



Teaching – A Room of Opportunity
Polyphony and Creative knowledge processes in the classroom
and in Higher education

Dr. Ingunn Johanne Ness
www.ingunnness.com

Cambridge: Hughes Hall, 25. May 2022




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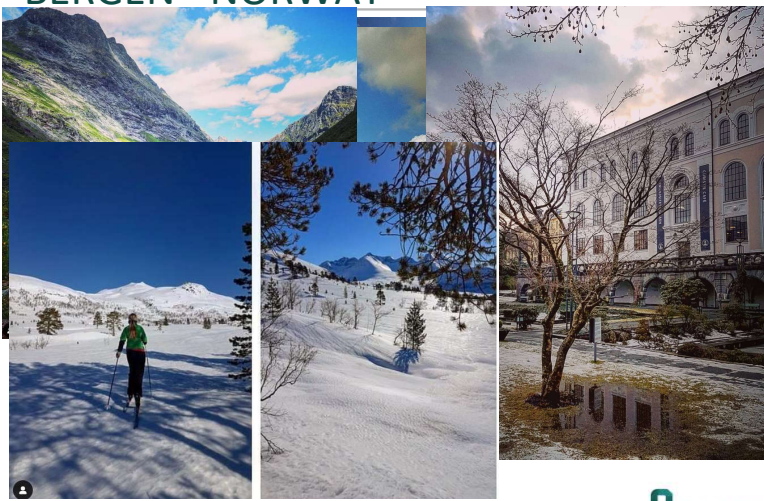
WHO AM I?

- Dr. Ingunn Johanne Ness is a Senior Researcher and Deputy at the Centre for the Science of Learning & Technology (SLATE), Faculty of Psychology, University of Bergen
- PhD from the University of Bergen, Faculty of Psychology, Department of Education, and a postdoc from SLATE, UiB
- Leader of the research theme on *Creativity, Learning & Technology* in SLATE and carries out research on collaborative creativity, leadership, dialogue in different contexts (both education and industry)
- Collaborating with Equinor and banks & financial institutions, Norwegian Naval Defense, and OSAT group in Oxford, the Center for Creativity & Innovation at Webster University, Geneva, Marconi Institute for Creativity, Bologna
- Board member of The Possibility Studies Network (PSN)
- Full member of the International Society of the study of Creativity and Innovation (ISSCI)
- Senior Editor for the Palgrave Encyclopedia of the Possible, Associate Editor of The European Journal of Psychology, Co-editor on Dialogical pedagogy, creativity and learning, KLIM forlag, Denmark, Co-editor Special Issue in The Creativity Research Journal



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BERGEN - NORWAY



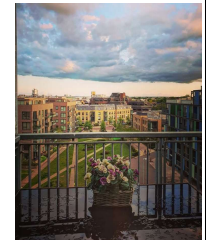
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AGENDA

- Introduction
- Creativity – important skill for the future
- How to teach for creativity
- Dialogic pedagogy
- Case study – The Room of Opportunity: Understanding how knowledge and ideas are constructed in interdisciplinary groups working with developing Innovative ideas
- Underlying conditions & group roles (creative group dynamics)
- How to lead interdisciplinary innovation work
- TRANSFERRING findings to student groups in HE
- STEPPE didactical model (aim to support creativity and dialogic teaching)



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BOOK: DIALOGIC PEDAGOGY, CREATIVITY, AND LEARNING

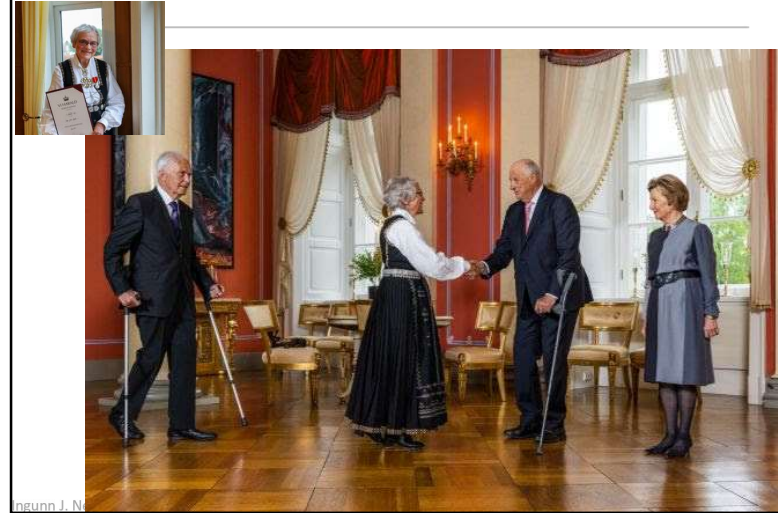
- Robin Alexander
- Per Fibæk Laursen
- Rupert Wegerif
- Ingunn Johanne Ness
- Olga Dysthe
- Eugene Matusov
- Ingvill Rasmussen & Kari Anne Rødnes
- Svein Olav Norenes
- Nana Bernhardt and Line Esbjørn
- Tina Heegh
- Hanne Balsby Thingholm

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PROFESSOR EMERITA OLGA DYSTHE RECEIVES KINGS MEDAL OF MERIT FOR HER WORK ON DIALOGUE



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ONE OF THE MAIN PURPOSES OF AN EDUCATION SYSTEM IS TO...



