

Book of Abstracts

**Its21 Conference – Interdisciplinary Teamwork
Skills for the 21st Century**

University of Southern Denmark (SDU), Odense

27-28 May 2026

This Years Theme:

**"FROM COGNITION TO CAPACITY:
FOUNDATIONS OF EMPOWERING KNOWLEDGE"**

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Programme

Wednesday 27 May 2026

- 08.30-09.00 **Registration**, coffee and rolls
- 09.00-09.30 **Welcome and introduction** by Steffen Kjær Johansen, Associate Professor SDU Global Sustainable Production
Opening speech by Jens Ringsmose, Rector at the University of Southern Denmark (SDU)
- 09.30-10.15 **Keynote Speaker** Søren Harnow Klausen, Professor at Department of Design, Media and Educational Science, and SDU Climate Cluster
Keynote title: "Knowledge at work – how knowledge works, better and worse"
- 10.15-10.30 Coffee break
- 10.30-12:00 Presentation session content 1:
Talks 1 Parallel sessions, in the following rooms:
- O100
10.30 *Emotions as a mechanism in Interorganizational Leadership Development* by Jan Rohwedder, and Søren Frimann.
11.00 *Developing Professional Capacity for Process Facilitation in Higher Education* by Hanne Charlotte Asbjørnsdatter Helgesen, Martha Kalvig Anderson, and Casper Feilberg.
11.30 *Navigational Epistemics: Epistemology of Competent Action* by Steffen Kjær Johansen.
- O95
10.30 *Validation of Extended Professional Identity Scale: EPIS-Norway – investigating interprofessional identity* by Merethe Hustoft, Jan-Jaap Reinders, Håvard Stensletten Eik, and Ane Johannessen.
11.00 *TVEPS interprofessional poster day: addressing wicked problems in the municipality* by Ane Johannessen, Gunhild Agdesteen, Kamile Servetkaite, Håvard Stensletten Eik, Elin Christine Gundersen, and Merethe Hustoft.
11.30 *Process-focused research on PjBL - A systematic mapping review in HE* by Lars Bjørnar Skancke, Eline Rødsjø, Ela Sjølie, Paulina Carvajal, Solvor Solhaug, Magnus Rom Jensen, and Hilde Kaalvik.
- O96
10.30 *How students understand and experience interdisciplinary collaboration in higher education* by Paulina Carvajal
11.00 *"We wanted to do something exciting, and do it properly"* by Maiken Spjelkevik.
11.30 *Governance and Lived Experience in Inclusive Emergency Communication* by Edita Carmen Bokor, and Madlena Nen.
- 12.00-13.15 **Lunch** – followed by Walk in the "Vild-med-Viden" area at SDU

- 13.15-15.15 Presentation session content 2:
Workshops 1 Parallel sessions, in the following rooms:
- O95
13.15 *The Two-Pager Effect: Why Companies Say Yes to Student Collaborations by Vibeke Andersson, and Helene Balslev Clausen.*
14.15 *Leadership Articulation as the Generation of Empowering Knowledge by Lea Sørensen.*
- O96
13.15 *Preserving Student Agency When Formalising Support to Student Teams by Mattias Bingerud, and Kristina Henricson Briggs.*
- O99
13.15 *Integration as a threshold concept in interdisciplinary higher education by Sigrid Westad Brandshaug, and Martha Kalvig Anderson.*
14.15 *Cards for Dialogue by Hanne Løje.*
- 15.15-15.30 Coffee break
- 15.30-16.15 **Keynote Speaker** Lars Kolind is a serial entrepreneur
Keynote title: "Change starts within"
- 16.20-17.05 **Invited speaker** Bjørn Sortland, Associate Professor Department of Industrial Economics and Technology Management, at NTNU
Presentation title: "Opprinnelsen til Ekspert i team, nettverket og Its21-konferansen"
- 17.05-17.15 Closing remarks
- 19.30 **Conference Dinner** at Restaurant H.C. by Meyers, Odeons Kvarter 11, 5000 Odense C

Thursday 28 May 2026

- 08.30-09.00 **Small-talk**, coffee and rolls
- 09.00-09.15 **Introduction to today's programme** by Steffen Kjær Johansen, Associate Professor SDU Global Sustainable Production
Opening speech by Jeroen Bergmann, Head of Department Innovations and Technology Faculty, SDU
- 09.15-10.00 **Keynote Speaker** Dr. Coyan Tromp, Assistant Professor at Institute voor Interdisciplinaire Studies, University of Amsterdam
Keynote title: "Transformational leadership"
- 10.00-11.00 Presentation session content 3:
Workshops 2 Parallel sessions, in the following rooms:
- O94
10.00 *Collaborative Visual Mapping to Navigate Complexity: A System-Oriented Design Workshop for Interdisciplinary Co-Creation* by Ingjerd Jevnaker Straand.
- O99
10.00 *Interdisciplinary Student Teams as Change Agents for Grand Societal Challenges* by Merethe Hustoft, Håvard Stensletten Eik, Jesper Klintrup Nielsen, Hanne Løje, Ingjerd J. Straand, Steffen Kjær Johansen, Kim Aagaard Holm, Thomas Christian Espenes, and Ane Johannessen.
- 11.00-11.15 Coffee break
- 11.15-12.15 Presentation session content 4:
Talks 2 Parallel sessions, in the following rooms:
- O100
11.15 *From Open-Ended Challenges to Actionable Problems: Creative and Iterative Problem Finding in Problem-Based Learning* by Ingjerd Jevnaker Straand, Anette Myhre Momrak, and Gunn Kristin Aasen Leikvoll
11.45 *Translating Knowledge into Capacity for Action: An Intercultural Framework for Heritage Sensitive Urban Development in Cairo* by Alaa El-Habashi, Sara Fayed, Steffen Kjær Johansen, and Kristoffer Damgaard
- O99
11.15 *The Implied Interdisciplinary Student* by Mia Thyrrø Sørensen, Maria Hvid Stenalt, Jette Egelund Holgaard, Kirsten Jæger, and Thomas Ryberg
11.45 *Does Repeated Interprofessional Education Strengthen Collaborative Readiness Among Pharmacy Students in Western Norway* by Miral Alabbasi, Mirey Alfarah, Reidun Lisbet Skeide Kjome, Kennet Lee, and Merethe Hustoft

12.15-13.15 **Lunch sandwich**

13.15-13.45 **Talks 2** continued

O100

13.15 *Students as Change Agents in Grand Societal Challenges* by Ane Johannessen, Håvard Stensletten Eik, Jette Egelund Holgaard, Jesper Klintrup Nielsen, Hanne Løje, Steffen Kjær Johansen, Kim Aagaard Holm, Thomas Christian Espenes, and Merethe Hustoft

13.45-14.00 Coffee break

14.00-15.00 Takeaways from the conference and **closing remarks**

Keynote Presentations

Keynote 1:

Knowledge at Work – How Knowledge Works, Better and Worse

Professor Søren Harnow Klausen

Department of Culture Studies, University of Southern Denmark, Denmark

Professor Søren Harnow Klausen is a leading Danish philosopher whose research spans philosophy of mind, metaphysics, aesthetics, and the philosophy of culture. As Professor at the University of Southern Denmark, he has contributed extensively to understanding how human cognition, meaning, and value emerge within cultural and existential contexts. His work is characterised by conceptual clarity and interdisciplinary openness, bridging classical philosophical inquiry with contemporary concerns related to agency, creativity, and the structures shaping knowledge.

Professor Klausen has published widely in international journals and authored several influential books addressing consciousness, personal identity, and human flourishing. His research consistently explores how philosophical perspectives can illuminate practical and societal challenges.

Abstract

Knowledge is widely regarded as one of humanity's most powerful resources. However, how knowledge functions in practice—and how it translates into innovation and action—remains insufficiently understood. While cognition is fundamental to both knowledge and societal progress, cognitive capacity alone does not guarantee either.

