Travelling Concepts

Experimenting with interdisciplinary conversations

COLLABORATING | Communication Skills

What you will need:

- At least 8
- Duo's
- 1.5 hrs preparation
- 2 hrs execution
- Pen, paper, handout

Related Tools:

Creating New Metaphors

Menu:

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"Through debate and questioning, students discover, learn and understand how concepts travel and transform. Students can experience that interdisciplinary conversations are both challenging and fun!"

—Brianne McGonigle Leyh & Tessa Diphoorn

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I. Overview

This tool invites students to engage in interdisciplinary conversations through the notion of *travelling concepts* — concepts that move between disciplines and take on different meanings along the way. Rather than focusing on solving a problem, students explore how a concept is understood, used or transformed across disciplinary boundaries.

By comparing how different disciplines approach the same concept, students begin to recognise underlying patterns in how knowledge is shaped. These conversations help them better understand their disciplinary background and assumptions, while learning to identify contrasting perspectives and construct common ground.

Through dialogue, they discover how sharing stories, interpretations and ways of knowing can generate new meaning — a crucial skill for interdisciplinary and transition-oriented learning.

Learning outcome

- The student is able to recognise how concepts travel between disciplines, identify emerging patterns and articulate these insights in an interdisciplinary dialogue

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II. Learning Activity

Students engage in interdisciplinary conversations using travelling concepts to uncover disciplinary assumptions, compare perspectives and construct common ground.

1. Preparation

1.5 hrs

To prepare, read the Travelling Concepts for Teachers handout, and both you and the students listen to two episodes of the Travelling Concepts on Air podcast series:

- Episode 1 “Introducing Travelling Concepts“
- One additional episode of choice

While listening, take notes on the following points to prepare for the classroom discussion and reflection:

- How is the concept interpreted in each discipline?
- How does the meaning shift between contexts?
- What does each discipline focus on (methods, assumptions, language)?
- Do you notice tensions or overlaps between disciplines?
- Where do you see (potential) common ground?

Tip: to supplement the podcast episodes, you are encouraged to read the following two articles: Travelling in the Classroom: Podcasting as an Active-Learning Tool for Interdisciplinarity and Traveling Concepts in the Classroom: Experiences in Interdisciplinary Education.

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2. Disciplinary Self-Reflection 30 mins

First, ask the students to share what discipline they most identify with.

Then, have students complete the Disciplinary Self-Reflection exercise (Van Goch, 2023). The form invites students to describe their preferred discipline by considering:

- The kinds of phenomena it studies
- It's typical assumptions
- Basic concepts and theories
- Methodological approaches

Conclude with a plenary discussion in which students share their reflections. Use the guiding questions on the handout to support students who may struggle to articulate the fundamentals of their discipline.

Tip: let students know that this is not an easy task, and that's the point. Struggling with this reflection can help surface tacit knowledge and disciplinary blind spots, which are key to the learning outcome.

3. Listen & Discuss 30-45 mins

Now, form students into interdisciplinary pairs, ideally across different faculties. Building on their disciplinary self-reflection, student pairs discuss their disciplines.

Guide the students with the following questions:

- Are there shared themes, phenomena or research objects between their disciplines?
- Do they use the same concepts to describe similar phenomena, or do they approach them differently?
- How do disciplinary assumptions, methods or vocabularies align or differ?

Finally, instruct each pair to select one 'concept' (see the podcast series, for example) for the next steps.

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Tip: encourage students to practise identifying both differences and potential common ground —in how the concept is understood and in how their disciplines relate more broadly to the topic, approach or object of study.

4. Reflection & Travelling

30 mins

In order to deepen students' understanding of how concepts function across disciplines, this step invites a collective reflection on their paired conversations. It helps students articulate where disciplinary differences emerge, how concepts are used or understood differently, and whether their selected concept holds real potential for interdisciplinary exchange.

Facilitate a plenary discussion in which students reflect on their interdisciplinary dialogues. Use guiding questions to help them examine how disciplinary perspectives shape the interpretation and use of a concept, for example:

- How is the concept used differently across the disciplines you discussed?
- Are different methods, approaches, or theories applied?
- Do your disciplines refer to similar or contrasting sources or scholars?

As part of the plenary or in follow-up, ask each pair to share the concept they selected for their assignment. Assess whether their choice:

- Reflects insights from both disciplines
- Reveals meaningful differences or connections
- Provides a strong basis for interdisciplinary comparison or exchange

Approve or give feedback on the selected concepts before students continue to the next step.

5. Shared Expression

1 hr

Student pairs create a tangible product that captures the core of their interdisciplinary conversation. The aim is to give form to their shared exploration of a travelling concept and

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to practice communicating across disciplinary boundaries.

Ask each pair to produce a creative output that reflects the essence of their dialogue about the selected concept. Students are free to choose the format, but the product should convey how their disciplines engage with the concept, where their perspectives meet or diverge, and how they navigated the conversation.

Recommended formats include a podcast episode, a co-written essay or article and a visual piece (e.g. diagram, collage, illustrated conversation).

Please note, as part of assessment *as* learning, students write an individual reflection.

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III. Assessment

Assessment focuses on the final creative expression, the individual reflection on the learning process and participation in class.

Purpose

Assessment *as* learning aims to strengthen the learning process and the development of metacognitive skills. It empowers students to direct their own learning and to become independent, critical self-assessors.

Roles

Self-assessment and teacher-led assessment

Characteristics

Assessment of duo and individual process

Materials

Assessment rubric and individual reflection

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Assessment

Individual reflection

Write an individual reflection paper of no more than 750 words in which you critically reflect on the interdisciplinary conversation you had with your partner.

Your reflection should address the following questions:

- How difficult was it for you to explain how your discipline uses the concept you discussed?
- How difficult was it to understand your partner's disciplinary perspective on the concept?
- Were you able to find a shared understanding of the concept (*common ground*)? If so, how did you get there?
- What possibilities do you see for integrating your perspectives, in terms of methods, sources or conceptual framing?
- How has this conversation influenced or deepened your understanding of what interdisciplinarity means?

Your reflection will be assessed on the following criteria:

1. **Clarity**
   Is your writing clear and well-structured?

2. **Depth**
   Do you go beyond description to analyse your experience?

3. **Critical engagement**
   Do you reflect on your assumptions and learning process?

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Assessment

Assessment rubric

	Strong work	Satisfactory	Needs Improvement
Podcast or creative output	In a pair, creates an insightful podcast or other creative output. The final product exceeds the minimum requirements, and there is clear additional effort to advance the interdisciplinary exchange.	In a pair, creates a satisfactory podcast or other creative output. The final product meets the minimum requirements, but there is little additional effort to advance the interdisciplinary exchange.	In a pair, creates an unsatisfactory podcast or other creative output, or does not produce any creative output. The pair fail to meet the minimum requirements of the assignment.
Quality of reflection	Shows strong ability to critically appraise and reflect upon interdisciplinary exchanges as well as their role therein.	Shows some ability to critically appraise and reflect upon interdisciplinary exchanges as well as their role therein.	Struggles to critically appraise and reflect upon interdisciplinary exchanges as well as their role therein.
Participation	In class, participation is relevant and reflects an understanding of assigned materials. Comments frequently help move the discussions forward or constructively aid fellow students.	Comments are mostly relevant but may indicate a lack of understanding of the materials or comments from other students. Comments sometimes advance the discussion.	Comments reflect little understanding of either the materials or previous remarks made in class. Comments do not advance the discussion or are actively harmful to it.

A passing mark requires satisfactory or strong in two of the three areas.

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IV. Key Advice

It could be helpful to read and learn more about the four-stage learning model for stimulating interdisciplinary thinking and for learning interdisciplinary skills, developed by the Interdisciplinary Education team at Utrecht University. This model draws on existing theories on interdisciplinary and cognitive development by Alan Repko and William Perry and acts as a foundation from which interdisciplinary courses and learning activities can be designed.

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Key Advice

Travelling concepts

Travelling concepts are theoretical ideas or terms that move between different academic disciplines. As they travel, they often change in meaning, scope and function. These shifts reveal how knowledge is shaped by different disciplinary traditions, assumptions and methods. The idea was introduced by cultural theorist Mieke Bal, who described concepts as “miniature theories” — not neutral labels, but dynamic tools that help us understand and talk about the world. Their meaning is always situated, contested and evolving.
Working with travelling concepts is not about finding fixed definitions. Instead, it’s about using the differences as a starting point for dialogue and co-creating understanding across disciplinary boundaries.