Prepare students for an (uncertain) future

- Changing worklife & new technologies
- Global challenges require interdisciplinary solutions, **lifelong learning, creativity, and dialogue**

Thus, a need for teaching practices that increase creativity and communication/dialogue skills

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POLICY: NEW CURRICULA IN NORWAY – INTERNATIONAL TRENDS

The curricula in the Norwegian school is renewed

Creativity and collaboration and communication skills have been promoted

This aligns with OECD's Education 2030 and current trends in higher education (Ness, 2020)



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21ST CENTURY SKILLS

Important 21st Century skills involve new forms of **(digital) literacies, creative problemsolving skills, collaboration and communication skills**, cultural and ethical awareness as well as entrepreneurship (Lonka, Hietajärvi, Moisala, Tuominen-Soini, Vaara, Hakkarainen, Salmela-Aro, 2015)

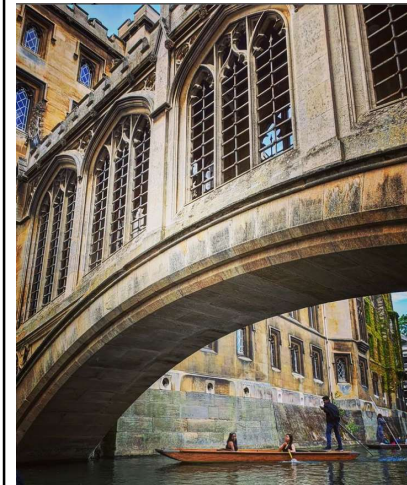
<http://www.p21.org/our-work/p21-framework>

Top 9 Future Skills categories

<https://www.deficambridge.org/future-skills> Athanasia Kotsiou, Dina Daniela Fajardo-Tovar, Tom Cowhitt, Louis Major & Rupert Wegerif (2022) A scoping review of Future Skills frameworks, Irish Educational Studies, 41:1, 171-186, DOI: [10.1080/03323315.2021.2022522](https://doi.org/10.1080/03323315.2021.2022522)
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Timely to ask:

How to teach for creativity and communication & collaboration in classrooms in schools and higher education?

What kind of teaching design is needed?

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**BUT IN ORDER TO TEACH FOR
CREATIVITY, WE FIRST NEED
TO KNOW:
WHAT IS CREATIVITY?**



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What is creativity



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Creativity - from «creare» - to create something new

In the process of creating something new, or combining existing knowledge in new ways, we need to have knowledge as “thinking-tools”



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Little c

we create a personal new knowledge,
perspective/insight/understanding: personal breakthroughs

Possibility thinking (Craft, 2001) is the core of little c creativity. At its most fundamental, it involves the question *What if?*

Big C

we create new knowledge at society level, breakthroughs as in Innovations

"Elite definition" of creativity - reserved for people who have come up with something that makes a difference in the world

We need "little c" to develop "Big C"

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Thus: Creative knowledge processes (the processes that also include little c) are important in school!

Creative knowledge processes are processes where the aim is to develop new insight and solutions at individual level, group level and society/domain level.

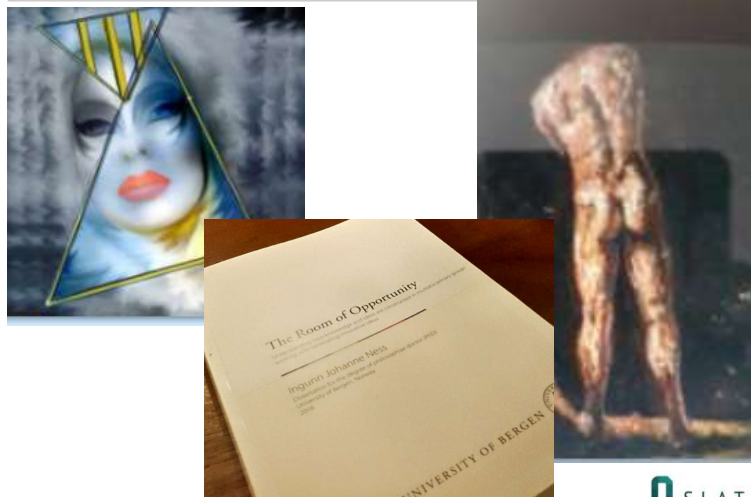
Critical that we nurture creativity to encourage little-c or so that they can become Big-C creators

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REFLECTIONS: DIFFERENT TYPES OF CREATIVITY



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CREATIVITY IN ART AND SCIENCE

In daily life we often divide between artistic creativity and scientific creativity (for more, see: The Cambridge Handbook of Creativity across Domains)

(a) creativity may involve different types (general, artistic, and scientific creativity)

(b) certain types of creativity may be different across different professional groups (engineers and musicians) or domains

(c) some forms of creativity may exist generally without regard to domain (Charyton & Snelbecker, 2007)

The underlying psychological processes are nearly identical in both Einstein and Picasso's mind!

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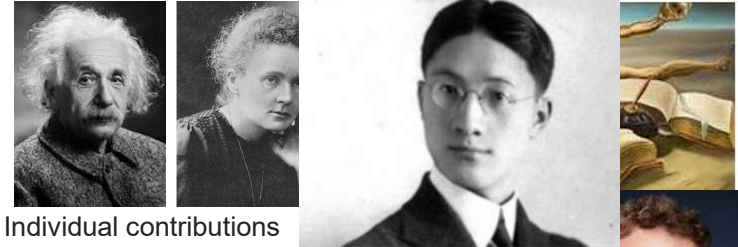


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RESEARCH ON CREATIVITY

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WHO IS CREATIVE?



Individual contributions

Traditionally creativity has been understood as an individual trait- and connected to particular “supraindividuals,” as described by Hargadon and Bechky (2006, p. 485).

