Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

TRANSDISCIPLINARY INSIGHTS
E-JOURNAL
LEUVEN UNIVERSITY PRESS

Learning for the Future: A Case Study of Transdisciplinary Collaboration to Improve Pandemic Preparedness

T. Nguyen,[1,2,3,*,§] M. Ronse,[2] A. Kiekens,[1,4] P. Thyssen,[1,4,5] J. R. Nova Blanco,[1,4] N. Van den Cruyce,[7] M. Craps,[1,7] Coronavirus Pandemic Preparedness Team 1,[8] A.-M. Vandamme[1,4,9]

[1]KU Leuven, Institute for the Future, Leuven, Belgium;
[2] Institute of Tropical Medicine Antwerp, Department of Public Health, Socio-ecological Health Research Unit, Antwerp, Belgium;
[3]KU Leuven, Department of Work & Organisation Studies, Leuven, Belgium;
[4]KU Leuven, Department of Microbiology, Immunology and Transplantation, Rega Institute for Medical Research, Clinical and Epidemiological Virology, Leuven, Belgium;
[5]KU Leuven, Research Group SoMeTHin'K, Faculty of Social Sciences, Leuven, Belgium;
[6]KU Leuven, Research Centre for Economics and Corporate Sustainability, Brussels Campus, Brussels, Belgium;
[7]Vrije Universiteit Brussel, Department of Psychology, Faculty of Psychology and Pedagogical Sciences, Brussels, Belgium;
[8]Shared authorship (Supplement 1);
[9]Center for Global Health and Tropical Medicine, Unidade de Microbiologia, Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa, Lisbon, Portugal;
[§]An earlier draft of this paper was previously included in the first author's dissertation titled 'Here and now: Reconsidering context in cross-sector collaboration,' KU Leuven 2022.
*Corresponding author: totran.nguyen@kuleuven.be.

Abstract

Since the World Health Organization (WHO) announced the COVID-19 pandemic, attention has turned to the impact of societal initiatives and what can be learned from them for the future beyond COVID-19. Little attention has been paid, however, to how 'learning for the future,' as an organizational process, is concretely accomplished. This paper offers a collaborative autoethnography of our team's project to 'learn for the future' through transdisciplinary collaboration during the first year of the COVID-19 pandemic, where our broader goal was to help improve future pandemic preparedness for Belgium and beyond. We engage practice theory, with its processual, relational ontology, to understand the empirical phenomenon of 'learning for the future' as a practice or set of relational activities and artifacts that constituted our experience and collective sense that we were 'learning for the future' in a transdisciplinary way. Our interpretive analysis uncovered three relational activities: *inclusively broad sharing*, *participatory concretizing*, and *collective suspending of sense*. The analysis further revealed that, at the same time, these activities were the means through which the tension our team repeatedly experienced between

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

the present and future (i.e. making an impact on the present pandemic versus taking a step back from the present to 'learn for the future') was being reproduced. This explains why our team's repeated attempts to clarify priorities and reestablish the focus on the future did not simply resolve the tension. From a processual, relational perspective, 'learning for the future' emerged through ongoing efforts that relate to making a difference in the present. We discuss what our theoretical perspective and findings may mean for organizing for a more resilient society and future directions for research.

Key words

Transdisciplinary collaboration, learning, pandemic preparedness, autoethnography, practice theory

Introduction

> *We have selected you to contribute to an experimental transdisciplinary effort in order to better understand the complex interactions between scientific knowledge, medical practice, government decisions, societal impact, industry involvement, to further the best possible health for all citizens in the short and in the long run. We aim to learn from each other and from the events that will unfold during the next year, taking as case study Belgium, in order to construct a roadmap for a better preparedness for future pandemics. Your efforts will contribute to a roadmap that WHO is preparing. […] We do not expect to have a big impact on the upcoming pandemic.*
>
> —Excerpt from project description introducing new team members to the Coronavirus Pandemic Preparedness Transdisciplinary Challenge (Supplement 2)

The COVID-19 pandemic ushered in a new era marked by magnified vulnerabilities, extended polarization, heightened sensitivity to uncertainties, and, importantly, hope for a future world that is more resilient. This hope is bolstered by not only the wave of innovative societal initiatives and responses around the world but also by the universal expectation that the lessons of this pandemic will be applied in the future beyond COVID-19 (e.g. Atkinson & Page, 2022; Frueh, 2020). The importance of learning from the pandemic is also evidenced by society's frequent references to previous health crises (e.g. Chua et al., 2021; Hargreaves et al., 2020; Smith & Upshur, 2020; Webster, 2020) and by its critiques of the lack of COVID-19 pandemic preparedness (e.g. Sirleaf & Clark, 2021; The Lancet Respiratory Medicine, 2022). Little attention has been paid, however, to what it concretely means to 'learn for the future,' particularly through collaboration between different societal actors. This paper offers a case study to shed light on this empirical phenomenon.

The case of the Coronavirus Pandemic Preparedness Transdisciplinary Challenge

Two weeks before the declaration of the pandemic and in anticipation of it, a volunteer team[1] of academics and practitioners (both from various disciplines and backgrounds) in Flanders, Belgium kicked off a yearlong journey to 'learn for the future,' in order to improve the way pandemic preparedness is done and to contribute to the WHO's work on roadmaps for this. Named the Coronavirus Pandemic Preparedness (CPP) Transdisciplinary Challenge (see Supplement 2), the project idea had been conceived by three people during a WHO meeting in February 2020, two of whom would later become part of this team. KU Leuven's Institute for the Future[2] (IF), led by one of these attendees, took the lead to launch the project. Supplement 2 details the aims and scope of this project, which every team member had to sign.