In interdisciplinary education, travelling concepts provide a way to:

- Make disciplinary assumptions explicit
- Compare how different fields construct meaning
- Explore where common ground can be found
- Reflect on the process of meaning-making itself

Example
The concept of *sovereignty* means something very different to a legal scholar than to an anthropologist. In law, it often refers to the legal authority of the state. In anthropology, it may involve the lived experience of power, autonomy or marginalisation. Exploring these meanings side by side shows how the same concept can reflect different ways of seeing the world.

Law	**Anthropology**
Legal authority and jurisdiction	Everyday experiences of control or resistance
Territorial integrity	Indigenous governance and autonomy
State autonomy in international law	Power relations in postcolonial contexts
Recognition by other states or international bodies	Informal or non-state forms of authority

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Traveling Concepts in the Classroom: Experiences in Interdisciplinary Education

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ABSTRACT

Interdisciplinary research is widely valued and practiced within higher education. However, there is less attention on interdisciplinary teaching and learning, and existing examples often focus on problem-based approaches. The purpose of this special issue is to explore the potential of a concept-based approach to interdisciplinary education, working with the notion of traveling concepts. Traveling concepts refer to the metaphorical traveling or use of concepts within and between disciplines that impacts their meaning, reach, and operational value. This special issue introduction provides a theoretical and conceptual framework around traveling concepts, which special issue contributions then use to reflect on specific interventions. These reflections highlight the importance of interdisciplinarity beyond a problem-solving frame and provide concrete classroom examples to inspire teachers.

Keywords: Education, Interdisciplinarity, Traveling concepts, reflection

INTRODUCTION

The importance of interdisciplinarity has become a popular refrain in universities around the world. Interdisciplinary research is often regarded as the only sustainable means to solving complex societal problems. Yet much less attention has been given to interdisciplinarity in education and the ways in which interdisciplinary perspectives, skills, and tools can be used for learning purposes (Angerer et al., 2021). In this special issue, we aim to

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address this gap by reflecting on our experiences of teaching in an interdisciplinary setting.

Our teaching practice is guided by a shared framework and approach: each of us has been inspired by the work of Dutch cultural theorist Mieke Bal in her 2002 book, *Travelling Concepts in the Humanities: A Rough Guide*. Bal argued that a focus on concepts rather than methods provides the most productive approach to interdisciplinary work. Scholars across disciplines have taken on Bal's proposition and have explored how concepts develop and transform as they move within and across disciplines and thus become productive sites of interdisciplinary exchange (Bal, 2002; Bear, 2013; Neumann & Nünning, 2012; van der Tuin & Verhoeff, 2022; Veen & van der Tuin, 2021). Thus, traveling concepts can act as a tool to understanding interdisciplinarity more broadly.

Yet, traveling concepts are primarily explored in relation to interdisciplinary research, while their potential for interdisciplinary education has as of yet been overlooked. We aim to address this gap by showcasing various ways in which the framework of traveling concepts can be used in interdisciplinary education to enable students to develop the necessary skills for interdisciplinary thinking. To translate the notion of traveling concepts into the educational domain, we draw from Allen F. Repko and Rick Szostak's prominent model of interdisciplinarity (Repko & Szostak, 2021) and a four-stage learning model developed at Utrecht University on the basis of Repko and Szostak's approach.

We are all scholars working at Utrecht University in the Netherlands, and are engaged in interdisciplinary research and education. We come from a wide range of disciplines including cultural anthropology, economics, law, literary studies, educational psychology, and philosophy. In our contributions to this special issue, we provide examples and insights from our teaching at different levels (undergraduate and graduate) and in different settings and at different scales (from the seminar to the program level) on how traveling concepts can be used to facilitate new forms of interdisciplinary education. By reflecting on our experiences as teachers, we aim to explore both the pitfalls and promises of using traveling concepts in interdisciplinary education. We hope that by reflecting on our experiences, we can provide novel and helpful insights to our peers working in interdisciplinary education settings.

INTERDISCIPLINARITY IN EDUCATION

For decades, interdisciplinary research has been promoted around the world as a key to solving global challenges (National Academies of Science, 2005; Visholm et al., 2012). Terms such as inter-, multi-, and transdisciplinarity have become buzzwords in academic discourse (Moran, 2010), and there is

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much discussion on the benefits of knowledge produced outside and between traditional disciplinary boundaries and with new and integrated methods. In the Netherlands, for example, scholars have noted that interdisciplinary research collaborations are "urgently needed," asserting that the complexity of global challenges can only be addressed through "the involvement of many different parties and approaches, new connections and alliances" (De Graaf et al., 2017, p. 38). International and national funding streams and entire university research structures have responded to these calls for greater interdisciplinary research. In tandem with these developments, the theory and practice of interdisciplinarity have become an object of study with an ever-growing number of books, special issues, and conferences dedicated to the topic (e.g., Aldrich, 2014; Angerer et al., 2021; Baptista, 2021; Frodeman et al., 2017; Klein, 1990, 2021). Nevertheless, interdisciplinarity remains an elusive concept, whose definition varies greatly depending on the authors and the context in which they employ it. Moreover, the focus of these publications is largely on interdisciplinarity in research rather than in education. There is a growing body of scholarship on interdisciplinary education (Scholarship of interdisciplinary Teaching and Learning) with its own literature, associations, and conferences (Alexander et al., 2019; Jacob, 2015; Lindvig & Ulriksen, 2019; Millar, 2016; Repko & Szostak, 2021; Rooks & Spelt et al., 2009; Weingart, 2014; Winkler, 2012), but this work focuses either on the theory of interdisciplinary teaching and learning or on prescribing methods and tools. In this special issue, we aim to shift this balance by explicitly focusing on real-life experiences and reflections of scholars engaged in interdisciplinary education.

Interdisciplinary teaching and learning entail two key challenges, which revolve around a particular way of thinking. The first concerns the ability to convey (the benefits of) interdisciplinary research to students, to show that interdisciplinarity is key to addressing complexity and that it entails drawing "insights from relevant disciplines and integrates those insights into a more comprehensive understanding" (Newell, 2001,p. 2). The second concerns teaching students how to engage in interdisciplinary research. This challenge involves interdisciplinary methodology and approaches on the one hand and specific competencies, skills, and attitudes on the other. Here it is important to note that a distinction should be made between education in which interdisciplinarity is the *goal* (e.g., to teach students interdisciplinary research competencies), or the *means* towards a goal (e.g., to analyze complex societal challenges), and between interdisciplinary education and education on interdisciplinary research. The contributions to this special issue address both challenges in various ways. Some focus more on the experience of teaching in an interdisciplinary setting, while others outline the practicalities of teaching certain skills and approaches to foster interdisciplinary thinking.

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More specifically, we aim to provide self-reflexive accounts of our experiences in working with concepts in interdisciplinary education. Interdisciplinarity in the classroom tends to depart from a problem-based approach, where students and educators are encouraged to combine methods and approaches from various disciplines to tackle a concrete and predefined societal or scientific problem in search of a solution. For example, at our university, there are a number of excellent problem or challenge-based interdisciplinary educational initiatives for students, including the Da Vinci Project, the TIC to TIC program, and the Inter-University Sustainability Challenge. Such initiatives are worthwhile and productive, yet they also face several limitations. Very often, problems are not well defined, the questions posed are not themselves critically discussed, and those involved find it difficult to find a common language to solve the identified problem. It is hard, if not impossible, to find a common language if those involved do not have a full understanding of the assumptions underpinning different disciplinary perspectives.

As highlighted in the extensive work on interdisciplinarity, there are significant differences between disciplines in how they construct and approach their objects of study, work with theory and methodology, and conduct their research more generally—all of which crucially inform teaching practices (Klein, 1996; Repko & Szostak, 2021). Approaches, theories, and concepts are not only imbued with, and shaped by, scientific, historical, linguistic, cultural, and geographic traditions, they also come with ideological freight and often unconscious biases. Such disciplinary approaches and traditions, as well as the unacknowledged assumptions that come with them, often make it difficult to have productive interdisciplinary conversations, especially in the classroom. To address these challenges, we need to know: What tools and skills do teachers and students need to reflect on these assumptions and biases in the classroom? Which processes and elements are crucial to providing space for the identification and development of a common language? Existing research has identified certain competencies for enhancing interdisciplinary collaboration, but the learning processes associated with these are unclear (Culhane et al., 2018; Parker, 2010).

We contend that a productive framework for conducting such self-reflexive interdisciplinary conversations is to focus on concepts and the way they travel between different disciplines. This approach is inspired by Mieke Bal's *Travelling Concepts in the Humanities: A Rough Guide* (2002), which takes concepts as "tools of intersubjectivity" (p. 22) that allow teachers and students to find common ground as they speak across disciplines. In other words, we propose traveling concepts as a useful addition to the repertoire of "interdisciplinary habits of mind" (Newell & Luckie, 2019, p. 6).

