

# Collaboartive Learning Settings towards Sustainable Land-Use

A case study on the third Indo-German Dialogue on Urban Green Parctices in Pune, India

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## **Abstract**

With the aim to reach social and ecological sustainability (O'Neill et al. 2018) and preservation of natural capital (cf. MEA 2005), collaboration gets more and more important (Schneider 2019). Direct democracy in the form of collaboration can be nurtured by having safe spaces that avoid power relations (Bergold & Thomas 2012) and equal involvement of participants (Emami et al. 2015). In order to get to know more about collaboration which can fulfill these requirements, this work looks at collaborative learning settings and their attributes. The transdisciplinary Indo-German Dialogue series (Woiwode & Schneider 2019) are used to conduct an action research-based case study. Data from participant observation and a survey is reflected against collaborative learning in the fields of natural resource management and participatory research. Discussion of findings suggests that a safe and equal collaborative learning setting is constituted of participants which hold competencies that allow to create relationships and to have compromise-based and fair interactions in an environment formed by a trusted agenda. The research identifies the need to find formats that provide access to relevant stakeholders. The usefulness of observation and reflection for integrating both, the researchers perception, and self-disclosure by participants is proofed (cf. Breuer et al. 2019) and the value of awareness based social action research is highlighted. Finally, evaluative criteria for future collaborative research projects are described.

## Table of Contents

1. Introduction.....	1
2. Material and methods.....	2
3. Findings.....	3
3.1. Combining the questions and structure of findings.....	3
3.2. Collaborative learning participants .....	4
3.3. Collaborative learning interactions .....	4
3.4. Collaborative learning environments .....	5
4. Limitations and Discussion .....	5
4.1. Limitation of Methods.....	5
4.2. Collaborative learning participants as stakeholders .....	6
4.3. From collaborative learning participants to collaborative interaction .....	6
4.4. From collaborative interactions to characteristics of the collaborative environment .....	7
5. Conclusion and Recommendations.....	9
References.....	12
Appendices .....	15
Appendix 1: Survey transcriptions.....	15
Appendix 2: Comprehensive presentation of findings.....	18
<i>i. Participant roles, personal attributes and social relations.....</i>	<i>18</i>
<i>ii. Activities, expectations and process attributes .....</i>	<i>20</i>
<i>iii. Spatial, emotional and structural attributes of learning environments.....</i>	<i>22</i>

## 1. Introduction

To achieve social and ecological sustainability, that allows to reach a balanced state between biophysical limits and social thresholds (O'Neill et al. 2018), collaboration between different levels is necessary. While being situated in a globalized world system, the importance of the local level is increasingly recognized (Mangnus et al. 2019). Needs and wishes of diverse parts of local societies need to be considered to find globally accepted ways of sustainability governance. Cities are places with high levels of stakeholder diversity and places where the pressure put upon natural capital such as Ecosystem Services is getting most obvious (cf. MEA 2005). The relevance of this natural capital gets into focus when access to traditional used commons gets restricted because of land-use change but also when new types of urban commons such as urban gardens come up (Foster & Iaione 2017). Stakeholder diversity and pressure on natural capital make collaboration between diverse actors necessary. The helix models (e.g. Carayannis et al. 2012, Saiz-Álvarez & Palma-Ruiz 2019) involve actor diversity and are indicators of the democratic turn in the 21<sup>st</sup> century. From a research perspective, they call for interdisciplinarity and transdisciplinarity by involving diverse academic disciplines but also stakeholders from economics, politics and civil society. Democratization in the form of participatory approaches is taken up in the field of natural resource management (NRM) (Keen & Mahanty 2006, Armitage et al. 2008). Approaches and initiatives such as the Economy of the Common Good (Felber 2019), the Transition Town Movement (Hopkins 2008) and the rise of Food Policy Councils (e.g. Schiff 2008) highlight the role of civil society in democratic processes related to NRM. These bottom-up approaches demand high levels of collaboration. On the one hand, the application of collaboration can enhance learning processes in NRM (Schneider 2019, Wang 2019), on the other hand, participatory action research explicitly draws on collective learning in groups (cf. Wicks & Reason 2009) by involving persons affected by the research subject (Bergold & Thomas 2012). Recently, the concept of Real World Labs evolved. They are research settings with the explicit aim of sustainability transitions by mutual learning that includes non-academics (Parodi et al. 2017, Singer-Brodowski et al. 2018) and therefore have the potential to combine these two applications of collaborative learning.

Identifying mutuality is one of the overall objectives of the Indo-German Dialogue (IGD) series which focus on urban green practices. The IGDs are annual conferences that were started in 2017 by the Indo-German Centre for Sustainability (IGCS) which is led by the Indian Institute of Technology Madras and the RWTH Aachen University (<http://www.igcs-chennai.rwth-aachen.de>). The dialogues offer possibilities on collaborative and collective learning on sustainability issues. The 2019 dialogue included a facilitated World Café session with the aim to conceptualize and plan a common participatory research project. Among the themes of interest are topics related to the role of citizens in the city and their impact on land-use. These include diverse forms of neighborhood engagement,

aspects of the circular economy and of sustainability education. Examples named are urban gardening and food as well as waste management and repair culture, and the establishment of information systems (Woiwode & Schneider 2019).

