

# Introducing the Practice Dive Approach: an extension of co-creation in physical activity promotion and health promotion

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## Summary

Recently, there has been increasing interest in co-creation utilized for physical activity (PA) promotion and health promotion. Co-creation involves researchers and non-academic stakeholders conjointly developing and implementing interventions. In addition to the frequently reported benefits of co-creation, critical voices highlight the associated challenges (e.g. different interests that inhibit interaction). So far, research has not identified concrete solutions to these challenges and the limitations of co-creation. This article aims to introduce the Practice Dive Approach as a potential way to strengthen cooperation between researchers and non-academic stakeholders. We build on real-life experiences from a German research project, in which researchers moved into practice to familiarize themselves with the settings and end-users. After conducting a literature search on related concepts in PA/health promotion, we developed a comprehensive approach to fostering multi-sectoral cooperation. The introduced Practice Dive Approach assumes that a significant contribution to better cooperation among co-creators is the temporal immersion of researchers in their setting of interest, which has the potential to improve the success of co-creation in the PA/health promotion field. A four-level typology characterizes the intensity of researcher interactions with the setting and the non-academic stakeholders. Potential beneficial effects for both researchers and non-academic stakeholders can be hypothesized (e.g. familiarity with the setting structures and increased understanding of the end-users), while simultaneously, some challenges need to be considered. Future research should aim to validate the concept and its postulated effects.

## Lay Summary

Collaboration among researchers and non-academic stakeholders is increasingly used to promote physical activity and health. For example, people involved in such collaborations jointly develop new interventions. Potential challenges include different interests or work routines that can complicate cooperation. This article aims to introduce the Practice Dive Approach as a potential way to improve cooperation between researchers and non-academic stakeholders. We developed the approach based on observations from a German research project and a literature search on related concepts. This approach assumes that the temporal involvement of researchers in their setting of interest can strengthen research-practice cooperation and improve its success. We describe different types of a

Practice Dive and the requirements for conducting Practice Dive activities. Furthermore, we present the potential effects of a Practice Dive for the researchers and the non-academic stakeholders, such as increased familiarity between both groups. However, some challenges need to be considered when applying the Practice Dive Approach. Future research should test this approach and its potential effects.

**Key words:** Cooperative Planning, co-production, participation, transdisciplinarity

## INTRODUCTION

### Co-creation in physical activity promotion and health promotion

Increasingly, co-creation or co-production processes are conducted in the field of physical activity (PA) promotion and health promotion, including researchers and stakeholders who synergize in research partnerships (Verloigne *et al.*, 2017; Graham *et al.*, 2019; Leask *et al.*, 2019). Leask *et al.* [(2019), p. 2] defined co-creation as ‘collaborative public health intervention development by academics working alongside other stakeholders’. The main idea is cooperation between academics and non-academic stakeholders (e.g. practitioners, end-users, policymakers), with the common goal of jointly developing and implementing suitable interventions targeting a specific public health problem. Researchers contribute to this process by providing scientific evidence, while non-academic stakeholders are given a platform to share their knowledge of the setting with their experiences and needs (Kothari *et al.*, 2017; Leask *et al.*, 2019). Hoekstra *et al.* (2020) identified 17 overarching principles and 11 strategies of research partnership approaches, covering aspects of relationship and communication between researchers and stakeholders, stakeholder engagement, co-production of knowledge, capacity-building and ethical issues of collaborative research.

Developing health-related interventions alongside researchers and different stakeholders appears promising. Following the idea of transdisciplinarity, involving scientists from multiple disciplines and actors from non-academic fields seems favourable in inducing useful and innovative solutions to scientific and societal problems (Stokols *et al.*, 2013). Basically, co-creation is expected to generate research and outcomes (e.g. new interventions) that address real-world problems (McConnell *et al.*, 2018), and are tailored to the end-users’ needs and preferences (Leask *et al.*, 2017) due to the great importance attributed to the knowledge and experiences of the ‘insiders’. According to some studies, co-creation also has the potential to induce more sustainable collaborations and outcomes, thus achieving a higher impact for research, policy and practice (Jagosh *et al.*, 2012;

Beckett *et al.*, 2018; Greenhalgh *et al.*, 2016). A study by Leask *et al.* (2017) provided an example of successful co-creation in this field. They reported on the co-creation of a tailored intervention to reduce sedentary behaviour in older adults. Another study by Buckley *et al.* (2020) demonstrated promising health improvements for a co-produced PA behaviour change intervention when compared with a usual care exercise referral scheme and no treatment. Furthermore, they showed favourable effects on engagement regarding the co-produced intervention when compared with usual care.