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TRAVELING CONCEPTS

In *Travelling Concepts in the Humanities*, Bal proposed a focus on concepts rather than methods as the most productive approach to the problem of interdisciplinarity. Concepts are not merely descriptive; they are theoretical tools or "miniature theories" (Bal, 2002, p. 22) that have been developed and used in different disciplinary contexts to name and define themes, problems, and relevant questions. By giving a name to abstract ideas or phenomena, concepts allow people to communicate and to talk about their experiences and the world, facilitating discussion "on the basis of a common language" (Bal, 2002, p. 22) Concepts such as 'memory,' 'identity,' 'truth,' or 'nature,' for example, are never merely neutral or self-evident, but rather are performative, programmatic, and normative (Bal, 2002, p. 28). This is particularly evident when it comes to controversial or hotly debated concepts in society, such as 'gender,' 'race,' 'equality,' or 'justice.'The fact that they are hotly debated testifies to the power of concepts to shape social life.

In addition to this shaping power, concepts also have the capacity to metaphorically travel between and beyond disciplines, academic communities and cultures, differing in meaning, reach and operational value, sometimes even transforming disciplinary boundaries. Concepts are thus not fixed or static entities. As such, they can facilitate interdisciplinary discussion and innovation "not because they mean the same thing for everyone, but because they don't" (Bal, 2002, p. 11). The differences should not be seen as an impediment to interdisciplinarity but as a catalyst and a necessary precondition. It is through their ongoing travels that concepts become richer and invested with new meanings. Concepts are not simply given, but they are made – *conceived* - and historically situated.

The meaning of a particular concept, therefore, emerges from practice: from the ways it is used, "appropriated, translated and kept up to date over and over again and always with a difference" (Neumann & Nünning, 2012, p. 4). Its power "resides in the scholarly activities it propels, i.e. in traveling processes, rather than in what it is 'in itself'" (Neumann & Nünning, 2012, p. 4). A focus on traveling concepts thus places the emphasis on making explicit the underlying and unquestioned assumptions contained in the concepts we use to describe the problems we face. This, we argue, is a crucial step for interdisciplinarity to succeed. As Bal wrote, because concepts "are key to intersubjective understanding, more than anything they need to be explicit, clear, and defined"(Bal, 2002, p. 22). Only then can they "help to articulate an understanding […], enable a discussion on the basis of common terms"(Bal, 2002, p. 23).

Traveling concepts have become an important point of reference for interdisciplinary research within the humanities. Through the notion of traveling concepts, we have gained insight into how different disciplines

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construct, assess, and disseminate knowledge in different ways. Yet it is not only important to focus on the *concepts*, but also on the conception of *traveling* itself. There are various metaphors for the movement of concepts between cultures, discourses, and disciplines that are employed in different contexts, each with its own set of implicit and explicit assumptions and connotations.

Transplantation, for example, which has been theorized in the context of comparative legal studies (cf. Baer, 2012; Berkowitz et al., 2003), describes how a given concept is taken and incorporated into a new discipline, sub-field, or other context. As in the case of organ transplantation, the concept can either be accepted or rejected, depending on the intrinsic compatibility between the 'donor' and the 'recipient.' Clearly, however, while this metaphor may be fitting in certain contexts, it does not cover the full range of possible ways in which concepts move. Furthermore, the metaphor of transplantation presupposes distinct bodies and is too dependent on a rigid separation of the disciplines, whereas the basic principle underlying our approach to the movement of concepts is that disciplines are not islands or discrete bodies, but fundamentally entangled and connected.

Other metaphors for how concepts move between disciplines and discourses are less intentionalist and describe more gradual, decentralized, and dispersed processes. Migration, for example, refers to the way concepts gradually 'settle' and take hold in a new place (cf. Baer, 2012). Like the migration of populations, migrating concepts often encounter formal and institutional resistance and barriers. This metaphor also has its limits, however, not only because it can be difficult to track where specific concepts came from, but also because it can be made to imply that certain concepts are authentically or organically 'native,' while others are foreign, whereas in fact migration – both of human populations and of discourses and concepts – is the default state. Diffusion is yet another way that concepts travel and spread. Bal noted, for example, how at certain moments, particular concepts seem to take on a life of their own and come to proliferate, cropping up in all sorts of appropriate and inappropriate contexts. This, she writes, can result in a dilution of the concept that strips it of its "conceptualizing force" (Bal, 2002, p. 33). Bal here pointed to an inherent risk in interdisciplinarity, namely that through careless application the concepts may become hollow and superficial. In other words, it is not always clear that traveling is a good thing, particularly when beyond disciplinary boundaries (cf. Baer, 2013).

By focusing both on the concepts themselves and different modalities of movement within and between disciplines, the framework of traveling concepts can become crucial in understanding the promises and barriers to interdisciplinarity. Yet, while the potential of traveling concepts for interdisciplinary research has been much discussed, the question of how traveling concepts can be made productive for teaching has so far not been

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explored. If we contend that concepts are tools and "partners in thinking and making" (van der Tuin & Verhoeff, 2022, p. 6), then we also need to understand how they act as tools in the classroom. It is important to uncover whether and how traveling concepts are bolstering or thwarting understandings and learning processes and whether the framework provides a means for students to identify, explore, and develop interdisciplinary ways of thinking.

TRANSLATING TRAVELING CONCEPTS INTO TEACHING

In order to translate the framework of traveling concepts into the field of interdisciplinary education, we draw inspiration from our colleagues from the Interdisciplinary Education team at our university, who employ a four-stage learning model for stimulating interdisciplinary thinking and for learning interdisciplinary skills. This model draws on existing theories on interdisciplinary and cognitive development by Alan Repko and William Perry and acts as a foundation from which interdisciplinary courses and learning activities can be designed.

The first phase in this model is *disciplinary grounding*. In order to engage in interdisciplinary work, one must first have a comprehensive understanding of the various disciplines involved: their key concepts, approaches, and theories; their epistemology (how knowledge is constructed within a particular discipline); how theories and ideas are validated (which methods are used); and how ideas and insights are communicated. With regards to traveling concepts, this phase entails realizing that a particular word functions as a concept and becoming aware of the work it does or is being made to do, its "travel history" and "baggage" (cf. Veen & van der Tuin, 2021, p. 146).

The second phase is *perspective-taking*. This phase entails analyzing a specific problem or issue from the perspective of each discipline. At this stage, the approach remains multidisciplinary rather than interdisciplinary: the disciplinary insights are considered in parallel as different perspectives, but not yet integrated. For perspective-taking to work, it is crucial that participants see the merit of other approaches and ideas and are willing to identify and reflect on their own prejudice, assumptions, and expectations. For many of these processes, an open mind and willingness to embrace difference are essential.

Once perspective-taking has occurred, space emerges for the identification of commonalities and initiating the third phase, namely *finding common ground*. Combined, the phases of perspective taking and finding common ground entail a self-reflexive process of making one's own use of and disciplinary assumptions about a concept explicit. This process requires situating oneself in a particular disciplinary tradition or community, as part of

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a particular 'we' who use a concept in a particular way and to mean a certain thing. Furthermore, this means acknowledging that one's own definition of a concept is not the only one and that in other contexts, a different definition may be more fitting and productive.

As noted above, a key challenge and advantage of interdisciplinary thinking is the development of a common language. At this point, when such a common language can be found, one can speak across and through different disciplines about a particular topic or problem. Hence, identifying and discussing traveling concepts can be particularly fruitful at this stage. Finding common ground is thus very often a creative process that entails constant modification, redesign, and reflection.

The fourth phase is *integration*: this phase entails fusing the different perspectives together and creating an innovative and different comprehension or approach. This new understanding is one that could not have been arrived at from one single disciplinary perspective, but that draws on and inherently requires the various disciplinary perspectives involved. This last step is also often a creative process and results in novel models, theories, or methods. This process is then, ideally, applied to a particular topic or problem. Integration cannot occur through one discipline alone. Repko and Szostak (2021) highlighted that integration often demands outside-the-box thinking. For some scholars, integration occurs through dialogue and interactions across two or more disciplines, while others, referred to as integrationist interdisciplinarians, argued that integration "should be the *goal* of interdisciplinary work because integration addresses the challenge of complexity" (Repko & Szostak, 2021, p. 20; emphasis in original).

