluation will be aligned with the overall learning outcomes – how students and teachers develop and internalize interdisciplinary competence and its subskills – but also on how we succeed with building a culture, with dissemination and with education research projects. The evaluation framework will be closely coordinated with the education research activity to establish an evidence-based approach to interdisciplinary teaching and learning. We will (1) establish qualitative studies of interdisciplinary and collaborative competencies through in interviews with students, teachers and leadership; (2) assess the impact of specific interventions, such as interdisciplinary sessions, courses or programs, on collaborative competencies; (3) organize a longitudinal study of graduates from at least one honors program; (4) develop text analysis tools based on text embeddings from large language models and apply them to assess the develop-ment of interdisciplinary competence; (5) develop a strong education research group drawing on the rich opportunities for research on interdisciplinary education at the center.

WP4

Activities in 2023

Establishing an infrastructure for research

INTED have established the foundation for qualitative and quantitative research by establishing a project with Sikt, the national registry for research data, and by establishing research goals, protocols, and data handling procedures. The project was approved in fall 2023, paving the way for initial interviews and surveys. INTED has also planned research approaches including both pre- and post- survey projects as well as methods for longitudinal studies, providing a basis for PhD and postdoc projects starting in 2024. This also allows for separating studies that are per-formed to measure impact from studies that are performed to improve the knowledge base, that is, separating education research activities from the evaluation and impact framework of the cen-ter to ensure sufficiently high quality and scientific independence in the research projects.

Semi-structured interviews

INTED initiated its data collection project in November 2023. To ensure a rapid start of the re-search process, short-term research assistants were hired and carried out 15 qualitative inter-views with faculty members and students. The semi-structured interviews aim to capture individuals' experiences of, attitudes towards, and understanding of interdisciplinarity. Over time, we plan to extend our study various university stakeholders, including students, administrative staff, academic staff, and academic leaders in order to gain deeper insight into their experiences. The interviews allow us to find out more about todays practice of interdisciplinary education and to assess strengths and weaknesses among existing courses and programs, while also exploring opportunities and obstacles that faculty members and students have identified.

Student summer research projects

In the summer of 2023, INTED employed three groups of students to help provide a foundation for both educational development and education research. The groups were led by the student leaders and tasked with providing reviews of areas of particular importance: (i) a review of education research on interdisciplinary education, (ii) a review of workshop methods, and (iii) a survey of interdisciplinary education activities at UiO. The student projects served to mobilized student engagement and provided opportunities for students to make use of their own competence in creating a valuable output for the center. The first report was based on a literature re-view of research on interdisciplinary education conducted by the students, discussing challenges, trends, and frameworks used in previous research and publications on interdisciplinary competence and education. The second report investigated methods that can be used in work-shops and shorter activities in teaching to promote interdisciplinary competence. The third report mapped interdisciplinary education and activities at the bachelor's and master's levels at UiO, discussing how interdisciplinarity is practiced compared to our understanding and definition of interdisciplinarity. The reports will form the basis for a report series from INTED, which will be published on the center's website.

WP4

Plans and priorities for 2024

- Establish the education research group by hiring PhD students, a postdoc and adjunct professors
- Establish research group meetings focusing on common aspects of interdisciplinary education research
- Analyze and publish results from semi-structured interviews
- Conduct the first surveys on students
- Assess results from both INTED-led and INTED-supported activities using surveys and interviews

Action plan

Action	Description	i	ii	i	ii	i	ii	i	ii	i	ii
WP4: Evaluation and Ed. Research (MS)		2023		2024		2025		2026		2027	
4.1	Hire Profs, PD, PhD1,2,3	1	PD	2		3					
4.2	Research group meetings		M		M		M		M		M
4.3	Postdoc: collaborations										
4.4	PhD1: assessment						M		M		
4.5	PhD2: agency										M
4.6	PhD3: longitudinal study								M		

Comments

A4.1: PhD students and postdoc were not hired in 2023 in order to establish a common under-standing of the research questions and to space positions to extend the project period given the imposed five-year-limit

A4.2: Initial meetings on research practices and principles were introduced in 2023.



WP4

Qualitative analysis at scale through natural language processing

As students progress through their studies, they write texts that gradually change to reflect their knowledge and skills. For example, as students develop their interdisciplinary competence, we would expect texts where they reflect on their own understanding of interdisciplinarity as well as more general texts to change to reflect their improved competence. But how can we quantify such a development? A possible path is to use rubrics that are developed to assess aspects of student writing and reflection, such as the rubric developed by Boix Mansilla[3]. However, this requires substantial manual work and only measures a single aspect of their development. How can we measure several aspects of their development in concert? Here, we introduce a new methodology based on text embeddings to make qualitative methods quantitative.

