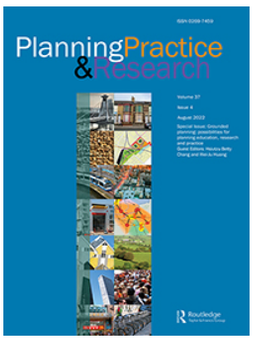

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Conceptualising Co-creative Planning Pedagogies: The Community Knowledge Triangle

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ABSTRACT

Co-creation has emerged as a hot topic in contemporary planning pedagogies. Co-creation is seen as advancing the mutual exchange of knowledge between various actors in an educational setting. Despite the growing interest in co-creation in planning pedagogies, the potential types and flows of knowledge between learning communities are weakly conceptualised. This article proposes the community knowledge triangle as a fitting conceptual tool for understanding mutual knowledge exchange relations in co-creative settings. The triangle was utilised in a planning course to unpack the co-creative logic. The results showed that academics, practitioners and students exchanged knowledge in multiple directions, yet not in a reciprocal relationship.

KEYWORDS

Planning education; co-creation; learning community; knowledge exchange; pedagogy

Introduction

Since the turn of the 21st century, co-creation has been a hot topic in contemporary planning practices (e.g., Rooij & Frank, 2016; Frantzeskaki & Kabisch, 2016; Munthe-Kaas & Hoffmann, 2017; Gutiérrez *et al.*, 2018; Von Schönfeld *et al.*, 2019). Co-creation can be defined as a process in which various actors participate from beginning to end (Voorberg *et al.*, 2015, 2017). In the context of planning practice, co-creation is frequently – although not always – associated with the active and ongoing involvement of civil society and private actors in the planning process (Von Schönfeld *et al.*, 2019). It is often anticipated that civil society and private actors bring different types of knowledge to the table, thereby enriching the planning processes. The logic of co-creation contributes to other collaborative and participatory approaches (Healey, 1997, 2006; Forester, 1999; Innes & Booher, 1999; Von Schönfeld *et al.*, 2019), but places more weight on active rather than passive involvement of actors (Voorberg *et al.*, 2015). Given the growing interest in co-creation in planning practice, it is increasingly believed that planning practitioners should be equipped with the necessary skills and competencies to work co-creatively (Senbel, 2012; Rooij & Frank, 2016; Oonk *et al.*, 2016). As a result, there is an imperative to integrate the underlying logic of co-creation in planning pedagogies (e.g., Healey *et al.*, 2014; Trencher *et al.*, 2015; Rooij & Frank, 2016; Oonk *et al.*, 2016), with the

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aim to develop a pedagogy that can capture the collaborative and multi-actor settings of co-creative planning (Rooij & Frank, 2016), where knowledge is mutually exchanged. This co-creative ambition subscribes to other contemporary pedagogies, such as co-learning and co-developing (Trencher *et al.*, 2014; Rooij & Frank, 2016).

Co-creative pedagogies refer to the active engagement of various actors who mutually exchange knowledge in an educational setting (Trencher *et al.*, 2014; Oonk *et al.*, 2016). Following this definition, three distinct dimensions of co-creation have to be explicitly mentioned: various, multidirectional, and reciprocal. Usually, co-creative education promotes collaborative work between a broad *variety* of actors, ranging from students, academics, to a wide range of practitioners, such as municipal officials, consultants and civil society organisations (Oonk *et al.*, 2016). Furthermore, co-creative pedagogies are characterised by *multidirectional* flows of knowledge types (Dollinger *et al.*, 2018) that actors share in a *reciprocal* relationship (Voorberg *et al.*, 2017). The contemporary co-creative turn in planning pedagogies can be considered as a paradigm shift seeking to go beyond and across 'traditional' education (Rooij & Frank, 2016; Oonk *et al.*, 2016). Co-creation moves beyond the idea that education only involves students and academics (Oonk *et al.*, 2016) or that academics are the only ones transferring knowledge (Dollinger *et al.*, 2018; Bovill, 2019). The motivations and rewards for promoting co-creation in pedagogies vary considerably. It is believed that co-creation can advance the exchange of knowledge and learning between different actors in timely ways, boost student and participant learning through shared experiences, ensure the mutual exchange of new knowledge beyond the academic environment, and prepare planning students for work in dynamic environments (Bovill *et al.*, 2016; Trencher *et al.*, 2014, 2015; Rooij & Frank, 2016). These benefits had led to a growing, yet sometimes uncritical, enthusiasm for co-creative planning pedagogies.

Despite the emphasis on in co-creation in planning pedagogies (Rooij & Frank, 2016; Oonk *et al.*, 2016), the flows of knowledge types by various actors in co-creation are weakly conceptualised (Dollinger *et al.*, 2018). The aim of this article is to better grasp how knowledge exchanges between various actors function, by exploring the relationships between students, academics, and practitioners in flows of knowledge types. The research question is formulated as follows: *What are the specific characteristics of knowledge types and flow in exchanges between practitioners, academics and students in co-creative planning pedagogies?* To better understand flows of knowledge types in the student–academic–practitioner nexus, we first propose the conceptual framework, the so-called community knowledge triangle. After, this article presents a co-creative, grounded learning example, with a case study from the Netherlands involving academics, students and practitioners engaged in the 2017–2018 course 'Landscape Engineering' at Wageningen University & Research (WUR). The case provides a relevant test-bed for our framework. In the discussion, the article applies this framework on the case study to explore knowledge types and flows, and critically reflects on the co-creative logic of the educational setting. The article ends with suggestions for further research.