This four-stage learning model can be applied in numerous ways in and across courses, modules, and entire education programs. Not all four steps will receive equal weight in all cases. In some cases, perspective-taking may be the learning goal, while in others, integration is the ultimate learning goal. This, like all education, depends on what the expected learning outcomes are. In this special issue, we bring this four-step model of interdisciplinary education into conversation with Bal's notion of traveling concepts. We aim to provide pedagogical tools and approaches by which students (and teachers) can understand the meaning, shaping, and making of a concept, as well as its traveling. In the various contributions to this issue, we show how we have done this at different scales and within different educational settings and contexts.

TAKING OFF: PILOTS IN INTERDISCIPLINARY EDUCATION

This special issue consists of a number of case studies that are based on our own teaching practice and experiences. This contrasts with the more top-down approach that is commonly found in interdisciplinary education (e.g.,

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de Greef et al., 2017; Newell, 1994). Each contribution explores ways in which we, as scholars, have experimented with developing, designing, and testing different learning activities at various levels of education.

Most of us are not scholars of education, and our experiences in interdisciplinary education forced us to step outside our comfort zones. With a pioneering spirit, we traveled across disciplinary divides. We are all deeply committed to interdisciplinary work, and most of us practice this in our research as well as in our teaching. Based at Utrecht University, we have formed a close collaboration within the framework of the Young Academy (YA), a platform for interdisciplinary research and education, as well as societal engagement and university policy. We all came together due to our interest in and experience in various interdisciplinary projects in teaching and research. At the outset, we shared ideas on interdisciplinarity and discussed various tools and means to understand interdisciplinarity, such as threshold concepts (Meyer & Land, 2005; Zepke, 2013), boundary crossing (Akkerman & Bakker, 2011), and, of course, traveling concepts (Bal, 2002), which quickly emerged as one of the most productive frameworks for these interdisciplinary conversations. During these interactive sessions, we realized that many of us were engaged in experimenting with interdisciplinary education in various settings. This realization was the point of departure for a more sustained collaboration over the course of four years.

This special issue presents our reflections on that process and on our experiences in the classroom. We reflect on how our interdisciplinary interventions and the notion of traveling concepts allowed us and our students to develop interdisciplinary skills and knowledge. We primarily draw from our first-hand experiences to outline both the promises and pitfalls of interdisciplinarity (see Ashby & Exter 2019; Lattuca et al., 2004; Rooks & Winkler, 2012). Our aim here is not to provide a guidebook on how to practice interdisciplinary education (as, for example, provided by Kelly et al. (2019) in the context of interdisciplinary research). Rather, we aim to share real-life experiences on the difficulties, challenges, and enjoyments of creating an interdisciplinary classroom setting. Our hope is that our reflections can inspire and assist others who are working in interdisciplinary education. We also include the experiences and perspectives of students (Baker & Pollard, 2020), drawing on various sources such as surveys, reflection reports, course evaluations, and informal feedback.

The contributions in this special issue chronicle our experiences with the notion of traveling concepts in a range of different educational contexts and scenarios: undergraduate and graduate courses, in regular education and in honors education, in individual class activities or lectures, in the design and teaching of a course, or an entire minor program. The special issue consists of three core articles, each describing a particular case-study, followed by a reflective conclusion that brings together the contributions, both in terms of

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the content of the intervention, as well as the experiences of the scholars engaged in the activities. Through reflection and critical analysis, we offer an honest account of the promises and pitfalls of interdisciplinary teaching and learning and provide recommendations for educators interested in working with traveling concepts in interdisciplinary teaching.

The contributions are ordered according to the size of the intervention. In the first contribution, "The Market for Kidneys: Bridging Introductory Courses in Economics and Ethics," economist Martijn Huysmans describes an intervention in a course in the interdisciplinary undergraduate program in Philosophy, Politics, and Economics (PPE). He finds that a short knowledge clip on the traveling concepts of *voluntariness* and *value* can help students build more general interdisciplinary skills. In the second article, "Travelling in the Classroom: Podcasting as a Learning Tool for Interdisciplinarity," cultural anthropologist Tessa Diphoorn and legal scholar Brianne McGonigle Leyh reflect on the making of their podcast series *Travelling Concepts on Air* and discuss how they have been using episodes from this series in their teaching. They show how podcasting can function as a useful tool in education more broadly, but especially for understanding and practicing interdisciplinarity as a form of active learning. Thereafter, philosopher Annemarie Kalis analyzes the interdisciplinary classroom as a behavioral setting in "How Concepts Travel while Students Eat Pizza." She shows the importance of informal exchanges among students in an interdisciplinary honors program bridging philosophy and physics.

Finally, in the concluding article "Scholarly Learning of Teacher-Scholars Experimenting with Interdisciplinary Education," educational scholar Merel van Goch presents a reflection on the contributions in this special issue, drawing on interviews she conducted with the authors. Bringing the different experiences, approaches, and reflections together, she discusses what scholars can learn from engaging in interdisciplinary education, academically as well as personally.

With this special issue as a whole, we hoped to emphasize that interdisciplinarity in education is always an ongoing process requiring continuous practice (Klein, 1990), both for the student and the educator, and never a final state with a final destination. Continuing the analogy of traveling, the notion of travel has very different connotations depending on who is traveling and whether the journey is made for leisure and self-actualization or out of necessity, whether the journey is undertaken willingly or reluctantly, and so on. As literary scholars Birgit Neumann and Ansgar Nünning (2012) wrote, "[v]ariations in scale and scope, the multidirectionality of travels, flows and exchange processes as well as the exercise of power are often overlooked" (p. 6). Yet, they continued, it is precisely *because* of the association of mobility and travel with a certain history of classed and gendered privilege that a critical reflection on

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modalities of travel may serve to remind us of the fact that "concepts are never neutral or uncontaminated" (Neumann and Nünning, 2012, p. 6) . This statement is important to keep in mind when conducting interdisciplinary research, but it is even more important when it comes to interdisciplinary teaching.

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Travelling in the Classroom: Podcasting as an Active-Learning Tool for Interdisciplinarity

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ABSTRACT

Interdisciplinarity in the classroom is predominantly championed around a need to address pressing social problems by integrating knowledge from diverse disciplines. But can interdisciplinary teaching take shape without the usual problem-solving frame? And are there new methods/mediums through which to explore interdisciplinarity? These questions have led to new and promising developments related to podcasting, active learning, and interdisciplinarity in the classroom. Through the lens of Travelling Concepts, we reflect on our experiences in the making and using of the podcast series – Travelling Concepts on Air – to better understand interdisciplinarity. We show the value of students not only listening to podcasts as a supplementary means of learning, but also creating podcasts as a form of active learning.

Keywords: podcasting, travelling concepts, active learning, interdisciplinarity, education, reflection

INTRODUCTION

Interdisciplinarity in the classroom is most often championed and designed around a need to address a pressing social problem or complex global challenge, which can only be solved by integrating knowledge from diverse disciplines. But can interdisciplinary teaching take shape without the usual frame of solving problems or addressing complex challenges? And are there

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new methods or mediums through which to explore interdisciplinarity? These two central questions have framed our collaboration and guided our work and have led to new and promising developments related to podcasting, active learning, and interdisciplinarity in the classroom.

In this article we reflect on our experiences with teaching interdisciplinarity by using podcasting as a learning tool. In line with this special issue, we take Travelling Concepts as the key medium to explore interdisciplinarity. As outlined by Mieke Bal (2002), travelling concepts refers to concepts that 'travel' within and across disciplines and this travelling often impacts the meaning, reach, and operational value of the relevant concept. Through the lens of Travelling Concepts, we have been able to explore interdisciplinarity without first identifying a complex problem to be solved. In order to develop this further, in 2020 we created a podcast series – *Travelling Concepts on Air* – to better understand and elaborate on the notion of travelling concepts and how they are related to interdisciplinarity, both in terms of research and education. In each episode of our podcast series, we focus on a particular concept and invite two scholars from different disciplines to join us and converse about how they use a specific concept. By elaborating on their approaches, experiences, understandings, and assumptions, we aim to uncover the potential 'travelling capacity' of a concept and to gain new insights into disciplinary boundaries.

It was through the making of this podcast series that we, as educators, gained deeper understandings of the promises and pitfalls of interdisciplinarity. The podcast was thus a means by which we were able to better appreciate interdisciplinarity. We were learning by doing and wanted to share this method of active learning with our students. We began using the various episodes in our education in two different ways to allow students to gain more insight into how interdisciplinarity can and cannot work. The first was as supplemental material in a diverse set of classrooms (i.e., listening to the episodes and discussing them in class), and the second was in the form of active learning in our own co-taught interdisciplinary seminars wherein students made their own podcast episodes.