Simultaneously, critical voices have focused on the limitations and potential disadvantages of co-creation processes (Flinders *et al.*, 2016; Oliver *et al.*, 2019). For example, these collaborations often require numerous resources, such as time and skilled personnel (Eriksson *et al.*, 2014; van den Driessen *et al.*, 2015; Flinders *et al.*, 2016; Rycroft-Malone *et al.*, 2016; Popp *et al.*, 2020). Furthermore, this kind of research can entail risks, such as misunderstandings or conflicts among co-creators. Particularly, attention should be paid to the interactions among researchers and stakeholders from practice and policy due to their different interests, perspectives and work routines (de Leeuw *et al.*, 2008; Jansen *et al.*, 2010; Greenhalgh *et al.*, 2016). To improve these interactions, mutual recognition and understanding among researchers and non-academic stakeholders, with their different values and demands, are highly important, as de Leeuw *et al.* (2008) emphasized in their ‘Blurring the Boundaries model’. However, though the relevance of good collaboration is common, concrete activities to ‘blur the boundaries’ are not yet sufficiently described as a part of co-creation. To create supportive environments for co-creators working together, insights into their interactions and practical recommendations for the involved parties are needed.

### Aim of the article

This article aims to introduce the Practice Dive Approach as a potential way of improving cooperation between researchers and non-academic stakeholders by temporarily immersing researchers in their setting of interest. First, we describe the development of the Practice Dive Approach based on real-life

observations from a German research project targeting PA promotion, which was underpinned by a search for related concepts in co-creation literature. In the second step, we introduce the conceptualized Practice Dive Approach and outline how concrete activities can be integrated into co-creation processes that can ultimately facilitate a better understanding among co-creators. Finally, we discuss the potential benefits and challenges that should be considered when applying the Practice Dive Approach.

## DEVELOPMENT OF THE PRACTICE DIVE APPROACH

### Cooperative Planning: a co-creation process

The Practice Dive Approach was developed in the context of a co-creation process called Cooperative Planning (Rütten, 1997)—which is explained in more detail in the following before we focus on the development and conceptualization of the Practice Dive Approach. Comparison with current literature shows a considerable overlap between Cooperative Planning and co-creation (Greenhalgh *et al.*, 2016; Leask *et al.*, 2019) as well as comparable collaborative processes (Hoekstra *et al.*, 2020) concerning its overarching aim, phases and principles and the actors involved.

According to the aforementioned definition of co-creation, researchers and relevant stakeholders are involved in this process representing different roles. Researchers provide scientific evidence, while non-academic stakeholders act as in-field experts who contribute the needs, experiences and knowledge from practice or policy (Popp *et al.*, 2020). Specifically, non-academic stakeholders can be differentiated into end-users and other non-academic stakeholders (Rütten, 1997; Leask *et al.*, 2019). The end-users are regarded as the selected population group for which the co-created interventions should be of use and benefit (e.g. a population group exposed to a specific health problem). Other non-academic stakeholders are the actors who are relevant to enable the development of suitable and feasible interventions and their implementation, especially regarding their knowledge about the setting structures (e.g. organizational opportunities or limitations), though they will not receive the co-created intervention (e.g. practitioners, decision-makers, policymakers). Above all, a core assumption of Cooperative Planning is a higher acceptance of changes (i.e. new interventions) by the end-users, the more actively they are involved in the planning and implementation process (Rütten, 1997).