Co-creative Planning Pedagogies

In this article, a co-creative planning pedagogy is understood as a process in which various actors mutually exchange knowledge in an educational context. Many related

questions are still largely unanswered: 'how is knowledge exchanged'; 'who exchanges knowledge'; and 'what type of knowledge is being exchanged'. Therefore, the types and flows of knowledge between actors in co-creative planning pedagogies warrants an in-depth investigation. This article conceptualises mutually beneficial knowledge exchanges and identifies potential learning communities and types of knowledge.

Exchange of Knowledge

In the traditional approach, knowledge is seen as being transferred from academics (mostly teachers) to students. This transfer usually implies that academics talk about theories, methodologies and realities, while students patiently listen and absorb knowledge. Its central premise, that knowledge moves only in one direction, has frequently come under heavy criticism (Wiek, 2007; Fazey *et al.*, 2012), especially for its conception of knowledge as 'motionless' (Freire, 1970) or 'static' (Dewey, 1938). One of the most famous critiques of this knowledge transfer was levelled by Paulo Freire, in his seminal book *Pedagogy of the Oppressed*. Freire (1970, p. 72) sharply criticises the knowledge transfer from academics to students: 'Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiques and makes deposits which the students patiently receive, memorise, and repeat'. Freire referred in this regard to the 'banking model of education' (1970).

Educational approaches that rely solely on the transmission of knowledge from academics to students, who should absorb knowledge and understanding through 'static' experiences are acknowledged as insufficient in the co-creation debate (Scott, 2015; Bovill & Woolmer, 2019). In particular, this transfer of knowledge seems to be at odds with the dynamic nature of co-creation primarily concerned with forms of mutual collaboration between various actors. In co-creative planning pedagogies, knowledge no longer only emerges from academics alone. Rather, co-creation is often associated with (or occurs through) knowledge exchange between various actors (Oonk *et al.*, 2016). Knowledge exchange can then be understood as a two- or multiple-way exchange between actors that share knowledge in a mutually dependent relationship (Voorberg *et al.*, 2017). Knowledge exchange is a socially constructed process (Fazey *et al.*, 2012; Kitagawa & Lightowler, 2013) that requires active and open dialogues. Dimensions such as multi-directional and reciprocity are distinct characteristics of knowledge exchange, setting it apart from one-way knowledge transfer (Fazey *et al.*, 2012; Wiek, 2007).

Learning Communities

In co-creative planning practices, the assumption is that knowledge is conjointly exchanged between multiple actors (Rooij & Frank, 2016; Von Schönfeld *et al.*, 2019). In this article, co-creation is examined in an educational setting; thus, the preference is to use the term 'community' instead of 'actors'. Communities refer then to a group of people who share a common learning interest, i.e. 'learning communities'. This definition resonates with Wenger's (1998) 'communities of practice', which similarly stresses relationships in social systems. Traditionally, in planning education the learning community was portrayed as two relatively homogeneous groups – the students who gained or acquired planning knowledge,

while listening to those working in a university environment, i.e. the academics. For quite some years now, this traditional conception about who (academic) is delivering knowledge to whom (student) is no longer considered adequate (Wiek, 2007; Porter, 2015). Increasingly, planning education literature (and education science in general) is moving away from the idea of academics as the only ones possessing relevant knowledge and recognises the students' potential to also make valuable contributions (Cook-Sather, 2006; Bovill, 2019, 2020).

Furthermore, contemporary education is not only characterised by student–academic communities. As many scholars proved in earlier work, there is a tremendous interest in educational partnerships between students, academics and planning practitioners, in particular in the field of urban planning (e.g., Blair, 2015; Rosier *et al.*, 2016; Baldwin & Rosier, 2017). One of the most well-known examples of such partnerships is the use of real-world experiences (Brundiers *et al.*, 2010; Baldwin & Rosier, 2017) and the involvement of planning practitioners (such as governmental, business, non-governmental or civil society organisations) in educational settings (Higgins, 2010). Real-world experiences are seen as offering situated learning, as advocated by Lave and Wenger (1990) in their promotion of authentic learning environments (vs. the classroom). Such real-world learning activities require students and academics to work collaboratively with planning practitioners and to experience planning in practice (Higgins, 2010; Baldwin & Rosier, 2017). By recognising the importance of these partnerships for planning education in this article, we identify three categories of learning communities: students, academics and practitioners.