This work wants to contribute by shedding light on how citizens can be included in this planned research project. Prior research on the involvement of individual knowledge and competencies in gardening projects identified the need to take power relations and structural inequalities into account (Schneider 2019). Therefore, these aspects are elaborated in this work. A fundamental principle of participative research in order to avoid power relations is the concept of “safe space”. While there are other descriptions available, this work applies the concept of safe space that is operated upon in participatory action research. According to Bergold & Thomas 2012, a safe space is a space where participants can disclose their personal views of the situation, opinions and experiences in an atmosphere, where they can be sure to not suffer any disadvantages if they express critical or dissenting content. To avoid structural inequalities, it is possible to look at NRM from a social justice perspective. Here, treating participants equally is crucial for legitimate representation in collaborative settings (Emami et al. 2015). This work takes up the ideas of safe space and equality in order to identify characteristics of collaborative learning settings. By drawing on a survey and participant observation during the 3<sup>rd</sup> IGD, the following questions will be answered:

1. What makes up a 'safe space' for exchange?
2. How can all voices be heard equally?

## **2. Material and methods**

This work is based on the IGD series. It uses learnings from prior research on the 2<sup>nd</sup> IGD (unpublished master thesis by Schneider 2019, University of Freiburg) as well as empirical data which was collected during the 3<sup>rd</sup> IGD. It applies an action research approach that puts emphasis on observation and reflection. Prior research on the 2<sup>nd</sup> IGD resulted in a master thesis. The thesis is grounded on seven qualitative interviews that were taken during the second IGD which took place at the University of Freiburg, Germany from 8<sup>th</sup> to 11<sup>th</sup> November 2018. The interviews were analyzed with the help of a framework that combined the concept of Ecosystem Services with the approach of Global Citizenship Education. The thesis has an explorative character and provided insights in Experiential, Social and Transformative Learning in Natural Resource Management. More specific, it highlighted the role of social justice. Consequently, it motivated the research topic and question of this work. The familiarity of the researcher with most participants of the dialogue series was an important qualification for conducting action research during the 3<sup>rd</sup> IGD. This 3<sup>rd</sup> IGD took place from December 5<sup>th</sup> to 7<sup>th</sup>, at the

Bharati Vidyapeeth Institute of Environment Education and Research in Pune, India. The theme was “Co-creation of the Living Environment”. 32 Indian and German participants from academics, NGOs, social and sustainability corporations, consultation and governance took part. The 3<sup>rd</sup> IGD consisted of plenary sessions, facilitated group work sessions, field visits and a public event (Woiwode & Schneider 2019, <https://cocreatesustainability.wordpress.com/>). Empirical data was derived from participant observation and a voluntary and anonymous survey that was filled by 17 participants. The survey held the two research questions mentioned in the introduction.

The conduction of the survey had the character of an intervention (cf. intervention research in Real World Labs: Parodi et al. 2017). From the beginning of the dialogue on, the participants were confronted with the two questions and the idea of the research was explained to them before the first interactive session. It is assumed that this influenced participant behavior and individual reflection during the course of the dialogue. The survey itself was done at the third day, so it is likely that the answers involve reflections from the prior dialogue sessions. Survey answers can be found in appendix 1. Key strategies used for analysis are influenced by Reflexive Grounded Theory (cf. Breuer 2019). These are the assumption of self-disclosure and the use of detailed reflection. Survey answers are seen as self-disclosures by the participants that are meaningful to their own actions. Detailed field notes from participant observation were reflected against the survey answers to create field memos. The research applies the paradigm of constructivism (c.f. Bergold & Thomas 2012, Udvari-Solner 2012, Breuer et al. 2019) and is influenced by social justice theory (see Udvari-Solner 2012 for social justice in collaborative learning, Emami et al 2015 for social justice in NRM).

The theory of symbolic interactionism provides the methodological position of this work. It claims that it is necessary to understand participants’ action and interaction in order to understand the world. This is possible when the researcher actively interacts with the persons that are being researched and is enabled to see things from their point of view and in their natural context (Jeon 2004 referring to Blumer 1969).

### **3. Findings**

#### **3.1. Combining the research questions and structure of findings**

When reading the survey answers of Q1 and Q2, some turned out to be very similar. By asking them together, they have influenced each other. In this respect, *‘hearing all voices equally’* is an essential precondition for *‘making up a safe space for exchange’*. Congruently, one survey answer was *‘a safe space would be giving an opportunity to all to contribute equally’*. The findings are based on this combined approach.

For presenting the findings (for a comprehensive and detailed presentation see annex 2), the main premise is that participants interact in a learning environment and that all three - participants, interactions and learning settings - carry specific characteristics. In intercultural education, society is seen as a social system, where individual persons are senders and receivers within communicative processes (Lang-Wojtasik 2019). Symbolic Interactionism can serve as a theoretical framework for analysis of interpersonal communication (Teague et al. 2013) and collaborative learning (Herrmann & Jahnke 2012). More specific, Herrmann & Jahnke (2012) suggest to identify roles, social interactions and activities of participants, and to consider that individuals can fill a role in different ways is an essential aspect. While this sets emphasis on personal attributes, Schusler et al. (2003) identify attributes of processes that enable social learning in NRM. These considerations were used to build three sub-premises:

- i. Collaborative learning participants: learning happens for individuals and groups and is influenced by personal attributes;
- ii. Collaborative learning interactions: collaboration takes learning to an interactive process, the resulting actions can be described with the help of process attributes;
- iii. Collaborative learning environments: setting attributes shape the environment which is used by individuals for interaction.

For all three, participants, interactions and learning environments, a section is presented here.