In the prior three years, IF had been running a transdisciplinary honors course, where self-organized, interdisciplinary student teams (supported by dedicated coaches and an academic team) tackle a 'wicked problem' over the course of an academic year. The CPP project, however, was IF's first attempt at creating a professional-level transdisciplinary collaboration between academics and practitioners. Similar to the student course, where the learning process is emergent, this project did not have a predetermined or preset process, but the team followed the guiding principles of transdisciplinarity that had been used in the course.

1 https://rega.kuleuven.be/if/pandemicpreparedness/learningteam#Previous%20Learning%20Team
2 https://rega.kuleuven.be/if

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

These principles of transdisciplinarity – embracing systems thinking and engaging diverse members of academia and society – were applied by the team in its efforts to understand the current pandemic and draw lessons for the future, based on transdisciplinary exchanges. What type of lessons they should be was initially left open, and team members were informed that this was an 'experimental transdisciplinary effort in order to better understand the complex interactions between scientific knowledge, medical practice, government decisions, societal impact, industry involvement, to further the best possible health for all citizens in the short and in the long run' (Supplement 2). As this 'experimental transdisciplinary effort' was not mandated by a governmental agency or policy-making body nor was it funded when launched, the team did not have specific accountabilities related to the current pandemic and was relatively free to design and adapt to its changing circumstances.

IF was the primary organizer throughout the project's duration, but in August 2020, several months into the project, two other academic institutions (which already had members on the team), the Institute of Tropical Medicine Antwerp and Vrije Universiteit Brussel, became formal collaborators when all three received a grant from the King Baudouin Foundation (KBF) to fund the aims of this project. The first aim aligned with the project's original purpose: to observe the challenges of the pandemic and identify what could be learned to improve pandemic preparedness in the future. By this point in time, the team had also developed two other specific aims for the funding: to develop insights on the learning process for pandemic preparedness and to develop insights on decision-makers. The funding effectively expanded the original 'core team' of KU Leuven members (responsible for managing the project) to include a current team member from each of the two partner institutions. Receiving this grant created a new level of accountability; however, given the open nature of the transdisciplinary process described in the grant proposal, the team still maintained much flexibility in its process. Months later, in January 2021, the team and funder agreed on a set of deliverables, which include workshops (related to a study of the residential care homes) to take place during the first year of the project and reports on the team's insights to be delivered after the first year of the project. The project planning and deliverables evolved over time. Although the project was formally extended for several months after the first year, this case study covers the activities during the first year, after which the team members and the project aims changed; henceforth, 'project' in this paper refers only to this first year.

This article uses this project as a case study to offer insights into the work of collaboratively 'learning for the future' and suggests implications for organizing for a more resilient society. More specifically, it addresses the research question: how is 'learning for the future' in a transdisciplinary collaboration accomplished as a relational practice? 'Learning for the future' was the aim of the project, and this study reveals how this was concretely done by the team.

Understanding 'learning for the future' as a relational practice

On this project, 'learning for the future' was conducted through collaboration. More importantly, to the team this project was specifically a 'transdisciplinary effort.' Referring to Mittelstraß, Hirsch Hadorn et al. (2008) state that such collaboration aims to 'transcen[d] disciplinary boundaries to address and solve problems related to the life-world' (p. 20). This emphasis on collaboration beyond disciplines inspired us to seek a theoretical perspective that not only sheds light on the relational work of collaboration but that also 'transcends' theoretical boundaries.

Following Steyaert and Van Looy (2010), who consider collaboration a 'relational practice,' we apply practice theory (Gherardi, 2016; Schatzki et al., 2001) to understand the empirical phenomenon of 'learning for the future' through transdisciplinary collaboration. Practice theory embraces a processual, relational ontology, which means social phenomena are seen as being emergent and ongoing and as being constituted by relations (Feldman & Orlikowski, 2011), which is a post-dual perspective that departs from individualism and societism (Janssens & Steyaert, 2019). The unit of analysis is practices, instead of individual and interpersonal behavior (i.e. individualism) or discourses (i.e. societism) (Janssens & Steyaert, 2019). We follow Gherardi's practitioner-oriented view of practices (2009, p. 117):

> 'Seen from the inside, practice is a knowledgeable collective action that forges relations and connections among all the resources available and all the constraints present. Performing a practice therefore requires knowing how to align humans and artefacts within a sociotechnical

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

> ensemble and therefore knowing how to construct and maintain an action-net (Czarniawska, 2004), which is interwoven and deployed so that every element has a place and a sense in the interaction.'

Using this lens and taking guidance from Resch and Steyaert's (2020) study that sheds light on the relational practice of peer collaboration, we consider 'learning for the future' as a practice or bundle of specifically relational activities and the artifacts involved in accomplishing those activities.

Methodology

This qualitative study of our team's experience of 'learning for the future' follows an interpretive approach, which moves away from 'discovering truths and toward processes that will more effectively illuminate possibilities for thought and action' (Thorne, 2014, p. 109). This approach aims to discover 'new ways of seeing and understanding that might advance our capacity to know a phenomenon in a manner that is, in one respect or another, better than we did before' (Thorne, 2014, p. 109). This means that our study does not provide universal truths or generalizations for a roadmap of how to 'learn for the future;' rather it renders this phenomenon in terms of the orchestration of bodies, words, and materials (Nicolini, 2017), such that we can gain a new relational language for discussing the lived experience of those involved, with its complexities and situatedness.

More specifically, embracing the value of sharing reflexive, narrative accounts of transdisciplinary learning (e.g. Wall & Shankar, 2008) and discovering 'from the inside,' we developed a collaborative, authoethnographic account that engages with the team's lived experience of 'figuring out what to do, how to live, and the meaning of [our] struggles' (Bochner & Ellis, 2006, p. 111). Roy and Uekusa (2020) argue for 'utilizing self-narratives of [researchers'] experiences during the pandemic as a rich source of qualitative data for further delving into the socioeconomic, political and cultural impacts of the pandemic' (p. 383), and they advocate for collaborative autoethnography as a way to do this. Chang et al. (2013) describe collaborative autoethnography as 'a qualitative research method that is simultaneously collaborative, autobiographical, and ethnographic' and suggest picturing 'a group of researchers pooling their stories to find some commonalities and differences and then wrestling with these stories to discover the meanings of the stories in relation to their sociocultural contexts' (p. 17).