This keynote examines how material, social, and cultural conditions can both enhance and constrain the impact of cognitive resources. It explores how knowledge contributes to innovation, action, and societal change, while also identifying mechanisms that limit its effectiveness. Particular attention is given to the role of social dynamics and collaboration in enabling knowledge to become actionable.

The presentation offers insights into how environments and processes can be designed to better support the transformation of cognition and knowledge into meaningful agency.

Keynote 2:

Transformational Leadership

Dr J.C. (Coyan) Tromp

Institute for Interdisciplinary Studies, University of Amsterdam, The Netherlands

Dr Coyan Tromp is Assistant Professor and curriculum developer at the University of Amsterdam, where she plays a central role in advancing interdisciplinary education. Her work focuses on sustainability, innovative pedagogy, and reflective practice. She co-developed the Bachelor's programme *Future Planet Studies*, which integrates scientific and societal perspectives to address complex global challenges such as climate change, resource scarcity, and energy transition.

Her research spans philosophy of science, futures thinking, systems thinking, and project-based learning. She is the author of *Wicked Philosophy* (2018), which develops conceptual frameworks for addressing complex societal problems. Dr Tromp is also actively engaged in exploring the implications of artificial intelligence for higher education and has developed innovative teaching formats, including global and flipped classrooms.

Abstract

In the context of increasingly complex global challenges, leadership must go beyond traditional models of control and efficiency. This keynote explores transformational leadership as a means of cultivating the capabilities required to navigate uncertainty, complexity, and systemic change.

Drawing on interdisciplinary perspectives, the keynote examines how educational and organisational environments can foster the development of capacities aligned with the ITS21 theme *From Cognition to Capacity*. It focuses on how individuals and institutions can move from understanding complex problems to acting effectively within them.

The presentation highlights the importance of reflective practice, systems thinking, and innovative pedagogy in enabling transformative leadership that supports sustainable and adaptive responses to contemporary challenges.

Keynote 3:

Change Starts from Within

Lars Kolind

Lars Kolind is an internationally recognised business leader, educator, and thought leader in organisational transformation. He previously served as Associate Professor of Planning Theory at the University of Copenhagen and has held visiting professorships at several institutions. He holds an MSc in Mathematics and Statistics from Aarhus University and a degree in organisational science from Copenhagen Business School.

Over his career, Kolind has combined academic insight with extensive leadership experience in business and innovation. He has been actively engaged in executive education and leadership development internationally, including roles at DeTao Masters Academy in China, where he focused on leadership and strategy.

Abstract

Organisational transformation is often approached as a structural or strategic challenge. This keynote argues that meaningful and sustainable change begins at the individual level.

Focusing on leadership, mindset, and internal transformation, the talk explores how personal values, beliefs, and behaviours shape organisational outcomes. By emphasising self-awareness and internal development as prerequisites for external change, the keynote offers a perspective on transformation grounded in human agency.

The presentation highlights how leaders can initiate and sustain change processes by aligning internal reflection with external action, thereby enabling organisations to adapt more effectively in complex and dynamic environments.

Invited Speaker:

Opprinnelsen til Ekspert i team, nettverket og Its21-konferansen

(The Origins of “Experts in Teamwork” (EiT), the Network, and the ITS21 Conference)

Associate Professor Emeritus Bjørn Sortland

Norwegian University of Science and Technology (NTNU), Norway

Bjørn Sortland is Associate Professor Emeritus and former head of *Experts in Teamwork* at NTNU. He holds a doctorate in marine technology and has been engaged in research on underwater technology at the Department of Maritime Technology, NTNU. Throughout his academic career, he has maintained a strong interest in project work and team-based education.

He has been involved with *Experts in Teamwork (EiT)* from its very beginning, and under his leadership the course has received several distinguished awards.

Abstract

In this invited talk, Bjørn Sortland reflects on the origins of *Experts in Teamwork* and presents a historical perspective on how EiT emerged and developed into the foundation of both a network and the ITS21 Conference.

The presentation will be delivered in Norwegian and will take the form of a reflective engagement with the audience.

Abstracts

Talks 1

Emotions as a mechanism in Interorganizational Leadership Development

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I. Theme and format of contribution

Theme: Translating Knowledge into Capacity for Action

Format: Poster

II. Abstract

This study builds on an action research project that explored the potential for enhancing leaders' capacity for action through participation in an interorganizational, collaborative learning and development space (Rohwedder & Frimann, 2024, 2026) informed by Collaborative Management Research (Coghlan & Shani, 2008; Shani, 2023). The participants (leaders enrolled in continuing education and representing diverse jobs, skills and organizational contexts) aimed to strengthen their agency and change management capacity within their own complex organizational systems.

The empirical findings reveal that leaders frequently experience a form of "action paralysis" when navigating complex change processes. In response, researchers and participants collaboratively generated insights into the conditions that may enhance leaders' capacity for action in such situations. As leaders work with self-selected practice-based challenges, a wide range of emotions emerges, which they bring into the collaborative inquiry processes, not only as personal experiences but as important sources of insight into the situations they are navigating. It became particularly evident that emotions play a decisive role: the feelings experienced by leaders in change processes can both enable and inhibit their capacity for action while also serve as early signals that something in the situation calls for attention, interpretation, and possible action.

The study investigates the interwoven relationship between emotions, knowledge, capacity for action, and empowerment. Specifically, it examines how interorganizational and collaborative learning spaces can actively engage with emotions through practices such as emotional self-awareness, collaborative emotion regulation, and the creation of "emotional safe harbors" to support the internalization of new knowledge and its translation into action. This includes not only supporting regulation and reflection but also treating emotions as analytically relevant cues that can inform collective sensemaking and guide action.

Preliminary findings suggest that interorganizational collaborative learning spaces can function as psychologically safe (Edmondson, 1999; Edmondson & Bransby, 2023) learning arenas, enabling leaders not only to overcome emotional barriers to action, but to work with emotions as integral to how situations are understood and acted upon. The ongoing analysis aims to deepen understanding of the mechanisms underlying this potential.

III. References

- Coghlan, D., & Shani, A. (2008). *Collaborative management research through communities of inquiry: challenges and skills*. In A. Shani, S. A. Mohrman, W. A. Pasmore, B. Stymne, N. Adler (Eds.) *Collaborative management research through communities of inquiry: Challenges and skills* (pp. 601-614). SAGE Publications, Inc., <https://doi.org/10.4135/9781412976671.n29>
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Developing Professional Capacity for Process Facilitation in Higher Education

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I. Theme and format of contribution

Theme: Translating Knowledge into Capacity for Action

Format: Talk

II. Abstract

Despite the increasing use of interdisciplinary teamwork in higher education, limited attention has been given to the processual aspects of collaborative learning (Chiriac & Hempel, 2020). To achieve the often-desired learning outcomes of interdisciplinary teamwork related to collaboration and communication, the academic perspective must be combined with a focus on group dynamics, relations, and individual experience (Feilberg, 2015). Student assistants may secure this process perspective through process facilitation, given proper training (Veine et al., 2023).

At NTNU's course "Experts in Teamwork" (EiT, 8th sem.), a networked support structure is used: teaching assistants (TA) are employed and trained to support and facilitate learning assistants (LA), who stimulate interdisciplinary student teams to reflect on their collaboration. A 'village supervisor' (course teacher) oversees academic project work (see www.ntnu.no/eit). This presentation focuses on the TA's professional practice in supporting LAs.

Exploring professional practice is complex and requires an interdisciplinary approach. The TA's capacity for action can be described through formal competencies; however, we argue that formal competencies are not enough. We also need to address the cultururation (Bildung) of the TA's professional habitus by conceptualizing the embodiment of technical concepts, ideals and ethical values which are easily overlooked (Feilberg, 2019). The formal 'language of competencies' and the 'language of culture (habitus)' composes, we argue, two sides of the same coin needed for a precise and developed professional terminology among TAs and those training them.

RQ: How can the TAs' professional capacity for action be understood through the combined lenses of competence and Bildung?