### **3.2. Collaborative learning participants**

Formal roles can include organizers, representatives, keynote-speakers, audience, facilitators, session group members, supporters, guides, and external project representatives. In a safe space that appreciates all voices, non-academics, diverse age groups and people with social differences should be included. Informal roles are related to the individual, the group and everybody in general. Members hold their own language, expertise, capacities, background, experience and reference, which influence personal attributes. Thus, members should be aware, open-minded, respectful and compassionate towards other participants. This requires not to judge others, don't let male/female differences matter, to have deeply democratic values, avoid hierarchies and to worship diversity. This way, single participants can form new groups. Facilitators should be trained to be able to ensure a safe space were all voices can be heard equally.

### **3.3. Collaborative learning interactions**

Participants in a safe space interact in communicative processes. Individual introductions, using ice-breakers and rising awareness on equally heard voices in the beginning can support these. To hear all voices, it is recommended to provide opportunity, take turns and if necessary, step back. Moreover,

language barriers should be overcome by speaking loud enough and more slowly. Participants should listen patiently and try to understand things with other points of view. Generally, listening skill should be improved. Communication should be non-violent, there should be no adverse comments on anyone's inputs, and it should be taken care of each other. This involves asking questions for clarification and finding compromises in case of disagreement. Facilitators should be aware of complexity and monitor and (de)prioritize speakers in a group. It is suggested to take turns for the task of facilitating.

### **3.4. Collaborative learning environments**

Certain attributes of the learning environment can support safe spaces where all voices are heard. In a university setting, spatial on-site settings are likely to be characterized by an auditorium, seminar rooms with group tables, whiteboards and beamer-setting, and the availability of a patio. In these settings, separation should be avoided and face to face communication by sitting in circles should be allowed for. Having smaller groups can be helpful here. Food is recommended as an important material requisite for providing opportunity for connecting to various people. Emotional attributes of learning environments are highlighted. Warm and welcoming atmosphere as well as nice and appropriate arrangements should allow for feelings of inclusiveness and trust and motivate participation. Structural characteristics that contribute to a safe space are having a clear agenda and agreed group rules and be conscious regarding time available for each participant. Suggested formats for interaction involve game activities and online communication. Not only direct personal interaction, but the sharing of publications and websites can contribute to the equal involvement of all members.

## **4. Limitations and Discussion**

### **4.1. Limitation of Methods**

This action research is primarily based upon one intervention and the observation and reflection of it. However, action research typically is a spiral process of *i.)* professional practice, *ii.)* critical reflection to identify problems or identify change, *iii.)* systematic and rigorous enquiry, *iv.)* strategic planning to translate findings into action plan, and *v.)* action to instigate change (Costello 2003). While this spiral process can be flexible and the order of steps can change, it is acknowledged that not all steps are explicitly applied in this work. However, especially the aspects of strategic planning and instigation of action will be crucial in further research and project development.

Even though based on reflections, perception in participant observation and grouping of survey content is highly selective (Breuer et al 2019). It is acknowledged that learning is much more complex than what could be described here, there are more aspects that can be crucial, and that alternative



explanations exist. This work is based to a certain degree on intuition. Following the conceptualization of Reflexive Grounded Theory by Breuer et al. 2019, it is putting confidence into feelings, associations and subjective perception to use the own position within the social world as a tool to generate findings. Thus, it is acknowledged that good “vibes”, happy mood, group feeling, the perception of openness between participants, and the impression of a high degree of empathy for each other have influenced the research process. It is assumed that survey participants were also answering upon intuition. Feedback on the questions suggests that the questions seemed complicated and were not easy to capture for everybody. Probably not all participants are familiar with the concept of safe space, which is why the answers are highly associative, and why both the questions influenced each other. To gain better comprehensibility, the following discussion is based on the literature and selected examples from planning a common participatory research project during the 3<sup>rd</sup> IGD (in the following marked as “IGD participants 2019”, reference: Woiwode & Schneider 2019).

#### **4.2. Collaborative learning participants as stakeholders**

The strong contrast between the formulation of formal and informal roles puts emphasis on the selection of participants. Participatory NRM suggests this selection process should be unbiased to ensure legitimate representation (Emami et al. 2015). Future research can use a role matrix of stakeholders for identifying relevant participants (c.f. Bergold & Thomas 2012, IGD participants 2019). In participatory research projects attention should be put to "invisible" field members. These members either don't receive information about the project or tend to get excluded by other actors. There even might be members who suffer disadvantage because of the project (Bergold & Thomas 2012). This might be tackled by an inclusive approach that addresses diverse language types, knowledge types and articulation types, and by involving stakeholders who are not “natural allies” (IGD participants 2019). While participants have diverse backgrounds, collaborative learning presumes equal status of learners with differences only for the status of the “teacher” (Van Mierlo & Beers 2018). Project implementors as “stewards” of learning could help here (IGD participants 2019).

#### **4.3. From collaborative learning participants to collaborative interaction**

For cooperation and learning, the conception of “power with” assumes that individuals only unfold their power when acting together with others (Partzsch 2017). Thus, building groups is an important aspect of collaboration (Wang et al. 2019). In collaborative learning, interdependence between group members is promoted (Udvari-solner 2012). Social learning contributes to collaboration, when new cooperative relationships and social networks are build (Schusler et al. 2003, Van Mierlo & Beers 2018). In participatory action research, the involvement of participants as co-researchers or research partners is essential (Bergold & Thomas 2012), and forming and stabilizing new relationships is a success factor

in NRM (Shannon 2003). For identification and monitoring of the type of relationship between researchers and other participants, the “Ladder of Citizen Participation” by Arnstein (1969) or the “Five-step model of participation” by Parodi et al. (2017) could be used. “Coaching circles” (IGD participants 2019) might be a format used to build groups. However, it should be considered that there might be a difference in the relationship between members depending on whether they have known each other before or not.