Cooperative Planning follows a step-by-step procedure, undergoing preparation, planning and implementation phases, to adequately react to real-world issues and complexity (Rütten, 1997; Rütten and Gelius, 2013). Before a Cooperative Planning process begins, the cooperating organizations are deliberately selected and informed consent for cooperation is obtained. During the *preparation phase*, project partners are contacted again and informed about the project idea, which is to target a certain public health issue using Cooperative Planning. Additionally, the researchers collect information about the organizational structures and the end-users' needs and identify relevant stakeholders who are invited to voluntarily participate in the subsequent planning phase. In the *planning phase*, planning meetings occur in the research setting involving a diverse group of researchers and non-academic stakeholders. This planning group jointly develops interventions following the shared vision to create solutions to specific public health issues. Through this process, all actors follow a set of common rules: equal rights of all actors; open discussion culture; relevance and value of all contributions; and time and room for reflecting and defining interventions [(Popp *et al.*, 2020), p. 1580]. In the *implementation phase*, the developed interventions are subsequently implemented in the practitioners' direction.

### Real-life observations within a German research project

Over the course of three Cooperative Planning processes, we made real-life observations that—underpinned by a literature search described in the following section—culminated in the conceptualization and definition of the Practice Dive Approach. Observations were made within the German research project PARC-AVE, which is part of a larger German research association aiming to promote capabilities for a physically active lifestyle (Rütten *et al.*, 2017; Frahsa *et al.*, 2021; Gelius *et al.*, 2021). This project uses Cooperative Planning as a form of co-creation to address PA and physical activity-related health competence (PAHCO) (Sudeck and Pfeifer, 2016; Carl *et al.*, 2020b) both on individual (i.e. interventions targeting behaviour change) and structural levels (i.e. embedding of interventions and structural changes that support a physically active lifestyle). From 2018 to 2021, separate Cooperative Planning processes were conducted in two settings in the nursing care sector and one in the automotive electronics sector, each process including the preparation, planning and implementation phases as described above

(for an overview, see [Supplementary materials, Table S1](#)). Both sectors were chosen, as the literature indicates that these professional groups are exposed to increased health risks, e.g. physically intensive tasks and lower back pain (Lorusso *et al.*, 2007; Vandergrift *et al.*, 2012; Jun *et al.*, 2019), while simultaneously, PA and PAHCO appear promising to improve their health (Pedersen, 2019; Carl *et al.*, 2020a). Specifically, the project addresses nursing students in two state vocational education centres (nursing school A: 200 students enrolled in the nursing programme; nursing school B: 180 students enrolled in the nursing programme) and workers of a German automotive manufacturer (12 000 employees in the assembly department).

In the preparation phase of Cooperative Planning, we conducted a detailed explorative situation analysis for each setting. For this purpose, a criteria catalogue covering determinants of PA behaviour was employed to collect relevant information. This tool was developed based on the ecological model of Bauman *et al.* (2012) and the findings of an earlier project phase from 2015 to 2018 (Popp *et al.*, 2020). It serves the qualitative assessment of characteristics of (i) the end-users (e.g. age, socioeconomic status), (ii) other non-academic stakeholders involved (e.g. working positions, interests), (iii) the organizational environment (e.g. extant PA programmes, available resources), (iv) the built environment (e.g. transport, architecture) and (v) the societal and political environment (e.g. curriculum, organizational policies).

To collect this information in all three settings via the criteria catalogue and gain deeper insights into the organizational structures and characteristics of the end-users, we visited the partner organizations during May–July 2018. In the nursing schools, two researchers temporarily immersed themselves in the settings of interest by participating in the lessons and engaging in informal dialogues with the nursing students and their teachers for three days. In the automotive setting, four researchers visited the assembly department, guided by the responsible occupational physician for two days, and were actively involved in the work processes in the assembly department for one day. Where possible, we took structured minutes or field notes. During these visits, we—as the academic co-creators—gained insights into the settings' structures. Furthermore, we experienced the perspectives and physical demands of the nursing students and automotive workers through observations, conversations (i.e. informal and unstructured dialogues about their school/working days,

school-/job-related requirements, wishes or needs) and slipping into their roles.