Types of Knowledge

Conceptualising co-creative planning pedagogies involves more than understanding how and by whom knowledge is exchanged – it is equally important to explore the types of knowledge learning. As understood by Rydin (2007, p. 54), 'knowledge is inherently multiple, with multiple claims to representing reality and multiple ways of knowing'. The central focus then is to uncover what types of knowledge are likely to be involved in co-creative planning pedagogies. We seek to explore this question by building on *expert* and *student* knowledge. In line with Rydin (2007), expert knowledge is considered as a form of specialist knowledge that involves both 'scientific knowledge' (Van Stigt *et al.*, 2015) and 'practical knowledge' (Healey, 2008). Most academics transfer scientific knowledge, i.e. knowledge based on planning theories and scientific methods and procedures. The transmission of knowledge by academics is aimed at triggering critical and analytical thinking and developing academic skills such as writing and presenting. While students often gain this type of knowledge in planning curricula, practitioners might gain this knowledge through critical debates with academics (Healey, 2008) or multi-actor learning environments (Oonk *et al.*, 2016).

Practical knowledge is knowledge obtained from planning practitioners to describe and understand timely practical situations, such as planning processes and outcomes. Grounding student knowledge acquisition in relevant practical situations is seen as particularly valuable. Notably, learning by engaging practitioners and through hands-on experiences helps students to better grasp the real-world applications of their profession (Baldwin & Rosier, 2017), to learn more effectively through participation (Blair, 2015), and to better recall knowledge through active learning (Baldwin & Rosier, 2017). Scholars also recognise

the importance of knowledge transfer from practitioners to academics, for example, to make research relevant for practice (Powell *et al.*, 2018), to bridge the gap between education and practice, to share experiences, or to develop applied research proposals (Hoes *et al.*, 2008; Penuel *et al.*, 2015) whilst highlighting the challenges of knowledge transfer from practitioners to academics, such as different expectations, timetables and incentives (Rynes *et al.*, 2001).

While the value of scientific and practical knowledge is well documented (Healey, 2008), the use of student knowledge remains underexplored (Bovill, 2020). Nevertheless, there is growing interest in recognising the value of student knowledge in (planning) pedagogies (e.g., Cook-Sather, 2006; Bovill *et al.*, 2016; Dollinger *et al.*, 2018; Tong *et al.*, 2018). The use of student knowledge challenges the traditional conception of knowledge as being solely produced by experts. From this perspective, knowledge is not only the domain of the 'expert' (Rydin, 2007, p. 54), i.e. the planner (practitioner) or scientist (academic). The student knowledge is frequently based on the students' past and current experiences and reflections. Pedagogical studies have demonstrated the importance of utilising their knowledge in educational settings. Following Cook-Sather (2006, p. 359) students, as relative novices, 'have unique perspectives on learning, teaching and schooling'. Bovill *et al.* (2016) argue that students can work collaboratively with academics in various ways, for example, as 'co-researcher' (students and academics working together on research projects) or 'pedagogical co-designer' (students and academics co-creatively designing a curriculum). There is also evidence that academics value course evaluations of students (Campbell & Bozeman, 2007; Tong *et al.*, 2018) and that academics and practitioners can be inspired by the results of student coursework (Roulston & McCrindle, 2018; Tong *et al.*, 2018).

A Conceptual Framework: The Community Knowledge Triangle

This section proposes a community knowledge triangle as a conceptual framework for the mutual knowledge exchange among the identified learning communities. Drawing on the theoretical understanding of how types of knowledge flow between learning communities, the fundamental principle underpinning this framework assumes variety, reciprocity and multidirectionality. The framework displays multidirectional flows of knowledge types that are mutually shared between learning communities in a particular situation. Therefore, the triangle serves to reveal and understand reciprocal and multiple relationships between student, academic and practitioner learning communities in grounded planning pedagogies. Understanding flows of knowledge types through this conceptualisation helps to better understand and explore co-creative planning pedagogies. This understanding is particularly useful considering both the encouragement and intrinsic concerns of co-creation in planning pedagogy.

Figure 1 shows the community knowledge triangle. The inner-shaded triangle indicates that knowledge exchange takes place in a particular situation. The corners of the principal triangle position the various learning communities, while the arrows display the flows of knowledge types. The arrows are bidirectional, emphasising reciprocity, while multiplicity is stressed through the multitude of arrows between learning communities. This knowledge triangle emphasises that ideas and insights may be developed through the mutual interactions of the various communities involved in socially constructing and