Social reality of groups is constructed by communicating values, attitudes and ideas (Wang et al. 2019). The discovery of values enhances democracy in NRM (Shannon 2006). Defensive attitudes and reasoning can be overcome in exchanges with other practitioners that hold different perspectives (Van Mierlo & Beers 2018). Finding ways to make attitudes and values explicit could enrich research significantly. Thus, effective learning dialogues should create space for debates (Keen & Mahanty 2006). The recommendation to improve the listening skill of participants in the survey as well as the call for skill development (IGD participants 2019) are closely related to this. In prior research, the approach of Global Citizenship Education served as a helpful tool for analysis of mutual learning (Schneider 2019). The approach conceptualizes the combination of knowledge, skills, attitudes and values as competencies and acknowledges that these competencies influence behavior (Schwartz et al. 2016). However, underlying normative aims should be reflected upon carefully by the co-researchers to ensure mutual agreement.

Finding compromises in case of disagreement seems like one of the most important learning processes when aiming for safe space. In collaborative processes interest, values and problem definitions often conflict (Stern & Coleman 2015). More precisely, conflicts can be the consequence of different understandings or misunderstandings within a group, or when individual understandings do not fit a shared endeavour (Van Mierlo & Beers 2018). Participatory research does not aim to create a conflict-free space but instead aims to reveal and discuss them, so they either can be solved or the existence of different positions can be accepted (Bergold & Thomas 2012). Thus, safe communicative spaces need to allow for the confrontation of perspectives (Wicks & Reason 2009). From the perspective of collaborative learning, it is even beneficial to integrate conflicts into the learning process (Van Mierlo & Beers 2018). A way to make conflicting views explicit might be to address anxiety of non-sustainability (IGD participants 2019) and identify different views on it.

#### **4.4. From collaborative interactions to characteristics of the collaborative environment**

One strategy to avoid at least certain kind of conflict is to have procedural justice. In NRM, this means to treat representatives equally and respectfully, in order to empower them to exercise control over the course of a planning process, including decision-making and implementation. The outcomes are

then supposed to be fair, accepted and trusted (Emami et al. 2015). Thus, a fair planning process needs to include legitimate representatives that are actively participating (Shannon 2006, Emami et al. 2015). Taking turns and always sitting in a circle might be basic first steps for identifying strategies for procedural justice.

Involving civil society more actively in research agenda setting is recommended for framing sustainability challenges (Diedrich et al. 2011) while the achievement of a common goal is inherent in collaborative learning (Laal & Laal 2012). Identification of these goals and specifying how to achieve them could be part of project agenda setting. This agenda could then shape the learning environment by providing an explicit context and defining scope boundaries. Setting an agenda could help to identify fair planning processes and in the joint development of procedures (cf. Emami et al. 2015). Having a term plan for long-, medium- and short-term outputs (IGD participants 2019) could support this.

The collective development of procedures can contribute to create a safe environment for trust to emerge. More specific, procedural trust develops when processes/procedures are perceived as legitimate, transparent and/or binding by all actors (Stern & Coleman 2015). NRM that focusses on learning requires to build trust in order to be effective (Keen & Mahanty 2006, Van Mierlo & Beers 2018). Therefore, the emergence of trust in form of new social networks is an outcome (Bergold & Thomas 2012, Van Mierlo & Beers 2018) that might be evaluated by research. However, trust must be allowed to develop, and might need a certain time to be established. The evolvement of closeness, empathy and emotional involvement over time could be used as indicators here (Bergold & Thomas 2012). The role of trust puts emphasis on participants feeling in collaborative learning. Feeling free to share individual perspectives and the feeling of being respected are success factors of both, social learning in NRM (Van Mierlo & Beers 2018) and action research (Wicks & Reason 2009). In the survey, perceptions of welcoming or warm atmosphere, or of the appropriateness of a setting are related to feelings. Having the aim of holistic well-being and creation of sense of belonging (IGD participants 2019) show how important it is to consider the atmosphere in collaborative learning settings. Research might increase collaboration by identifying atmosphere attributes that are beneficial here.

Low-threshold and everyday-life-related formats might be suitable for reaching safe and equal collaborative space. While the survey names game activities, Real World Labs use repair cafés in order to have equal collaboration between scientific actors and practice actors (Parodi et al. 2017). From a perspective that addresses societal sustainability challenges, urban experiments such as community gardens, climate friendly makeovers of streets or green roofs of bus shelters are emerging concepts (Dignum et al. 2020) that could serve as new types of urban commons. Formats such as festivals, local markets, urban gardens or pedestrian-friendly spaces that are related to management of natural resources (IGD participants 2019) could easily relate to every-day life of participants while having a low