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RESEARCH ON CREATIVITY: FROM THE INDIVIDUAL TO THE SOCIAL

Traditionally creativity has been understood from an **individual** perspective connected to *intelligence* (Glynn, 1996; Guilford, 1967; Sternberg, 1986), and also *personality and traits* (Amabile, 1996, 2008; Barron & Harrington, 1981; Csikszentmihalyi, 1990)

Creative people’s personalities are open to new experiences and they have a lively imagination (Barron and Harrington, 1981)

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RESEARCH ON CREATIVITY: FROM THE INDIVIDUAL TO THE SOCIAL

Another view is creativity as a **social** phenomenon (Diehl & Stroebe, 1991; Paulus, 2000; Paulus, Larey, & Ortega, 1995)

Lots of literature and research on creativity concentrated much on *techniques for idea generation*

- such as brainstorming and the impact of group dynamics often using a sociocognitive approach

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RESEARCH ON CREATIVITY: FROM THE INDIVIDUAL TO THE SOCIAL

However, the cognitive views fail to acknowledge the relational dynamics between the social and the individual which is offered by a more recent research promoted by John-Steiner (2000); Sawyer (2006); Glăveanu, (2011)

Collaborative creativity as a shared knowledge construction, but where the knowledge construction needs to be jointly built on others' ideas and thoughts (Mercer, 2010)

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WHAT THEORETICAL FRAMEWORK CAN
SUPPORT SCHOLAR'S DIDACTICAL CHOICES
WHEN THE AIM IS...
TO TEACH IN WAYS THAT ENABLE
COLLABORATION AND CREATIVE
PROCESSES?



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DIALOGIC PEDAGOGY



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Principles in Dialogic Pedagogy

Dialogic teaching is **teaching** based on more equal dialogue between teachers and students and among students themselves

It is based on five **principles** described in Alexander (2008) as: collective, reciprocal, supportive, cumulative and purposeful

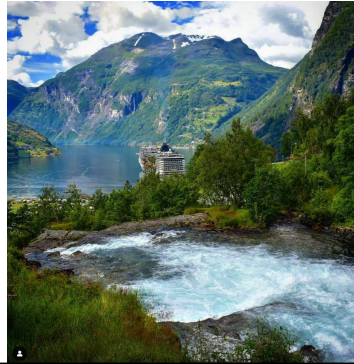
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DIALOGIC TALK NEIL MERCER

- ▶ To allow each other to speak
- ▶ To ask questions in order to understand better
- ▶ To paraphrase or reflect back each other's words
- ▶ To try to make one's own point as clearly as possible
- ▶ To explore differences of opinion
- ▶ To give arguments to support others' ideas



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Principles in Dialogic Pedagogy

Bakhtin's theories on dialogue and polyphony can be seen as basic principles in dialogical teaching

- Emphasis on social interaction

Dialogue involves many speakers and a variety of perspectives; truth becomes something negotiated and debated

- New knowledge arises in the tension between different perspectives

Polyphony: multivoicedness with no dominating voices - the simultaneity of different points of view and voices

Merleau-Ponty: when dialogue works it is no longer possible to say who is thinking (Merleau-Ponty, 1968) because we find ourselves thinking together (<https://www.rupertwegerif.name/blog/defining-dialogic-education>)

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Principles in Dialogic Pedagogy in practice

Lets look at ...

... how polyphony stimulated creative knowledge processes in interdisciplinary working groups

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CASE STUDY: INTERDISCIPLINARY GROUPS

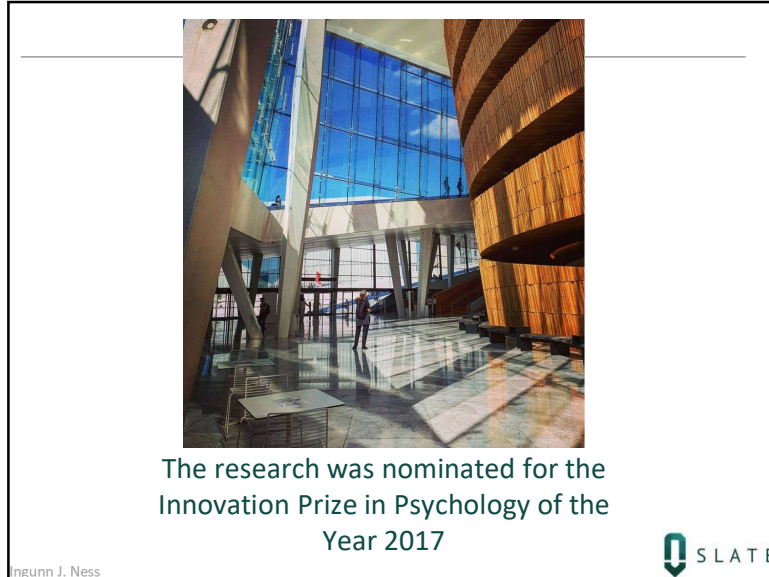
The Room of Opportunity:

Understanding how knowledge and ideas are constructed in interdisciplinary groups working with developing Innovative ideas

(3 groups: Equinor and Research Institute)



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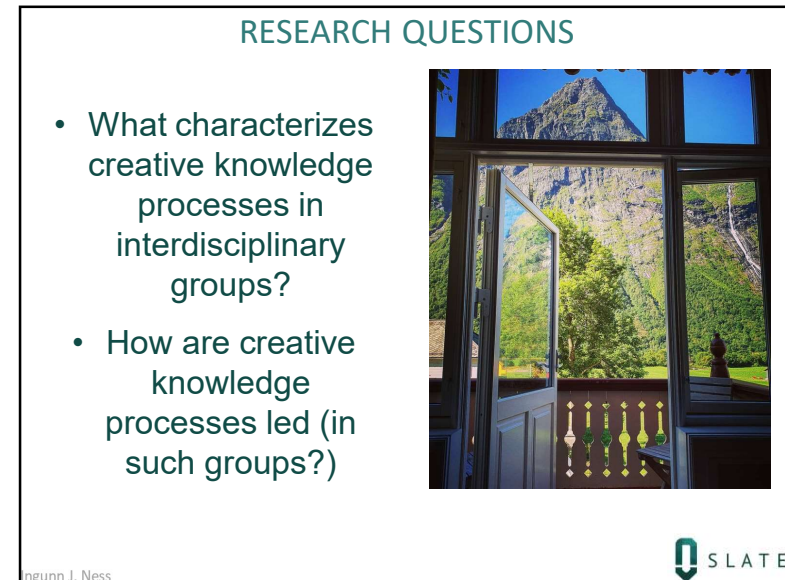
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METHODS