This study draws on autoethnographic data produced by the team during and after the project and also on additional reflections by the core team members – who dedicated a substantially greater amount of time to planning the team's process and executing most of the tasks – during the drafting of this paper. Throughout the project, reflection and dialogue about the team's experience were a routine part of the work, but they were also stimulated and documented in more deliberate and focused ways through individual surveys completed by the team (at three points in time during the year) and four reflection sessions (the final full team meeting and three core team meetings). In addition to this, one of the team's final workshops was focused on envisioning learning teams for the future; this workshop drew on the team's own experience and is thus also a part of our autoethnographic data.

The writing of the collaborative autoethnography for this study was initiated by the first author – an active team member who participated in all (core and full) team reflection sessions and who had reviewed all team survey and workshop results – through the process of reflecting on and addressing the research question: how did the team accomplish 'learning for the future' in a transdisciplinary way, through relational activities and artifacts? Reflecting on both personal experience and what was shared in surveys and team discussions, the first author identified three relational activities through which 'learning for the future' appeared to be accomplished in this transdisciplinary collaboration: *sharing*, *concretizing*, and *suspending of sense*. In writing the account, she further specified how each activity was done in a transdisciplinary way: *inclusively broad*, *participatory*, and *collective*. She also explained the ways in which artifacts enabled and shaped these activities. Other core team members then reviewed the initial account and contributed to it by sending in their feedback (via email or edits to the text itself) or by engaging in reflective dialogue about the account. The core team members confirmed that the description and analysis captured the essence of their personal and shared experiences. Although the full team also had an opportunity to provide feedback on the account, the core team, who remained engaged after the project ended, contributed more substantially to the account. Thus, we acknowledge that this study is relatively centered on the voices of the (academic) core team members.

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

Findings

Our analysis identified three relational activities – and their related artifacts – that comprise the practice of 'learning for the future' in a transdisciplinary collaboration: *inclusively broad sharing*, *participatory concretizing*, and *collective suspending of sense*.

The analysis further revealed that 'learning for the future' was consistently experienced by the team members as a tension between their shared desire to take action that would make a difference to the current pandemic and the original project aim to take a step back to 'learn for the future.' This tension was evident from the beginning, when personal aims were shared at the start of the project, and it continued to shape the remainder of the project. In this section, we additionally explain how the tension between wanting to make an impact on the present versus thinking about the future emerged or unfolded through these activities.

(1) Inclusively broad sharing (or 'sharing broadly' for short) of knowledge

Guided by the transdisciplinary principle of thinking systemically, the team welcomed knowledge about any aspect of the pandemic or society, whether in Belgium or in other parts of the world. All topics were engaged in the team's online discussion space, making this a relational activity. We consider this sharing as 'inclusively broad,' meaning that what was shared was monitored and typically acknowledged for the potential value it brought to the team's perspective or opportunities.

The team shared a broad range of content or topics; these tended to reflect what was currently being discussed in local, national, and global news. For example, this included: modeling of the pandemic, contact tracing apps, vulnerable groups (e.g. elderly people), vaccine hesitancy, and schools. The team also shared a broad range of types of content, such as scientific findings, academic perspectives, news reports, opinion articles, social media, and personal experiences.

Sharing was also accomplished broadly in terms of space/mediums and time, both of which extended beyond team meetings to the virtual chatting and archives of the Slack app[3], the team's online discussion space and knowledge depository. Given the large number of meeting attendees and the limited meeting time, sharing during meetings often occurred through solicitation by the project lead 'going around the table.' In contrast, on Slack, team members voluntarily shared content, often as soon as they found the content, and commented on each other's posts; and they did so 'around the clock.' On Slack, discussion channels were created to separate administrative topics and files, academic references (versus 'other' references), sources of inspiration for the team's work, and interesting events. In addition to this, some of the team's aforementioned pandemic topics earned their own discussion channel; these topics of interest were not predetermined but rather emerged as the pandemic unfolded and the national concerns in Belgium shifted. Slack, which expanded the team's sharing space and time, was a key artifact through which the relational activity of 'sharing broadly' was accomplished in a fixed place, especially as the team composition and member participation were changing during the project.

While 'sharing broadly' was valuable for building a systemic view of issues related to the pandemic, this activity contributed to the team members' sense of widening scope and lack of focus on fewer topics that could contribute deep insights on 'learning for the future.' Ironically, keeping an open and flexible perspective – as a key part of sharing broadly – contributed to the emergence of an opportunistic way of working, which in our case meant that the team jumped at chances to make a difference in the current pandemic.