Subsequently, the research team entered into a theoretical reflection phase. We discussed our personal experiences, such as the acquisition of deeper insights into the characteristics of the setting and end-users, and the potential impact of this purposeful dive into the practice on the involved actors and the research-practice cooperation. An overview of the conducted activities, the related learnings and experiences and the methods used to collect information is provided in [Supplementary materials, Table S2](#). Specifically, we valued these experiences as helpful for the subsequent planning phase; for example, we observed a high degree of openness and appreciation between researchers and non-academic stakeholders. This led us to further conceptualize this phenomenon as a potential and systematic way to improve co-creation processes.

### Literature search on related concepts

To help us classify our observations, we conducted a literature search on existing concepts or similar activities reported in co-creation studies in Scopus and Web of Science (March–April 2020). We used search terms (with necessary truncations) regarding (i) the field of research, (ii) the co-creation process, (iii) the dive activities and (iv) the goal of the activities. The full list of search terms is shown in [Table 1](#). We selected articles whose authors described any specific activity or presented an approach/model that showed similarities to our observations. Additionally, we used hand and snowball searches to identify further relevant publications.

We screened 537 articles by title and abstract and assessed 124 full-text articles for eligibility; 12 articles were included in a qualitative synthesis of related concepts. Overall, we did not find a published approach that truly covers our real-life observations, although we identified similar activities that have been reported alongside co-creation processes. Most included articles described a combination of observing and interviewing end-users or other non-academic stakeholders (van Deventer *et al.*, 2016; Sushama *et al.*, 2018; Lems *et al.*, 2019). A few articles reported researchers' direct integration into the research setting, for example, by being embedded and engaged in their setting of interest (Abma *et al.*, 2017; Bruland *et al.*, 2019). Underpinned by these findings, we subsequently developed our observations and experiences into a comprehensive approach.

**Table 1:** Search terms

Field of research	Co-creation process	Dive activities	Goal of activities
Health promotion	Co-creation	Shadowing	Experience
Physical activity promotion	Co-production	Practice	Knowledge exchange
Health-enhancing	Co-design	Visit	Knowledge production
	Co-planning	Inspection	Knowledge transfer
	Interaction	Training	Familiarization
	Collaboration	Observation	Learning
	Cooperation	Involvement	Perspective
	Participation	Internship	Role taking
	Partnership	Placement	Engagement
		Fieldwork	

Note: Search terms used, including necessary truncations.

## INTRODUCING THE PRACTICE DIVE APPROACH

### Definition

The Practice Dive Approach assumes that academic co-creators systematically spend time in their setting of interest and interact with non-academic stakeholders to gain deeper insights into the characteristics of the setting (e.g. organizational structure, roles, responsibilities) and the end-users as the final recipients of the co-created interventions (e.g. needs, preferences). We define the Practice Dive Approach as *'the academic co-creators' familiarization with the research setting and end-users through an intended and temporary immersion in the setting to support the subsequent process of collaboration'*.

The Practice Dive Approach can be integrated into the preparation phase of co-creation processes, for example, in conjunction with a needs assessment or situation analysis. The decisions on the specific immersion activities, which are categorized in the next section (e.g. observations, field visits, slipping into the role of the end-users), the timeframe and the actors involved should be made together with the non-academic stakeholders, including decision-makers and end-users. After these activities have occurred, the subsequent meeting of co-creators can provide an opportunity to reflect on the new practice-based knowledge of the researchers, together with the non-academic stakeholders, to ensure that the researchers captured the most important aspects during their Practice Dive. Overall, the Practice Dive Approach can be understood as an extension of co-creation, which has the potential to strengthen interaction and an open exchange among academic and non-academic co-creators.

### Practice Dive levels

As mentioned earlier, we observed different forms of diving into the practice, for example, field visits, on-site inspections, conversations with end-users and practitioners, or slipping into the role of the end-users and doing their job. These activities also emerged from our literature search. In light of this, we suggest a typology that describes four levels of researchers' involvement in their research setting and exchange with the non-academic stakeholders (Table 2), as follows: *No Practice Dive*, *Low Practice Dive*, *Medium Practice Dive* and *Deep Practice Dive*.