In this article, we reflect on our experiences in the making and using of the podcast series to show how podcasting can be used as a learning tool to understand interdisciplinarity. First, we elaborate on core concepts underpinning our work, including interdisciplinarity, podcasting, and active learning. Next, we explain about the making of the podcast series and using it in the classroom. After presenting our findings, we provide some reflections. We emphasize the importance of intrinsic motivation to look beyond disciplinarity boundaries, the significance of time and support in exploring interdisciplinarity exchanges both for students and teachers, the value of these exchanges being facilitated even outside the scope of a problem-solving frame, the usefulness of examining contestations as well as

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common ground, and most importantly, the benefits of active learning. One of our main conclusions is that *both* students and teachers better understand interdisciplinarity when they are 'doing' interdisciplinary work. Our findings and reflections directly contribute to various areas of education scholarship including the role of podcasting in education (and interdisciplinarity more specifically); interdisciplinarity beyond the problem-solving frame; and the importance of active learning by both students and teachers.

INTERDISCIPLINARITY, PODCASTING, AND ACTIVE LEARNING

As noted in the introduction to this special issue, while interdisciplinary education is on the rise (Alexander, 2019), there is still much to learn about how interdisciplinarity can be used and taught in various educational settings. However, new scholarship and practice in this area is promising (Ashby & Exter, 2019; Angerer et al., 2021). We have drawn inspiration from our colleagues working with the Interdisciplinary Education Team at Utrecht University who employ a four-stage learning model for stimulating interdisciplinary thinking and learning interdisciplinary skills. This model draws from existing theories on interdisciplinary and cognitive development by Alan Repko and acts as a foundation from which interdisciplinary courses and learning activities can be designed. Below we discuss further how we implemented this model through podcasting and how podcasting can then act as a useful teaching tool, especially for interdisciplinarity.

Podcasting emerged in the early 2000s and is seen as a new digital revolution within aural cultures (Berry, 2016; Markman, 2012; Spinelli and Dann, 2019; Llinares et al., 2018). Podcasts are increasingly used in academia, both for research purposes (Fantini and Buist, 2021) and in education. There is growing research on how podcasts can be used in education, particularly as a means of engaging with students (Fernandez et al., 2015; Heiselen, 2010; Lin et al., 2013; Lee et al., 2008), and there is a prominent focus on the use of podcasting in language learning (Abdous et al., 2012). Advantages of podcasting in teaching have centered on listening (Clark and Walsh, 2004; Dunbridge, 1984), the time-shifting ability, i.e., being able to listen across time and space (Muppala and Kong, 2007), and accessibility (Hew, 2009). Heiselen, for example, argues that 'students experience podcasts as a genuine improvement to the study environment' and that podcasts are good spaces for 'experimentation' (2010: 1063).

In understanding how podcasts can be used in teaching, various categories have been identified (Vogele and Gard, 2006; Rosell-Aguilar, 2007) to differentiate between administrative podcasts (guides), special lecture series (guest lectures), and classroom podcasts (general curriculum teaching and content). Furthermore, podcasts can be used in a substitutional,

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supplementary, and creative manner (McGarr, 2009). Podcasts are often used in a supplementary way, as a blended learning process wherein they are used alongside other teaching tools. This approach contrasts with more encompassing styles, namely 'inverting the classroom', where all in-class sessions are replaced with podcasts (Gannod, Burge, & Helmick, 2008). As highlighted by Heiselen (2010), much more longitudinal research on the usage and impact of podcasting in teaching is needed, and this article contributes to this growing body of work by exploring how podcasting can be used in interdisciplinary education. For our purposes, we are specifically interested in how podcasting can act as a teaching tool and can contribute to active learning. This means that students not only listen to podcasts as an important supplementary means of learning, but also create the podcasts themselves as a form of active learning.

Over the last few decades, active learning has attracted a good deal of attention in educational scholarship. Influential frameworks for describing the learning process, including Bloom's Taxonomy and the 5E Instructional Model, call for active learning as part of higher order thinking (Bloom et al., 1956; Bybee et al., 2006). For many it is a clear departure from traditional instruction where students passively receive information from a lecture (Hyun et al., 2017). Generally, active learning is defined as any method of learning that engages students directly in the learning process, requiring them to undertake meaningful learning activities and to learn by doing (Bradberry & De Maio, 2019: 94; Bronwell & Eisen, 1991). This entails a process whereby students directly construct knowledge and actively engage with and critically reflect on the subject matter (CAS, 2017). Students acquire knowledge and skills from direct experiences outside of the traditional classroom setting. Often, the active learning is combined with collective or collaborative learning processes (Princ,e 2004). There is extensive empirical support for active learning in the classroom (Prince, 2004; Michael, 2006), with research indicating an increase in content knowledge, critical thinking, and problem solving (Anderson et al., 2005; Kember & Leung, 2005), as well as an increase in an enthusiasm for learning (Hyun et al., 2017; Thaman et al., 2013).

Successful active learning is also important for teachers and the roles they take on (see Cook-Sather, 2011; Morrison, 2014). To achieve successful active learning, Børte et al. (2020) identified three prerequisites that are closely linked to the role of the teacher and broader institutional setting: (1) better alignment between research and teaching practices; (2) a supporting infrastructure for research and teaching; and (3) staff professional development and learning designs. Their work indicates the important relationship between teachers and students, as well as their broader environment. However, much of the literature on active learning and teachers focuses on how teachers can facilitate active learning in the classroom (see

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Kudryashova et al., 2016) rather than on the active learning processes of teachers themselves. Our aim, with this article, is to address both points because very often the learning process of the teacher is taken for granted. Accordingly, before we could bring podcasting into the interdisciplinary classroom as an active learning tool for students, we first had to learn by doing it ourselves.

PHASE 1: MAKING THE PODCAST SERIES

To explore interdisciplinarity in the classroom through podcasting, our project included two different phases. The first phase revolved around our own process of learning by doing, i.e., making the podcast series, and the second phase involved using the podcast as a learning tool in education in two different ways.

We are independent and non-professional audio podcasters, and this podcast series was set up through a combination of both personal and professional motives (see Markman, 2012). We met in 2016 as members of the Utrecht Young Academy (UYA), and there was an immediate connection between us. The fist author is an anthropologist and conducts research on violence, security, and policing in South Africa and Kenya. The second author is a legal scholar specializing in international human rights law, transitional justice, international criminal law, and victims' rights. This combination of law and anthropology, along with our friendly relationship, would assist in the informal and spontaneous atmosphere of the podcast. Furthermore, as women, we also wanted to counteract the male dominance within the podcasting world (see Markman, 2012). We explicitly mention our collegial relationship, as we think that this is a key part of how this podcast series, and interdisciplinarity works. As we discuss later, and as shown throughout this special issue, interdisciplinarity often works with people that establish certain understandings and relationships with each other. Our relationship, we argue, was crucial to the setting up and execution of the podcast and the successful use of podcasting in an interdisciplinary classroom.

After the preparatory work that included various technical and logistical issues, we then recorded episodes in a recording studio provided by the university. To minimize the politicization of editing (see Fantini and Buist, 2021), our recording sessions generally do not exceed the 45-minute mark. In Season 1 of the series, we covered nine concepts: *war*, *sustainability*, *time*, *civil society*, *heritage*, *agency*, *legitimacy*, *transformation*, and *diplomacy*. In Season 2, we covered 10 concepts: *sea level*, *surveillance*, *equilibrium*, *security*, *facts*, *sovereignty*, *queer*, *violence*, *youth*, and *crisis*. We knew early on that our audience would be a scholarly/academic one, namely people who like to discuss and think about concepts across disciplinary borders and listen to others doing so. Although it is difficult to

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ascertain who listens to which podcasts, there is a general observation that podcasts 'attract people who are already somewhat interested in the subjects covered in the podcast they subscribe' (Birch and Weitkamp, 2010: 892).

In developing the podcast series, we structured each episode around five main questions:

1. How did the concept originate (in your discipline) and how do you use it in your research?
2. Are you aware of the ways in which other disciplines approach the concept?
3. How are the various usages complementary?
4. Where is the friction in the various usages of the concept?
5. What are ways to move forward?

These questions were intended to prepare our guests for the conversation, although bearing in mind that discussions often take their own course, and the questions get weaved in and out throughout the conversation. These five questions are aligned to the four-stage learning model used at Utrecht University, which is based on Repko's work, namely: disciplinary grounding, perspective taking, finding common ground, and integration. The first stage of the model – disciplinary grounding – provides the foundation for interdisciplinary understanding (Miller and Boix Mansilla, 2004).