In addressing the RQ, we propose that TAs need relational, practical, and reflective competencies to build an alliance with the LA and support toward confident and autonomous

practice. We further suggest that the TAs must embody openness and tolerate uncertainty when working with the unknown arising from human processes and group dynamics.

This presentation draws on an ongoing qualitative research project that explores TA's professional practice. We present core concepts, a case description, and what TAs report as supportive for developing the capacity needed in their everyday practice.

III. References

<https://www.ntnu.no/eit>

Hammar Chiriac, E., & Hempel, A. (Red.). (2020). *Handbok för grupparbete:*

Att skapa fungerande grupparbeten i undervisning. Lund: Studentlitteratur.

Feilberg, C. (2015). Selvrefleksion som uddannelsesgreb – en kritisk

diskussion. *Nordiske Udkast*, 43(2). <https://doi.org/10.7146/nu.v43i2.141468>

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Veine, S., Anderson, M. K., Skancke, L. B., & Wallin, P. (2023). Educating learning assistants as facilitators: Design challenges and experiences of practice. *Journal of Experiential Education*, 46(4), 491-512.

Navigational Epistemics: Epistemology of Competent Action

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I. Theme and format of contribution

Theme: Translating Knowledge into Capacity for Action

Format: Talk

II. Abstract

This talk presents Navigational Epistemics (NE) as a new epistemic theory of competent action, explaining how individuals and groups reason and act under uncertainty and conflicting justificatory demands. The framework advances a conceptual research programme, the Epistemology of Competent Action (ECA), formulated in a recent Zenodo preprint and here introduced as a systematic epistemology of judgement and action, addressing a theoretical gap that has persisted since Donald Schön identified reflection in action more than forty years ago without a corresponding epistemological formulation. The talk represents the first comprehensive presentation of NE/ECA as a unified epistemological framework.

While Schön identified the crucial phenomenon of reflection-in-action and showed that competent professional practice cannot be reduced to technical method application, subsequent work has largely remained descriptive, lacking a corresponding epistemological structure. In parallel, Hubert Dreyfus demonstrated that expert action is inherently non-algorithmic and resistant to rule-based explanations, yet without offering a positive epistemology of judgement. NE/ECA takes these unresolved insights as its starting point and moves decisively beyond Schön by explaining the epistemic structure underlying competent action.

The talk is theoretical rather than empirical. It introduces the core components of NE/ECA, including regimes of justification, the Gradient of Epistemic Stability, Mode 3 reasoning, and the ENACT principles, as elements of an integrated epistemological model. Together, these concepts explain the epistemic capacity to distinguish and shift justificatory regimes under low stability, why method-first approaches fail, and how competence emerges through epistemic navigation. The analysis extends to collective epistemic emergence, showing how groups can develop transdisciplinary stances that are unique and non-reproducible.

The contribution aligns directly with the ITS21 theme of “Translating Knowledge into Capacity for Action.” NE/ECA reframes capacity for action as an epistemic achievement grounded in situated judgement, regime integration, and reflexive navigation, rather than in stable methods. By extending Schön’s insight and Dreyfus’ critique, the talk reopens a long unexplored theoretical space.

III. References

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- Dreyfus, H. L., & Dreyfus, S. E. (1986). *Mind over machine: The power of human intuition and expertise in the era of the computer*. Free Press.
- Johansen, S. K. (2026). *Navigational epistemics: Foundations for the epistemology of competent action* (Preprint). Zenodo. <https://doi.org/10.5281/zenodo.19387778>

Validation of Extended Professional Identity Scale: EPIS-Norway – investigating interprofessional identity

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I. Theme and format of contribution

Theme: Cognitive Processes and Learning for Agency,

Format: Talk

II. Abstract

Background

Interprofessional education and collaborative practice (IPECP) has become evident in health-professional training internationally (Darlow et al., 2015; Dyess et al., 2019; Patel et al., 2025; Wang et al., 2019). Despite this increase, little is known about the effects of IPECP on the development of interprofessional competence and interprofessional identity. At the Centre for Interprofessional Workplace Learning (TVEPS), approximately 900 health- and social care students engage in interprofessional workplace practices, developing care plans for patients in municipal health care settings. A shared interprofessional identity is associated with effective teamwork, reduced mistakes, and higher-quality care. To investigate IP-identity formation, a validated, reliable instrument is important. Professional Identity is based on extended professional identity theory, and is defined as “the part of an individual’s self-concept that derives from perceived membership of an interprofessional group” (Reinders et al., 2020). This study aimed to develop a Norwegian version of the EPIS (EPIS-N) and confirm its construct validity.

Methods

EPIS is a 12-statement self-reported questionnaire that uses a 5-point Likert scale from strongly disagree to strongly agree. The internal consistency of the EPIS-N was measured using Cronbach’s alpha. A confirmatory factor analysis (CFA) was performed to assess goodness-of-fit indices. Convergent validity was analysed using correlations between the three subscales (belonging, commitment, beliefs).

Results

Students included in the study had TVEPS practice during the autumn semester of 2025 (N=263). The EPIS-N shows strong internal consistency across all subscales: belonging (alpha = 0.81), commitment (alpha = 0.85), beliefs (alpha = 0.86), and total (alpha = 0.88). EPIS-N subscales are all sufficiently correlated with the overall EPIS-N instrument. The CFA goodness-of-fit indices (CFI,

RMSEA, and SRMR) are all within the cutoff values identified in the literature (CFI: 0.962; RMSEA: 0.066; SRMR: 0.046), indicating high reliability and validity, consistent with other language translations of the EPIS tool (Asmara et al., 2024; Kolcu et al., 2024).

Conclusion/implications

The EPIS-N is a reliable and valid instrument for measuring interprofessional identity and is comparable to the original EPIS.

III. References

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TVEPS interprofessional poster day: addressing wicked problems in the municipality

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I. Theme and format of contribution

Theme: Cognitive Processes and Learning for Agency

Format: Talk

II. Abstract

Background: Centre for Interprofessional Workplace Learning (TVEPS) provides interprofessional education (IPE) for students from the University of Bergen (master's level) and the Western Norway University of Applied Sciences (bachelor's level). TVEPS students usually tailor interprofessional (IP) care plans to improve the quality of life for patients or clients in the healthcare sector. In Autumn 2025, we also organised an IPE programme in which students addressed «wicked problems» through action plans and scientific posters, and engaged in plenary IP discussions with interest-holders. The poster day was partly a local follow-up of the ITS21 Challenge Workshop that was organised in Gothenburg during Summer 2025. The Challenge Workshop is presented in a separate abstract for this conference.

Aim: To evaluate learning outcomes from the Interprofessional Poster Day.

Methods: Interest-holders from the health and social care sector in Bergen and Øygarden submitted wicked problems for which they needed possible solutions. Two of the wicked problems from Øygarden had been identified at the ITS21 Challenge Workshop earlier in 2025, while ten wicked problems from Bergen and Øygarden were tailored particularly for the Interprofessional Poster

Day. One IP student team was assigned to each problem. The students completed an online course on IP competencies, a lecture on scientific posters, and an in-person exploration day with interest-holders, during which they elaborated on the wicked problems. Afterwards, the students tailored IP action plans and visualised them in scientific posters.

Results: Fifty-two students across 12 groups presented action plans through 5-minute oral presentations, poster exhibition and plenary discussion with interest-holders during the Interprofessional Poster Day. The learning outcome was evaluated using Cohen's d based on students' responses to the Interprofessional Collaboration Competencies Attainment Survey. Learning outcomes were high for all students, although higher for master's than bachelor's students (0.89 vs 0.83, respectively). Quotes from master students included «positive and safe introduction to IP collaboration», «educational and inspiring format», «exciting way to learn and experience the perspectives of others». Quotes from bachelor students included «useful, educational and meaningful», «the use of municipalities in the IPE was positive», but also «need for more supervision» and «too much focus on poster evaluations».