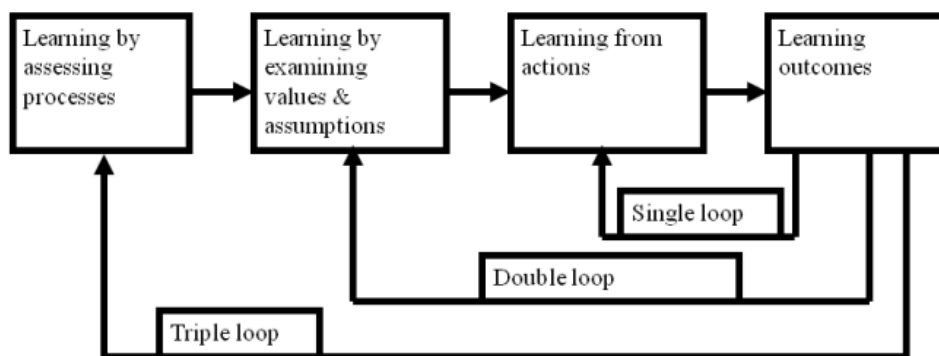
threshold for participation. However, they must fulfill the criteria of visibility, accessibility and addressability that are important for participative formats (Parodi et al. 2017).

A super-lab network of multiple locations, themes and types (IGD participants 2019) could allow for separate locations that are connected at a higher level. The concept of regimes and niches could be helpful here to situate local experiments within a cosmopolitan system (see Van Mierlo & Beers 2018). Online communication and sharing of websites and publications might be crucial here in order to learn from other places. Moreover, diversity of formats is likely to increase participation and actor diversity in general, as each format can address different stakeholder interests (c.f. Bergold & Thomas 2012).

## **5. Conclusion and Recommendations**

By looking at learning from perspectives of participatory research and NRM, this work identified factors for collaborative learning settings that are based on the concepts of safe space and equality. Attributes for collaboration were linked to participants, interactions and environments. Discussion of the findings suggests that legitimate representation and creation of relationships are the most important attributes for participants. Competencies that relate to values, attitudes and skills can connect the participants with their action. Most important aspects of interaction are dealing with conflicts and having fair processes. Processes as well as learning environments need to be characterized by trust. To achieve this, atmosphere, agendas and formats of learning environments are of importance. In a nutshell, a safe and equal collaborative learning setting is constituted of participants which hold competencies that allow to create relationships and to have compromise-based and fair interactions in an environment formed by a trusted agenda. Alternative research formats that are low-threshold and everyday-life related could be suitable as collaborative learning settings. However, further elaboration on possibilities and strategies that ensure access of relevant stakeholders is needed. The discussion highlights the democratic, communicative and social aspects of learning for collaboration. Looking at approaches of participatory governance in sustainability transitions (e.g. Frantzeskaki & Rok 2018) can follow up here. Next to communication in conference settings, practical action and experiences can foster collaborative learning. Prior research on education by gardening (Schneider 2019) can complement this work and help to build a more comprehensive framework on learning. A network of diverse formats and initiatives could provide the conditions for comparing aspects of different collaborative learning settings and to gain deeper insights into collaboration towards sustainable land-use and transition in general. Moreover, it is acknowledged that collaboration is only one aspect of learning in respect to sustainability transitions. Van Mierlo et al. (2020) present learning by incumbents, learning in niche-regime interaction, unlearning, and continuous, superficial learning as key areas here that need further conceptualization and research.

From a methodological point of view, this work proves the usefulness of observation and reflection. With the primary application of these two elements of action research, it was possible to build upon both, the perception of the author [field notes] and the self-disclosure of IGD participant [survey]. Reflecting the findings against the literature helped to find aspects which are necessary for action research which is based on awareness towards social systems. The implementation of a common participatory research project will allow for the application of full action research cycles with additional focus on strategic planning and instigation of actions (c.f. Costello 2003). For this purpose, it is recommended to take up learning and the respective research on it as a multi-layered and iterative process. Building upon application in NRM, Keen and Mahanty (2006, with reference to King and Jiggins 2002) present a conceptualization of learning as a triple loop: single loop learning which generates knowledge from doing, double loop learning which explores the underlying values and assumptions behind our knowledge and learning, and triple loop learning which reflects on the processes by which we have been learning (figure 1). This framework might be useful when looking at learning between participants from a research perspective, which is a learning process by itself.



**Figure 1:** Multi-layered learning in NRM context (Keen & Mahanty 2006).

To solve the problem of selective perception, it is recommended to integrate research participants from diverse societal backgrounds into analysis and evaluation of the data. This will not only allow for increased validity but will also enhance credibility of the project (Emami et al. 2015, Wang et al. 2019). The following questions are based upon the research findings. It is recommended to use them for the identification of suitable formats for participatory research. After implementation of these formats, they can be taken up as evaluative criteria. Moreover, they might be used in order to bring awareness on direct democracy:

- i. Do all stakeholders have the possibility to get involved?
- ii. Which roles and tasks are carried by the project implementors?
- iii. What kind of relationships exist between project members and how do they evolve over time?

- iv. Which competencies enhance collaboration and what is the normative purpose behind them?
- v. How should conflict be handled in order to learn from it?
- vi. Are procedures transparent, fair and accepted?
- vii. Who is involved in planning and agenda setting?
- viii. Which attributes contribute to build an atmosphere which is sensitive to participant's feelings, and specifically, to the development of trust?
- ix. Is the project visible, accessible and addressable?