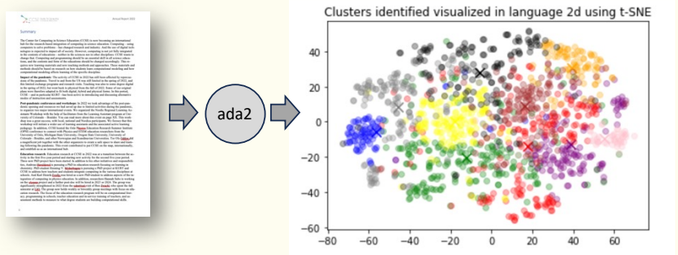
Let us explain the methods through an example. During the first year of study, honours students meet top international researchers in the field of artificial intelligence, who present their research from their disciplinary perspective and discuss with the students. Thus, students are presented with the perspectives of computer scientists, mathematicians, psychologists and political scientists. After each session, each student writes a reflection note based on their impression from the presentation and the subsequent discussion. However, the students also have different back-grounds, coming from natural science, the humanities or the social sciences. How can be unpack all the different aspects of their writing and discern the development of their interdisciplinary competence?

We can analyze the students text using a text embedding. This is the representation that a large language model makes of a text by embedding the text in a high-dimensional vector space. Simply states, the text embedding takes a text and represents it by a sequence of numbers, called a vector, which represents a point in a high dimensional space. For example, OpenAI's model ada-2 uses 1536 dimensions to characterize a text. We can measure how far apart two texts are in this high-dimensional meaning space using different tools, for example by the Euclidean distance.

Because the text-embedding maps the contents of a text onto a high dimensional space, we can separate various aspects of the texts into independent directions in this space, thus allowing us to separate different topics and aspects of the text. For example, we may be able to separate the topic of the talk, the background of the student and their degree of interdisciplinary competence along different directions in this space.

We have started to develop these methods in a well-controlled situation, where we analyze the content of education research texts in physics education research. For this particular problem, we have already established a methodological framework[4], so that we were well positioned to devel-op the methods further. During the fall of 2023, INTED and CCSE collaborated and hired a group of three recently graduated honours students, Halvor Tyseng, Jonas Timmann Mjaaland and Markus Fleten Kreutzer, with backgrounds in physics, philosophy and philosophy respectively, to explore the use of natural language processing methods using text embeddings and how they can be used to perform deductive qualitative analysis of educational research at scale. The group has explored how vectorized representations of articles using text embeddings could be deductively used to quantify the rise and fall of different research topics over time, benchmarking results against the prior inductive topic analysis.

The results of the study are in the process of being published (arxiv.org/2402.18087). The project is also leading to new directions of research in the collaborations with Michigan State University and Rochester Institute of Technology. We expect this research direction to open completely new paths to qualitative education research and believe a collaboration between the two centers for excellence in education, CCSE and INTED, will allow us to build an internationally leading education research activity in this direction with significant impact on both interdisciplinary education research and science education research.



A text is embedded into a 1536 vector using ada2. The relationship between many texts are illustrated by showing how they are clustered along two "directions" in the high-dimensional space.



Halvor Tyseng, Jonas Timmann Mjaaland, Markus Fleten Kreutzer and Associate Processor Tor Ole Odden.

3 Mansilla, V. B.; Duraisingh, E. D.; Wolfe, C. R.; Haynes, C. Targeted Assessment Rubric: An Empirically Grounded Rubric for Interdisciplinary Writing. *J. Higher Educ*. **80** (3), 334–353 (2009).

4 Odden, T. O. B.; Marin, A.; Rudolph, J. L. How Has Science Education Changed over the Last 100 Years? An Analysis Using Natural Language Processing. *Sci. Educ*. **105** (4), 653–680 (2021).