Conclusions: Tailoring IP action plans and scientific posters to address wicked problems for the healthcare sector provides substantial IP learning, especially for master's students.

Process-focused research on PjBL – A systematic mapping review in HE

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I. Theme and format of contribution

Theme: Epistemologies and Contexts of Empowering Knowledge

Format: Talk

II. Abstract

Project-based learning (PjBL) has been studied in lots of disciplines following its adoption in higher education but what characterizes the research done on this pedagogical approach? We will answer this question by presenting findings from a large systematic mapping review on empirical process-focused research on PjBL in higher education.

The background for this systematic mapping review is the ever-increasing use of PjBL in higher education, both within and between disciplines. This development is based on an assumption that PjBL leads to better learning outcomes and contributes to the development of collaborative skills. Empirical research shows that project-based learning has a positive effect on students' performance and motivation, as well as the perceived relevance of their education. However, most of this research has been conducted in primary and secondary school settings. In recent years, however, this topic has been explored to a larger extent in higher education, and we will present a summary of some of the characteristics of this research.

The systematic mapping review includes empirical research on PjBL in higher education with a process focus from the years 2000-2023. In total, we screened over 30,000 abstracts which resulted in 475 included studies. We will present what context the research has been done in (country,

student population and disciplines), what topics have been researched, and which research methods have been used. Additionally, we will present some patterns we see across these categories.

Our work has identified that research on project-based collaboration covers a range of different topics, but the research is fragmented and isolated within educational areas. Of the included studies, about half focused on pedagogical approaches, while the other half focused on topics relating to group dynamics. Methods used were roughly equally distributed between qualitative, quantitative and mixed methods, with slight overweight of qualitative studies.

This systematic review was conducted as an interdisciplinary collaboration between academic staff from the Department of Experts in Teams and University Librarians from the University Library at NTNU. In addition to presenting findings from the research project, we will touch upon our process of working interdisciplinary with research by sharing some of our experiences from the project.

How students understand and experience interdisciplinary collaboration in higher education

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I. Knowledge, Governance, and Lived Experience - Talk

II. Abstract

There is a broad understanding that interdisciplinary collaborative experiences can encourage, strengthen and support students' abilities to respond to complex 21st century challenges (Oudenampsen et al., 2024). Despite the recurring call for more empirical research on interdisciplinary approaches in higher education (Braßler, 2020; Spelt et al., 2009, Lattuca et al., 2012), existing research varies notably in both quality and quantity. The conceptual ambiguity and terminological inconsistency surrounding interdisciplinarity represents a persistent barrier to interdisciplinarity and interdisciplinary learning (Lattuca et al., 2013; Spelt et al., 2009; Oudenampsen et al., 2024). Furthermore, the complexity of student learning in interdisciplinary contexts should not be underestimated (Schürmann et al., 2024). Simply placing students into teams is insufficient to ensure effective collaboration, highlighting the need for further empirical research that examines the nuanced dynamics and underlying processes of interdisciplinary collaboration in higher education (Chen et al., 2021).

To contribute additional knowledge to this field of research, a study was conducted to investigate the student perspective on interdisciplinary learning and collaboration in higher education. The research data were collected from a mandatory project-based course for master's students at the Norwegian University of Science and Technology (NTNU). Approximately 3,000 students from all major disciplinary areas; natural sciences, technology, humanities, social sciences, economics, and medicine—enroll in the course each spring. Students are assigned to interdisciplinary teams of four to six members and collaborate on a shared project throughout the course. The study employs a qualitative methodology, drawing on individual interviews (n = 6) and focus group interviews (n = 6) conducted with students who completed the course in spring 2026. Participants represent a range of disciplines and different student teams. Preliminary results indicate a broad and diverse set of understandings and experiences of interdisciplinary collaboration among students. At the same time, recurring challenges emerge, including limited awareness of one's own and others' disciplinary perspectives, communication difficulties, and narrowly defined project tasks, all of which appear to constrain meaningful interdisciplinary collaboration.

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“We wanted to do something exciting, and do it properly”

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I. Theme and format of contribution

Theme: Knowledge, Governance, and Lived Experience

Format: Talk

II. Abstract

What happens when students in higher education are expected to share their knowledge, and be interdisciplinary to solve a project? Interdisciplinary approaches have increasingly become central to addressing complex challenges and are now firmly embedded in higher education. While students are a key component of such courses, there is limited knowledge about how they experience participation in these courses, and more so, how they experience sharing knowledge, particularly from a qualitative, student-centred perspective. To explore this, the following question has been asked: “How do students experience sharing knowledge when working in interdisciplinary teams?”

This presentation shares the student’s reflections and replies after participating in an interdisciplinary course digitally. Although there is existing research on interdisciplinarity in education and on digital platforms, student perspectives are often primarily captured through survey-based studies. By adopting a phenomenological approach, this study seeks to foreground experiences of sharing knowledge in interdisciplinary contexts.

For this project Semi-structured interviews were conducted with students who participated in a mandatory interdisciplinary master’s-level course at a Norwegian university. The students were invited to reflect on their experiences of collaborating on real-life projects, with particular attention to what promoted or hindered knowledge sharing. The interviews are analysed phenomenologically to capture the students’ voices and their lived experiences.

The study provides insight into how students navigate their knowledge through different phases of the course. The students shared how they at times found it difficult, how they by curiosity, and sometimes necessity, found new knowledge. They shared how they value each other’s knowledge, how that knowledge not only comes from their academic courses, and how their interdisciplinary approach opens for solutions they could not have found on their own. Or perhaps found “...but it would have been more boring”.

The presentation is based on 11 semi-structured interviews conducted as part of a PhD project. The students interviewed were from IT and Engineering, Architecture and Design, Economics and Management, and Natural Sciences. Student groups consisted of four to five participants representing three to five academic disciplines.

Governance and Lived Experience in Inclusive Emergency Communication

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I. Theme and format of contribution

Theme: Knowledge, Governance, and Lived Experience

Format: Talk

II. Abstract

Access to emergency communication is vital for public safety but remains uneven across the EU for persons with disabilities. Although accessibility knowledge from research, regulation, and international standards is growing, its translation into institutional capacity and inclusive emergency communication remains fragmented and inconsistent (European Commission, 2024).

This paper adopts a governance-oriented lens to examine how accessibility knowledge and lived experience are mediated within EU emergency communication systems. The analysis is based on a PRISMA-informed systematic review of 228 peer-reviewed studies (2020–2025), identified through a structured search and screening process (Page et al., 2021). It draws on EU regulatory instruments such as the European Accessibility Act (European Union, 2019) and successive reports on the implementation of the single European emergency number 112 (European Commission, 2021, 2023, 2024), complemented by interdisciplinary research on disability-inclusive technologies and participatory design.

Governance is conceptualised as a mediating arena where formal accessibility knowledge is interpreted, coordinated, and operationalised. Recent work on disability-inclusive emergency technologies and participatory design further informs this approach, underscoring the epistemic role of lived experience in shaping accessibility outcomes (Molero-Aranda et al., 2022; Nilsson et al., 2022; Moreno et al., 2024). Figure 1 illustrates how governance converts accessibility knowledge and lived experience into institutional capacity and agency.

Governance as a Mediating Arena in Inclusive Emergency Communication



Figure 1 Governance as a Mediating Arena in Inclusive Emergency Communication

Source: Authors' own conceptual framework based on EU regulatory instruments and prior research.

The analysis finds persistent gaps between formal accessibility commitments and practice, caused by institutional fragmentation, discretionary regulation, and limited use of experiential knowledge in decision-making. Although accessibility is increasingly recognised in law and policy, its implementation often depends on national governance capacity rather than coherent, participatory institutions (Moreno et al., 2025; Bokor et al., 2025). Comparative insights indicate that Nordic countries demonstrate stronger integration of co-design and participatory governance, while several Eastern and Southern European states exhibit gaps between technological capability and accessibility implementation.