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## Appendices

### Appendix 1: Survey transcriptions.

Sheet No.	1. What makes up a 'safe space' for exchange?	2. How can all voices be heard equally?
1	understanding and respecting	when all accept a collective goal or a shared vision and committing to the actions against vision in a collaborative environment
1	individual background and integrating into a collective whole - while complementing each other's expertise and capacities	
1	listening, learning and integrating	
2	"Lagom" (from Sweden)	make a good structure for "more silent people" to be heard
2	take appropriately for yourself and keep enough for the others, ? time an other resources	create ? where everybody can talk and all are listening
2	live the we	<u>practice</u> deep listening
2	be respectfull to otherness	concntrate on the actual task (moderate)
2	worship diversity	see Art of Hosting
2		make all of us coaches and moderators over (time?), who take ? Equally
2		create spaces for good communication and collaboration
3	awareness	talk about "equally heard voices" before
3	open minded communication	if necessary: get "talking (times?)" and (watch?) on it
3	face to face communication	take care of each other and be aware of your/other contribution (length)
3	good food :)	
3	nice/appropriate rooms/settings	
4	welcoming space to everyone	giving equal opportunity to everyone
4	mixing groups ( <u>all stakeholders</u> )	bring everybody to the table
4		listen pateintly and understand the things with their point of view
5	use some simple ice-breaker activities at the beginning of group sessions	If anyone is joining online, do a connection test beforehand.
5	always sit in a circle	Session chair needs to monitor and (de)prioritise speakers in a group accordingly.
5	In some environments, spekaing loud enough is an issue. Maybe an ice-breaker could also sere to calibrate how loud we need to speak - e.g. say something to the person furthest away from you.	Game activities can give equal chance for all to participate if the choreography is right, e.g. everyone takes a turn at some point.

**Appendix 1 continued: Survey transcriptions.**

Sheet No.	1. What makes up a 'safe space' for exchange?	2. How can all voices be heard equally?
5	Try to do something fun so that all can laugh a bit together and bond, especially towards the beginning.	Maybe propose some ground rules and edit them with the group.
5	Be aware of different accents - speaking more slowly.	
6		wait for your turn to talk
7.1	male/female/differences don't matter	age/social differences all included in field visits
7.1	enclosed space/university	equal time
7.2	we need <u>time</u> for this; safe space in a diverse group with different backgrounds requires this	always difficult
7.2	ice-breakers can help	some people take more time than others
7.2	rounds, where everybody speaks, can help	but it is better than last time
7.2	smaller groups at times can help	
8	Email exchange groups	discussion forums where everyone is given a chance to share their opinions
8	closed facebook forums	transparent discussions about ongoing projects and funding opportunities related to IGD so everyone knows what is happening so they can decide if possible to get associated
9	building trust	give everyone a fixed time to introduce themselves (at least once at a start of a meeting), possible also at the middle/end of a meeting
9	no hierarchies	have enough tea breaks, shared meals so that everyone can connect to various people
9	making space for "non-academics"	
9	"warm atmosphere"	
10	respect each other, especially when you have different opinions, really listen to other opinions/approaches	respect people who are more introverted, give them possibility to speak, too
10	being open and find compromises if you disagree	if people are more extrovert, step back maybe
10	no language barriers	
10	encouraged to ask questions, when one hasn't understood something fully	
11	Interest	<u>voice out loudly</u>
11	communication	
12	just express whatever you feel - in your own way and language	give each and everyone a chance to express and make them feel inclusive

**Appendix 1 continued: Survey transcriptions.**

Sheet No.	1. What makes up a 'safe space' for exchange?	2. How can all voices be heard equally?
13	There are people with many different backgrounds and experiences. A safe space would be giving an opportunity to all to contribute equally in a non-intimidating environment.	moderators were great this time in ensuring that all voices can be heard equally
13	This workshop has definitely advanced in reaching the 'safe space' goal.	
14	many factors help create safe spaces	design to learn as a learning network
14	non violent communication	some inputs on deep listening
14	comfortable arrangements	consciously learning to listen
14	setting rules of the games clearly	structuring (deliberation?) in a way were everyone feels equal and then have motivation to participate
14	facilitated processes	facilitators should be fully oriented towards dealing with complexity and conflicting views
14	trained facilitators	
14	commitment to deeply democratic values	
15	open mindedness	maybe an anonymous feedback after the conference is over
15	listening skill	
15	opportunity to talk	
15	respect	
15	non judgement	
16	respect	schedule inclusive
16	boundary conditions - core values	everyone sharing orally, publication, website
16	trust building	conscious facilitation
16	introduction by all	suitable to diverse backgrounds/reference
16	agenda clarity (purpose)	freedom of mode-style
16	adequate time	format of expression
16	info support system	note taking - cross checking
16	no adverse comments on anyone's ideas/inputs	
16	follow up - planning	
16	fun activities	
16	compassionate communication	
16	note-sharing/feedback	

## Appendix 2: Comprehensive presentation of findings.

### *i. Participant roles, personal attributes and social relations*

According to Herrmann and Jahnke (2012), the position refers to the formal (e.g. student or moderator) and informal roles (e.g. opinion leader) that an individual holds within a group. Roles are dynamic and can be actively shaped. Because of this reason, each individual can fill the same role in a different way.

Individual participants that took part in the IGD are holding the formal roles of university staff, university students, independent researchers, NGO representatives, consulting representatives, business representatives and governance representatives. During the IGD these formal roles were accompanied by the position which these stakeholders held during the single sessions. These positions include the role of organizers, representatives, keynote-speakers, audience, facilitators, session group members, supporters, guides, and external project representatives (table 1). The session roles were dynamic and changed from session to session.