Organization and management



Organization and management

Personnel

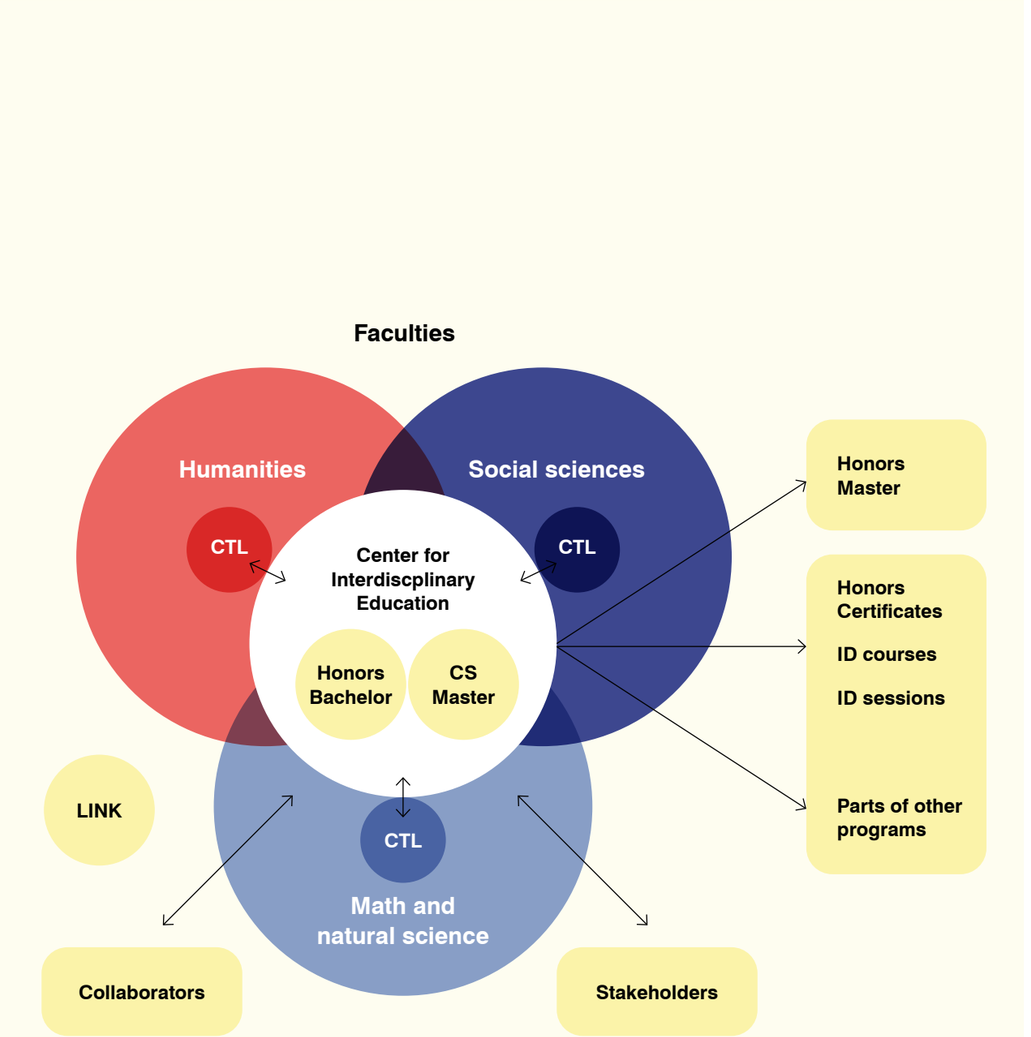
Organization and management

INTED is directed by Professor Anders Malthe-Sørenssen and assisted by center coordinator Helene Victoria Haynes. The director is supported by a leadership group consisting of the three work package leaders, the administrative head, and student leaders who meet once a week. The leadership group brings together faculty members and students from the Faculty of Humanities, the Faculty of Social Sciences, and the Faculty of Mathematics and Natural Sciences.

The center has a board directed by the vice rector for education with representatives from the three collaborating Faculties: the Faculty of Humanities, the Faculty of Social Sciences, and the Faculty of Mathematics and Natural Sciences. The board will have two meetings a year.

The various collaborating partners provide contributions to the center in the form of in-kind contributions. For example, the Faculty of Mathematics and Natural provides a 20% in-kind resource for teachers in relevant interdisciplinary courses. This in-kind contribution represents the time teachers use for educational development.

The center has an education research group with one postdoc and four PhD-students. The group has regular group meetings, and organize invited seminars and researcher visits to the center.



CTL = Centers for teaching and learning

Personnel

Leadership group



Helene Victoria Haynes

Center coordinator

Victoria is INTEDs center coordinator. Victoria's background is pedagogy with a specialization in higher education and learning environment. She was the former center coordinator for the center for teaching and learning in science and technology at UiO (KURT) and has experience with administration in Norwegian public systems.