One example is the team's engagement in the topic of contact tracing apps. At the start of the project, the team aspired to develop a systems map of the pandemic to synthesize the array of observations and insights about complexity that could contribute to better future pandemic preparedness. The topic of contact tracing apps, a 'hot topic' at the start of the pandemic, soon grabbed the team's attention. Contact tracing apps became a topic with a dedicated channel in the team's Slack app, where the members quickly discussed from different angles issues that should be considered in creating and implementing such apps. Team members from various backgrounds and disciplines then developed an article outlining the numerous factors that decision-makers should consider about contact tracing apps[4]. Related initiatives soon followed. The team also welcomed a

3 https://slack.com
4 https://rega.kuleuven.be/if/tracing-tools-for-pandemics

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

new member, an entrepreneur who had faced obstacles in getting enough institutional support for the contact tracing app that his team had pioneered in the early phase of the pandemic. Then a national, academic effort to bring together perspectives on societal issues related to the pandemic offered the team an opportunity to submit a transdisciplinary essay on contact tracing apps for a collective publication (Vandamme et al., 2020), which led to a correspondence in Nature that could have a broader audience (Vandamme & Nguyen, 2020). For a period of time, it was unclear to the team how involved in this topic they would continue to be, and some concern existed about not making enough of a meaningful impact on the current pandemic for this topic. The opportunity to make a meaningful impact was greatly reduced after the Belgian government made key decisions about how it would move forward with contact tracing apps; subsequently, the team's attention to this topic quickly waned. However, articles on this topic continued to be shared in Slack for the remainder of the project, and at times, some team members wondered if more impact could have been made for this topic. The topic of contact tracing apps is one of several examples of where the activity of 'sharing broadly' created fertile ground for the team to jump at the opportunity to make an immediate impact.

(2) Participatory concretizing

The process of making ideas, dialogues, and visions concrete created practical opportunities for team members to play a role in co-creation, another transdisciplinary principle that guided the project. In this way, concretizing is a specifically relational activity that we characterize as participatory. We highlight here the activity of 'participatory concretizing' rather than co-creating, because it was through the team's work becoming more concrete that members came to experience the project as being present- and/or future-oriented. In the following, we elaborate on how this activity was accomplished in different ways and through the use of artifacts.

The team's initial vision of concrete output for the project was the future-oriented idea of a 'roadmap for pandemic preparedness,' and although sharing broadly was valued, team discussions lacked depth and concreteness. The team tried to address this by forming 'breakout' groups that would dive into specific topics and come back together to share. Two breakout groups maintained a more future-oriented view, in the sense that they were not focused on discussing issues currently in the news; one looked into the definition of different stages of pandemic and potential gaps associated with them, and the other one adopted a 'helicopter view' of pandemic preparedness. Two other breakout groups each focused on unpacking current issues related to a specific topic: entrepreneurship (a broader framing inspired by the topic of contact tracing apps and their developers) or the elderly in need of care (both residential and informal home care); the latter was a second emerging 'hot topic' which again led the team to bring in a new practitioner member who had expertise in that topic.

In contrast to other types of collaborations where a template for a roadmap may have directed the work, the purposes of tasks, and the division of labor, this transdisciplinary collaboration evolved and became concrete in a participatory way, through members not only identifying opportunities to take action but also volunteering to take action. When the team learned of a research tool that could be used to collect stories from the public, more of the team's attention shifted to the possibility of going deeper with the topic of residential care facilities. Several members of the team worked with external stakeholders to develop an online survey to collect stories about personal experiences with the crisis for the elderly in need of care. Using research to get closer to people's experiences provided the team with not only a more concrete sense of existing issues to learn from but also opened up again the possibility to make a meaningful impact on the current pandemic.

In order to gain financial support for the project, the team was compelled to make their current impact more concrete and communicable. Despite the project's potential contribution, the team struggled to find grant opportunities where their transdisciplinary collaboration to 'learn for the future' would qualify and be valued. Funding became a new topic with a dedicated Slack channel. During this crisis, the biomedical and other hard sciences were especially prioritized for research funding due to the explicit potential of producing immediate solutions or impact. In communication with the Research Foundation – Flanders (FWO) funding body, the team began to advocate and negotiate for the funding of social science research and transdisciplinary collaboration (Wenmackers, 2020). To make their work more concrete and possibly shareable, the team began developing a report – or the 'gaps document,' as the

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

team called it – describing the societal issues observed thus far and the need for transdisciplinarity in pandemic preparedness. The document included short-term recommendations for current issues but also incorporated future thinking through preliminary long-term recommendations. During the period in which the team was developing this report, a member of KBF expressed a unique interest in enabling collaboration that looked broadly towards the future. To complement this future orientation, the team also shared concrete, interim findings from its ongoing study on experiences in residential care facilities. Thus, even when pursuing funding for 'learning for the future,' concrete learnings from the present were a practical part of moving forward.

A major shift in how the team concretely accomplished 'learning for the future' occurred when it began using Miro's online collaborative visualization boards[5]. Midway through the project, the team sought ways to better connect and collaborate online; the face-to-face dialogue and exploratory exercises that would have been typical of transdisciplinary collaboration had been simply replaced by conference calls due to the COVID-19 measures. Miro's online boards created a real-time work space the team could continually return to, building on their work over time, with greater participation. In this space, more 'helicopter view' questions (e.g. what are the common or deeper causes of several of the gaps, where are we in our transdisciplinary process, which societal actors are we lacking among our team members, is a transdisciplinary advisory group possible during an acute crisis such as a pandemic) were posed for the team to work through, in terms of brainstorming and articulating individual and collective perspectives. In the final two months of the first year, the team worked in a more focused, structured, and future-oriented way, advancing through a series of four Miro-based workshops, each focused on one of four topics: the concept of pandemic preparedness, advisory teams, learning teams, and Pandemic Preparedness Goals. Each workshop was prepared beforehand using answers from questionnaires, where individual team members had the opportunity to articulate their perspectives on the topic. The activity of 'participatory concretizing' evolved over time and through artifacts to shift the tension from making an impact on the current pandemic to 'learning for the future.'

(3) Collective suspending of sense

Reflection is a key part of the transdisciplinary process, as it allows for sense-making and adaptation; as previously mentioned, what was particularly striking in this project was the ongoing, collective struggle with making sense of the tension between present and future, in light of how the project had been described at the start (as being future-oriented with little impact on the current pandemic expected). We highlight the relational activity of 'collective suspending of sense' (rather than 'collective sense-making'), because the practice of 'learning for the future' entailed moving forward without the work necessarily making sense to team members, even though they engaged in ongoing dialogue to make sense of it. The 'sense' was suspended.