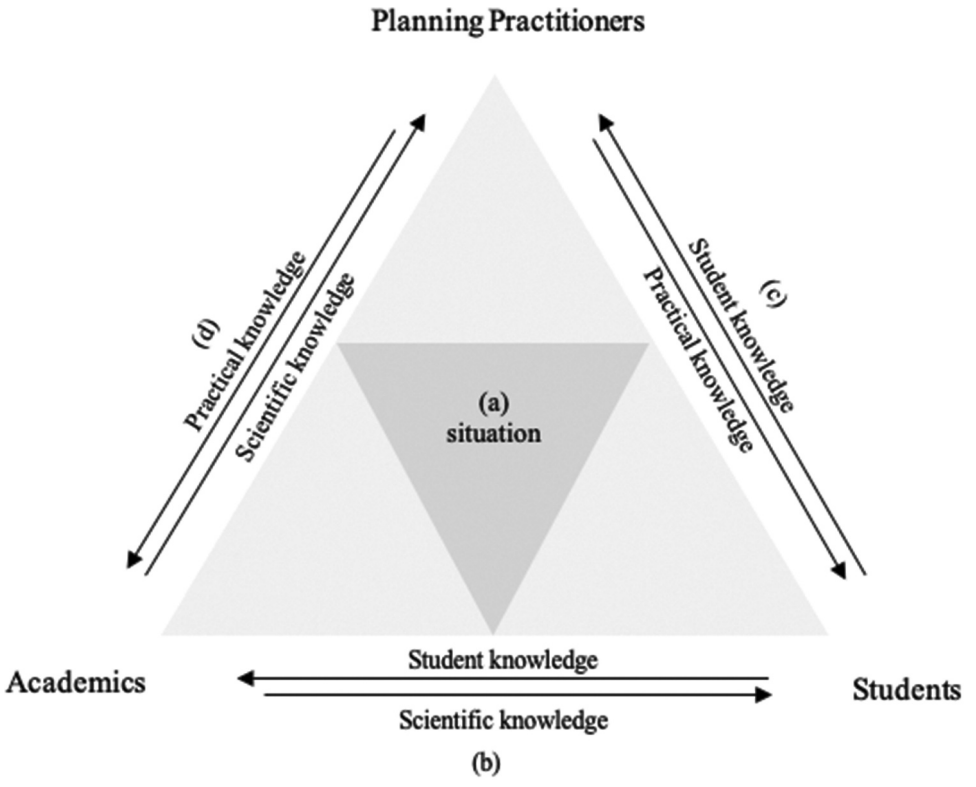

Figure 1. The community knowledge triangle. Source: Authors.

mobilising knowledge.[1] Interpreting the relational dynamics between these communities in this knowledge triangle involves attending to:

(a) the situation,
(b) academic–student and student–academic relations,
(c) practitioner–student and student–practitioner relations, and
(d) academic–practitioner and practitioner–academic relations.

The knowledge triangle serves to make sense of co-creative phenomena and to illustrate the bidirectional and by extension multidirectional relations of learning communities. In this article, it is utilised to frame the data collection, analysis and presentation of our case study. Its potential use in various pedagogical and research circumstances underscores the tool's value and potential.

Grounding the Learning Context

This article applies the community knowledge triangle on a co-creative, grounded learning example. The case study involves academics, students and practitioners, engaged in the 2017–2018 course 'Landscape Engineering' at Wageningen University & Research (WUR) through specific collaboration in the Navy Yard Amsterdam. The WUR academics and the

practitioners of the Navy Yard are partners in the R-LINK research project, a 4-year project funded by the Dutch Research Council. The overarching objective of R-LINK is to seek smart solutions for economic, social and environmental challenges through spatial transformations. It focuses on incremental urban developments (Van Karnenbeek, 2020) and small-scale, bottom-up initiatives, which are currently dominating several political agendas in the Netherlands (Ministry of Internal Affairs, 2013; Van Karnenbeek *et al.*, 2020). Specifically, R-LINK is concerned with investigating the new alliances in these emergent forms of short-term planning initiatives and how such small-scale interventions can be better connected with longer-term strategic urban ambitions and policy aspirations.

Knowledge exchange is emphasised as a vital aspect of this research project (NWO, 2018). The Netherlands has a long tradition of embedded university–practitioner relations. The objectives and methodologies of R-LINK were therefore co-designed in close partnership with scientists, practitioners – both public parties and private companies – and relevant stakeholders, thereby creating a network for sharing knowledge from different perspectives (R-LINK, 2015; NWO, 2018). It was decided early on that the potential knowledge exchange from such research projects stretches further than the involved scientists and practitioners. It was recognised that publicly funded research in the Netherlands offers an important environment for deliberately engaging students in grounded learning opportunities. This section focuses on the specific collaboration with the Navy Yard Amsterdam and critically reflects on issues with respect to knowledge exchange between the three participating communities: academics, practitioners and students.

Navy Yard Amsterdam

The Navy Yard is an area of about 13 hectares situated in the historic centre of Amsterdam. For centuries, the Navy Yard Amsterdam was a closed-off military installation. The economic downturn and austerity policies triggered an exploration of alternative uses for the Navy Yard. The Dutch National Government decided to relocate most of the military activities from the Yard and to develop the site incrementally, i.e. without a predetermined blueprint or masterplan (Van Karnenbeek & Janssen-Jansen, 2018). In 2013, the City of Amsterdam and the Dutch National Government opted for this incremental development strategy in order to allow for adaptivity and enable responsiveness to future challenges. The incremental development strategy urban is managed by the Project Agency Navy Yard, an organisation established by the City of Amsterdam and the Dutch National Government (Van Karnenbeek & Janssen-Jansen, 2018). The incremental development strategy resulted in a directional spatial concept that emphasises the development of an 'innovation district' with particular reference to residential, commercial and learning land uses. Underpinned by the idea of an innovation district, it is intended that the Navy Yard develops stepwise into a future-proofed urban district that is home to flexible working and meeting spaces, special types of houses, sport and recreation facilities and green spaces (Navy Yard, 2020). To date, all activities at the Navy Yard are temporarily but, at the same time, also in line with the vision for the future. This style of development produces a test-bed for innovative activities. Any public or private party who wishes to participate in these test-beds must prove the innovative character of their proposed development or activity and also commit to knowledge sharing.