Anders Malthe-Sørenssen

Professor of physics, director INTED, WP1 leader, 35%

Anders has extensive interdisciplinary research, educational and innovation leadership experience. He has developed two master programs, UiO's honours program, courses and textbooks in mechanics, thermal physics, percolation theory, and electromagnetism. He is a member of the Norwegian Academy of Science, winner of the Thon award and winner of UiO's education award 2 times.



Anja Røyne

Senior lecturer at KURT, WP2 leader, 20%

Anja has extensive experience from interdisciplinary research and teaching. She has a background in physics, geoscience, energy research and economics and have directed research projects on biocement. She is an awardwinning author of popular science books and an experience science communicator. She is teaching two interdisciplinary courses in climate systems and energy physics.



Ella Maria Cosmovici Idsøe

Professor of Psychology, WP3 leaders, 20%

Idsøe is an international expert on talent programs and interdisciplinary and transdisciplinary education. She is teaching at different master programs in Norwegian higher institutions and has longstanding international collaborations in Nordic and European countries. She recently finalized a K3 EU project "Innovating STE(A)M in Higher Education through Transdisciplinary Talent Programs" and is board member of the European Honours Council.



Mary Preston Sutphen

Professor of Education, WP4 leader, 20%

Mary is a professor of education and member of LINK, UiO's center for learning and teaching. She leads the Academic Hospitality in Interdisciplinary Education (AHIE) project that studies collaboration in interdisciplinary education by investigating the experiences of students, administrators, university leaders, and academics as they are engaged with teaching and learning in interdisciplinary programs.

Leadership group



Cato Bjørkly

Assoc. professor of psychology, 10%

Cato explores the nuanced relationships between humans, technology, and organizational structures by navigating the complexities of integrating technology into workplace environments to bolster human wellbeing and organizational productivity. His interdisciplinary methodology synthesizes elements from psychology, technology studies, and organizational science. He teaches HON3000 in the honours program.



Nikolai Olai Czajkowski

Assoc. professor of psychology, 10%

Nikolai works on statsistical genomics, genetics of complex disorders, lifespan changes in brain and cognition and is associated with the research center Promenta. His research is fundamentally interdisciplinary using statistical methods to address genetic and psychological phenomena. He is teaching the interdisciplinary HON3000 course in the honours bachelor program.



Line Horgen Thorstad

Student leader, humanities, 20%

Line works as a student leader for INTED from the humanities. Line is currently undertaking a BA in philosophy at the Honours program at UIO and works as a research assistant for the projects GOODATTENTION and Salient Solutions, both at IFIKK. Line is also leader and chairman of the board for the Non-profit organization Eksist! which deals with matters related to attention capitalism.



Sigrid Hauge Nustad

Student leader, social science, 20%

Sigrid Hauge Nustad is INTED's student leader from the social sciences. She is pursuing an honours bachelor's degree with a specialization in psychology, combined with a bachelor's degree in philosophy. She has been working as a student leader at INTED since April 2023, with particular responsibility for organizing student-driven activities and the summer projects that INTED conducted in the summer of 2023.



Julie Natland Bjørnstad

Student leader, STEM, 20%

Julie works as a student leader for INTED from mathematics and natural science. Julie is currently taking a BSc in Mathematics with Informatics specializing in Data Science and Statistics in the Honors program at UIO and is co-leader for the student organization for Mathematics (UiO). She has been a student leader at INTED since September 2023.

Other scientific staff



Nina Simon

Researcher, 20%

Nina has a background in earth science, physics, engineering, material science, economy, and conflict mediation. In academia, she focused on science and technology development for energy and environment. Since 2016, she has worked in industry as an expert, founder and leader, applying transdisciplinary approaches within sustainability, innovation and societal change. Nina is currently a project specialist and R&D responsible at the innovation cluster for the Norwegian fashion and textile industry, NF&TA.



Nicholas Michael Heier

Research assistant

Nicholas has a background in biomimicry. He conducted interviews on interdisciplinary education and was involved in the interdisciplinary workshop.



Laura vom Kolke

Research assistant

Laura has a background in work and organizational psychology. She is primarily involved in conducting interviews on interdisciplinary education and assisted in the evaluation of HON3000.



Henrik A. Sveinsson

Tenure-track post-doc, 10%

Henrik has a background in computational physics. He is the project leader for UiO's new honours-program, for which he is also developing and teaching courses in programming for humanists (HON2110) and data-science projects for honours-students (HON2200). He has developed computational content and taught oscillations and waves (FYS2130) and electromagnetism (FYS1120). He has recently co-authored a textbook in programming for school teachers.