The *No Practice Dive* level means that there is no active contact by the researchers with the setting or non-academic stakeholders that would provide insights into the characteristics of the setting or end-users in real-world. For example, interventions may be planned only by referring to the theory or existing evidence from other populations or without any insights into the characteristics of the setting or end-users. The *Low Practice Dive* level describes new insights gained by the researchers through planned visits in the research setting but without any direct interactions between researchers and non-academic stakeholders. Here, observations often constitute a useful method to gather information, for example, on structural characteristics (i.e. responsibilities, rules) or end-users' demands. They can be conducted not only in an informal and unstructured manner, but also as highly formalized and structured procedures (Jonas *et al.*, 2014). The *Medium Practice Dive* level describes deeper insights gained by researchers through direct interaction with end-users and other non-academic stakeholders in the specific setting. For example, researchers' field visits that include more or less structured conversations with non-academic stakeholders about the setting and/or their experiences, demands,

**Table 2:** Practice Dive levels

	Level	Description	Examples of activities
0	No Practice Dive	No setting or end-user related insights through contact with the research setting or the non-academic stakeholders	Referring to theory or evidence of other populations
I	Low Practice Dive	Gaining insights by observing non-academic stakeholders in the research setting and/or discovering the setting structures without any interaction between researchers and non-academic stakeholders	Observations, field visits or on-site inspections without interaction with non-academic stakeholders
II	Medium Practice Dive	Gaining insights by interacting (i.e. talking) with non-academic stakeholders in the research setting	Field visits or on-site inspections, including interaction with non-academic stakeholders
III	Deep Practice Dive	Gaining deep insights by temporally becoming part of the end-users	Internship, adopting the end-users' role

needs or perspectives (Lombard *et al.*, 2018; Lems *et al.*, 2019). Finally, the *Deep Practice Dive* level is characterized by researchers' direct integration into the research setting, such as taking on the end-users' role and completely immersing themselves in the latter's environment (Abma *et al.*, 2017; Bruland *et al.*, 2019).

While screening the literature, we mostly found activities that can be classified as Medium Practice Dive, which combined observations of and interviews with non-academic stakeholders (van Deventer *et al.*, 2016; Sushama *et al.*, 2018; Lems *et al.*, 2019). The previously described project activities in PARC-AVE can be characterized as a Medium Practice Dive in the nursing settings (field visits that included informal exchanges) and a Deep Practice Dive in the automotive setting (field visits and working in the assembly department of the automotive manufacturer).

### Requirements enabling Practice Dive activities

To enable researchers to conduct such Practice Dive activities as exemplified for the Low, Medium and Deep Practice Dive levels, several requirements seem necessary on the part of the researchers and non-academic stakeholders. The *researchers* (divers) must invest time to gain experience and strengthen relationships in the practical field (ter Haar *et al.*, 2016; Lems *et al.*, 2019). They should be open-minded, willing to invest in building relationships and trust and value non-academic stakeholders as important practice-based experts (Salsberg *et al.*, 2017; Pelletier *et al.*, 2020). Overall, researchers conducting collaborative research require adequate skills in communication, conflict management

and creativity (Bahraminejad *et al.*, 2015; Rycroft-Malone *et al.*, 2016). This may be particularly important for Practice Dive activities as researchers (i) immerse themselves in situations and environments that are often unknown to them and (ii) aim to create an open space for communication and exchange with non-academic stakeholders. The ability to self-reflect appears to be another key requirement for researchers to be aware of and understand the potential blind spots in their own knowledge, experiences or perceptions (Muhammad *et al.*, 2015; Abma *et al.*, 2017). A number of characteristics that are expected to be necessary for embedded researchers who move into a non-academic field can be found in Wong's (2009) analysis (e.g. knowledge of evaluation and research processes, good communication skills, collegiality).