The incremental approach to the innovative urban district at the Navy Yard is supported through planning instruments. The City of Amsterdam and the Dutch National Government provided initial thoughts on the Navy Yard, expressed as ambitions and themes in a strategy report (Ministry of Defence *et al.*, 2013), while the governance arrangements were laid down in the management agreement (Staatscourant, 2013). These documents provided the starting point for the planning phase, during which desirable and possible directions of the spatial development were explored further by the Project Agency. This exploratory phase resulted in a policy document, entitled 'The Principle Note' (Gemeente Amsterdam, 2017). This Note further specified ambitions and themes, along with a set of proposed conditions (spatial guidelines) designed to support the idea of an innovation district (Gemeente Amsterdam, 2017). The preparation of this policy document in 2017 coincided with the delivery of an WUR undergraduate course, 'Landscape Engineering', which provided a potent opportunity to engage students in an innovative real-world planning experience. Given the strong commitment to education and knowledge sharing embedded in the ethos of this urban district, the members of the Project Agency were very open to involving our university students.

The Educational Setting

The course, 'Landscape Engineering', is a compulsory course for second-year undergraduate students studying urban planning and landscape architecture at WUR (see Table 1 for more information). The course aims to provide a foundation for the know-how and application of technical urban landscape design. The course objectives require students to analyse potential urban developments at the macro-, meso- and micro-scale and to develop and design spatial plans. The course provides an important basis for the follow-up courses in the second and third year. The intended learning outcomes are that upon successful completion students should be able to do the following:

- define technical characteristics of landscape elements in project plans and land service plans;
- analyse and interpret a project assignment in terms of (technical) characteristics and information requirements;
- propose an integrated project plan; and
- understand the processes related to land servicing.

Table 1. General characteristics of the course 'Landscape Engineering'.

General characteristics	
Number of students	62
Educational level	Undergraduate
Study year	2
Time span	Four weeks (week 39–42, 2017)
Study load	3 ECTS (European Credit Transfer System)
Contact hours	42 contact hours (lectures, site visits and supervised learning hours)
Teaching methods	Lectures, guest lecture, site visits, feedback sessions
Course assessment	Individual (50%) and group assignment (50%)
Number of WUR staff	3 (Professor, PhD researcher, lecturer)

In terms of teaching tools, students are introduced to physical, economic, social and cultural dimensions of the urban landscape via the lectures and literature (academic articles and policy documents), to enable them to understand the multidimensional aspects of the landscape. The classroom sessions seek to ground technical, urban landscape design know-how within its theoretical context. Using technical and financial guidelines, students are required to design and report on the feasibility of spatial plans, including an assessment of their potentials and risks. Student evaluations are based on two elements, an individual and a group assignment. The first requires the student to provide a description and critical analysis of physical, economic, social and cultural dimensions in Amsterdam. The second component is group work, requiring students to elaborate a project plan and a land service plan for a designated urban development, based on the site's physical, economic, social and cultural dimensions. The 2017–18 assignment focused on applying the proposed spatial guidelines in the case of the Navy Yard Amsterdam.

Research Design

To test the triangle's application, we followed Yin's (2003) case study design. The course, 'Landscape Engineering', was selected as it engages all three learning communities in a real-world experience. The course followed a planning pedagogy grounded in a co-creative setting, which stressed the potential to understand the flows of knowledge types among the involved communities. The case study had a qualitative set-up, backed up by various data sources (Table 2). The course provides the learning communities with multiple opportunities to meet, both inside and outside the classroom, thereby enhancing the potential to exchange knowledge.

Community Knowledge Dynamics

The next section discusses three illustrative community knowledge dynamics from our case study that are useful in understanding the flows of knowledge types between the learning communities. The first community knowledge dynamic (I) involved the design of the teaching and learning strategy and the specific assignment, followed by an example of how the students learned about the Navy Yard (II). The third community knowledge dynamic (III) focused on the students' reflections on the practical and teaching experiences. The various community knowledge dynamics provided a full overview of the course, including all sources of educational data (Table 2).

Table 2. Sources of educational data.