The formal role of the 'facilitator' was the only one which was described in more detail by the survey participants. Other terms that were used to describe this role were *coach*, *moderator* and *session chair*. However, the only personal attribute named in the survey was *trained*, implying that the respective person should have experiences and training in this responsible task. In fact, participant observation showed that the persons who facilitated sessions had prior experience in participative processes.

Beside the specifications on the facilitator, the survey answers relate to the underlying informal roles which are carried by the *individual person*, by *groups*' and in general by *everybody* (table 2). Some of the named roles can be related to both, to individuals and to groups: *people, who are more silent*, *people, who are more introverted*, *people, who are more extrovert*, and *people with many different backgrounds*. At the same time, they highlight the role of personal characteristics. According to the survey, IGD participants acknowledge that in a *diverse group*, members carry *expertise and capacities* and have their own *point of views, opinions* and *approaches*. In reference to *individual, diverse and different backgrounds, experiences* and *reference*, they suggest to be *aware, open-minded, respect* each other, *especially when having different opinions*, be *compassionate*, *don't judge*, and *don't let male/female differences matter*. Space should be made for *non-academics*, *diverse age groups* and persons with *social differendes*. Everybody should be able to express themselves in *their own way and language*, while *accepting a collective goal or a shared vision*. This requires a commitment to *deeply democratic values* and the *avoidance of hierachies*. Finally, this will allow for appreciation of the group

by *living the we* and *worshipping diversity*. This way it is possible to *complement each other's expertise and capacities* and to *learn as a learning network*.

**Table 1:** Stakeholder roles and group formation related to IGS sessions.

<b>session</b>	<b>role</b>	<b>groups</b>
opening session	representatives	none, separation
	keynote-speakers	
	audience	
sharing and listening sessions	facilitators	three session groups
	session members	
	virtual participant	
	supporters	non-participants
plenary sessions	IGD participants	plenary participants
	organizer	
	facilitator	
field visits	organizer group	field visit participants
	IGD participants	field project participants
	resource persons/guides	
	students, community members	
world café session	main facilitator	project planning group
	group facilitators	
	group members	
public event	faculty students	visitors
	IGD participants	presenters
	external NGO representatives	
	IGD NGO representatives and academics	

**Table 2:** Grouped informal roles named in the survey.

<b>individual</b>	<b>group</b>	<b>everyone</b>
individual, one	group	everybody
you, yourself, your	(varous) people	anyone
face, voice	the we	all
male/female	each other, others	each
facilitator, coach, moderator, session chair	learning-network	collective whole
person		
stakeholder		
speaker		

The IGD sturcturally made use of participant's experiences by having a scheduled 'sharing and listening' session to draw explicitly on participants experiences to get insights in the Indian and German contexts

of transdisciplinarity. Next to this scheduled session, an informal discussion helped to grasp the importance of individual personal attributes.

*“After conducting my survey, one of the female participants from Germany told me in a personal conversation that she did not understand why I was asking these questions. She didn’t feel that it was necessary to raise awareness on these issues within our group. While talking, another female participant from India joined us. She was agreeing with the other woman. I realized that for both of them, their gender didn’t seem to affect how they felt or acted within the group. While I can only assume the reasons for this, it aroused my interest. Therefore my focus was shifted from gender or nationality to more individual attributes.”* – field memo

While holding formal as well as informal roles, the IGD participants formed new groups throughout the course of the dialogue (table 1). Member composition was different for each of the sessions that were conducted in smaller groups. *Mixing groups* was also suggested by a survey member to create safe space for exchange. The importance of building groups was highlighted especially during the last day of the IGD:

*“First, we had a feedback round, where one of the participants suggested that we should plan for team-building activities in the next dialogue. I suppose she felt that we were growing together as a group and wished to strengthen the bonds between each other. Her suggestion was welcomed by other members. Shortly after the feedback round we had a world café session with the aim to plan a common research project. Everybody seemed very concentrated and during coding I labeled all the involved members to be in the ‘project planning group’.”* – field memo (cf. table 1)

Such group building is influenced by interactive processes. The next section will elaborate on respective IGD processes and their attributes.

## *ii. Activities, expectations and process attributes*

The processes of forming groups and collaborating require interaction between participants that form a group. Within the group, members perform activities. These activities might be seen as tasks of a specific role (Herrmann & Jahnke 2012). According to the participant observation, IGD participants are involved in communicative activities. However, due to the complexity of actions and interactions, it was not possible to record all the activities by the participants in detail. However, listening, talking, introducing, presenting, asking, giving feedback, sharing opinions and ideas, engaging in dialogue and conversations, clarifying and discussing are some of the activities which were popping up in the field

memos. The declaration of the conference meeting as ‘dialogue’ and its objective to identify mutual perspectives (Woiwode & Schneider 2019) will be taken up here as a verification for the happening of communicative interaction.