Personnel

Name	Function	Position	Unit
Center personnel			
Anders Malthe-Sørenssen	Center leader	Professor	Physics, UiO
Helene Victoria Haynes	Head of administration	Center coordinator	INTED
Anja Røyne	WP leader, 20%	Senior lecturer	Physics, UiO
Ella Maria Cosmovici Idsøe	WP leader, 20%	Professor	Science Education, UiO
Mary Preston Sutphen	WP leader, 20%	Professor	Education, UiO
Cato Bjørkli		Associate Professor	Psychology, UiO
Nikolai Czaijkowski		Associate Professor	Psychology, UiO
Scientific staff			
Nina Simon	Case development, 20%	Researcher	INTED
Nicholas Michael Heier	Research assistant		INTED
Laura vom Kolke	Research assistant		INTED
Markus Fleten Kreutzer	Research assistant	LLM project	INTED
Jonas Timman Mjaaland	Research assistant	LLM project	INTED
Halvor Tyseng	Research assistant	LLM project	INTED
Student representatives			
Sigrid Hauge Nustad	Student leader (01.01.2023–31.12.2023)		UiO
Line Horgen Thorstad	Student leader (01.01.2023–31.12.2023)		UiO
Julie Natland Bjørnstad	Student leader (01.07.2023–31.12.2023)		UiO
Jonatan Kjekshus Winsvold	Student leader (01.03.2023–30.06.2023)		UiO
Jakob Linnestad Sønstebø	Student leader (01.01.2023–30.06.2023)		UiO

External projects

Granting body	Project title	Project period	Funding	PI/partners
EU Erasmus+ KA3	Innovating STE(A)M in Higher Education with Transdisciplinary Talent Programs	2020–2023		Hanze University, Uni-versity of Oslo (INTED), 16 other partners includ-ing INTED

Appendices



Accounting 2023

List of products

External events

Publications

Student activities

Accounting 2023

Budget and Expenditures 2023

NOK Norwegian kroner	Budget 2023 HK-dir	Actual 2023 HK-dir	Actual 2023 UiO	Total 2023 HKdir + UiO
Personnel and indirect costs	4 668 696	3 049 417	3 237 816	6 287 733
Equipment	100 000	200 000		200 000
Other operating expenses	2 620 000	331 752		331 752
SUM	**5 106 279**	**4 262 611**	**3 237 816**	**6 818 985**

List of products

Visitors

Who	Topic	When
Alexander Jensenius Refsum, RITMO	Experience with administration and organizing interdisciplinary education	17.03.2023
Cathrine Holst, UiO	Collaboration between INTED and the Philosophy, Politics and Economics (PPE) program	28.09.2023
Sidsel Rolkvam	Center for development and the environment	10.12.2023
Tor Egil Førland	Collaboration between INTED and Faculty of Humanities	20.11.2023
Stefano Fasciano, IMV, UiO	Creative Computing Hub Oslo	05.05.2023
Rene van der Burgt, Mario van Rijn, Avans University, Netherlands	The Avans OpenX building for transdisciplinary studies	12.05.2023
Anna Schytte Sigaard, OsloMet	Presentation on sustainable use of clothing and textiles, INTED workshop	27.10.2023
Veronique Isabelle Claire Pouillard, UiO	Presentation on the history of fashion, INTED workshop	27.10.2023
Magnus Näslund, Stockholm University	INTED workshop on UiO's honours program	06.12.2023
Fredrik Hellberg, Stockholm University	INTED workshop on UiO's honours program	06.12.2023
Jonas Nycander, Stockholm University	INTED workshop on UiO's honours program	06.12.2023
Samuel Lundqvist, Stockholm University	INTED workshop on UiO's honours program	06.12.2023
Øystein Linnebo, Professor of Philosophy, Teacher, Honours program, HF, UiO	INTED workshop on UiO's honours program	06.12.2023
Henrik Sveinsson, Assistant professor of Physics, Teacher, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Tom Lindstrøm, Professor of Mathematics, Mentor, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Ann-Cecilie Larsen, Professor of Physics, Mentor, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Erlend Lundvall, Administrative leader at Honours program, SV, UiO	INTED workshop on UiO's honours program	06.12.2023
Grete Stavik-Døvle, Study administrator, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Gunnhild Ulfsrud, Study administrator, Honours program, HF, UiO	INTED workshop on UiO's honours program	06.12.2023
Helena Båserud Mathiesen, Study administrator, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Linn Thorsen, Study administrator, Honours program, SV, UiO	INTED workshop on UiO's honours program	06.12.2023
Markus Fleten Kreutzer, Student, Honours program, HF, UiO	INTED workshop on UiO's honours program	06.12.2023
Halvor Tyseng, Student, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Mia Merlid, Student, Honours program, MN, UiO	INTED workshop on UiO's honours program	06.12.2023
Karianne Tangen Dypedahl, Student, Honours program, SV, UiO	INTED workshop on UiO's honours program	06.12.2023