To start the substantive part of the show, we ask the guests a two-part question: how did the concept originate (in their discipline) and how do they use it in their research? The disciplinary grounding element of our show has two key functions. First, very practically, it gives the guests a basis from which to start the discussion. Even if they are engaged in interdisciplinary research and teaching, they likely first worked with the concept when they were carrying out more disciplinary work. Moreover, it is a comfortable question to ease them into the conversation and in almost all the episodes, the guests had a clear starting point from which to begin engagement with the concept. This could be the start of their studies or the commencement of a new research project, showing the temporal differences in terms of how long or in what ways the academics have worked with a particular concept.

Second, by starting with disciplinary grounding, it gives listeners, many of whom are students, a basis from which to understand how the guests work with a concept. Because we invite scholars from a variety of disciplines, it positions them on the academic disciplinary spectrum. Thus far, we have invited scholars from anthropology, chemistry, conflict studies, criminology, earth sciences, economics, ethics/philosophy, governance, history, physics, literary studies, law, psychology, and sociology. Each of these disciplines has its own *perspective* or distinctive way of seeing things that is 'based on commitment to a system of theories, a body of professional knowledge […]

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or a discourse community' (Miller and Boix Mansilla, 2004: 4). By making this clear, guests and listeners are better positioned in the later discussion around interdisciplinary understandings around the concept.

After grounding the concept in two separate disciplines, we often ask the guests—if not already offered voluntarily: Are you aware of the ways in which other disciplines approach the concept? This question is all about perspective taking. In interdisciplinary studies, perspective taking theory is the ability to look at a certain phenomenon, issue, problem, or *concept* from the perspective of another discipline and then being able to identify similarities and differences between them (McElreavy, 2016). For the purposes of the podcast, it is not only valuable for both guests and listeners to realize that there are different opinions about a concept, but also that such understandings can lead to new insights. We especially want listeners to understand how incorporating other disciplinary perspectives can be a way of enriching one's own understanding and/or positioning of a concept (Carmichael, 2018).

The third stage, following perspective taking, is about finding common ground and contestation, and the third and fourth questions focus on that. These questions allow the guests to expand upon their perspective taking exercises. According to Repko and Szostak (2021), a key step in getting to integration for purposes of interdisciplinary learning is finding common ground between disciplines. Yet, because we are interested in both the promises and pitfalls of interdisciplinarity, we were interested in hearing about commonalities as well as contestations. In terms of travelling concepts, this is where a concept or conceptual understanding may or may not have travelled for a particular reason.

In the final and crucial step towards greater interdisciplinarity, integration is key. Integration is about combining disciplinary insights and understandings to develop something new that would have been unachievable through single or even multi-disciplinary means (Miller and Boix Mansilla, 2004). While the podcast does not really aim for integration of perspectives between the guests, we do ask: What are ways to move forward? Through this question, we have sought to move past the commonalities and contestations, to get the views of the guests on new areas of research. Ideally, however, the podcast series can act as a bridge and tool for students to engage in integration, as we discuss below.

Through our guiding questions for the conversations within the podcast that were aligned to the four-stage learning model for interdisciplinary, we, as researchers and educators, learned a great deal about both podcasting as a tool and about interdisciplinarity – this was our own way of learning-by-doing. The next phase centered around using podcasting in the classroom.

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PHASE 2: USING THE PODCAST SERIES

We implemented the podcast series in the classroom to teach students about interdisciplinarity in two ways. The first was as a supplementary tool, wherein we requested teachers to assign the various podcast episodes in their classes and then invited their students to fill in a short survey. As a result, across very diverse settings, namely in courses taught in different faculties, in different educational programs, and with students from different levels and exposure to interdisciplinarity, students listened to an episode alongside other required readings. For example, the episode on Sustainability was used in an undergraduate anthropology course on 'Anthropology and Sustainability', and the episode on Civil Society was used in a law module on 'Civic Space and Civil Society'. As a result, the students who filled in the survey had diverse disciplinary backgrounds and levels of experience and expertise.

The survey consisted of the following ten questions:

1. Which episode(s) have you listened to?
2. Did you find the podcast useful in improving your understanding of that particular concept? (if you listened to more than one episode, please make a generalisation across the podcast series)
3. Were you familiar with the idea of a 'travelling concept' before listening to the episode?
4. If 'yes' to question 3, how and where?
5. What do you think of the idea of travelling concepts?
6. Were you familiar with what interdisciplinarity entails before listening to the episode?
7. If 'yes' to question 6, in what ways did you become familiar with interdisciplinarity?
8. How did this podcast shape your ideas on what interdisciplinarity is or can be?
9. What do you think about the use of podcast episodes in teaching?
10. How would you compare listening to a podcast versus reading an article/book chapter for a course?
11. Do you have any additional feedback?

To ensure that it was not too time consuming for the students, the survey consisted of 10 simple questions that focused on knowing more about prior knowledge on traveling concepts and interdisciplinarity and the role of podcasting as a teaching tool, both more generally and specifically for interdisciplinarity. The last open question was meant to provide space for further explanatory dimensions that we may have overlooked. At the time of writing, a total 53 students filled in the survey. Despite the low response, we were able to gain quite some insight into their experiences, as we will discuss

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in the following section. Furthermore, we will continue to use this survey in the future with similar and new courses and this will allow us to continue collecting data about students' experiences.

The second way we utilized the podcast in education was through a four-week honors seminar series on interdisciplinarity, which we co-taught together. At Utrecht University, we have various programs for honors students at the undergraduate and graduate level. At the master's level, one program is the Graduate Honours Interdisciplinary Seminars (GHIS), which is an extracurricular program that is open for master students across the entire university who are looking for a unique intellectual exchange. In the academic year of 2021-2022, we were invited to organize one of these seminar series, which included four seminars wherein we explored our experiences of interdisciplinarity. In the first two seminars, we focused on our interdisciplinary research experience and how our interactions with one another within the Utrecht Young Academy and Transformative Policing Research Group led to our making of the podcast.

In the third and fourth seminars we focused on the podcast series. As preparation for the third seminar, we asked the students to first listen to some of the episodes (they got to choose) and reflect on the disciplinary grounding that took place, the perspective taking, and whether guests were able to find common ground and, in some cases, share examples of integration—essentially using the Repko approach to interdisciplinarity. During the third seminar, we extensively discussed the various stages within the different episodes in the classroom. With the consent of the students, we recorded and transcribed this conversation, in order to capture their experiences.

In the second half of the third seminar, we implemented a 'Travelling Concepts' pressure cooker, as a starting point for their assignment, i.e. making a podcast episodes. This pressure cooker is an intense (time constrained) session where the students were split into pairs and then, based on their different disciplinary backgrounds, asked to select, and discuss a concept where they could see 'travelling' possibly occurring. We purposely paired students up from different faculties, so that they were really coming from different disciplinary backgrounds. During this pressure cooker of 20 minutes, the students selected a particular concept that they would create an episode on. In total we had 10 students and thus five different pairs and concepts. The homework was then to make a short episode of maximum 15 minutes discussing how their disciplines view and use a certain concept and explore whether there is any common ground. We provided the students with material and support on how to make the podcast. We were thus not only getting the students to listen to podcasts on travelling concepts and interdisciplinarity but asking students to actively make a podcast recording and go through the exercise of an interactive dialogue with their peer.

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Eventually, the students produced five episodes on the following concepts: *resilience*, *consciousness*, *environment*, *memory*, and *uncertainty*.

During the fourth seminar, we listened to the episodes together and discussed both the process and content together. The students then helped select which student podcast would be included in our Christmas Special for Travelling Concepts on Air. In the following sections, we draw from our experiences in making the podcast series, our discussions with these students, and the results from the surveys and class evaluations to outline some of our findings on using podcasting to explore interdisciplinarity in the classroom.

FINDINGS

In this section, we discuss our findings for the two different phases of our project, focusing on both teachers and students.

Learning for teachers

Our first key finding is that it is crucial for teachers to undergo a process of active learning themselves. Through the four-stage learning model that outlined the format of our discussions in each of our episodes, we were able to, together with our guests, identify how interdisciplinarity can and cannot work. The discussions we had, as well as the reflections we have had since then, have been pivotal for our own development and learning as educators. Without our own process of active learning, we would not have been able to teach students certain underlying processes about interdisciplinarity or about skills around podcasting.