Next to actual recorded tasks, activities can be described by expectations. These expectations reflect what people expect a role holder to do or not to do (Herrmann & Jahnke 2012). The survey answers are an expression of these expectations. The questions of the survey specifically aimed at ‘exchange’ and ‘voices’, thus the answers relate very strongly to communicative aspects. There are some specifications on what should happen at the *beginning* of group communication. These comprise *introduction* of everybody, *talking about equally heard voices* and create fun situations, for example by using *ice-breakers*, *were all can laugh a bit together and bond*. Survey answers on communicative processes involve mainly *talking and speaking* on the one side and *listening* on the other side. The activities are characterized by how participants shape them and thus hold certain process attributes or characteristics. All participants, including more introverted, should have an *opportunity to talk* but *wait for their turn* to do so. More specific, speakers should be *aware of the length of their contribution* and *step back if they are more extrovert*. There should be *rounds, where everybody speaks*. In order to understand everybody despite *different accents*, *speaking more slowly* is suggested. It is also considered that *in some environments, speaking loud enough is an issue*. *Calibrating of how loud to speak* is proposed. In case of disagreement, *finding compromises* is recommended. *Deep listening* should be practiced, which includes to *listen patiently and try to understand the things with other points of view*. The *listening skill* should be improved by *consciously learning to listen* and having *inputs on deep listening*. *Listening* should go together with *learning and integrating*. Accordingly, participants should be *encouraged to ask questions, when they don’t understand something fully*. Communication should be *non-violent*, there should be *no adverse comments on anyone’s ideas/inputs* and it should be *taken care of each other*. One remarkable example of taking care of each other whilst communication was happening during one of the field visits:

*“We were visiting an informal settlement, where painting of houses was done as a place-making activity in order to raise awareness on waste. We were invited to the local community learning center. There, local community members answered the questions of IGD participants. To overcome language barriers and provide transparency, one IGD participants asked to not only translate the community members answers to IGD participants, but also discussions of IGD members to the locals. This impressed me strongly, as the involved persons are not even members of the IGD group. Thus, I felt that involving all voices was something not only on my agenda but that at least some participants must share the same approach.”* – field memo



Survey answers go into detail on the tasks of facilitators. They should *consciously facilitate* the communication process and *concentrate on the actual task*. Facilitators should be fully oriented towards dealing with complexity and conflicting views, and monitor and (de)prioritise speakers in a group. Despite *freedom of the mode-style* is recommended, they carry responsibility for the communication process. To avoid the accumulation of such responsibility, it is suggested to *make all group members coaches and moderators over time, who take turns equally*.

iii. *Spatial, emotional and structural attributes of learning environments*

The beforementioned interactive processes happen in learning environments. Certain setting attributes in these environments impact the learners and interactions between them and with that the learning processes. The following attributes can be characterized as spatial, material, emotional and structural.

**Table 3:** Format of activity and respective settings during the 3<sup>rd</sup> IGD.

<b>format of activity</b>	<b>setting</b>
opening session (public)	auditorium
parallel sharing and listening sessions	group table, whiteboard
several plenary sessions	chair circle, group tables, beamer setting
field visits (semi-public)	project sites, guided tours
world café session	group tables, beamer setting
public event (parallel activities, public)	faculty patio, stalls, seminar rooms, auditorium
tea breaks and shared meals	restaurants, catering space in patio

Day one and three of the dialogue took place in a university setting. Here, the spatial on-site conditions were characterized by an auditorium, seminar rooms with group tables, whiteboards and beamer-setting, and by a patio (table 3). The degree of interaction which was allowed by these settings was very different, although the spatial setting was reflected upon from the beginning on:

*“The opening session was happening in the faculty’s auditorium. There, representatives and keynote-speakers were placed on a well-lit stage while the audience was sitting down in the dark. One of the keynote-speakers reflected on this situation by calling it “very separated”. For other settings, this changed a lot. To have ‘sharing and listening sessions’ and while conducting the ‘world café’, participants divided themselves into three smaller groups each. The members of each group*

*were then sitting together around group tables. Having smaller groups and being able to see each other helped for integration of participants. I could observe that in these setting, all the group members contributed. The circular setting was also preferred for the plenary sessions.”* – field memo

Later in the survey, participants stated that having *smaller groups* and *face to face communication*, as well as *bringing everybody to the table* and then *always sit in a circle* can help to create safe space.

Beside spatial settings in scheduled and content-related sessions, the availability of catering and resource of food as a material requisite turned out to be of value for participant interaction during the IGD:

*“During the meals it seemed to me like all participants took the opportunity to engage in dialogues and conversations either in pairs or groups.”* – field memo

The survey answers supported this. For having a safe space, *good food* was named. More specifically, to *have enough tea breaks, shared meals so that everyone can connect to various people* contributes for hearing all voices.

In contrast to the spatial and material aspects, the survey answers build strongly on emotional attributes, and more specific, the perception of learning environments and the associated feelings. According to survey members, these environments should have a *warm* and *welcoming atmosphere* by being *non-intimidating* and providing structural *opportunity* to integrate all participants. This includes to have *no language barriers* and to *give each and everyone a chance to express and make them feel inclusive by building trust*. Accordingly, *spaces, rooms, settings* and *arrangements* should be *nice* and *appropriate*. The perception of the learning environment seems to be very important, as such environments should *motivate* participation. In a more structural approach, survey members suggest having *agenda clarity* and to *set rules of the game clearly* by proposing *ground rules and edit them with the group*. They also acknowledge that *time* is required to create safe space in a *diverse group*. The amount of time available for everybody should be *adequate* and *equal*, for example by having *fixed time* for introduction. This can be accomplished by *taking an appropriate amount of time for yourself and keep enough for the others*.

Other formats of interaction were suggested by participants. These include *game activities*, such as *ice-breakers* and online communication. *Closed facebook forums*, and *email exchange groups* were suggested to create safe spaces. Not only direct personal interaction, but the sharing of *publications and websites* can contribute to the equal involvement of all members.