Sources of Data	Communities present
Designing course	Academics, practitioners
Lectures	Academics, students
Supervised learning hours	Academics, students
Guest lecture	Practitioners, students
Site visit	Academics, practitioners, students
Pitch	Academics, practitioners, students
Survey	Academics, practitioners, students
Course evaluation	Students, academics

Community Knowledge Dynamic I: Co-designing and Co-delivering the Assignment

The scheduling of this learning experience was key – the 4-week course was delivered during the period while the Project Agency was busy sketching the conditions (spatial guidelines) to support the incremental development strategy of the Navy Yard. Given this critical juncture, the practitioners asked the students to test out the guidelines and reflect on the potential strengths and weaknesses of this approach. This 'try-out' was framed into an assignment by the academics, in collaboration with the practitioners, through two series of brainstorming meetings. The students' assignment involved developing a spatial plan for the Navy Yard, according to eight proposed spatial guidelines (Table 3).[2] This offered students direct hands-on experience concerning an innovative planning practice. The assignment, the objectives of the course and some basic information about the Navy Yard Amsterdam were presented at the beginning of the course during two lectures by the involved academics.

As a real-world learning experience, the practitioners' requirements proved to be the central element in designing and delivering the assignment. The student project brief consisted of two parts: (1) an individual analysis of Amsterdam from an economic, social, mobility and cultural perspective; and (2) a project spatial plan for the Navy Yard Amsterdam in line with the spatial guidelines (including an analysis of the impact on land servicing), elaborated by a small group of three to four students, including at least one planning student. Based on the spatial guidelines, students could propose a wide variety of spatial plans, backed up by relevant academic literature, policy documents and observations. The students had four weeks to complete the spatial plan, with a formative feedback session with the academics taking place halfway through this period.

Community Knowledge Dynamic II: Learning and Presenting about the Navy Yard

To introduce students to the Navy Yard ethos and urban development strategy, the Navy Yard practitioners delivered a guest lecture at WUR during Week 2. The practitioners shared their local knowledge with the students, from basic matters regarding the district to the specifics of the institutional and governance arrangements. This classroom-based activity was followed by a field visit to the Navy Yard. During the site visit, the students had to work on their observation skills, by writing down outstanding elements and taking photographs of the buildings, green spaces, water and infrastructure. Photographs assisted recall of the physical location and were used to support the students' spatial plans. This learning interaction combined the perspectives of academics, practitioners and students as they jointly experienced the Navy Yard.

Table 3. Eight spatial guidelines for the Navy Yard Amsterdam.

Spatial guidelines
1. No cars are allowed; it should be aimed at pedestrians.
2. Sports, playgrounds and meeting points should be connected in the outdoor area.
3. Water must be part of the proposed redevelopment.
4. 50% must be planned as public space; 50% must be reserved for buildings (e.g., homes, offices).
5. 60–70% of buildings must be part of the productive environment (e.g., companies, schools).
6. 30–40% of buildings must have special residential or social functions.
7. 80% of roofs must be multifunctional.
8.The maritime history of the site must be part of the proposed redevelopment.

Source. Derived from Ministry of Defence *et al*. (2013)." with "Based on Gemeente Amsterdam, 2017, adapted by authors for educational purposes (in collaboration with the practitioners).

In Week 4, the students 'pitched' their innovative ideas to the Navy Yard and WUR staff, giving the practitioners the possibility to provide professional feedback on the draft assignments. The assignment gave the students hands-on experience of applying and assessing emerging planning guidelines. For the students, presenting their work to real-world practitioners helped them develop their oral and written communication skills when interacting with planning practitioners. To further motivate the students, the practitioners had set up a competition for the most inspiring, or most innovative, pitch. Through these interactions with the students and their spatial plans, the Navy Yard practitioners obtained insights on the usability of the proposed guidelines. But not only the practitioners were inspired; one of the academics noted that 'the students' products [assignments] changed my view on the urban development project' and 'in this way influenced my research work within R-LINK'. This feedback highlights the potential for bidirectional knowledge transfer between students and academics.

Community Knowledge Dynamic III: Students' Reflections on the Practical Experience and the Course

To stimulate knowledge exchange from students to practitioners, and to provide practitioners with a self-reflection opportunity, the academics set up a survey for students to evaluate the Navy Yard spatial guidelines planning approach and to share their experiences while creating the spatial plan. The post-course survey was conducted in October 2017, with 52 students (84%) submitting completed questionnaires. The results of the survey were analysed using SPSS. The students were asked to rate the restrictiveness of the spatial guidelines with respect to the urban development of the Navy Yard (Table 4) on a 5-point Likert scale (ranging from very limiting to very permissive). The overall results showed that '60–70% of the buildings must contribute to the productive environment (e.g., companies and schools)' was considered by most students as 'limiting' (50%). 6% of the students even considered this spatial guideline as 'very limiting'.

Spatial guidelines that posed restrictions relating to the public sphere (see Guidelines 1, 3 and 7) were considered by most to be (very) permissive.

Table 4. The spatial guidelines based on the degree of limitation.