Over time, as initiatives around topics such as contact tracing apps and the elderly in need of care were launched, the rationale emerged (explicitly from the project 'lead') that 'learning for the future' would come from actually experiencing the current pandemic and likely running into obstacles and challenges while trying to make a difference. Interestingly, while the team understood this rationale for engaging in present-oriented initiatives, it did not substantially resolve the tension between present and future, especially for the core team members, who were conducting the preparations for each meeting and advocating that a clearer and more structured methodology was needed. As core team members spent extra time reflecting on their experience, some of them additionally connected on the side, often one-on-one, to make sense of the various initiatives and ideas, in informal ways. This way of relating allowed them to share frustrations and 'get things off their chest.' Through this process, they realized that their sense-making frustrations were shared by other members, which then led them to accept the situation and maintain the suspension of sense regarding priorities, tasks, and purpose. This helped to alleviate moments of paralysis that some experienced.

When measures were relaxed in the autumn of 2020 in Belgium, the core team of eight members decided that they critically needed a face-to-face meeting to engage in more effective dialogue around persistent questions and to align on how to move forward. A sub-group extensively planned the full-day meeting, designing mixed modes of initiating and engendering

5 https://miro.com

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

dialogue. This included walking discussions with rotations between pairs of core team members – some of whom called in by mobile phone, because they could not attend in person – and 'positioning exercises,' where participants had to position themselves on an axis on the ground (according to how they viewed a specific statement). The tension between present and future was particularly evident when the team was deliberating about what to do next regarding the study of the elderly in need of care: should the team 'go deeper' to deliver more insight and greater impact on a certain topic in the current pandemic, or should they take a step back for the remainder of the project and think more broadly about pandemic preparedness and transdisciplinarity? The intense discussions led the full team to agree to go more deeply with this study, while suspending focus on other questions. They soon discovered after the event, however, that it was unclear whether present impact or future-oriented impact was more important to the funder; different contacts from the funder had expressed different priorities. It appeared that the team was not the only one experiencing this difference or tension.

Moving forward in this transdisciplinary collaboration meant continuing team discussions and initiatives without concerted effort to predetermine specific steps that could normally bring the clarity that team members desired. Suspension of sense shaped the way the collaboration unfolded and how the team came to 'learn for the future.' The tension between present and future persisted until the final stage of the project, where structured workshops, using Miro, helped the team focus on the big questions and to bring the first year to a close.

The project's conclusion

The tension between wanting to make an impact on the present versus thinking about the future led the team to one of its key conclusions at the end of the project: 'Learning to improve pandemic preparedness and advising decision-makers during a pandemic require separate skills' (e.g. reflecting versus acting, focusing more on qualitative investigation versus more on quantitative knowledge gathering, focusing more on the long-term impact on preparedness for the next pandemic versus short-term impact for the immediate crisis). The team stated this conclusion and elaborated on it in the report it submitted to the Belgian Parliamentary Commission, which included an expanded understanding of pandemic preparedness, recommended strategies to improve pandemic preparedness, and guidance on creating Pandemic Preparedness Goals[6]. More specifically, the team recommended that in the future there be a dedicated learning team that is composed of members who do not belong to other teams directly advising policy-makers. The rationale shared in the report was that based on the team's experience, trying to both advise policy-makers while also reflecting and identifying lessons for future pandemic preparedness can create tensions, confusion, and unrealistic expectations.

Discussion

This study examined a transdisciplinary collaboration during the COVID-19 pandemic – where the team understood its aim and work as 'learning for the future' to improve preparedness for future pandemics – through a collaborative autoethnography by the team members. We applied practice theory to show how this empirical phenomenon of 'learning for the future' is a relational practice. Our empirical account of this practice suggests that the phenomenon of 'learning for the future' deserves further dialogue, research, and conceptual development.

We revealed that our experience of 'learning for the future,' through transdisciplinary collaboration during the pandemic, had very much to do with the present, not only in terms of extracting lessons from the present (or past) for the future, but also in terms of how 'learning for the future' was understood by the team and how it unfolded through making a difference in the present. Through viewing this phenomenon as a relational practice, we demonstrated the relations among bodies, words, and materials that work together to give an ongoing sense of and meaning to 'learning for the future.'

This picture of the emergent, connective nature of 'learning for the future' through transdisciplinary collaboration suggests that a predetermined roadmap of pandemic preparedness (similar to what currently exists today for influenza) that lays out progressive stages of concrete tasks, for example, is likely to fall short of expectations. We observed from our experience during this crisis that the situation under analysis (i.e. the COVID-19 pandemic in Belgium) changed rapidly, sometimes unexpectedly, with little that we could firmly

6 https://rega.kuleuven.be/if/pandemicpreparedness/introducing-pandemic-preparedness-goals

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

rely on for planning purposes. What we want to highlight here, more so than the uncertainty or unpredictability, is how we continuously re-oriented ourselves in relation to the tension discussed and in relation to the constantly evolving content (e.g. topics, issues, research questions). Our experience was punctuated by moments of clarity, achieved through deliberative sense-making and artifacts (e.g. apps, documents), but these moments of clarity did not shape how the project unfolded as much as we believe it would have in non-crisis, non-pandemic times, when the tension between present and future may be less pronounced. Our team's work and process during this project were iterative, and we made sense of it based on how connections, opportunities, and pressures emerged, in combination with how artifacts played a role in moving us forward.

During a crisis – from which a more resilient society hopefully emerges – we suggest that deeper and more responsive insights and learnings may develop if there is more investment in building the 'muscles' or skills for navigating uncertainty, information overload, and knowledge diversity than investment in designing and executing a template for 'learning for the future.' Based on our experience and analysis, we imagine that this muscle would enable team members to pause during the process and recognize how the tension between present and future is being reproduced by the team through its activities of inclusively broad sharing, participative concretizing, and collective suspending of sense. In such pauses, new ideas may emerge or new contexts may be constructed.