Ethnographic design – to get close to and capture the creative processes from the beginning to the end

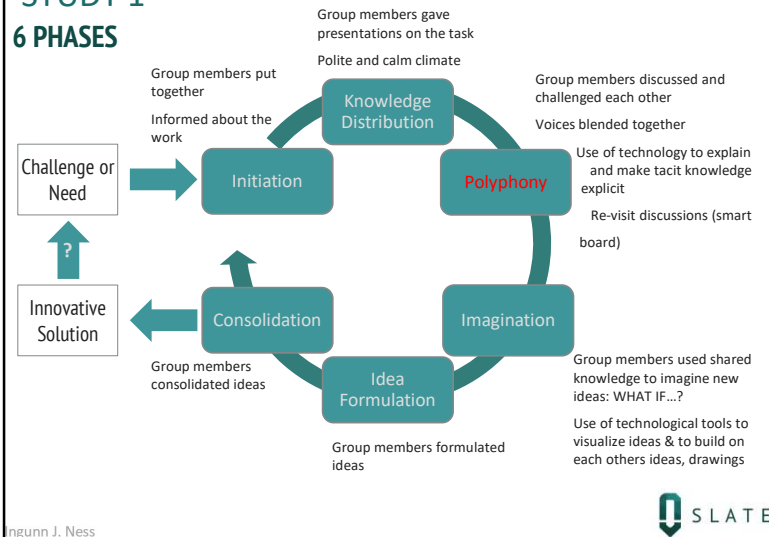
Qualitative methods – method triangulation

- ▶ **Extensive fieldwork, 18 months, including participating observation** of the communication and interaction of multi-disciplinary groups (audio/video recording).
- ▶ Strategy group: Equinor – hybrid
- ▶ Innovation group: Equinor – f2f
- ▶ Research Institute group – f2f
- ▶ **3 Focus group interviews** (one in each group)
- ▶ **12 Qualitative semi structured interviews** with leaders of innovation processes - 4 of these with International leaders

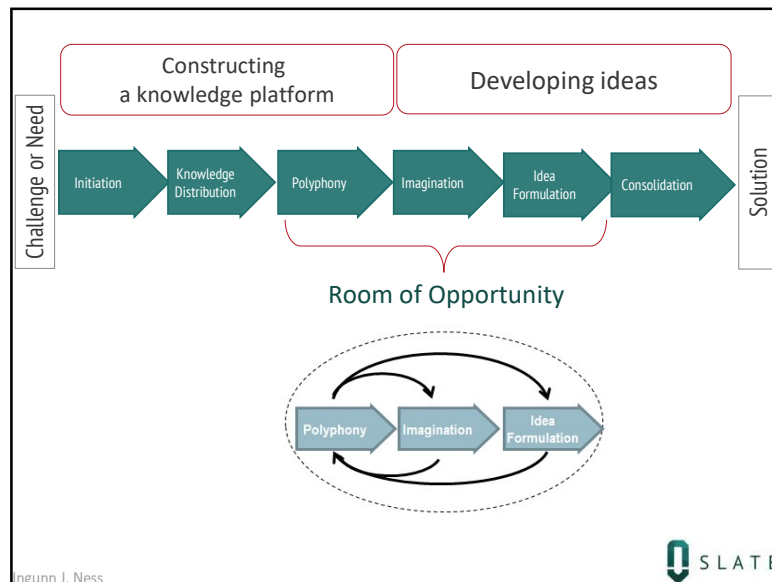
Ness, I.J. (2019): **Behind the Scenes: How to research creativity in multidisciplinary groups.** In *Handbook of Re/Searching the Social in Creativity Research: Methods, Studies, and Reflections*. Palgrave Macmillan book series 'Creativity and Culture'.

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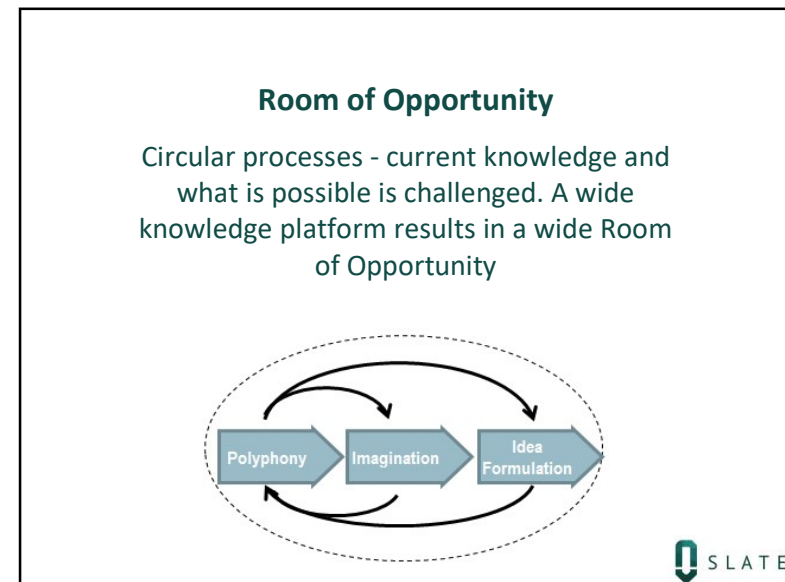
STUDY 1 6 PHASES



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INSIGHT:

It was crucial that the group members learned from each other through “Polyphonic Imagination” in order to succeed with creative knowledge creation
 (Ness & Dysthe, 2019)



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STUDY 2

How do the groups build knowledge?