By treating governance as a mediating arena and lived experience as a legitimate source of empowering knowledge, this paper contributes to interdisciplinary debates on how agency in emergency communication arises from the interaction of governance, technology, and disability-inclusive perspectives. It argues that inclusive emergency communication requires not only accessibility knowledge but also governance structures capable of translating this knowledge into sustained institutional practice across the European Union. It further highlights the importance of broader knowledge dissemination and education, ensuring that accessibility is embedded across professional training, student learning, and academic environments, rather than remaining confined to specialised institutions.

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Talks 2

From Open-Ended Challenges to Actionable Problems: Creative and Iterative Problem Finding in Problem-Based Learning

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I. Theme and format of contribution

Theme: Translating Knowledge into Capacity for Action

Format: Talk

II. Abstract

Problem-based learning (PBL) is widely promoted as a pathway for developing students' ability to act on complex, real-world challenges. However, while PBL literature emphasizes problem solving, the process through which problems become actionable—problem finding—remains underexamined (Jensen, 2025). This paper argues that problem finding is a creative, iterative, and collaborative process central to translating knowledge into capacity for action. The use of authentic and open-ended challenges is a core principle of PBL (Warr & West, 2020), and such challenges call for multi-disciplinary perspectives, which opens interdisciplinary learning spaces where students collaborate and integrate knowledge from their respective domains (Bressler & Dettmer, 2017). By putting the problem at the center rather than the individual disciplines, students can find common ground through a shared, accessible language that enables participation across disciplines.

Drawing on creative problem solving (CPS), design-oriented approaches, and mission-oriented innovation, problem finding is conceptualized as iterative framing and reframing of open-ended situations, where defining meaningful problems is key to actionable and socially relevant outcomes (Dorst, 2015).

The paper draws on three cases from Norwegian higher education across two universities, all involving external partners: (1) a bachelor-level Innovation in Teams course, where students work in interdisciplinary teams and choose among partner-defined challenges; (2) an executive master's course in co-creation and facilitation, where students define their own cases; and (3) an executive master's course in service design and innovation, where all teams address a shared challenge. Across cases, students engage in structured yet open-ended processes inspired by design thinking.

Methodologically, this study adopts a reflective-on-action approach, drawing on the authors' roles as educators and on course-generated data, including student deliverables and project material.



Figure 1: Example from case 2, students facilitating a co-creation activity for Ålesund municipality.

The analysis highlights three insights: (1) problem finding is a central yet underarticulated mechanism in PBL; (2) students iteratively reframe challenges to create ownership and direction; and (3) substantial effort is devoted to constructing the problem space, indicating that action capacity depends as much on framing as on solving.

The paper contributes by identifying problem finding as a key pedagogical mechanism enabling the transition from insight to implementation, and by showing how PBL in combination with design thinking can scaffold students' capacity to define actionable problems.



Figure 2: Example from case 3, where students and professionals collaborated on changing the user experience of a youth healthcare center, before (left) and after (right) change.

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Translating Knowledge into Capacity for Action: An Intercultural Framework for Heritage-Sensitive Urban Development in Cairo

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I. Theme and format of contribution

Theme: Translating Knowledge into Capacity for Action

Format: Talk

II. Abstract

Historic Cairo's 1979 UNESCO World Heritage listing is attributed to its unique urban fabric, historically rooted in the "hara": an autonomous neighborhood shaped by strong social ties and communitybased governance. This study examines how collaborative, practicebased environments enable students and researchers to transform analysis into practical capacity when working in heritagesensitive urban contexts. The project explores how intercultural teams coproduce knowledge and develop feasible interventions together with local residents of that WH site.

We present an interdisciplinary collaboration between the University of Southern Denmark and Menoufia University. By aligning course objectives, two intercultural teams conducted an intensive workshop in November 2025 at Bayt Yakan in Historic Cairo. The study focuses on two contrasting typologies in Darb al-Ahmar: Al-Yakaniya, where the urban fabric has been significantly altered, and Al-Yansiya, where key historic attributes endure.

Combining the UNESCO 2011 Historic Urban Landscape framework with the Experts-in-Transformative-Teams approach, the collaboration brought together complementary analytic, architectural, and community-engaged perspectives across the intercultural teams. Students examined historic sources, material culture, and community knowledge to understand the neighborhoods as sociospatial wholes. A central challenge was formulating viable development scenarios that balance heritage values with environmental pressures.

Successive community visits allowed the students to establish trust with residents and translate analytical understanding into actionable proposals. Students' reflections highlight how theoretical tools such as stakeholder mapping, value analysis, and participatory methods were activated in realworld situations, thus strengthening their ability to negotiate shared visions across cultural boundaries; a shift from cognition to practical capacity evidenced in the development of realistic heritagesensitive spatial strategies.

This study summarizes the methodology and findings. It concludes by presenting action plans coevaluated with community representatives.



Figure1: Students collaborating: left (Al-Yansiya), right (Al-Yakaniya)



Figure2: Interviewing community; developing visions; sharing results to community in the presence of the Danish Ambassador

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Governance and Lived Experience in Inclusive Emergency Communication

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I. Theme and format of contribution

Theme: Knowledge, Governance, and Lived Experience

Format: Talk

II. Abstract

Access to emergency communication is vital for public safety but remains uneven across the EU for persons with disabilities. Although accessibility knowledge from research, regulation, and international standards is growing, its translation into institutional capacity and inclusive emergency communication remains fragmented and inconsistent (European Commission, 2024).

This paper adopts a governance-oriented lens to examine how accessibility knowledge and lived experience are mediated within EU emergency communication systems. The analysis is based on a PRISMA-informed systematic review of 228 peer-reviewed studies (2020–2025), identified through a structured search and screening process (Page et al., 2021). It draws on EU regulatory instruments such as the European Accessibility Act (European Union, 2019) and successive reports on the implementation of the single European emergency number 112 (European Commission, 2021, 2023, 2024), complemented by interdisciplinary research on disability-inclusive technologies and participatory design.

Governance is conceptualised as a mediating arena where formal accessibility knowledge is interpreted, coordinated, and operationalised. Recent work on disability-inclusive emergency technologies and participatory design further informs this approach, underscoring the epistemic role of lived experience in shaping accessibility outcomes (Molero-Aranda et al., 2022; Nilsson et al., 2022; Moreno et al., 2024). Figure 1 illustrates how governance converts accessibility knowledge and lived experience into institutional capacity and agency.

Governance as a Mediating Arena in Inclusive Emergency Communication



Figure 1 Governance as a Mediating Arena in Inclusive Emergency Communication

Source: Authors' own conceptual framework based on EU regulatory instruments and prior research.

The analysis finds persistent gaps between formal accessibility commitments and practice, caused by institutional fragmentation, discretionary regulation, and limited use of experiential knowledge in decision-making. Although accessibility is increasingly recognised in law and policy, its implementation often depends on national governance capacity rather than coherent, participatory institutions (Moreno et al., 2025; Bokor et al., 2025). Comparative insights indicate that Nordic countries demonstrate stronger integration of co-design and participatory governance, while several Eastern and Southern European states exhibit gaps between technological capability and accessibility implementation.

By treating governance as a mediating arena and lived experience as a legitimate source of empowering knowledge, this paper contributes to interdisciplinary debates on how agency in emergency communication arises from the interaction of governance, technology, and disability-inclusive perspectives. It argues that inclusive emergency communication requires not only accessibility knowledge but also governance structures capable of translating this knowledge into sustained institutional practice across the European Union. It further highlights the importance of broader knowledge dissemination and education, ensuring that accessibility is embedded across professional training, student learning, and academic environments, rather than remaining confined to specialised institutions.

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I. Theme and format of contribution

Theme: Frameworks for Co-Creation and Collaboration

Format: Talk

II. Abstract

As interdisciplinary learning initiatives expand across higher education, educators play a crucial role in shaping how students are expected to navigate, contribute, and collaborate across disciplinary boundaries. Drawing on Ulriksen (2009)'s concept of the implied student, this study examines how university teachers at a problem-based learning (PBL) institution articulate their expectations and perceptions of disciplinary students participating in interdisciplinary learning initiatives.