The team was not charged with crisis management; however, our case could inspire conceptual developments and new ways to study transdisciplinary approaches to crises (e.g. Cole et al., 2022; Lawrence, 2021; Steiner et al., 2020), crisis management (e.g. Mitroff, Pauchant, & Shrivastava, 2006), organizational learning from a crisis (e.g. Smith & Elliott, 2007), crisis learning (e.g. Hur & Kim, 2020), and in particular what Antonacopoulou and Sheaffer (2014) conceptualize as 'learning in crisis (LiC)' or the '*ongoing practising in the midst of everyday action*' (p. 8, emphasis in original). They point out that 'the relationship of crisis and learning is founded on the assumption that a better understanding of what causes crises and opportunity to learn from past crises can prevent the reoccurrence of future crises' and that this assumption 'attributes crisis to managerial shortcomings' (Antonacopoulou & Sheaffer, 2014, p. 8). Our project team did not have a formal role in managing the crisis, but as we reflect on our experience being in the midst of the crisis, we agree with Antonacopoulou and Sheaffer's (2014) argument that identifying shortcomings (e.g. judgmental errors) is not sufficient for addressing or preparing for future crises. They argue that 'we need to understand better how learning and crisis are interrelated' (Antonacopoulou & Sheaffer, 2014, p. 8). Our study may inspire further conceptual development of 'learning in crisis,' and likewise the conceptual development of 'learning for the future' may benefit from current work on 'learning in crisis.'

Conclusion

We had to ask ourselves: how do we navigate the necessity and challenges of 'losing ourselves in the present to learn for the future'? As we did, future learning teams taking a transdisciplinary approach will be asked to continuously reflect on the question of whether they are learning what they aim to learn and how to do so. These questions deserve more dialogue not only within and between learning teams but also among academics and other members of society. This paper initiates this dialogue by engaging practice theory to provide a picture of what it concretely meant to our team to be 'learning for the future,' particularly through collaboration between different societal actors, in a context where making a difference in the present was 'inescapable.' Such a dialogue could support societal resilience by moving dialogue beyond 'what to learn' and 'how to learn' to 'how to see' and 'how to support' learning through transdisciplinary collaboration.

Acknowledgements

The authors would like to thank all members of the Coronavirus Pandemic Preparedness Learning Team 1 and the stakeholders who contributed to our learning[7].

Funding

This work was supported by the King Baudouin Foundation under the project number 2021-J11000-105570-A.

7 https://rega.kuleuven.be/if/pandemicpreparedness/stakeholder_advisory_group

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

List of supplements

Supplement 1: Shared authorship – Members of Coronavirus Pandemic Preparedness Learning Team 1
Supplement 2: Challenge document: Coronavirus Pandemic Preparedness Transdisciplinary Challenge Information

References

Atkinson, S., & Page, B. (2022, January 13). 10 COVID-19 lessons that will change the post-pandemic future. *World Economic Forum*. https://www.weforum.org/agenda/2022/01/ten-covid19-lessons-from-the-pandemic-ipsos

Bochner, A. P., & Ellis, C. S. (2006). Communication as autoethnography. In G. J. Shepherd, J. St. John, & T. Striphas (Eds.), *Communication as … Perspectives on theory* (pp. 110–122). Thousand Oaks, CA: SAGE.

Chang, H., Ngunjiri, F., & Hernandez, K. C. (2013). *Collaborative Autoethnography*. Walnut Creek, CA: Left Coast Press.

Chua, A. Q., Al, K. B., Grant, B. et al. (2021). How the lessons of previous epidemics helped successful countries fight Covid-19. *BMJ*, 372(8283), no. 486.

Cole, A., Baker, J. S., Tran, E., & Gao, Y. (2022). Introduction to the Special Issue 'Transnational and Transdisciplinary Lessons of COVID-19 from the Perspective of Risk and Management'. *Journal of Risk and Financial Management*, 15(5), 210.

Feldman, M. S., & Orlikowski, W. J. (2011). Theorizing practice and practicing theory. *Organization Science*, 22(5), 1240–1253.

Frueh, S. (2020, October 14). Preparing for Future Pandemics: Using lessons from the current crisis to improve future responses. *The National Academies of Sciences, Engineering, and Medicine*. https://www.nationalacademies.org/news/2020/10/preparing-for-future-pandemics-using-lessons-from-the-current-crisis-to-improve-future-responses

Gherardi, S. (2009). Introduction: The Critical Power of the 'Practice Lens'. *Management Learning*, 40(2), 115–128.

Gherardi, S. (2016). To start practice theorizing anew: The contribution of the concepts of agencement and formativeness. *Organization*, 23(5), 680–698.

Hargreaves, J., Davey, C., Auerbach, J., Blanchard, J., Bond, V., Bonell, C., & Doyle, A. (2020). Three lessons for the COVID-19 response from pandemic HIV. *The Lancet HIV*, 7(5), e309–e311.

Hirsch Hadorn, G., Hoffmann-Riem, H., Biber-Klemm, S., Grossenbacher-Mansuy, W., Joye, D., Pohl, C., Weismann, U., & Zemp, E. (Eds.) (2008). *Handbook of Transdisciplinary Research*. Dordrecht: Springer.

Hur, J.-Y., & Kim, K. (2020). Crisis learning and flattening the curve: South Korea's rapid and massive diagnosis of the COVID-19 infection. *The American Review of Public Administration*, 50(6–7), 606–613.

Janssens, M., & Steyaert, C. (2019). A practice-based theory of diversity: Respecifying (in)equality in organizations. *Academy of Management Review*, 44(3), 518–537.