Dissemination – external events

Contributions to seminars, workshops and conferences

Topic	Where, for whom	Who	When
Interdisciplinary education	Circle U café, panel participant	Line Horgen Thorstad	23.03.2023
Importance of interdisciplinary studies and their impact on education.	Groningen Conference, STEAM+, Ella Idsøe participant in panel discussion	Line Horgen Thorstad and Sigrid Hauge Nustad, and Ella Marie Cosmovici Idsøe	30.03.2023 31.03.2023
AI in education	MNT seminar, panel participant	Line Horgen Thorstad	09.05.2023
INTED	"Snakk om" seminar for LINK, UiO	Line Horgen Thorstad	01.11.2023
Boundary Crossing: Transdisciplinary Teaching and Learning'	National Interdisciplinary Education (NIE) conference, Wageningen Campus, Ella Idsøe opening session	Ella Maria Cosmovici Idsøe, Helene Victoria Haynes	15.11.2023
Academic freedom	Educational conference, UiO	Line Horgen Thorstad	30.11.2023

Workshops and conferences organized by INTED personnel

Topic	Where, for whom	Who	When
Kick off	UiO, Oslo	INTED, UiO, HK-dir – 60 participants	12.09.2023
Student-night promotion and information about the Interdisciplinary workshop	UiO, Oslo	INTED, UiO students from the Honours program, 25 participants	18.10.2023
Interdisciplinary workshop	UiO, Oslo	INTED, 4 student participants	
Lunch for UiO and INTEDs extended network	UiO, Oslo	INTED, UiO, 20 participants	15.12.2023

Collaborations

Organization	Topic of collaboration	Period
Center for teaching and learning (LINK), UiO	Education research, courses on interdisciplinary competence	2023–2027
Center for teaching and learning in scocial sciences (Eilen), UiO	LA program, AI in education,	2023–2027
Center for teaching and learning in science and technology (KURT), UiO	Collaboration	2023–2027
Center for teaching and learning in the humanities (HF-studio)	Collaboration	2023–2027
UiO's Sustainibility certificate program and the Center for Development and the Environment (SUM)	Collaboration about curriculum development and interdisciplinary facilitator program	2023–2027
Bachelor program in Philosophy, Politics & Economics	Collaborations about curriculum development and interdisciplinary facilitator program	2023–2027

Publications

Scientific publications

Thorstad, L, Haynes, V, & Idsøe, E. The Norwegian center for interdisciplinary education (INTED), Journal of the European Honors Councile, (2), 2023, https://doi.org/10.31378/jehc.207

Internal reports/articles in the media/scientific talks/books

https://www.titan.uio.no/utdanning/2022/nytt-senter-skal-gi-uio-studenter-kompetanse-i-tverrfaglighet.html

https://www.uio.no/om/aktuelt/rektorbloggen/2023/hvordan-bygger-vi-ned-barrierer-for-tverrfaglighet.html

STEAM+ conference in Groningen, March 30th and 31st – steamtalent.eu

Social media

Web: https://www.uio.no/inted

Student activities

Student activities – student research and surveys

Course and topic	Student	Supervisor	When
Review of the research literature on interdisciplinary education	Lisa Bye Heen, Sigrid Hauge Nustad	Sigrid Hauge Nustad	15.06.2023–15.08.2023
Workshop methods for interdisciplinary teaching	Max Drains Dahl, Fruna Alami	Sigrid Hauge Nustad	15.06.2023–15.08.2023
Mapping of interdisciplinary activity at UiO	Julia Bueso, Gry Myrtveit Gundersen	Sigrid Hauge Nustad	15.06.2023–15.08.2023

Student activities – student researchers

Theme	Students	Supervisors	When
Text-embeddings for qualitative research using large language models	Halvor Tyseng, Jonas Timmann Mjaalands, Markus Kreutzer	Tor Ole Odden	01.07.2023–01.09.2023
Simulating the spreading of a language	Joao Guilherme Carvalho Inacio	Luca Onnis	15.06.2023–15.08.2023



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