Considering the *non-academic stakeholders*, their willingness to build trust in the researchers and the project seems to be an important requirement to enable effective working collaboration and open exchange (Jagosh *et al.*, 2012; Salsberg *et al.*, 2017). According to Rycroft-Malone *et al.* [(2016), p. 222], the commitment of research users and their 'patience with researchers about the parameters around what is "good enough" research', might also be required for co-creation in health research generally. However, especially when applying the Practice Dive Approach, the involved end-users should be open to providing researchers with insights into their lives and sharing their knowledge and experiences with them. In turn, this likely depends on how much the end-users perceive their interests as respected and what profit they can expect from the



research results, which may change during a project (Lux *et al.*, 2019). Furthermore, other non-academic stakeholders must enable Practice Dive activities. For example, practitioners have to provide time to offer an insider perspective (e.g. by immersion experiences, see Sullivan and Bettger, 2018). Moreover, in organizations, the leadership typically needs to provide organizational support (Della *et al.*, 2008; Skarholt *et al.*, 2016) to create a climate that not only fosters health promotion but also cooperation and interaction (including permission for observations, field visits or participation).

Although some of these anticipated requirements may be relevant to the whole co-creation process, we expect them to become increasingly important as deeper researchers go into practice or even adopt the end-users' role. The outlined set of requirements is not an exhaustive list, and there are likely differences in the required attitudes, skills and resources of both parties (researchers and non-academic stakeholders) depending on the chosen level of a Practice Dive. However, all actors should consider the potential requirements when jointly deciding which Practice Dive level and activities might be appropriate for a particular setting.

## DISCUSSION

The Practice Dive Approach has been introduced as an extension of co-creation processes in PA promotion and health promotion. It focuses specifically on researchers, that is, their involvement in their setting of interest, and has been elaborated based on project observations in the PA promotion field and a literature search on related concepts. The presented typology distinguishes among the No Practice Dive, Low Practice Dive, Medium Practice Dive and Deep Practice Dive levels.

Core assumptions of the Practice Dive Approach include the researchers' familiarization with the research setting and end-users through planned activities, which strengthen the interpersonal understanding and cooperation in co-creation processes. Although researchers need to understand the setting structures and the other non-academic stakeholders, familiarity with the end-users as the final recipients of the new interventions seems to be particularly important (Heaton *et al.*, 2016). This assumption is reflected in the key role the end-users play in the introduced approach (e.g. familiarization with end-users, slipping into the end-users' role). In health research, this way of familiarization with a particular population and setting using ethnographic methods (e.g. participant observation, interviews) is popular to better understand health-related issues (Rashid *et al.*, 2015). To the best of our knowledge, such methods are rarely

explicitly targeted in combination with co-creation as a means of developing and implementing PA/health-promoting interventions. However, we hypothesize that the research field of PA promotion and health promotion can benefit from combining co-creation with the Practice Dive Approach.

We suggest that Practice Dive activities are best conducted in the preparation phase of co-creation processes to strengthen cooperation between academics and non-academic stakeholders at an early stage and improve the subsequent joint development of new interventions. For each case, the requirements and available resources (e.g. time, personnel, skills and support) need to be weighed to select the most suitable Practice Dive level. At this stage, researchers, end-users and other non-academic stakeholders should jointly determine the format, which activities are appropriate, during what period and with whom of the researchers involved (e.g. just one or two members of the research team or the whole team)? Reflecting on the Practice Dive experiences of the researchers should then be an item on the agenda of the following meeting of co-creators.

Overall, the Practice Dive Approach is an attempt to help 'blur the boundaries' between research and practice and offers some practical suggestions that can be integrated into co-creation processes. From both a scientific and practical perspective, we anticipate some potential effects, challenges and implications associated with this approach, as outlined in the following.

### Potential benefits of a Practice Dive

If a co-creation process is extended by Practice Dive activities (see the activities exemplified for the Low, Medium and Deep Practice Dive levels above and in Table 2), we assume various beneficial effects on the actors involved on both the knowledge and socio-emotional levels (Table 3). *Researchers* are expected to acquire new knowledge regarding the characteristics of their setting of interest (McIsaac *et al.*, 2020; Pelletier *et al.*, 2020). They can systematically develop an insider perspective at an early stage—enabling them to identify existing routines, capacities, facilitators, barriers and/or a potential 'champion' of the project (O'Loughlin *et al.*, 1998; Greenhalgh *et al.*, 2016; Popp *et al.*, 2020), which can help inform the intervention development. They will also likely become more familiar with the non-academic stakeholders, especially the end-users with their demands and needs, and may recognize that the end-users are a heterogeneous group encompassing different views, vested interests and perhaps subgroups, all of which need to be considered. On a socio-emotional