In terms of disciplinary grounding, we could see that most guests found the second part of the disciplinary grounding question (how they use the concept in their research) relatively easy to answer. Interestingly, the first part of the question (the origins of the concept in their discipline) was not always self-evident. For example, during the episode on Surveillance, both guests were not sure about how the concept had emerged in their own disciplines. We provide the guests with the questions in advance of recording, and by doing so, this has triggered several guests to carry out independent research into the origins of the relevant concept in their fields of study. One of our legal scholars in the episode on War, for example, explicitly mentioned that she had to dig into legal archives to see how the concept originated in her field, and other guests had similar remarks. Furthermore, many mentioned that they had never thought about the origin of a concept in their field before. This is not because they had not been interested but because it had never occurred to them to question the origins of a concept as used in their own discipline. Additionally, with some concepts, the disciplinary origin was not always known. With the concept of legitimacy, for instance, both scholars (from governance and sociology), were not certain about the disciplinary

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origin, perhaps pointing to the fact that some concepts are used by various disciplines at the outset and not necessarily grounded from a specific discipline.

The next step, of perspective taking, was probably the most important component of the podcast series and it was enlightening to see this happening during the conversations we had. Perspective taking allows the guests, as well as the listeners, to better appreciate the complexity around so-called 'simple concepts'. What we have experienced in the episodes regarding perspective taking has been quite varied. Some guests have indeed thought deeply about how other disciplines have engaged with a concept and drew from those perspectives in their own work. During the episode on Legitimacy, the two scholars from governance and sociology were very aware of the perspectives from other disciplines and drew heavily from them in their own work. Other scholars, such as those from the episodes on War and Transformation, noted understandings from other fields but found them problematic. For the episode on Transformation, while the underlying aspects of the concept were relevant, the term itself had not entered the economic disciplinary sphere. Here, it was clear when limitations of travelling occurred and why. More often, however, after hearing about the guest's perspective taking, conversations lead to discussions about common ground and contestations.

With regards to common ground and contestations**,** we essentially saw one of three general outcomes: (i) there was a good deal of common ground and understanding between the perspectives; (ii) there was some common ground between the perspectives of the guests; or (iii) there was little common ground. In the episode on Civil Society, for instance, we had guests from law and conflict studies. These are two closely aligned fields of study and the guests had previously worked together in both research and teaching. The discussions showed a good deal of common ground, including the use of common literature sources, theories, and understandings. However, key distinctions were still made clear, thereby showing that full integration may not be achievable or desirable given the divergent audiences of the guests. In the episode on Sustainability, the guests, from anthropology and earth sciences, had some common ground between the ways in which they worked with the concept, such as definitional understandings and literature sources, but departed sharply in terms of how they approach their research more broadly. The anthropologist was much more engaged with critical scholarship whereas the earth scientists/futurist seemed more of a challenged-based scholar—acknowledging the critique, yet more focused on addressing problems and providing solutions. Finally, an example of where little common ground was apparent was the episode on Agency where we invited scholars from law and ethics/philosophy. The conversation was rich and insightful, and the scholars recognized the other field's contributions; yet there was little overlap or common ground.

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In terms of contestations, there were less obvious tensions between disciplines. This was largely since many of our guests are actively involved in interdisciplinary research and education. Nevertheless, some tensions did come out. In the episode on Heritage, the two guests, one from anthropology and the other an historian, seemed to have a good deal of common ground between their understandings of the concept. However, both were frustrated by and critical towards the way legal processes and frameworks shape the concept. As such, the tensions highlighted were not between the disciplines represented by the guests but rather a third discipline identified by both guests (and represented by the second author). In the episode on War, there was a clear dispute about the usage of the concept: whilst the legal scholar argued that the notion of 'conflict' is more productive than 'war' since a finding of international armed conflict triggers specific legal obligations and protections, the conflict studies analyst was a proponent of using the phrase and concept of 'war' more broadly to understand contemporary realities around armed violence. The relevance and impact of the concept, as well as the meaning, were points of contestation here.

As we had hypothesized before making the podcast series, most episodes did not result in integration. The episode where integration was most evident was that on Sea Level. In this episode, the two guests discussed explicitly how they came together due to a specific problem (i.e., knowledge-gap) and that due to their different disciplines, they were able to reach new academic insights and practical solutions. Through their collaboration, they were able to reach entirely new ways of measuring and defining sea level – i.e., integration.

By making the podcast series, and thus having these discussions, we, as researchers and teachers, learned a great deal about interdisciplinarity (elaborated below in the section on reflections). We were able to identify the four-stage learning model and these experiences were crucial for us to implement this within our teaching. Furthermore, we also argue that this was due to us working together as an interdisciplinary team. Ample research has shown how team teaching can be effective in education (see Self and Baek, 2017), and we argue that interdisciplinary teaching teams are beneficial for an interdisciplinary classroom.

Learning for students

With regards to learning for students, our first set of findings concern the use of podcasting as a passive learning tool. As discussed, the episodes from our podcast series were firstly used in a supplementary manner, often used as compulsory listening next to other required readings. Several students highlighted a preference for listening to a podcast rather than only reading articles. This was indeed due to the flexibility podcasts offer, i.e., being able

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to understand content in a more flexible manner, as highlighted in the following quotes:

> I really enjoyed it… it helped for me to focus only on audio. I listened to it while taking a walk outside, and it was a really wonderful way of learning.

> I think it is a good addition to the usual methods because you can do it from anywhere and still receive the information necessary. It is also nice to be able to pause and rewind ;).

> I think, listening to a podcast doesn't really feel like an assignment for school, which makes it more fun to learn while listening to it.

> Big fan! It's something different in-between all the reading and I can do some work while going on a walk outside.

Some of these sentiments were also echoed by our honor students, especially the time-shifting ability, and thus the ability to rewind, pause, and listen again. Yet, despite the general enthusiasm, a few students also indicated that they preferred books and/or articles and at times were more easily distracted while listening. One student highlighted:

> I think I am more of a visual learner, so I do remember slightly more from reading, but at this time I am always on my computer so it was good to change from always reading to listening.

Another issue that particularly emerged from our discussion with the honor students, and which largely also comes from the format of our podcast series, is the potential for interaction and dialogue. Although podcasts vary in format, ranging from interviews, to storytelling, to investigate journalism, most podcasts center around interaction between two or more individuals. This is limited in academic texts: although scholars often position themselves within a particular debate or field within a scholarly text, the interaction is not live, and we are not immediately exposed to comments and reactions. A podcast provides a space where immediate responses can be voiced. This element of interaction is also crucial to the process of perspective taking. Like other forms of social media, with podcasts there is space for feedback. However, unlike other science-based podcasts, we have not used integrated online discussion forums (IODFs) for further feedback and discussion (Birch and Weitkamp, 2010). Yet our research so far does show promising results, indicating that students enjoy podcasting, particularly as a supplementary tool in their courses.

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In addition to podcasting acting as a learning tool more generally, we also wanted to know more about how it is a learning tool for interdisciplinarity more specifically. Although one student mentioned that the podcast: 'just furthered my knowledge on sustainability, not on interdisciplinary', most students did emphasize that the podcast helped them understand how interdisciplinarity works. The podcast introduced many of the students to the notion of travelling concepts. While students had an inherent understanding that concepts travel, they had not been exposed to that phrase as such. One student noted: 'I was not familiar with the term "travelling concept", but I did notice during my reading that some words mean different things across disciplines'. Other students noted:

> I have studied international law, international political science and international economics and have often encountered situations in which one concept meant completely different things in different disciplines - the idea of travelling concepts is thus absolutely crucial for interdisciplinary work in order to avoid misunderstandings.

> Just brilliant! Really contributes to bridging the communication gap multi/interdisciplinary scholarship/work.

In some of the comments from the survey, there was a clear engagement with the four-stage learning model. Several students highlighted how the episodes allowed them to listen to and identify the process of perspective taking, as can be seen from the following quotes from the survey:

> I liked that [the concept of] civil society was not simply discussed from various perspectives, but that you were trying to find a common understanding of the term.

> A podcast is more interactive since it is not just one point of view, you're receiving information from. It is mostly a conversation where we get to know different perspectives which I think is great.

Due to the format of the series, i.e., the conversation with different guests, students who filled in the survey were able to identify perspective-taking. Therefore, podcasting, used in a supplementary way, allowed students to identify the four-stage learning model and thus the potential stages of interdisciplinarity.

With our honor students, this was also the case: podcasting served as a useful learning tool. Yet with them, this was even more the case due to the centrality of active learning, i.e., making an episode themselves. During the discussions we had with the students, they all expressed how much they

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enjoyed listening to the podcast. As one of them sated in their evaluation form of our GHIS seminars:

> The podcast assignment was also a massive deviation from anything I had previously done and the chance to use to UU podcasting room equally really made this a much more special experience that I would definitely recommend to others.