The study is based on eight qualitative semi-structured interviews with 14 educators involved in an institutional strategy to promote interdisciplinary student collaboration across faculties and programmes. The initiative comprises eight pilot projects with diverse formats, ranging from joint supervision to workshops and interdisciplinary project work.

Our analysis identifies two overarching themes. First, educators expect students to navigate multiple disciplinary perspectives through: (1) awareness of their own disciplinary expertise, including its strengths and limitations; (2) understanding of other disciplines' methods, needs, and contributions; and (3) participation in equitable dialogue that accommodates conflicting perspectives and fosters co-creation. Second, educators emphasise a set of personal qualities as prerequisites for successful interdisciplinary engagement: curiosity and openness, the capacity to embrace uncertainty, social sensitivity, creativity, and the ability to take initiative and make independent choices. Notably, several participants perceive interdisciplinarity as primarily attractive to academically strong and resourceful students, raising questions about accessibility and inclusion.

Across accounts, these expectations are articulated in broad, open-ended ways. Rather than mere imprecision, this indeterminacy mirrors the epistemic ambiguity of interdisciplinarity itself, making it difficult to specify design criteria while asking students to interpret and negotiate what participation should entail in real time.

We argue that making such expectations explicit clarifies the conditions under which co-creation across disciplines becomes possible and surfaces tensions between institutional ambitions and the demands placed on students.

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Does Repeated Interprofessional Education Strengthen Collaborative Readiness Among Pharmacy Students in Western Norway?

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I. Theme and format of contribution

Theme: Frameworks for co-creation and collaboration

Format: Talk

II. Abstract

Introduction

Interprofessional collaboration is essential for improving patient safety, managing complex care, and optimising medication use (Geese et al., 2023). However, collaboration is often hindered by professional hierarchies, unclear roles, and limited opportunities for shared learning during training (Geese et al., 2023). Interprofessional education (IPE) has therefore been promoted to strengthen collaborative competencies (World Health Organisation, 2010). While IPE improves collaboration, evidence on the effects of repeated exposure remains limited (Reeves et al., 2016). This study examines whether repeated workplace-based IPE influences students' collaborative readiness (Lunde et al., 2021).

Methods

A retrospective cohort study with pre-post measurement was conducted. Data were drawn from the Centre for Interprofessional Workplace Learning (TVEPS), a workplace-based program in Norwegian primary care in Bergen (University of Bergen, n.d.). Interprofessional competence was measured using the Norwegian version of the Interprofessional Collaborative Competency Attainment Survey (ICCAS) (Lunde et al., 2021). We used descriptive statistics, calculated post-pre scores for the first and second TVEPS practices using Cohen's d, and then calculated the change in interprofessional competence scores between the first and second placements using an independent-samples t-test.

Results

The sample included 198 pharmacy students, of whom 78 completed two placements. Participation in TVEPS was associated with improved interprofessional competence. Large effect sizes

were observed within both groups, with Cohen's $d = 1.17$ for students completing one placement and $d = 1.03$ for those completing two placements. Students completing one placement showed greater improvement than those completing two placements. The difference was statistically significant ($t = 3.15$, $p = 0.002$), with a small-to-moderate effect size ($d = 0.46$).

Discussion

These findings suggest that workplace-based IPE may help prepare pharmacy students for collaborative practice, which is essential for safe medication management, interprofessional communication, and patient-centred care. Workplace-based IPE programs, such as TVEPS, may therefore play an important role in preparing healthcare students for collaborative practice and in addressing longstanding professional boundaries in healthcare.

III. References

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Students as Change Agents in Grand Societal Challenges

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Theme: Frameworks for Co-Creation and Collaboration

Format: Talk

II. Abstract

In June 2025, an exciting interdisciplinary Nordic course was organised within a Nordplus network with partners from University of Bergen, Western Norway University of Applied Sciences, University of South East Norway, University of Southern Denmark, Business Academy Aarhus, Aalborg University, Technical University of Denmark, Uppsala University, Chalmers University of Technology, and the municipalities Øygarden, Odense, Aarhus, Vejle.

The course was organised as a Blended Intensive Program (BIP) with one online week and one in person week at Chalmers. Faculty from partner education institutions collaborated in course design and teaching, and partner municipalities joined with presentations of grand societal challenges they

are facing – engaging in dialogue with the students. Altogether 27 Nordic students were recruited from psychology, pharmacy, dental hygiene, child welfare service, nursing, occupational therapy, manufacturing engineering, innovation and sustainability, entrepreneurship and IT product design.

Sixteen of the 27 students were aged 25 years or older (7 men, 20 women). On a 7-point Likert scale (strongly disagree to strongly agree), over 80% of students agreed that the course strengthened their ability to develop new and creative solutions, make a difference in society, and communicate ideas to others. Across all 18 items assessing course impact on abilities, agreement ranged from 61.4% to 88.5%.

Based on the Interprofessional Collaboration Competency Attainment Survey (ICCAS¹), the students scored their interprofessional collaboration-related abilities before and after the course. ICCAS is 20-item tool measuring skills in communication, collaboration, roles and responsibilities, collaborative stakeholder-centered approach, conflict management, and team functioning².

We calculated the learning outcome of the course using Cohen's D. Learning outcome is considered small if Cohen's D < 0.5, medium 0.5 - 0.8, and large > 0.8. For our BIP course, Cohen's D was 1.27, exceeding all expectations and indicating a study design extremely well suited for interprofessional collaboration learning.

In this talk, we will describe the course in more detail and elaborate how international and interdisciplinary collaboration on wicked problems can both stimulate learning and benefit the larger society by empowering students to act as change agents.

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Workshops 1

The Two-Pager Effect: Why Companies Say Yes to Student Collaborations

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I. Theme and format of contribution

Theme: Frameworks for Co-Creation and Collaboration

Format: Workshop

II. Abstract

The Two-Pager Effect: Companies say yes when student work reliably becomes a usable boundary object. University - company collaborations are often justified as authentic learning and employability, yet we argue that this framing obscures the decision that determines whether companies participate at all: will the collaboration produce something the organization can use? We introduce the two-pager's concept understood as the recommendations, stakeholder-ready narratives that can be circulated internally and reduce decision cost and perceived risk (Star and Griesemer, 1989; Carlile, 2002). Drawing on Aalborg University's PBL context and 8th–9th semester course designs that embed external collaboration (Andersson and Clausen, 2022; Clausen and Andersson, 2019), we develop a partner-facing framework linking task scoping, iterative feedback loops, and artifact design to partner value creation and to employability understood as capacity for action (Yorke, 2006). Rather than treating 'clear expectations' as a generic 'best practice', we theorize expectations and iteration as governance features that enable knowledge to travel across the university - company boundary and they remain actionable inside firms. The paper offers a conceptual model and an interview - guided analytic protocol for examining how partners evaluate usefulness, feasibility, and ethical field awareness in student outputs and that way aligning with ITS21 Theme 3: Translating Knowledge into Capacity for Action and Theme 5: Frameworks for Co-Creation and Collaboration.

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Leadership Articulation as the Generation of Empowering Knowledge

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I. Theme and format of contribution

Theme: Epistemologies and Contexts of Empowering Knowledge

Format: Workshop

II. Abstract

This workshop conceptualizes leadership articulation as an epistemic practice through which empowering knowledge is produced in context. Based on a hermeneutic research project comprising 38 written personal leadership foundations, five qualitative interviews, and reflections from 75 leadership students, the study examines how leaders move from implicit leadership theories (ILT) shaping leadership identity (Clapp-Smith et al., 2019) to articulated and situated understandings of their practice.