It is insufficient just to assemble people with special expertise from different disciplines

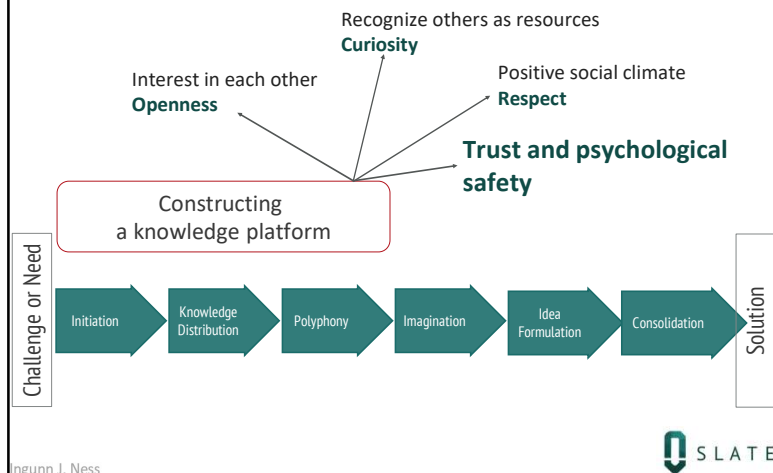
They need additional relational skills in addition to TOP expertise in order to collaborate and accomplish knowledge building



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STUDY 2



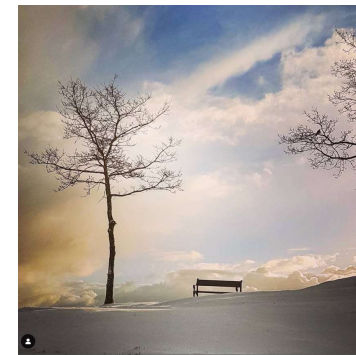
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ABOUT PSYCHOLOGICAL SAFETY....

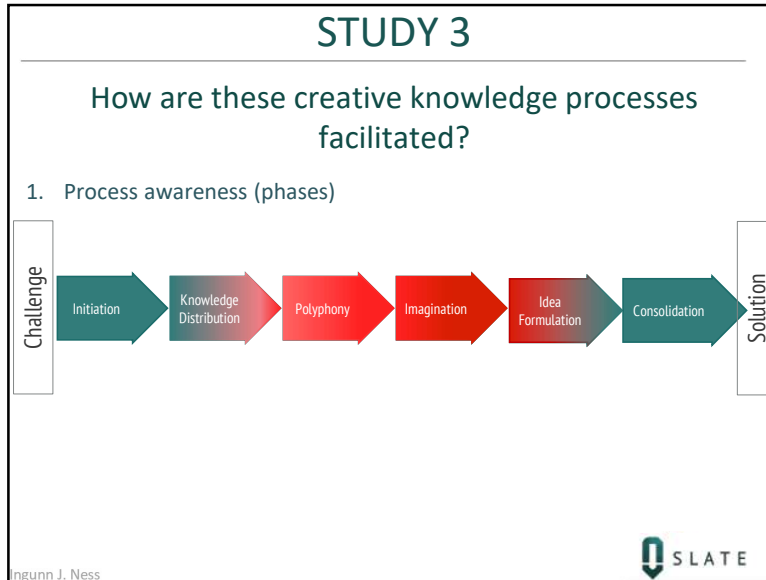
- To feel safe in the team & not afraid to contribute (Kahn, 1990)
- Not afraid of asking “silly questions”

Psychological safety – important in complex, and ambiguous situations. Better performance when we feel safe (Edmondson, 2018)