Lawrence, R. J. (2020). Responding to COVID-19: What's the Problem?. *Journal of Urban Health*, 97(4), 583–587.

Mitroff, I. I., Pauchant, T. C., & Shrivastava, P. (2006). The structure of man-made organizational crises: Conceptual and empirical issues in the development of general theory of crisis management. In D. Smith & D. Elliot (Eds.), *Key readings in crisis management: Systems and structures for prevention and recovery* (pp. 47–74). London: Routledge.

Nicolini, D. 2017. Practice theory as a package of theory, method and vocabulary: Affordances and limitations. In M. Jones, B. Littig, & A. Wroblenski (Eds.), *Methodological reflections on practice oriented theories* (pp. 19–34). Berlin: Springer.

Resch, B., & Steyaert, C. (2020). Peer collaboration as a relational practice: Theorizing affective oscillation in radical democratic organizing. *Journal of Business Ethics*, 164(4), 715–730.

Roy, R., & Uekusa, S. (2020), Collaborative autoethnography: "self-reflection" as a timely alternative research approach during the global pandemic. *Qualitative Research Journal*, 20(4), 383–392.

Schatzki, T. R., Knorr Cetina, K., & Von Savigny, E. (Eds.) (2001). *The practice turn in contemporary theory*. London: Routledge.

Sirleaf, E. J., & Clark, H. (2021). Report of the Independent Panel for Pandemic Preparedness and Response: making COVID-19 the last pandemic. *The Lancet*, 398(10295), 101–103.

Smith, D., & Elliott, D. (2007). Exploring the barriers to learning from crisis: Organizational learning and crisis. *Management Learning*, 38(5), 519–538.

Smith, M. J., & Upshur, R. E. G. (2020). Learning Lessons from COVID-19 Requires Recognizing Moral Failures. *Bioethical Inquiry,* 17, 563–566.

Steiner, G., Zenk, L., & Schernhammer, E. (2020). Preparing for the Next Wave of COVID-19: Resilience in the Face of a Spreading Pandemic. *International Journal of Environmental Research and Public Health*, 17(11), 4098.

Steyaert, C., & Van Looy, B. (2010). Participative organizing as relational practice. In C. Steyaert & B. Van Looy (Eds.), *Relational Practices, Participative Organizing* (pp. 1-17). Bingley: Emerald Group Publishing Limited.

The Lancet Respiratory Medicine (2022). Future pandemics: failing to prepare means preparing to fail. *The Lancet Respiratory Medicine*, 10(3), 221.

Thorne, S. (2014). Applied interpretive approaches. In P. Leavy (Ed.), *The Oxford Handbook of Qualitative Research* (pp. 99–115). New York: Oxford University Press.

Vandamme, A. M., & the Coronavirus Pandemic Preparedness team (2020, May 10). A transdisciplinary perspective of contact tracing apps and how they may shape the exit process. *Carta Academica*. https://www.cartaacademica.org/post/a-transdisciplinary-perspective-of-contact-tracing-apps-and-how-they-may-shape-the-exit-process

Vandamme, A. M., & Nguyen, T. (2020). Belgium – concerns about coronavirus contact-tracing apps. *Nature*, 581(7809), 384–385.

Wall, S., & Shankar, I. (2008). Adventures in transdisciplinary learning. *Studies in Higher Education*, 33(5), 551–565.

Webster, P. (2020). Canada and COVID-19: learning from SARS. *The Lancet*, 395(10228), 936–937.

Wenmackers, S. (2020, May 14). The funding gap in pandemic preparedness and control. *KU Leuven Institute for the Future*. https://rega.kuleuven.be/if/coronavirus-challenge/funding-gaps/the-funding-gap-in-pandemic-preparedness-and-control

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

Supplement 1: Shared authorship – Members of Coronavirus Pandemic Preparedness Learning Team 1

Anne-Mieke Vandamme, Martine Denis, Anneleen Kiekens, Jorge Ricardo Nova Blanco, Mahmoud Reza Pourkarim, Marc Van Ranst, Pieter Thyssen. *KU Leuven, Department of Microbiology, Immunology and Transplantation, Rega Institute for Medical Research, Clinical and Epidemiological Virology, Institute for the Future, Leuven, Belgium.*

Lieve Naesens. *KU Leuven, Department of Microbiology, Immunology and Transplantation, Rega Institute for Medical Research, Virology and Chemotherapy, Leuven, Belgium.*

ToTran Nguyen. *Institute of Tropical Medicine Antwerp, Department of Public Health, Socio-ecological Health Research Unit, Antwerp, Belgium; KU Leuven, Faculty of Economics and Business, Department of Work & Organisation Studies, Leuven, Belgium.*

Marc Craps. *KU Leuven, KU Leuven, Research Centre for Economics and Corporate Sustainability, Brussels Campus, Brussels, Belgium.*

Sylvia Wenmackers. *KU Leuven, Centre for Logic and Philosophy of Science (CLPS), Institute of Philosophy, Leuven, Belgium.*

Maxiem Depypere. *Wolfpack-Branding, Kortrijk, Belgium.*

Maya Ronse, Koen Peeters Grietens. *Institute of Tropical Medicine Antwerp, Department of Public Health, Socio-ecological Health Research Unit, Antwerp, Belgium.*

Nico Vandaele. *KU Leuven, Faculty of Economics and Business, Research Unit Access to Medicine, Leuven, Belgium.*

Nele Van den Cruyce, Elke Van Hoof. *Vrije Universiteit Brussel, Brussels, Belgium.*

Sara Vercauteren. *Mediafin – Bepublic, Brussels, Belgium.*

Jo Vandeurzen. *Former Flemish Minister of Health, Wellbeing and Family, Belgium.*

Wouter Van Hecke. *Covid19-Alert, SmartAR, Euriginal, PROF-consortium, BOONE.*

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

Supplement 2: Challenge document: Coronavirus Pandemic Preparedness Transdisciplinary Challenge Information

CORONAVIRUS PANDEMIC PREPAREDNESS TRANSDISCIPLINARY CHALLENGE INFORMATION

SECTION 1 OF 5 – General information about the challenge
Dear participant,

Welcome to the Coronavirus Pandemic Preparedness Transdisciplinary Challenge.