Spatial guidelines	Very limiting	Limiting	Neutral	Permissive	Very permissive
1. No cars are allowed; it should be aimed at pedestrians.	8%	11%	23%	29%	29%
2. Sports, playgrounds and meeting points should be connected in the outdoor area.	2%	14%	23%	42%	19%
3. Water must be part of the proposed redevelopment.	0%	15%	33%	33%	19%
4. 50% must be planned as public space; 50% must be reserved for buildings (e.g., homes, offices).	6%	36%	21%	23%	14%
5. 60–70% of the buildings must be part of the productive environment (e.g., companies, schools).	6%	50%	17%	21%	4%
6. 30–40% of buildings must have special residential or social functions.	8%	33%	29%	20%	10%
7. 80% of the roofs must be multifunctional.	2%	14%	11%	44%	29%
8. The maritime history of the site must be part of the proposed redevelopment.	2%	31%	19%	33%	15%

Source. The authors

The students were also asked to reflect on the spatial guidelines as an effective planning instrument to the incremental development strategy. The most frequently mentioned benefit of the spatial guidelines was 'having a framework/direction' (N = 18), followed by 'having room for creativity and ideas' (N = 11). Conversely, the most frequently mentioned barrier also was 'having a framework/direction' (N = 18), followed by 'having less room for creativity or out of the box thinking' (N = 10). Two-thirds of the students stated that the spatial guidelines should not be further specified (63%) or formalised (64%). In addition, they provided the following comments: 'the spatial guidelines may have negative impact on development opportunities'; 'there should be enough room for creativity and innovation', and 'it is not in accordance with adaptive/flexible planning approaches'. Those students who favoured an incremental development strategy, based on spatial guidelines, commented that 'the spatial guidelines should be able to change'; 'the world changes continuously', and 'it subcribes to adaptive and flexible planning approaches'. These comments illustrate the views of the second-year students regarding the Navy Yard development, which were shared with the practitioners in order to stimulate knowledge transfer from students to practitioners.

The institutional course evaluation was a means to stimulate knowledge transfer from students to academics. Student feedback, based on the course evaluation, suggests that 'it was a very interesting project'; 'engagement of students within the project is vital', but also that 'the course was a bit too short', and that 'there was a sense of haste'. Such practical comments can inform academic reflexive capacity in terms of future course delivery but also hint at the practicalities of delivering real-world learning experiences.

Discussion: Co-creative Planning Pedagogy?

This section returns to the community knowledge triangle, to uncover types and flows of knowledge between the learning communities in the 'Landscape Engineering' course. It involves attending to (a) the situation; (b) the bidirectional academic–student relations; (c) the bidirectional practitioner–student relations; and (d) the bidirectional academic–practitioner relationships. The specific case of this study (a) was the innovative, incremental development strategy of the Navy Yard and its intention to adopt spatial guidelines using a knowledge-sharing ethos.

The academic–student bidirectional relationship (b) involved the second-year undergraduate students engaging with academics in the R-LINK project and the course 'Landscape Engineering'. For the academics, the design of the course was predicated on the view that applications of scientific knowledge (such as content and research skills) gave students manageable tools to understand and reflect on a specific, real-world case (the Navy Yard development). In this real-life setting, the academics aimed to transfer scientific knowledge and skills to the students by challenging them to critically think about the incremental development strategy, to accurately observe the urban development project during the site visit, to write a scientific report, and to deliver a convincing presentation (the pitch). In short, the knowledge transfer from academic to student was clearly observable. By contrast, the dynamic of the exchange from student to academic was not as straightforward. The students provided their feedback through the institutional course evaluation, which focused on teaching aspects. Also, one of the academics mentioned the relevance of the student coursework after listening to the students'

pitches. No additional transfer from student knowledge to academics was reported or noted; thus, it is questionable whether the knowledge transfer from students to academics moved beyond the traditional collaboration format.

The practitioner–student bidirectional relationship (c) involved second-year undergraduate students engaging with planning practitioners from the Navy Yard Amsterdam development project. The practitioners provided practical knowledge and insights via guest lectures, guided site tours and discussions. Clearly, the students benefited from an introductory lecture, a site visit, and a feedback session: it gave the second-year undergraduate students a taste of planning practice, and they could directly engage with the practitioners. Considering the time pressures of daily work life, the practitioner's commitment to work with students on an ongoing project should be applauded. The knowledge transfer from students to practitioners is more difficult to ascertain. The students' assignments – the survey, pitches and the spatial plans – were the tools for delivering their inputs to the practitioner community. This student knowledge was intended as a way of holding up a 'mirror' to the practitioners, in terms of testing the workability of their emerging spatial guidelines. Nevertheless, as one practitioner mentioned, 'it gives us new ideas [but] … only some elements are useful'. This thinking resonates with Wiek (2007) argument that consensus on the transfer of knowledge is partial. Importantly, practitioner expectations of what students might offer in terms of student knowledge must be managed. For example, the practitioners were surprised that for some students this was their first visit to Amsterdam.

The academic–practitioner bidirectional relationship (d) hinged on the collaboration of the Project Agency and its participation in the R-LINK project, which provided a good opportunity for the academics to involve the Project Agency in the course 'Landscape Engineering'. The academics were dependent on the Navy Yard practitioners' knowledge, expertise, and access to the site, as well as their input in co-designing the course and assignments. While the knowledge transfer from practitioner to academic is evident in this case, the academics did retain control over the educational outputs. On the other hand, no reciprocal relationship was noted: the academics did not directly transfer scientific knowledge to the practitioners in this educational setting.