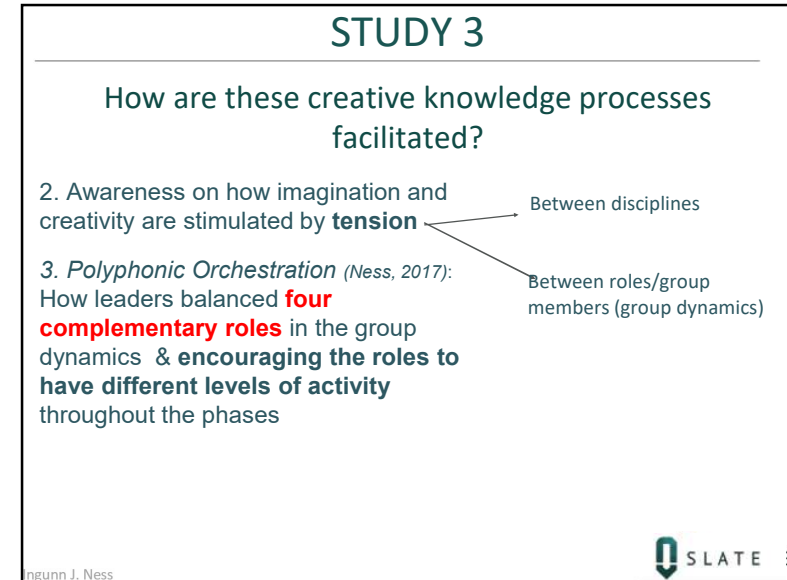


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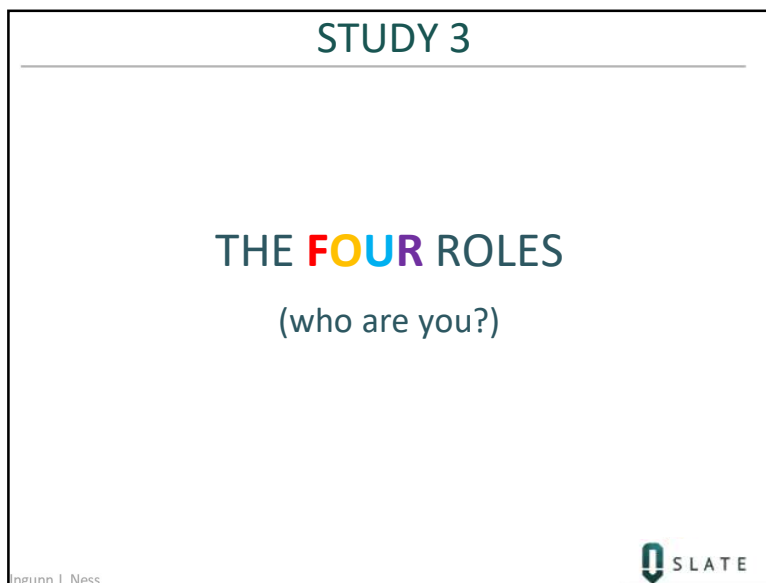
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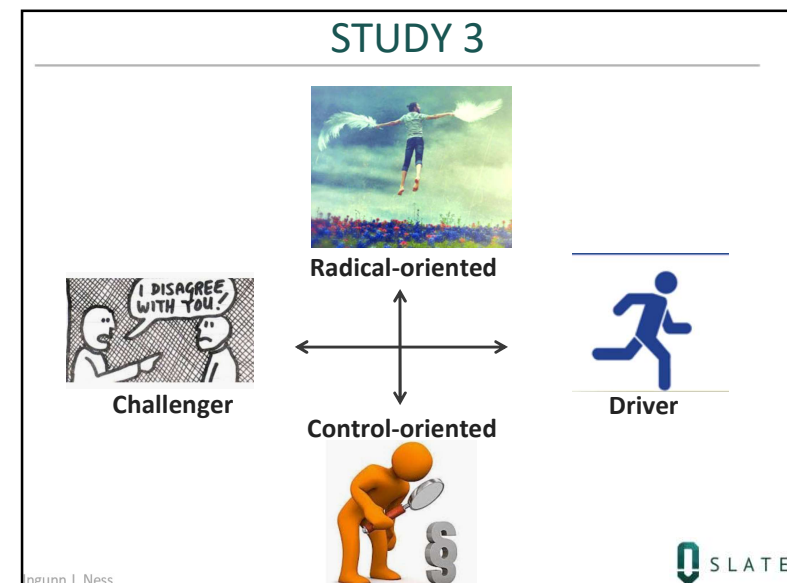
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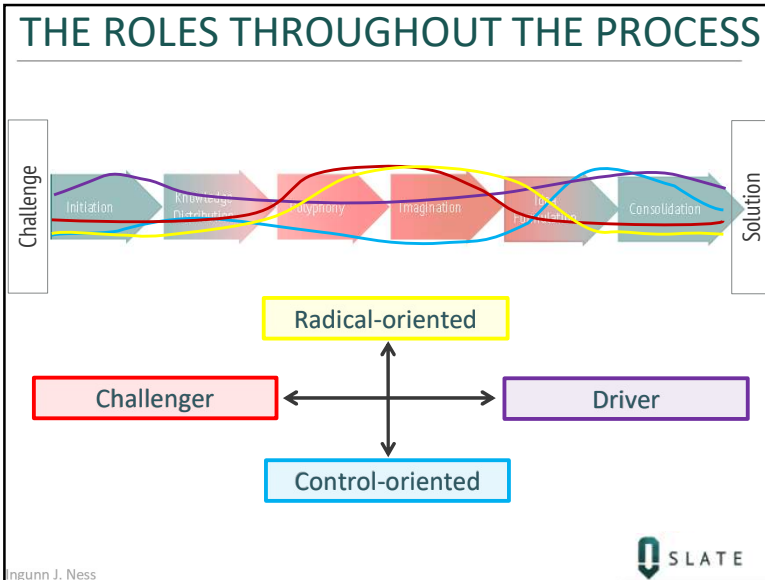
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WONDERING...

**COULD I TRANSFER FINDINGS
FROM WORK LIFE GROUPS
TO STUDENT GROUPS???**

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- Could I ...**
- support such creative knowledge processes in the student groups in pedagogy???
 - organize the teaching in the seminars based on a phase model with different steps and activities?
- Would it ...**
- be possible to build a common knowledge platform and encourage all the different student voices coming from different institutes to be active and heard?
 - be possible for the students (and me) to communicate with openness, curiosity, and respect?
- Would I ...**
- be able to «let go» and let the students be true co-constructors of knowledge? (showing, not telling)
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**Could the students and I
create a polyphonic «Room
of Opportunity»?**

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From organization groups to student groups



Some similarities: BOTH the groups in the organizations and the student groups consisted of people with different «voices» (different understandings, personalities, culture etc)

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From organization groups to student groups



BOTH the leader of the working groups
 and the teacher of the student groups
*aimed to enable learning and creative knowledge processes
 through groupwork with open and respectful communication*

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Dialogic teaching creates
 an arena – a Room of
 Opportunity- for practising
 creative knowledge
 processes (possibility
 thinking)



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THE STEPRE PHASE MODEL

The phase model is a way to stimulate dialogue by structuring the seminars - throughout phases