This is an initiative from the Leuven Institute for the Future (LIF, www.institute-for-the-future.be). LIF joins people concerned about the future and gathers them around scientific challenges. These challenges typically revolve around a specific society, environment, and/or business problem or opportunity that needs to be addressed by a transdisciplinary research team. Transdisciplinarity refers to the process by which knowledge regarding a problem is gathered from all possible angles, including from those experiencing the problem, with the intention to come closer to a solution. The philosophy is that a 'wicked problem' needs a systems approach, and that is why you as team member may be a scientist, or a member of society, or someone from industry, or have even other credentials.

We understand that you are concerned about the preparedness of Belgium for a potential new coronavirus pandemic. We have selected you to contribute to an experimental transdisciplinary effort in order to better understand the complex interactions between scientific knowledge, medical practice, government decisions, societal impact, industry involvement, to further the best possible health for all citizens in the short and in the long run. We aim to learn from each other and from the events that will unfold during the next year, taking as case study Belgium, in order to construct a roadmap for a better preparedness for future pandemics. Your efforts will contribute to a roadmap that WHO is preparing. From here on you are called 'researcher'.

We invite you to join us in 2-weekly sessions of 2hrs each, preferentially face-to-face in Leuven but videoconferencing is also an option. We expect you to commit to an additional 2hrs exercises or tasks during the intermediate week between the sessions.

In the next section you will learn more about your fellow researchers.

SECTION 2 OF 5 – Team members
The expertise of the team members is very varied, reflecting the disciplines and stakeholders we feel are needed for this challenge. The team members are assigned in person, the team dynamic requires you to be present as much as possible face-to-face. While you can consult or give tasks to colleagues, family or friends, you cannot be replaced during the team meetings by someone else of your environment.

Up to now, the team members are the following people.

[Names removed for publication]

It is possible that during the first meetings we decide to add or replace members.

Transdisciplinary Insights Volume 5.2, 2021, 41–54.
Leuven University Press, Online ISSN 2593-0338
https://doi.org/10.11116/TDI2021.5.2.3

SECTION 3 OF 5 – About the coronavirus pandemic

We expect the new coronavirus to become pandemic very soon. Pandemic preparedness roadmaps have been drafted mainly considering medical, epidemiological and operational issues. The consequences for society have been less investigated, and societal actors are less involved in understanding the impact of a pandemic on the society, and in drafting the roadmaps taking that impact into account. Transdisciplinary methodologies are very well placed to map the societal impact and advise on potential unintended consequences of pandemic preparedness measures. Transdisciplinary teams in general work slower, but more effective. That is why we need to learn from the current pandemic to be better prepared for the next pandemic. We do not expect to have a big impact on the current pandemic. We do expect that every pandemic is different, and transdisciplinary work will stay needed.

SECTION 4 OF 5 – About wicked problems and transdisciplinary teamwork

'A wicked problem is a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. It refers to an idea or problem that cannot be fixed, where there is no single solution to the problem. The use of the term «wicked» here has come to denote resistance to resolution, rather than evil. Another definition is «a problem whose social complexity means that it has no determinable stopping point». Moreover, because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems.' Source: Wikipedia (https://en.wikipedia.org/wiki/Wicked_problem)

Pandemic preparedness is a wicked problem, which needs a systems approach (https://en.wikipedia.org/wiki/Systems_theory) and transdisciplinary team work. The Leuven Institute for the Future has developed a methodology for transdisciplinary teamwork. One of the first exercises of the team is to see whether the current team is appropriate for the task, and whether we need additional team members, or connections with other disciplines and stakeholders.

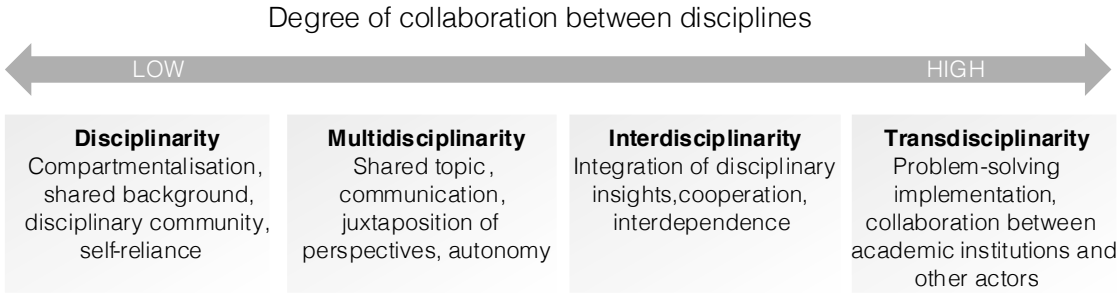

Figure 1. Key concepts for collaborative research between disciplines (interdisciplinarity). Inspired by Klein (2014). https://www.leru.org/files/Interdisciplinarity-and-the-21st-Century-Research-Intensive-University-Full-paper.pdf

SECTION 5 OF 5 – Terms of engagement

I, _____ (full name), am committing myself to advance to the best of my abilities the research on the challenge CORONAVIRUS PANDEMIC PREPAREDNESS. This entails the following:

1. I will dedicate on average 2 hrs/week on this project, and plan to be present during the team meetings, mostly face-to-face.
2. I will sign and respect the challenge terms and conditions (will be available soon)
3. I will sign and respect the confidentiality terms and conditions (will be available soon)