The reflection on the community knowledge dynamics illustrates the potential for multidirectional flows of types of knowledge in a student–academic–practitioner nexus; however, the analysis also highlights that this potential, in this case co-creation in planning pedagogy, should not be exaggerated. The R-LINK objective was to integrate knowledge generation and knowledge sharing within a real-world applied research project, with insights being exchanged in a timely and mutually beneficial way. As our community knowledge reflections illustrate, the types of knowledge were exchanged by various learning communities in multidirectional ways. Nevertheless, not all learning communities exchange knowledge (and learn) in the same ways or at the same moment. The knowledge transfers from academics to students, from practitioners to students and from practitioners to academics were clearly evident and substantive. On the other hand, the knowledge transfers from students to academics and from students to practitioners were infrequent and less substantive. Although the transfer of student knowledge was encouraged, and its importance recognised, student knowledge was deemed of less value. There was no knowledge transfer from academics to practitioners. This observation questions the reciprocity of knowledge exchanges in this planning pedagogy. From this perspective, the 'Landscape Engineering' course did not meet all dimensions that constitute co-creative pedagogies.

Conclusions

Given the emphasis on co-creation in planning practice, it is increasingly believed that planning pedagogies should embrace the underlying logic of co-creation. To date, it appears that, co-creation is weakly conceptualised in pedagogical settings. This article sought to uncover how types of knowledge flow between students, academics, and practitioners, by applying the community knowledge triangle to reveal and conceptually understand co-creative planning pedagogies. Deploying the community knowledge triangle in this case study provided a useful conceptual tool for unpacking the co-creative logic, by enabling the study of reciprocal and multidirectional flows of knowledge types between learning communities in pedagogical settings.

The study examined three community knowledge dynamics from the 'Landscape Engineering' case study, which provide useful illustrations to understand the flows of knowledge types between learning communities. The results documented several knowledge transfers. The 'traditional' knowledge transfer from academics to student was clearly recognisable: scientific knowledge was transferred through lectures and various assignments (e.g., written report, pitch presentation). Also, the knowledge transfer from practitioners to both academic and students was observable. For real-world experiments to succeed, active engagement with planning practitioners is essential; therefore, it is not surprising that the transfer of practical knowledge was documented. The transfer of student knowledge was encouraged (through the survey and institutional course evaluation); however, its flow and application remained rather limited. The use of student knowledge in planning pedagogies is still in its infancy, which might explain the marginal exchange. In this case study, no evidence of knowledge transfer from academics to practitioners was found.

The application of the triangle on the community knowledge dynamics helped to uncover the 'co-creative' logic of our case study. Reflecting on the distinct dimension of co-creative planning pedagogies (various, multidirectional and reciprocal) brings us to the following conclusions. The case study did promote collaborative work between a *variety* of learning communities. Also, the case study was characterised by *multidirectional* flows of knowledge types; however, not all learning communities had the same opportunities and interests to exchange types of knowledge. As a result, the learning communities did not mutually exchange types of knowledge across all relationship pairs in the community knowledge triangle. Thus, while such educational interventions do involve knowledge exchanges and offer unique learning opportunities, one can question whether this knowledge exchange constitutes true co-creation. Co-creative planning demands more than bringing various learning communities together or promoting multidirectional flows of knowledge in education settings. For true co-creation to arise, according to the definition in this article, learning communities must also recognise and promote reciprocal relationships in knowledge exchanges. In closing, integrating the logic of co-creation in planning pedagogies benefits from paying attention to the various learning communities and their mutual relationships in knowledge sharing.

This study focused on the conceptualisation of co-creative planning pedagogies, and contributes by thoroughly understanding co-creation in planning pedagogies. The article ends with some suggestions for future research. Many scholars agree that co-creation must be promoted, and that planning students benefit from obtaining co-creative skills.

Despite the growing enthusiasm for co-creative planning pedagogies, we strongly advise to explore further the potentials and added value of co-creative (planning) pedagogies. Evidently, many risks and challenges may lie ahead in co-creative planning pedagogies (such as power structures, inaccurate translation of knowledge and time management commitments). Further research is needed to explore and identify these risks and challenges, and to determine the added value of these educational interventions. In closing, we highlight that additional research is needed to explore the role of local residents, and their local community knowledge in the community knowledge triangle.

Note

1. Potential exchanges might also occur within the various learning communities, but this conception is left out of consideration for the sake of clarity.
2. The eight proposed spatial guidelines are primarily based on 'The Principle Note' (2017), and in collaboration with the practitioners adapted for educational purposes. These spatial guidelines aim to represent some (not all) of the spatial conditions for the development in 2017. Further, it is important to keep in mind that the Navy Yard is an ongoing urban development project with an incremental development strategy, meaning that these spatial guidelines (of 2017) do not necessarily represent current spatial guidelines.

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