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THE STEPRE PHASE MODEL



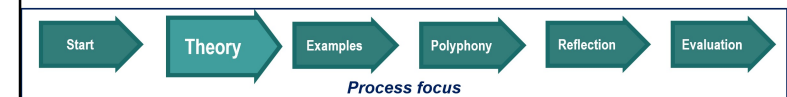
Phase 1; Start – introduction

- Informing the students about structure and the intention behind the activities.
- Rules for how to communicate
- To listen, not talk in statements but ask questions, be open, curious, and respectful + dialogic talk

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THE STEPRE PHASE MODEL



Phase 2; Theory

Theoretical input

- Students presented selected parts of the course literature to each other
- Established a shared knowledge platform
- The shared Knowledge became “thinking tools”

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THE STEPRE PHASE MODEL



Phase 3; Examples

Empirical examples to see the practical implications of the theory

- Students found practical implications from their individual perspectives, reflecting the different disciplinary traditions in the group
- Students wrote down examples individually (helped all to talk)

The diversity became explicit and the discussions took unexpected turns

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Student voice:

“I really liked those post-its that you gave us in those “Top-Secret Envelopes”, since I need to write and think a bit first... – because I’m not usually one of these who like to talk much in class.”

(PS: The “Top Secret Envelopes” were envelopes that I prepared for each seminar and handed one to each groups, containing “equipment” for the different activities I had planned)

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THE STEP RE PHASE MODEL



Phase 4; Polyphony

Group activity, explorative discussions – included all voices

- Open questions, dialogue game, playing with group roles & taking other perspectives to stimulate imagination, (potential in Wegerif: widening and deepening dialogical spaces)– use of different technological tools to support dialogue
- Practiced the rules for communication; to listen, be open, respectful – despite differences
- Point with these tasks is for the students (in addition to learn about pedagogical theories) to practice creative knowledge processes, dialogue
- Lecturer/teacher «letting go of control» (not «loose» control)

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Student voice:

“I enjoyed being the challenger the most – I could disagree a lot then...That was a way of using my imagination too you know...Its hard, you know, to be like the one bringing new thoughts. Sometimes I surprised myself too, that I could do that, being the one who opened up a new window”

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THE STEP RE PHASE MODEL



Phase 5; Reflection

Reflections on the new knowledge the students had gained and how it could be used

- Reflected also on *how* they had learned and the relational interaction in the groups
- In seminars on learning theories, students applied own experiences and connected this to learning theories

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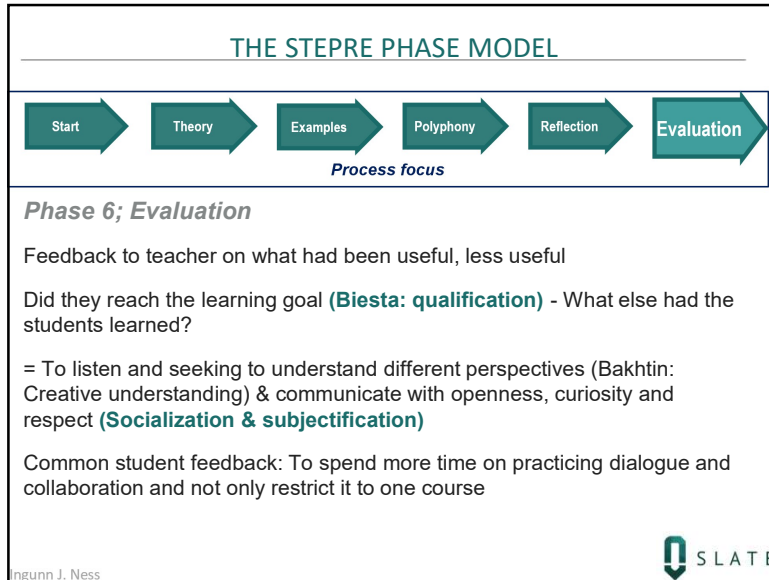
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Student voice:

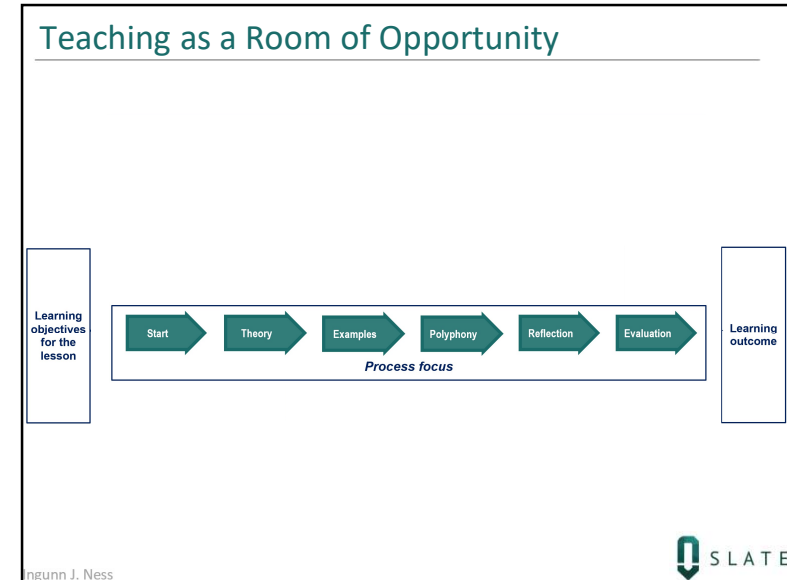
“That was an a-ha moment to me, - what we had done in the seminars was actually socio-cultural learning theory...That was amazing! I learned so much from listening to how others understood the differences between Vygotsky and Piaget and to explaining my own views out loud.”