Personal Leadership Foundations (PLF) refer to articulated first-person understandings of leadership and are conceptualized as structured first-person inquiry (Torbert, 2001). Articulation renders tacit assumptions, value hierarchies, and identity positions explicit, transforming them into objects of reflection. In this movement, leadership knowledge shifts toward reflexive double-loop learning (Argyris, 2012), where underlying assumptions become open to revision. Simultaneously, the process supports self-authorship (Kegan & Lahey, 2010), enabling leaders to position themselves as epistemic subjects rather than passive carriers of inherited organizational norms.

Empowering knowledge is defined not as motivation or skills acquisition, but as contextually situated, reflexively produced knowledge enabling accountable action within institutional constraints.

The workshop operationalizes this movement across three domains: the personal (self-understanding), the relational (dialogical validation), and the collective (organizational embeddedness). Participants engage in a structured articulation process in two steps: (1) individually formulating a response to “What is good leadership in your context?” to surface implicit assumptions, and (2) developing a provisional “good enough for now” leadership foundation. This is followed by a collective analysis of how participants’ understandings change as implicit assumptions are articulated, shared, and refined in relation to context.

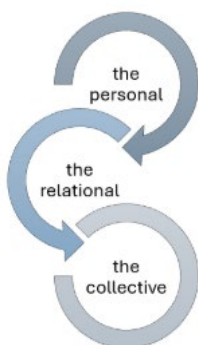


Figure 1

Three Domains of Personal Leadership Foundations

Note. Adapted from Sørensen (2025).

By demonstrating articulation as a mechanism linking identity, context, and agency, the workshop shows how empowering knowledge is generated through situated epistemic practice rather than transmitted as content.

III. References

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Preserving Student Agency When Formalising Support to Student Teams

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I. Theme and format of contribution

Theme: Cognitive Processes and Learning for Agency

Format: Workshop

II. Abstract

Extracurricular engineering-oriented student teams provide students with the opportunity to cultivate their skills achieved through the formal education on their own terms and driven by their own curiosity. These types of teams are often interprofessional, incorporating students from many disciplines, and beyond strengthening students' technical skills (Mariasu & Raboca 2017), student teams foster transversal skills such as management and leadership skills, self-reflection, and the ability to leverage external networks (Bravo et al. 2025). Academically oriented extracurricular activities also help develop professional identity (Seow & Pan 2014). In essence, student teams help engineering students transform into independent engineers capable of taking on complex problems and working with professionals from other fields, such as economics, logistics and communication.

From a learning perspective, these types of student teams are thus something which universities should want to encourage. The authors of this abstract are currently tasked with creating a centralised organisation for supporting extracurricular student teams at Chalmers University of Technology. This task has led to reflection of what it is about these types of student teams that create the highly desired learning mentioned in the first paragraph, and how we can ensure that this is preserved when creating an organisational framework for them.

We ground our ideas on how this learning happens in the explanation of the facilitation of intrinsic motivation in self-determination theory (Deci & Ryan 2000) and believe that over-regulation of student teams (or excessive institutional support), risk making students passive participants rather than active agents. Our pedagogical model for organising student teams is thus for the university to take one step back, except where regulation or intervention is justified. The challenge is to find the right level and type of support, while preserving students' sense of agency and autonomy.

In this workshop, we invite to discussion on how to find the balance between institutional support and student autonomy, so that the preservation of student agency can help students develop their skills, abilities and confidence in a way which internalise them and, in the spirit of Ellen Key's take on *Bildung* (Key 1897), remain with the students once their time in the student teams lays behind them.

III. References

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Integration as a threshold concept in interdisciplinary higher education

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I. Theme and format of contribution

Theme: Frameworks for Co-Creation and Collaboration

Format: Workshop

II. Abstract

Higher education increasingly acknowledges that “the real problems of society do not come in discipline-shaped blocks” (Roy, 1979, p. 165), and that students therefore need training in collaborating across disciplines. To engage meaningfully in interdisciplinary work, students must not only practice collaboration skills but also learn to *actively integrate* disciplinary insights into comprehensive understandings of complex problems.

Integration has been described as the “litmus test” of interdisciplinarity (Lattuca, 2001). Although integration can be easily defined, the process itself is often difficult for educators to articulate and equally challenging for students to enact. We propose that integration functions as a *threshold concept* (Meyer & Land, 2005) in interdisciplinary education. Threshold concepts are “core” or “gateway” ideas within a field and are typically characterized as:

- **Transformative** – Understanding the concept changes how the learner sees the discipline or interprets a phenomenon.
- **Irreversible** – Once understood, it is difficult to return to a prior way of thinking.
- **Integrative** – The concept reveals connections and illuminates relationships across elements of the discipline.
- **Troublesome** – Learning the concept can be difficult because it may be counterintuitive, complex, or require a shift in perspective.
- **Bounded** – The concept delineates what counts as being “inside” that field.

In this workshop, we aim to explore this assumption together with educators, students, and researchers. Based on the five criteria above, we ask: *Can interdisciplinary integration be understood as a threshold concept? If so, how might this conceptualization inform our teaching and help us better facilitate student learning in interdisciplinary higher education?*

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Cards for Dialogue

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I. Theme and format of contribution

Theme: Cognitive Processes and Learning for Agency

Format: Workshop 60 minutes

II. Abstract

Universities must prepare students to act as change agents capable of addressing complex societal challenges. Research shows that project-oriented approaches strengthen critical thinking, collaboration, and students' sense of agency through engagement in real-world challenges, which are essential competencies for addressing complex problems (Ríos et al., 2010).

Interdisciplinary teamwork is central to project-oriented approaches such as Challenge-Based Learning (CBL) and Problem-Based Learning (PBL), where students engage with complex real-life problems that require cross-disciplinary collaboration (Kolmos et al., 2024; Klassen, 2018) to plan, design, implement, and evaluate solutions to complex problems (Ríos et al., 2010).

Despite the benefits, interdisciplinary teams often face challenges related to communication, identity, and collaboration (Chen et al., 2020). Holgaard et al. (2025) found that students struggled to build common ground for project work, get to know one another, and develop trust, confidence, and a shared language.

Such challenges can create frustration, affect productivity and well-being, and lead to communication breakdowns that hinder effectual communication and collaboration (Oakley et al., 2004). Often, teams are unable to resolve these issues without support. Teachers therefore play a key role in framing team formation, facilitating team processes, foster communication and organizing activities that help students become cohesive teams (Fornø et al. 2024; Sjølie et al., 2021). Various activities can support team dynamics; previously, the authors investigated tools for communication in teams (Willemoes et al., 2025).

This workshop explores how teachers can support team communication in project-oriented courses using dialog cards. Participants share experiences and learn how the cards—based on common teamwork situations—can foster constructive dialogue. The workshop aims to inspire new ways of supporting student teams and addressing challenging team dynamics

Workshop outline:

Time	Activity	Notes
0:10	Introduction	Introduction to the theme and the workshop and challenges with teamwork
0:15	Sharing of own experiences	Workshop: team activity, sharing of own experiences with teamwork & discussing challenges
0:15	Explore using the cards	The teams will decide on a challenge and take one card to talk about.
0:10	Reflection	Each team will reflect on the use of the cards and share their takeaways with all the other participants.
0:10	Sum up	To conclude the workshop, a short summary of the key takeaways and reflections will be done by the facilitators.

III. References

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Workshops 2

Collaborative Visual Mapping to Navigate Complexity: A System-Oriented Design Workshop for Interdisciplinary Co-Creation

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I. Theme and format of contribution

Theme: Frameworks for Co-Creation and Collaboration

Format: Workshop (time can be adapted, ideally 90 mins)

II. Abstract

Interdisciplinary collaboration on complex challenges is often hindered by fragmented perspectives, disciplinary language, and difficulties in establishing shared problem understandings. This workshop introduces collaborative visual mapping, grounded in System-Oriented Design (SOD), as a practical framework for supporting co-creation across domains, including in problem-based learning (PBL) contexts.