**Table 3:** Overview of potential effects on researchers and non-academic stakeholders

Actors	Knowledge level	Socio-emotional level
Researchers (divers)	<ul style="list-style-type: none"> <li>– Acquired knowledge of setting characteristics (e.g. organizational structure, rules, routines, responsibilities)</li> <li>– Increased familiarity with the end-users and other non-academic stakeholders (e.g. demands, needs, preferences)</li> </ul>	<ul style="list-style-type: none"> <li>– Enhanced sense of responsibility for the end-users</li> <li>– Increased understanding and appreciation of the end-users and other non-academic stakeholders</li> </ul>
Non-academic stakeholders	<ul style="list-style-type: none"> <li>– Acquired knowledge of the research objective</li> <li>– Increased familiarity with the scientific project and the research team</li> </ul>	<ul style="list-style-type: none"> <li>– Reduced unfamiliarity with or prejudices against researchers</li> <li>– Increased experience of appreciation</li> </ul>

level, we expect effects such as increased responsibility for as well as understanding and appreciation of the end-users when the researchers actively adopt their perspectives (Rycroft-Malone *et al.*, 2016; Lems *et al.*, 2019). In turn, this may positively affect the researchers' communications with the end-users and increase the suitability of developed interventions.

However, the *non-academic stakeholders* can gain knowledge about the research topic and become more familiar with the scientific project and the research team's work and perspectives. This has the potential to facilitate trust building (Cartwright and Schow, 2016; Lems *et al.*, 2019) and reduce unfamiliarity with or even prejudices against researchers ('the academics from the ivory tower'). Furthermore, the researchers' involvement might have a motivational effect on non-academic stakeholders (Sunderland *et al.*, 2018). Especially from the end-users' perspective, as they might find it more comfortable and encouraging to meet researchers in the familiarity of their own environment than in a formal meeting with supervisors or policymakers.

We theorize that the postulated effects can impact the processes and outcomes of cooperative work in health promotion (Rycroft-Malone *et al.*, 2016), as the involved actors learn more about one another and strengthen their interpersonal connections (ter Haar *et al.*, 2016).

### Costs, challenges and implications for research

Returning to the previous list of requirements, several resources necessary to apply the Practice Dive Approach are already clear. Examples include time for the activities themselves or the abilities and commitment of the actors involved (Cartwright and Schow, 2016; Sullivan and Bettger, 2018). Oliver *et al.* (2019) listed further costs associated with collaborative research practices,

such as travel costs or a high administrative burden, which should also be considered here.

Beyond that, we must consider potential higher-level challenges regarding the reputation of scientists and ethical issues. In co-creation research, some authors have indicated that researchers' independence and credibility run the risk of being curtailed when they work closely with people representing different interests (Barratt *et al.*, 2017; Oliver *et al.*, 2019). However, in contrast to traditional, laboratory-based notions of scientific independence where the researchers often work in relative isolation from real-world settings (i.e. the veritable ivory tower), cooperative, practitioner-engaged research requires compromise, empathy and bridge-building with non-academic stakeholders to achieve more accessible and immediately relevant scientific outcomes. Discussing the 'ethical maze' of embedded research, Lewis and Russell [(2011), pp. 408–410] offered some arguments on why it is unlikely that researchers lose their 'critical perspective' in such relationships (e.g. researchers' reflections on the research process, the regular returning to their 'academic base'). Regarding potential ethical challenges, they stated that 'embedded and other forms of collaborative research are inherently "ethical", insofar as they are based on knowledge-sharing aimed at equalizing or reducing power differentials' [(Lewis and Russell, 2011), p. 410; (Wong, 2009), p. 107], which is actually an overarching aim of co-creation and Cooperative Planning.