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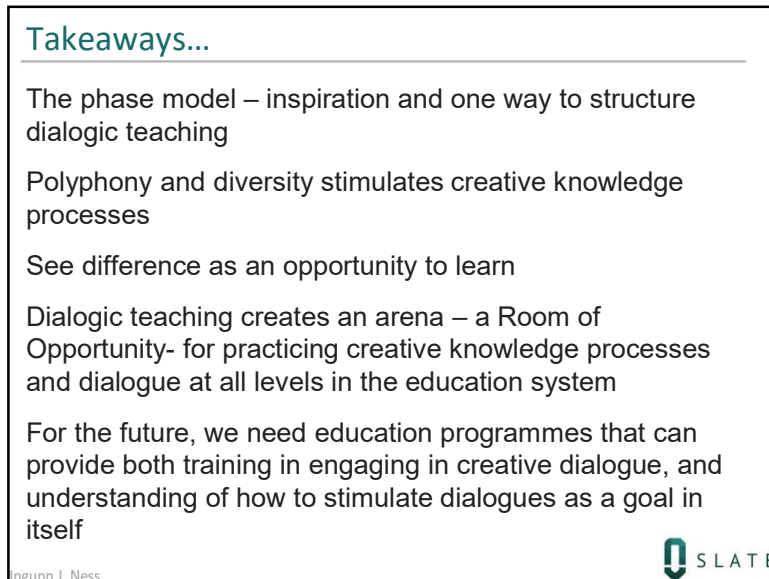
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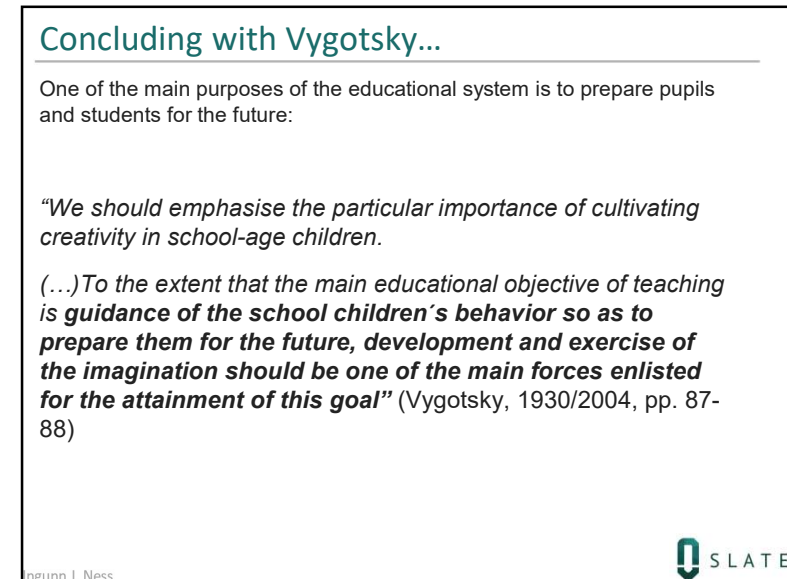
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LIST OF PUBLICATIONS

Ness, Ingunn Johanne (2020) **Polyfoni og kreative vidensprocesser i klasserummet og i videregående uddannelser.** In: Dialogisk pædagogik, kreativitet og læring. Danmark: Forlaget Klim ISBN 9788772044323. pp. 113-143

Ness, Ingunn Johanne; Dysthe, Olga (2020). **Polyphonic Imagination: Understanding Idea Generation in Multidisciplinary Groups as a Multivoiced Stimulation of Fantasy.** *Creativity Research Journal*, 32(1), pp. 1-11

Ness, I.J., & Glaveanu, V. (2019). **Polyphonic Orchestration: The dialogical dynamic of creativity.** In *Dynamic Perspectives on Creativity: New Directions for Theory, Research, and Practice in Education*. Springer.

Ness, I.J. (2018). **Behind the scenes: Researching creativity in multidisciplinary groups working with developing innovative ideas.** In *Handbook of Re/Searching the Social in Creativity Research: Methods, Studies, and Reflections*. Palgrave Macmillan.

Ness, I.J. and Egelandsdal, K. (2018): The STEPPE-model: Knowledge development in Higher education. Short paper for the Conference: *Designs for Learning*.

Ness, I. J. (2017). **Polyphonic Orchestration: Understanding how leaders facilitate creative knowledge processes in multidisciplinary groups working with innovation.** *European Journal of Innovation Management*. 20(4), 557-577. DOI: 10.1108/EJIM-05-2016-0049

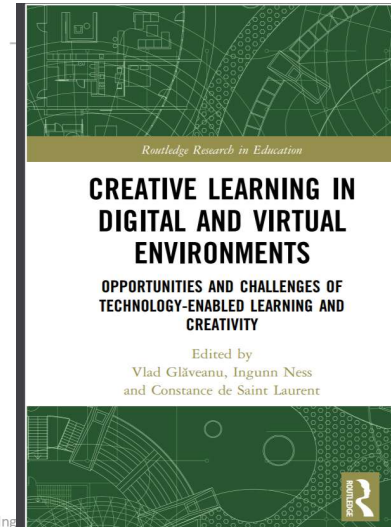
Ness, I. J., & Riese, H. (2015). **Openness, curiosity and respect: Underlying conditions for developing innovative knowledge and ideas between disciplines.** *Learning, Culture and Social Interaction*, 6, 29-39. DOI: 10.1016/j.lcsi.2015.03.001

Ness, I. J., & Søreide, G. E. (2014). **The Room of Opportunity: Understanding phases of creative knowledge processes in innovation.** *Journal of Workplace Learning*, 26(8), 545-560. DOI: 10.1108/JWL-10-2013-0077



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BOOK



- ▶ Providing a current and updated account of the challenges posed by the Coronavirus to online education
- ▶ Offer conceptual reflections and empirically informed insights into the impact of technology on individual and collective creativity and learning
- ▶ Glaveanu, V., Ness, I.J. de Saint Laurent, C. (2020)

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Thank you!



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