The workshop focuses on open gigamapping—visually rich, systemic maps that capture multiple perspectives—combined with ZIP analysis (Zoom, Innovation, Problem) (Sevaldson, 2022) as a structured yet flexible approach to exploring complex problem spaces. Participants will engage in hands-on mapping exercises, using visual representations to externalize knowledge, relationships, and assumptions. By “thinking with the pen,” participants move from discussion-based negotiation toward shared visual dialogue, enabling more inclusive and generative collaboration.

The approach addresses the need to integrate diverse forms of knowledge in early-stage problem exploration. Visual mapping allows participants from different disciplines to contribute on more equal terms, while surfacing nuances and connections that are difficult to articulate verbally. Compared to discussion-driven formats, collaborative mapping helps avoid premature convergence and supports sustained engagement with complexity. Visual artefacts further function as boundary objects that enable alignment without requiring consensus.

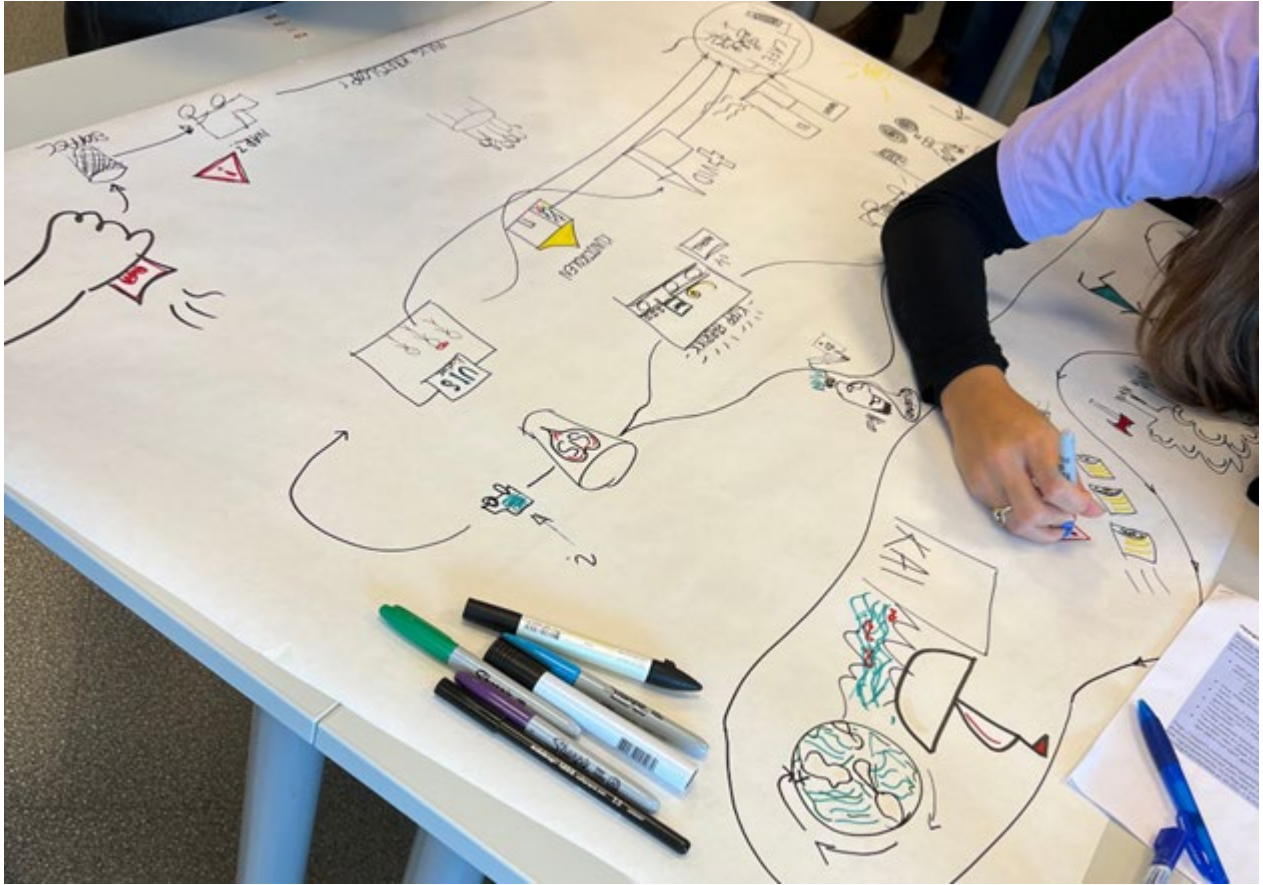


Figure 1: Gigamapping conducted in a PBL-oriented course context

The approach is particularly relevant for addressing wicked problems (Rittel & Webber, 1973) and *hypercomplexity* (Dorst, 2019), situations where both problem definitions and solution pathways are uncertain, requiring iterative framing rather than linear problem solving.

Participants will leave with concrete methods and facilitation techniques for applying collaborative visual mapping in educational and professional settings. The workshop contributes by offering a scalable framework for interdisciplinary co-creation, strengthening shared sensemaking and problem framing in complex, real-world contexts.



Figure 2: ZIP (Zoom, Innovation, Problem) clustering example

III. Workshop agenda

Draft agenda. Will be adapted depending on available time slot.

*Can be accommodated to fit from 60 mins to 2 hours.

What	Duration*	Format
Introduction (theoretical perspectives, examples from PBL contexts)	15 mins	Talk
Open mapping of sustainability challenge: The complexity of the single-use paper cup	30 mins	Group workshop, 3-5 persons per group
ZIP-clustering	10-15 mins	Group workshop
Show and tell	15 mins	All / gallery tour
Plenary , facilitated discussion	10-15 mins	All
If time: Individual or group task related to application in leaning contexts	15 mins	Task sheet, facilitated discussion
Outro	5-10 mins	Talk

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Interdisciplinary Student Teams as Change Agents for Grand Societal Challenges

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I. Theme and format of contribution

Theme: Frameworks for Co-Creation and Collaboration,

Format: Workshop, 90 minutes

Background and Workshop Rationale

The Nordic Expert in Teams Network has developed an educational initiative to prepare students to act as change agents to address grand societal challenges and to increase learning outcomes in interdisciplinary collaboration through an innovation-driven process. This initiative was delivered as a Blended Intensive Programme within a NordPlus project involving partner institutions in Denmark, Sweden, and Norway. Engaging with these challenges provides a unique opportunity for students and

municipalities, facilitated by academic staff, to co-create social, environmental, and economic value that aligns with the United Nations Sustainable Development Goals.

Rooted in real-world wicked problems related to demographic challenges, the programme was designed as a workshop-based learning experience that engaged municipal representatives and higher education institutions in active participation. Through this process, students identified, framed, and reframed opportunity spaces and developed ideas intended for further exploration and application in collaboration with the participating municipalities.

Discussions/implications

The programme generated significant value across multiple levels. Educational institutions benefited from implementing a Nordic, interdisciplinary, and cross-sectoral pedagogical model, thereby strengthening collaboration between academia and professional practice. Students gained valuable insights through reflective practice, interdisciplinary collaboration, and exposure to real-world complexity. This enabled them to develop more nuanced understandings of societal challenges and to propose innovative and context-sensitive opportunity and solution spaces. For municipalities, the workshop provided concrete, innovative input with the potential for both local and societal impact, potentially strengthening local communities' capacity to address complex issues. The student-generated ideas represent a valuable foundation for further development, implementation, and long-term collaboration.

Workshop outline

This workshop aims to investigate/explore potential problems/challenges, identify potential sectors/industries to include, and explore innovation, sustainability, and pedagogical approaches to enhance the quality of interdisciplinary education, strengthen student autonomy, and foster broader collaborative practice.

Time	Task	Who
0:30	Presentation of the Challenge Workshop and introduction to the workshop	Merethe
0:50	Workshop: competence triangle to support interdisciplinary collaboration, questions for discussion, team alignment, feedback/reflection of ideas discussed in the groups	All
0:10	Wrapping up and concluding remarks	Merethe