To ensure that the Practice Dive Approach is applied in a morally responsible manner, two aspects are worth mentioning in this context. First, the use of research practices that help to 'discipline the research process' (to use the words of Lewis and Russell, 2011, p. 409) and reduce researcher bias (Lems *et al.*, 2019) should be considered; for example, detailed documentation of the researchers' experiences, feedback from non-academic



stakeholders and discussions with scientific colleagues. A set-up of clear ‘diving rules’ may further support researchers in understanding the trade-offs in conducting co-creation research, in terms of internal validity (i.e. rigour and control) versus external validity (i.e. generalizability and relevance).

The second aspect relates to whether researchers are sufficiently prepared to cooperate, communicate and work with people who are socialized in a non-academic environment. In a study examining three partnerships among research, practice and policy, the following four basic principles of a trustworthy partnership are found: collaboration, communication, a shared vision and willingness of all involved actors to learn from one another (Eriksson *et al.*, 2014). However, we cannot assume that researchers always possess the personal qualities and interpersonal skills required to manage engagement processes and collaborations (Rycroft-Malone *et al.*, 2016; Oliver *et al.*, 2019). Possibly, the frequently used way of applying top-down strategies (characterized by researchers developing interventions without end-user involvement; Leask *et al.*, 2019) might contribute to the lack of training in co-creation research practices, interaction with non-academic stakeholders and communication skills among academics (Bahraminejad *et al.*, 2015; van den Driessen *et al.*, 2015). We hypothesize that there is still a potential to systematically foster building skills regarding the methodological toolkit, attitude and ability for self-reflection of health promotion researchers who conduct co-creation processes (see also ‘tailored support for researchers’ in Hoekstra *et al.*, 2018, p. 9). The systematic integration of such approaches into graduate programmes at universities or as continued professional education might be a good frame to prepare/support (future) health promotion researchers in utilizing co-creation in their scientific work.

### Future directions and considerations

Future investigations should focus on the further validation of the Practice Dive Approach. This can be achieved by using a hybrid design (Wolfenden *et al.*, 2016) to test both (i) the implementation of a co-creation process for PA/health promotion that includes Practice Dive activities (e.g. the feasibility and acceptance of different Practice Dive activities according to the introduced typology) and (ii) its effects on the personal level and development, implementation, effectiveness and sustainability of new interventions. After validating this approach, the formulation of ‘diving rules’ or development of recommendations may follow.

Importantly, we have limited the description of the conceptualized Practice Dive Approach to the researchers

and non-academic stakeholders from practice involved in co-creation processes, as our observations and experiences are mainly based on interactions between these groups. However, this approach might also be utilized by policy-makers to gain insights into a setting’s structures and to strengthen their cooperation with non-academic stakeholders. Likewise, notably, the Practice Dive Approach was initially conceptualized in the context of co-creation processes targeting PA/health promotion, as it builds on observations in this field. While its application might seem conceivable in other contexts where co-creation is used, the suitability and feasibility of this approach still need to be tested for this purpose.

## CONCLUSIONS

This article introduced the Practice Dive Approach as an opportunity to improve cooperation between researchers and non-academic stakeholders in co-creation processes. The description of different Practice Dive levels, alongside activity examples, can provide some practical suggestions for researchers, practitioners and policy-makers handling co-creation and transdisciplinary issues. Importantly, several requirements for enabling Practice Dive activities on the part of the involved actors need to be considered.

From a scientific perspective, this approach may contribute to the further development of co-creation processes. To the best of our knowledge, this paper is among the first to specifically focus in depth on researchers’ involvement in their research setting and to provide activities for co-creation researchers in the field of PA and health promotion. In this regard, we wish to stimulate reflection and discussion on researchers’ involvement in practice. However, the Practice Dive Approach is not a finalized concept, and future research should validate this approach empirically. This may serve as a point of departure to develop and provide concrete recommendations and further optimize co-creation processes that can ultimately enhance research-practice collaborations and impactful research.

## SUPPLEMENTARY MATERIAL

Supplementary material is available at *Health Promotion International* online.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## ETHICS APPROVAL

Ethical approval for research in PARC-AVE was granted by the Ethical Committee of the Friedrich-Alexander University Erlangen-Nürnberg [15 January 2019; sign 467\_18 B].

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