In addition, they also explicitly mentioned how the episodes helped them understand interdisciplinarity, especially the processes of disciplinary grounding and perspective taking. It was the last two stages, namely finding a common ground and integration, that they experienced as more difficult. Although they recognize that this is the goal, as highlighted by one student: 'That it is an ongoing conversation between different disciplines to create a consensus or an integration of ideas', students found it difficult to execute this themselves. Even though they all were able to find some type of common ground, this did not always feel natural. One pair of honors students, for example, highlighted that they had to have several conversations to really identify where there was a mutual understanding.

The students highlighted that although it was rather challenging to make the podcast episode, it was also rewarding and provided them with a deeper understanding of both the concept, as well as the way interdisciplinarity works. As a result: by having to find a concept, think about disciplinary grounding, having conversations together, and putting together a podcast, i.e., learning by doing, they were able to learn more.

DISCUSSION AND REFLECTIONS

Through the survey and our own experimentation with co-teaching the seminars, we realized that using podcasts in teaching can be a very helpful tool for students to learn more about interdisciplinarity. Many of the results of the survey confirmed some of our initial thoughts and assumptions about the use of podcasts as supplementary material. For instance, an overwhelming number of students found the podcasts useful for understanding a particular concept from different perspectives. This is something that we expected to see in the results of the survey since our own understandings of certain concepts had been enriched while making the podcast.

With regards to interdisciplinarity, the views are more varied. From the survey, namely from those students who had listened to one or two episodes in their courses, it was not that apparent that the episodes were useful to understanding interdisciplinarity. However, from the honor students, this was more the case, and we conclude that this is due to the method of active learning. We saw that when the students were tasked with creating a particular

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product, there was a heightened sense of understanding and enthusiasm. This finding is in line with research done, across disciplines, on active learning in the classroom (Michael 2006; Prince 2004), with research indicating an increase in content knowledge, critical thinking, and problem solving (Anderson et al., 2005; Kember and Leung, 2005), as well as an increase in an enthusiasm for learning (Thaman et al., 2013).

In line with this, we also conclude that active learning is equally important for teachers. By making this podcast series, we gained a deeper understanding about how interdisciplinarity can and cannot work and this was crucial for our own teaching. In addition, we also identified some other issues during our experiences of experimenting with podcasting, as a way of understanding interdisciplinarity, and using podcasts within education. The first is the importance of *passion or intrinsic motivation* to engage with others across disciplinary boundaries. From our conversations, with colleagues and students, a key factor in successful interdisciplinary collaborations has been a curiosity to learn from or interact with someone from outside their field or discipline (Angerer et al., 2021). There are scholars (and students) who may not see the merit of interdisciplinary engagement and prefer to solely interact with their disciplinary peers. That is fine. Disciplinary studies are also incredibly valuable. However, we believe that for students in particular, exposure to other disciplines already from their bachelor studies is important. It may ignite a passion or curiosity to learn from and engage with others.

Next, we noticed the importance of *time* in fostering successful interdisciplinary collaboration or exchanges. As highlighted by multiple guests, 'it takes time' to really understand other scholars and their usages of a different concept. The first example is our own friendly relationship: we invested time in our partnership in both making the podcast and in using it in education together for our own journey of understanding interdisciplinarity. With the heavy workload inherent to academia, many scholars may have the motivation to interact across borders but simply lack the time to have such discussions. This was beautifully evident in the episode on Time, which included a literary scholar and a geologist. They shared how they, through various collaborations in education, started with perspective taking and only after many conversations and interactions moved onto common ground and even integration, developing their own categories and tools to analyze time. They shared how they still experience new breakthrough moments where their understanding of each other's perspectives increases. As one of them recalled during our session: 'And I remember, we had this epiphany and I look at [name], and… oh, no, I don't think I understood you until now. I think I just got what you mean by that. And that's so interesting!' Similarly, students may be so bogged down in their demanding study programs to take the time to engage with peers across disciplines. For this reason, opportunities like the GHIS for students or similar programs for teachers, such as the UYA or

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interdisciplinary research groups, are so important. University funding and policies should create spaces and opportunities for teachers and students to experiment with interdisciplinarity through different types of assignments and means of assessment. This finding further supports the research carried out by Børte et al. (2020) on the importance of supportive infrastructures.

Through our podcast and interactions with guests and later with students, we noticed that very often people think that interdisciplinarity only takes place to solve a problem. This is because interdisciplinarity is often promoted in this way—as a means through which to address global challenges that require 'out of the box' and integrated ways of thinking. However, we have found that interdisciplinary exchange is also valuable on a more conceptual level—even when not looking to solve problems. Using the four-stage learning model for stimulating interdisciplinary thinking, we were able to delve in the different goals or approaches scholars taken when thinking about, working with and teaching specific concepts. In the episode on Sustainability, for example, one guest clearly had a problem-solving mentality while the other scholar focused more on critiquing and conceptual thinking. Both found the podcast discussion fruitful. With the episode on Heritage, one of the guests was actively engaged as a practitioner, working with several foundations on issues pertaining to conserving heritage sites, while the other did not. Again, the conversation was appreciated by both as it gave them an opportunity to interact without needing to necessarily solve a problem. We hope that our guests (and students) see these exchanges as a valuable source of inspiration and to enrich one's own understanding and approach—whether that be problem-solving, critical, or conceptional. Overall, we feel that it is important for universities, teachers, and students to value interdisciplinary learning beyond the problem-solving frame.

Another takeaway that we had from our experiences with podcasts and interdisciplinarity, which we also tried to bring out in classroom discussions, is about the level of contestation between the disciplinary exchanges. Very often teaching interdisciplinarity focuses too much on common ground and integration. But contestations and a lack of travelling are equally important to understand and even value in some cases. Here we found the *scope of a discipline and its relation to each other* as a crucial factor in better understanding interdisciplinarity. Sometimes it felt like friction was more likely to occur between scholars who came from rather similar fields. This was evident in the episode on War: although from different fields, the two fields (international humanitarian law and conflict studies) are closely related. One guest was advocating for the use of the concept of war, while the other was not. Due to the closeness of their fields, this divergent viewpoint mattered, as it would impact how other scholars working in their field view and understand their work. With very contrasting disciplines who may not encounter one another, it seems like difference was more easily accepted and

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even provided a space to allow for pure curiosity-driven exchanges. For example, in the episode on Equilibrium, with a chemist and economist, there were fundamental differences and similarities. Yet, because their perspectives on the notion of equilibrium will not impact the other, the scope for differences was experienced as interesting and not potentially confrontational; it is not something that they would have to address in their work. We saw a similar case with one of the student pairs. Although from different faculties (Science and Social Science), the science student had a background in the social sciences as well, and it was thus rather easy for him to make the disciplinary shift. His disciplinary grounding was thus more diverse and in line with that of his counterpart. This allowed them to find common ground more easily and collaborate.

Finally, reflecting on our experiences, we realize how much we have been learning while doing both in the making of the podcast and in our teaching. Active learning is not just important for students. It is equally important for teachers. Actively experimenting with podcasting and podcasting in education, around interdisciplinarity, has made us better scholars and educators. And, just as with students, reflection is a key part of any active learning process. There are many things that we would also do differently. For example, because we were largely drawing on our own university network, the selection of our guests could have been more diverse. There is a large scope for awareness and improvement here and something we are taking on board for season 3. For us, podcasting has unquestionably been a 'fun and enjoyable activity' (Markman, 2012: 557): in addition to expanding our knowledge on certain concepts and the dimension of travelling, it has also been a way for us to engage across disciplines and has given further insight into the everyday workings of academia.

CONCLUDING REMARKS

When we started, our aim was to do a few episodes and see how things went. We never imagined that so many scholars and students would find our conversations useful. At the time of writing, we have over 5800 downloads, and as also discussed by Markman (2012), were thrilled by the positive feedback we received. We are now looking into a possible third season and hope to share our experiences around podcasting, interdisciplinarity, and teaching with other teachers and educators beyond the geographic borders of the Netherlands. We believe there are boundless possibilities around podcasting as a method of teaching and learning how to do interdisciplinarity and hope to see it grow as a teaching tool in the years to come.

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Key Advice

Disciplinary self-reflection

Discipline

Defining elements of my discipline

The **phenomena** it studies

Its **epistemology** or rules about what constitutes evidence

The **assumptions** it makes about the natural and human world

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Its basic **concepts** or vocabulary

Its **theories** about the causes and behaviours of certain phenomena;

Its **methods**: the way it gathers, applies, and produces new knowledge.

Disciplinary perspective:

Handout presented at EARLI 2019 by Merel van Goch, merel.vangoch2@ru.nl. Based on: Repko, A.F. & Szostak, R. (2017). *Interdisciplinary research: Process and Theory*. Sage.

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